IN THE MATTER OF

LADZIN NOVELTY CO., INC., ET AL.

CONSENT ORDER, ETC., IN REGARD TO THE ALLEGED VIOLATION OF THE FEDERAL TRADE COMMISSION AND THE FLAMMABLE FABRICS ACTS

Docket C-2412. Complaint, June 4, 1973—Decision, June 4, 1973.

Consent order prohibiting a New York City manufacturer and distributor of feather fabrics from marketing products which fail to conform to an applicable standard of flammability or regulation established, amended, or continued in effect pursuant to the provsisions of the Flammable Fabrics Act, as amended.

COMPLAINT

Pursuant to the provisions of the Federal Trade Commission Act, and by virtue of the authority vested in it by said Act, the Federal Trade Commission, having reason to believe that Ladzin Novelty Co., Inc., a corporation, and Seymour Ladzin, individually and as an officer of said corporation, hereinafter referred to as respondents, have violated the provisions of said Act, and it appearing to the Commission that a proceeding by it in respect thereof would be in the public interest, hereby issues its complaint stating its charges in that respect as follows:

PARAGRAPH 1. Respondent Ladzin Novelty Co., Inc., is a corporation organized, existing and doing business under and by virtue of the laws of the State of New York, with its office and principal place of business located at 30 West 36th Street, New York, New York.

Respondent Seymour Ladzin is an officer of said corporation. He formulates, directs and controls the policies, acts and practices of said corporation, and his office and principal place of business is the same as that of said corporation.

PAR. 2. Respondents are now and for some time last past have been engaged in the manufacture and distribution of feather fabrics. The aforesaid products are shipped or delivered from respondents' place of business in the State of New York to respondents'

customers located in various other States of the United States. Respondents maintain, and have maintained a substantial course of trade in said products in commerce, as "commerce" is defined in the Federal Trade Commission Act.

PAR. 3. Respondents in the course and conduct of their business as aforesaid have imported and distributed in commerce feather fabrics which, because of their composition and the nature of their construction, are easily ignited, burn with great rapidity and intensity and are not readily extinguishable. Said feather fabrics are classified as "Rapid and intense burning, Class 3" when tested in the manner prescribed by Commercial Standard 191–53 (Flammability of Clothing Textiles) promulgated by the Secretary of Commerce effective January 30, 1954, except that the position of the stop cord described in Paragraph 4.2.7 of the standard is modified by raising said stop cord 1.5 centimeters above the top of the thread guides used in testing under Commercial Standard 191–53. Such feather fabrics are, therefore, dangerously flammable and unsafe for ordinary use. The sale and distribution of such product, which exposes purchasers to a substantial risk of serious bodily injury, constitutes an unfair trade practice.

PAR. 4. The aforesaid acts and practices of respondents as herein alleged were and are to the prejudice and injury of the public and constitute unfair and deceptive acts and practices in commerce within the intent and meaning of the Federal Trade Commission Act.

DECISION AND ORDER

The Federal Trade Commission having initiated an investigation of certain ats and practices of the respondents named in the caption hereof, and the respondents having been furnished thereafter with a copy of a draft of complaint which the Division of Textiles and Furs proposed to present to the Commission for its consideration and which, if issued by the Commission, would charge respondents with violation of the Federal Trade Commission Act, and the Flammable Fabrics Act, as amended; and

The respondents and counsel for the Commission having thereafter executed an agreement containing a consent order, an admission by the respondents of all the jurisdictional facts set forth in the aforesaid draft of complaint, a statement that the signing of said agreement is for settlement purposes only and does not constitute an admission by respondents that the law has been violated

as alleged in such complaint, and waivers and other provisions as required by the Commission's rules; and

The Commission having thereafter considered the matter and having determined that it had reason to believe that the respondents have violated the said Acts, and that complaint should issue stating its charges in that respect, and having thereupon accepted the executed consent agreement and placed such agreement on the public record for a period of thirty (30) days, now in further conformity with the procedure prescribed in Section 2.34(b) of its rules, the Commission hereby issues its complaint, makes the following jurisdictional findings, and enters the following order:

1. Respondent Ladzin Novelty Co., Inc., is a corporation organized, existing and doing business under and by virtue of the laws of the State of New York.

Respondent Seymour Ladzin is an officer of said corporation. He formulates, directs and controls the policies, acts and practices of said corporation.

Respondents are engaged in the manufacture and sale of feather trimmed wearing apparel and feather fabrics, with the office and principal place of business of respondents located at 30 West 36th Street, New York, New York.

2. The Federal Trade Commission has jurisdiction of the subject matter of this proceeding and of the respondents, and the proceeding is in the public interest.

ORDER

It is ordered, That respondent Ladzin Novelty Co., Inc., a corporation, its successors and assigns and its officers, and Seymour Ladzin, individually and as an officer of said corporation, and respondents' agents, representatives and employees directly or through any corporation, subsidiary, division or other device, do forthwith cease and desist from the importation, manufacture for sale, sale, offering for sale, shipment, distribution, transportation, or causing to be transported of feather fabrics or any other similar feather products of a highly flammable nature, in commerce, as "commerce" is defined in the Federal Trade Commission Act, unless such feather fabrics or other similar feather products conform to the Commercial Standard promulgated by the Secretary of Commerce effective January 30, 1954, and identified as "Flammability of Clothing Textiles, Commercial Standard 191–53" when tested under the conditions and in the manner

prescribed by such standard except that the position of the stop cord described in Paragraph 4.2.7 of the standard shall be modified by raising said stop cord 1.5 centimeters above the top of the thread guides used in tests under Commercial Standard 191–53. In the event, however, that respondents import, manufacture for sale, sell, offer for sale, ship, distribute, transport or cause to be transported any product subject to an applicable standard of flammability established, amended, or continued in effect pursuant to the provisions of the Flammable Fabrics Act, as amended, said products must conform to the said applicable standard rather than Commercial Standard 191–53 as modified.

It is further ordered, That respondents notify all of their customers who have purchased or to whom have been delivered the products which gave rise to this complaint, of the flammable nature of said products and effect the recall of said products from such customers.

It is further ordered, That the respondents herein either process the products which gave rise to the complaint so as to bring them into conformance with the first paragraph of this order, or destroy said products.

It is further ordered, That respondents herein shall, within ten (10) days after service upon them of this order, file with the Commission a special report in writing setting forth the respondents' intentions as to compliance with this order. This special report shall also advise the Commission fully and specifically concerning (1) the identity of the products which gave rise to the complaint, (2) the identity of the purchasers of said products, (3) the amount of said products on hand and in the channels of commerce, (4) any action taken and any further actions proposed to be taken to notify customers of the flammability of said products and effect the recall of said products from customers, and of the results thereof, (5) any disposition of said products since April, 1970, and (6) any action taken or proposed to be taken to bring said products into conformance with the first paragraph of this order, or to destroy said products, and the results of such action. Respondents will submit with their report samples of not less than six feet in length of each color and style of their current inventory of feather fabrics.

It is further ordered, That respondents notify the Commission at least 30 days prior to any proposed change in the corporate respondent such as dissolution, assignment or sale resulting in the emergence of a successor corporation, the creation or dissolution

of subsidiaries or any other change in the corporation which may effect compliance obligations arising out of the order.

It is further ordered, That the individual respondent named herein promptly notify the Commission of the discontinuance of his present business or employment and of his affiliation with a new business or employment. Such notice shall include respondent's current business or employment in which he is engaged as well as a description of his duties and responsibilities.

It is further ordered, That the respondent corporation shall forthwith distribute a copy of this order to each of its operating divisions.

It is further ordered, That the respondents herein shall within sixty (60) days after service upon them of this order, file with the Commission a report in writing setting forth in detail the manner and form in which they have complied with this order.

IN THE MATTER OF

GREAT LAKES CARBON CORPORATION, ET AL.

ORDER, OPINION, ETC., IN REGARD TO THE ALLEGED VIOLATION OF THE FEDERAL TRADE COMMISSION ACT

Docket 8805. Complaint, November 26, 1969—Decision, June 5, 1973.

Order and opinion requiring the nation's dominant processor and reseller of industrial quality petroleum coke headquartered in New York City, and eight refinery producers, among other things to execute amendments to existing long-term full-output contracts and in future contracts to limit the duration of the contracts to three years, and where new coking plants and more than 50 percent of production are involved to limit the contracts to five years or less. The order terminates and ceases to be effective twenty years from the date of entry.

COMPLAINT

Pursuant to the provisions of the Federal Trade Commission Act, and by virtue of the authority vested in it by said Act, the Federal Trade Commission, having reason to believe that the parties named in the caption hereof have violated the provisions of Section 5 of the Federal Trade Commission Act, and it appearing to the Commission that a proceeding by it in respect thereof would be in the public interest, hereby issues its complaint, stating its charges in this respect as follows:

Definitions: The following words and terms, as used hereinafter in the complaint and order, are defined as follows:

"Refinery producers" are corporations engaged in refining oil with petroleum coking facilities and thus also engaged in the production and/or sale of green industrial quality petroleum coke.

"Green industrial quality petroleum coke" is a solid porous residue resulting from the distillation of hydrocarbon oils. It is produced by the delayed coking process and in physical size may vary from a grain-like particle to a block several feet in length. A typical green industrial quality petroleum coke will contain approximately 82 percent to 92 percent carbon, 6 percent to 14 percent of volatile matter, less than 2 percent sulphur, and lesser amounts of other impurities with vanadium generally being the most significant of the other impurities. Green industrial quality petroleum coke is sometimes referred to in the industry as "low sulphur raw delayed" petroleum coke. Some delayed petroleum cokes containing slightly higher amounts of sulphur, up to approximately 2.8 percent, have been used interchangeably or in mixture with the lower sulphur content cokes for some uses, and this slightly higher sulphur content delayed petroleum coke is included in the relevant product.

"Calcined industrial quality petroleum coke" is a green industrial quality petroleum coke that has been heated to a high temperature in a calciner with the heat driving off most of the volatile matter in the green industrial quality petroleum coke. A typical calcined industrial quality petroleum coke will contain approximately 98 percent carbon, less than .5 percent volatile matter, less than 2 percent sulphur, and lesser amounts of other impurities with vanadium generally being the most significant of the other impurities.

"Industrial quality petroleum coke" refers to both green and calcined industrial quality petroleum coke. Industrial quality petroleum coke is primarily a raw material source of carbon for industrial purposes; its applications are many and varied and it may be utilized in either a green or calcined state. For several uses industrial quality petroleum coke is a necessary and critical raw material in that no present and commercially feasible alternative or substitute product exists. Significant uses of industrial quality petroleum coke are in the aluminum, calcium carbide, silicon carbide, metallurgical and the carbon-graphite products industries.

"West Coast" when used to identify a relevant market area

refers to the green industrial quality petroleum coke produced and sold by refinery producers in the State of California.

"Gulf Coast" when used to identify a relevant market area refers to the green industrial quality petroleum coke produced and sold by refinery producers in the States of Texas and Louisiana and who are located within reasonable proximity to export facilities.

PARAGRAPH 1. Respondent Great Lakes Carbon Corporation is a corporation organized and existing under the laws of the State of Delaware with its principal office and place of business located at 299 Park Avenue, New York, New York, and will hereinafter be referred to as Great Lakes Carbon.

Respondent American Oil Company is a corporation organized and existing under the laws of the State of Maryland with its principal office and place of business located at 910 South Michigan Avenue, Chicago, Illinois.

Respondent Colorado Oil and Gas Corporation is a corporation organized and existing under the laws of the State of Delaware with its principal office and place of business located at 102 East Pikes Peak Avenue, Denver, Colorado.

Respondent Continental Oil Company is a corporation organized and existing under the laws of the State of Delaware with its principal office and place of business located at 30 Rockefeller Plaza, New York, New York.

Respondent CRA, Inc., is a corporation organized and existing under the laws of the State of Kansas with its principal office and place of business located at 3315 North Oak Trafficway, Kansas City, Missouri.

Respondent Mobil Oil Corporation is a corporation organized and existing under the laws of the State of New York with its principal office and place of business located at 150 East 42nd Street, New York, New York.

Respondent Sun Oil Company is a corporation organized and existing under the laws of the State of New Jersey with its principal office and place of business located at 1608 Walnut Street, Philadelphia, Pennsylvania. Sun Oil Company is the surviving corporation of a merger with Sunray DX Oil Company and Sun Oil Company has assumed the assets and liabilities of Sunray DX Oil Company, which is now operated as a division of Sun Oil Company.

Respondent Suntide Refining Company, a wholly-owned subsidiary of respondent Sun Oil Company, is a corporation organized

and existing under the laws of the State of Delaware with its principal office and place of business located in Corpus Christi, Texas. Suntide Refining Company was recently acquired by Sun Oil Company in the merger with Sunray DX Oil Company.

Respondent Texaco, Inc., is a corporation organized and existing under the laws of the State of Delaware with its principal office and place of business located at 135 West 42nd Street, New York, New York.

The above named respondents, with the exception of respondent Great Lakes Carbon Corporation, shall sometimes hereinafter be referred to as "respondent refinery producers."

PAR. 2. Respondent Great Lakes Carbon has been and is now engaged in the business of purchasing and selling green industrial quality petroleum coke, processing and selling calcined industrial quality petroleum coke, and manufacturing and selling products containing industrial quality petroleum coke. Great Lakes Carbon is the largest purchaser of green industrial quality petroleum coke produced in the United States and the largest seller of green and/or calcined industrial quality petroleum coke produced and processed in the United States. Respondent Great Lakes Carbon's total annual sales of industrial quality petroleum coke during 1965 was approximately $40,000,000.

Respondent refinery producers have been and are now engaged in the production and/or sale of green industrial quality petroleum coke.

PAR. 3. Respondent refinery producers and respondent Great Lakes Carbon cause the green industrial quality petroleum coke, when purchased and sold, to be transported from the refinery producing the green industrial quality petroleum coke to purchasers or locations throughout the United States and to foreign nations. Respondent Great Lakes Carbon causes the calcined industrial quality petroleum coke to be transported from the processing plant to purchasers or locations throughout the United States and to foreign nations. Respondent Great Lakes Carbon and respondent refinery producers have been and are now engaged in "commerce" as that term is defined in the Federal Trade Commission Act.

PAR. 4. Respondents are engaged in competition in interstate and foreign commerce with others also engaged in the purchase and/or sale of green industrial quality petroleum coke and respondent Great Lakes Carbon is engaged in competition in interstate and foreign commerce with others also engaged in the processing

and/or sale of calcined industrial quality petroleum coke except insofar as such actual or potential competition has been restrained, suppressed, eliminated or foreclosed by the unfair acts and practices or unfair methods of competition as hereinafter alleged.

PAR. 5. The United States is a leading world producer of green industrial quality petroleum coke. During 1965, twenty (20) corporations operating thirty-two (32) refineries in the United States produced and sold approximately 3.6 million net tons of green industrial quality petroleum coke. This amount constitutes the total national production of green industrial quality petroleum coke. Total sales by the refinery producers of this product was approximately $40,000,000. Industrial quality petroleum coke is initially sold by the refinery producers; it may be sold directly to the ultimate user or for resale as green or calcined industrial quality petroleum coke. Some industrial quality petroleum coke is sold directly by the refinery producers to the ultimate user under long term exclusive or semi-exclusive contracts, thus creating a captive and non-competitive market. However, substantial sales of industrial quality petroleum coke are made by firms engaged in the marketing of industrial quality petroleum coke and by refinery producers that are not committed to sell their production under a long term exclusive basis. During 1965 sales in these competitive markets included approximately 950,000 net tons of green industrial quality petroleum coke valued at approximately $20 million and approximately 1,300,000 net tons of calcined industrial quality petroleum coke valued at approximately $40 million.

PAR. 6. Commencing sometime in the past and at least since the year 1946 and continuing to the present, respondent Great Lakes Carbon has entered into long term contracts with refinery producers whereby each refinery producer has agreed to sell and respondent Great Lakes Carbon has agreed to purchase all or substantially all of the production of green industrial quality petroleum coke produced at designated refineries in the United States. The initial terms of these contracts have varied from seven (7) to twenty (20) years. All contracts which have been amended, extended or renewed continue the basic requirement that the refinery producers sell and respondent Great Lakes Carbon purchase all or substantially all of the production of green industrial quality petroleum coke produced at the designated refineries for a specified number of years, the minimum length of time being five (5) years.

PAR. 7. During the years 1964 and 1965, respondent Great Lakes Carbon had long term contracts requiring nine (9) corporations operating thirteen (13) refineries to sell and respondent Great Lakes Carbon to purchase all or substantially all of the production of green industrial quality petroleum coke produced by the following refinery producers at the designated refineries:

(a) American Oil Company, Texas City, Texas;
(b) Colorado Oil and Gas Corporation, Wichita, Kansas;
(c) Continental Oil Company, Ponca City, Oklahoma;
(d) CRA, Inc., Coffeyville, Kansas;
(e) Mobil Oil Company, Beaumont, Texas;
(f) Mobil Oil Company, Torrance, California;
(g) National Cooperative Refinery Association, McPherson, Kansas;
(h) Sunray DX Oil Company, West Tulsa, Oklahoma;
(i) Suntide Refining Company, Corpus Christi, Texas;
(j) Texaco, Inc., Amarillo, Texas;
(k) Texaco, Inc., Casper, Wyoming;
(l) Texaco, Inc., Lockport, Illinois; and
(m) Texaco, Inc., Port Arthur, Texas.

These contracts have been and will continue, with one exception, to be in effect for substantial periods of time. The earliest expiration date of any contract presently in effect is in 1969, most contracts will expire during the 1970's, and one contract does not expire until 1980.

PAR. 8. Pursuant to the above specified contracts during the years 1964 and 1965, the identified refinery producers sold and respondent Great Lakes Carbon purchased all or substantially all of the green industrial quality petroleum coke produced and sold by each of the refinery producers at the designated refineries. During each of these years the refinery producers sold and respondent Great Lakes Carbon purchased approximately 1.6 million net tons. This significant amount constitutes approximately 46 percent of the total sales of this product by all of the refinery producers in the United States during each year. In two geographical areas in the United States, the refinery producers in these areas produced and sold and respondent Great Lakes Carbon purchased a greater percentage of the total sales. In the Gulf Coast area, four of the identified refinery producers sold and respondent Great Lakes Carbon purchased approximately 50 percent of the total sales of this product produced by all refinery producers; in the West Coast

area, one refinery producer sold and respondent Great Lakes Carbon purchased approximately 70 percent of the total sales of this product produced by all refinery producers.

PAR. 9. In addition to the above specified contracts in effect during 1964 and 1965, respondent Great Lakes Carbon Corporation has since that time entered into three (3) similar contracts with refinery producers who are now or soon will be producing green industrial quality petroleum coke. Respondent Great Lakes Carbon Corporation has contracted for the purchase of the full production of Sinclair Oil Corporation's planned production of green industrial quality petroleum coke at the Houston, Texas, refinery and has contracted to market Texaco's Los Angeles, California and Standard Oil of California's El Segundo, California production of green industrial quality petroleum coke on an exclusive sales agency basis. These contracts also will be in effect for substantial periods of time. During the years 1966 through 1969 respondent Great Lakes Carbon Corporation will also purchase Champlin Oil's Enid, Oklahoma production of green industrial quality petroleum coke.

PAR. 10. The tendency and effect of the above specified contracts and the acts and practices by the respondents pursuant to the contracts, at the refinery producer level, have been and will be to continue to unlawfully restrain, suppress and eliminate competition in the sale and purchase of green industrial quality petroleum coke and to foreclose and continue to foreclose competitors and potential competitors of respondent Great Lakes Carbon from a substantial share of the green industrial quality petroleum coke produced and sold by all of the refinery producers in the United States and in the Gulf Coast and West Coast areas of the United States.

A further effect, at the sales market level, has been and will be to continue to unlawfully restrain, suppress and eliminate competition in, and to unlawfully foreclose and continue to foreclose competitors and potential competitors of respondent Great Lakes Carbon from the resale and distribution of green and/or calcined industrial quality petroleum coke, including the following economically significant sales markets:

(a) Domestic Sales Market;

(b) Exports to Europe;

(c) Exports to Japan; and in relevant sub-markets thereof. In each of the above sales markets and sub-markets respondent Great Lakes Carbon is the largest seller of green and/or calcined

industrial quality petroleum coke. Respondent Great Lakes Carbon's share of the total sales of industrial quality petroleum coke in most of the above sales markets and sub-markets varied from approximately 60 percent to 95 percent.

PAR. 11. In addition, other refinery producers and purchasers of green industrial quality petroleum coke have also entered into substantially similar contracts or substantially similar practices and courses of conduct. During 1964 and 1965, approximately 95 percent of the total sales and 100 percent of the sales by the refinery producers in the Gulf Coast and West Coast areas, were sold pursuant to long term contracts or substantially similar contracts, practices and courses of conduct which require the refinery producer to sell and the purchaser to buy all or substantially all of the green industrial quality petroleum coke produced and sold at designated refineries. This industry-wide practice aggravates the above stated effects of respondents' contracts.

PAR. 12. The above specified contracts and the acts and practices pursuant to the contracts by respondents are unreasonable restraints of trade and constitute unfair acts and practices or unfair methods of competition in violation of Section 5 of the Federal Trade Commission Act.

Mr. John R. Ferguson, Mr. Nicholas J. Dugovich, Mr. Robert B. Lee and *Mr. Michael E. Friedlander* supporting the complaint.

Mr. Herbert A. Bergson, Mr. James H. Kelley, Mr. Leonard A. Tokus, and *Mr. J. B. Donovan,* attorneys for Great Lakes Carbon Corporation, Wash., D.C.

Mr. Andrew J. Kilcarr, Washington, D.C. and *Mr. Charles F. Rice, Mr. J. Arthur Kelley, Mr. James R. Withrow, Jr.,* New York, for Mobil Oil Company.

Mr. M. J. Keating, Mr. Maurice R. Glover, Chicago, Illinois for American Oil Company.

Mr. Charles M. McDermott, Colorado Springs, Colorado for Colorado Oil and Gas Corporation.

Mr. Sparrell Harvey McAtee, Houston, Texas for Continental Oil Company.

Mr. Robert J. Gowdy and *Mr. Ralph Hoke,* Kansas City, Missouri for CRA, Inc.

Mr. John A. Ladner, Jr., Philadelphia, Pennsylvania for Sun Oil Company and Suntide Refining Company.

Mr. William Tousely Smith and *Mr. Robert F. McGinnis*, New York, New York for Texaco, Inc.

INITIAL DECISION * BY EDGAR BUTTLE, HEARING EXAMINER

October 29, 1971

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* Reported as corrected by order of the hearing examiner dated November 29, 1971.

THE PROCEEDINGS

The complaint in this proceeding charges a violation of Section 5 of the Federal Trade Commission Act and challenges certain "long-term" contracts, *i.e.*, alleged to be initial terms of seven (7) to twenty (20) years and renewal terms of at least five (5) years, whereby Great Lakes Carbon Corporation (hereinafter "Great Lakes") has agreed to purchase the petroleum coke output of each of 13 refineries designated in the complaint and operated by the respondent "refinery-producers." It is alleged that each of these contracts, as well as three others which Great Lakes entered into with three non-respondent refiners, are unreasonable restraints of trade in violation of the Federal Trade Commission Act due to:

> the contracts' alleged tendency and effect to unlawfully restrain, suppress and eliminate competition in the sale and purchase of green "industrial quality" petroleum coke and to foreclose competitors and potential competitors from a substantial share of refinery production of such petroleum coke (C. par. 10);
>
> an alleged aggravation of the effects of respondents' contracts because of an "industry-wide" utilization of "substantially similar" contracts by non-respondent refiners and purchasers[1] (C. par. 11).

The respondents have denied the substantive charges of the complaint[2] and have averred that the contracts in issue are not unreasonable or unfair; are necessary in view of the nature of the product and the petroleum coke business; and are affirmatively procompetitive. Respondent Great Lakes also asserts affirmative defenses based upon the outdated and unrepresentative nature of the evidentiary data; arbitrary and (the) inequitable action by

[1] The other refiners and purchasers have not been charged with violations of the Federal Trade Commission Act in this or any other proceeding.

[2] The respondent refiners also deny the interstate commerce allegations of the complaint.

the Commission; and the allegation that the proposed relief is inimical to the public interest in preserving a viable, independent petroleum coke business.

In the course of prehearing proceedings between February 26, 1970, and January 25, 1971, which were regulated by the issuance of prehearing orders on the transcript of ten prehearing conferences, issues for trial were narrowed. Statements and counterstatements of the issues were filed prior to the trial. No issues with respect to combination, conspiracy, monopolization or divestiture were alleged or litigated (PHC Tr. 601–2; Tr. 14–16, 155–157).

Presentation of the case-in-chief commenced in New York City on January 26, 1971, moved to Washington, D.C. on February 22, 1971 and concluded on February 25, 1971. In accordance with the trial schedule established during the prehearing proceedings, the trial was recessed; interim conferences were held on March 20 and April 17, 1971; each of the respondents served complaint counsel with documents, witness lists, allocations of evidence, trial briefs, and other materials of substantially the same nature as that provided by complaint counsel prior to its case.

Presentation of the respondents' case commenced on May 4, 1971, with a view of coke production and handling at Mobil's Beaumont, Texas refinery, together with testimony by Mobil employees. The parties viewed the petroleum coke storage, handling and calcining operations at Great Lakes' Port Arthur, Texas plant on May 5, 1971, and its research laboratories located at Elizabethton, Tennessee on May 7, 1971. Testimony was heard from Great Lakes' employees at both places. Complaint counsel were accompanied by expert consultants on these views and hearings. The balance of the trial was held in Washington, D. C. Both parties rested on June 11, following presentation of complaint counsel's case in rebuttal.

Transcripts of testimony total over 5,313 pages, and exhibits number over 1,400 documents. Thirty-three witnesses were called by complaint counsel during 25 days of hearings. Collectively, respondents called 15 witnesses during 11 days of hearings. In accordance with the Commission's approval of the hearing examiner's post-trial schedule, complaint counsel were granted until July 29, 1971, to file proposed findings of fact and conclusions of law, with findings by respondents due August 31, 1971, and replies by the parties to the proposed findings to be filed September 13, 1971.

The hearing examiner has carefully considered the proposed findings of fact and conclusions submitted by complaint counsel and counsel for respondents and such proposed findings and conclusions if not herein adopted, either in the form proposed or in substance, are rejected as not supported by the record or as involving immaterial matters.

FINDINGS OF FACT

A. Description of Respondents

1. *Great Lakes Carbon Corporation* (hereinafter referred to as "Great Lakes") is a corporation organized and existing under the laws of the State of Delaware with its principal office and place of business located at 299 Park Avenue, New York, New York (Admitted Great Lakes A. par. 1).

2. *American Oil Company* (hereinafter referred to as "American") is a corporation organized and existing under the laws of the State of Maryland with its principal office and place of business located at 910 South Michigan Avenue, Chicago, Illinois (C. par. 1; American A. par. 2).

3. *Colorado Oil and Gas Corporation* (hereinafter referred to as "Colorado") is a corporation organized and existing under the laws of the State of Delaware with its principal office and place of business located at 102 East Pikes Peak Avenue, Denver, Colorado (C. par. 1; Colorado A. par. 1).

4. *Continental Oil Company* (hereinafter referred to as "Continental") is a corporation organized and existing under the laws of the State of Delaware with its principal office and place of business located at 1300 Main Street, Houston, Texas (C. par. 1; Continental A. par. 1).

5. *CRA, Inc.*, (hereinafter referred to as "CRA") is a corporation organized and existing under the laws of the State of Kansas with its principal office and place of business located at 3315 North Oak Trafficway, Kansas City, Missouri (C. par. 1; CRA A. par. 1).

6. *Mobil Oil Company* (hereinafter referred to a "Mobil") is a corporation organized and existing under the laws of the State of New York with its principal office and place of business located at 150 East 42nd Street, New York, New York (C. par. 1; Mobil A. par. 3).

7. *Sun Oil Company* (hereinafter referred to as "Sun") is a corporation organized and existing under the laws of the State of New Jersey with its principal office and place of business located

at 1608 Walnut Street, Philadelphia, Pennsylvania. Sun Oil Company is the surviving corporation of a merger with Sunray DX Oil Company, Sun Oil Company having assumed the assets and liabilities of Sunray DX Oil Company, which is now operated as a division of Sun Oil Company (C. par. 1; Sun A. par. 1).

8. *Suntide Refining Company* (hereinafter referred to as "Suntide"), a wholly-owned subsidiary of respondent Sun Oil Company, is a corporation organized and existing under the laws of the State of Delaware with its principal office and place of business located in Corpus Christi, Texas. Suntide Refining Company was recently acquired by Sun Oil Company in the merger with Sunray DX Oil Company.

9. *Texaco, Inc.,* (hereinafter referred to as "Texaco") is a corporation organized and existing under the laws of the State of Delaware with an office and place of business located at 135 East 42nd Street, New York, N.Y. (C. par. 1; Texaco A. par. 1).

B. Production of Petroleum Coke

10. (a) "Green" or "raw" petroleum coke is purchased at petroleum refinery coking units. As produced, it is a hydro-carbon and contains considerable moisture and volatile matter. Carbon is the principal constituent, usually exceeding 82 percent by weight. Other constituents, in addition to hydrogen and volatile matter, include ash, sulphur, and trace metals, such as vanadium, iron and silicon.

Green petroleum coke is relatively soft, with a grindability factor approximating that of coal. It will support combustion, has BTU value as a fuel, and it functions as an insulator which will not conduct electricity (Shea, Tr. 3673–3676; Nelson, Tr. 4474–4483; Biehl, Tr. 295–296, 301).

(b) "Calcined" petroleum coke is not produced at petroleum refineries. Rather, it is the product of calcining plants which use the green petroleum coke as a raw material to feed the calcining kiln. At the calcining plant, the green coke is tested for quality, processed through a series of crushers, screening units, decontaminant units, storage and blending operations, and conveyed to the calcining kiln. In the calciner, which operates at a temperature of 2400° F., the green petroleum coke feed undergoes pyrolitic decomposition and is converted into calcined petroleum coke. In terms of properties, calcined petroleum coke is pure carbon, not a hydrocarbon, and differs from green petroleum coke in that the

calcined product is extremely hard, is not suitable for use as a fuel, and is an excellent conductor of electricity (View of Port Arthur calciner, GLC Exh. 89, 90, 91, 111(a)-(d), 114(a)-(c); Parker, Tr. 3532–3555; Nelson, Tr. 4475–4477).

11. Green or raw petroleum coke is a solid black mass which is the residue formed in coking units at those refineries which installed "cokers." The cokers thermally crack heavy residual oils into lighter distillates, such as naptha, gas and gas oils, which can be further processed through other refinery units and converted into gasoline and other petroleum products. The residue which remains is raw petroleum coke (View of Mobil's Beaumont refinery, RX 1; Tr. 4763); Kemnitzer, Tr. 4728–4734; MOX 1; Teitman, Tr. 3416–3417, 3426, 3438–3440, 3453–3456; Biehl, Tr. 272–273, 286–287).

12. There are two commercially used methods of coking, the "delayed" method and the "fluid" method. The delayed method was introduced in 1932 and is a process whereby the petroleum coke is formed in cycles (usually of 24 hours) in coke drums, which drums then must be emptied before re-use. The coke residue is called delayed petroleum coke.

The fluid method was introduced in 1955 and consists of a process whereby the petroleum coke forms continuously, not cyclically, and is produced in the shape of pellets comprised of onion-like layers of carbon. The coke residue is called fluid petroleum coke. By 1969, fluid petroleum coke production had increased to 1,200,000 tons, approximately 12 percent of total U.S. petroleum coke production (Biehl, Tr. 272–275, 286–288, 291; Walker, Tr. 1475; CX 1293, 1299).

13. Petroleum coke is an unavoidable by-product of the coking process. No refiner installs a coker to produce petroleum coke. The sole purpose of the coker installation is to produce lighter liquid petroleum products, such as gasoline; rather than heavy residual oils or fuel oil. Consequently, petroleum coke is produced (or not produced) in accordance with demand for liquid petroleum products and not in direct response to the demand for petroleum coke itself [3] (RX 1, p. 3; Kemnitzer, Tr. 4729–4737, 4755; Musser, Tr. 527–534, 595–596, 602; Garey, Tr. 180–181; Decker, Tr. 967; McKewon, Tr. 473; McCrum, Tr. 849–850; Murray, Tr. 3915–3918; Teitman, Tr. 3438; Nelson, Tr. 4502; Shea, Tr. 3660;

[3] Demand for petroleum coke has indirect or long-term effects upon production in that cokers will not be installed unless the coke is disposed of by the refiner (Phillips, Tr. 4670–4671).

Clausen, Tr. 1368–1369, 1393–1396, 1405–1406; Glenn, Tr. 4202–4204; Twomey, Tr. 1766–1774; Medlin, Tr. 3469).

14. Petroleum coke poses serious problems to refiners:

(a) It is not feasible for respondents' refineries and most other refineries to store petroleum coke on the refinery premises. Accumulations of petroleum coke constitute a fire hazard to refineries and a source of pollution due to the extremely dusty nature of the product when it is drained and stored. In addition, petroleum coke is extremely bulky and requires an acre of storage for each 15,000 tons, a land requirement that cannot be satisfied at most refineries (RX 1; Medlin, Tr. 3467–3468; Musser, Tr. 597; Kemnitzer, Tr. 4741–4743, 4763–4765).

(b) As it leaves the refinery, petroleum coke:
ranges in size from coke "dust" or "breeze" less than ¼ inch in diameter up to chunks the size of a desk;
varies in chemical properties in accordance with the crude oil and coker feedstocks used at the refinery; and
differs in physical properties as a result of feedstock, processing and engineering variables (Garey, Tr. 180; Beatty, Tr. 4950; Nelson, Tr. 4477–4483, 4502–4504; View of de-coking operations at Beaumont refinery of Mobil).

(c) Green petroleum coke, as produced at the refinery, is not usable for any purpose. In order to use it as fuel, it must be ground or pulverized, sized and, in most cases, blended or fortified with other materials which enhance combustion. Prior to use in calcining plant, the petroleum coke must be analyzed for quality, crushed and screened, accumulated into sufficient quantities to feed a calciner, and frequently blended with other petroleum coke. Other applications for petroleum coke require storage, quality analysis, sizing, screening, blending and other handling. Respondent refineries, and most other refineries, are not equipped with the necessary facilities for such operations (Evans, Tr. 4009–4013, 4047–4054; Nelson, Tr. 4476–4477; CX 54(i)-(j); GLC Exh. 111(a)-(b); Parker, Tr. 3538–3546; View of Port Arthur calciner; Garey, Tr. 189–191, 214–215; Musser, Tr. 539, 597–599, 601–603; Grun, Tr. 396, 404–406; Decker, Tr. 969; Moore, Tr. 1194–1195; Medlin, Tr. 3497–3498; Clausen, Tr. 1385–1386; Twomey, Tr. 1743; Kemnitzer, Tr. 4733–4737).

(d) Fluid petroleum products ordinarily are transported through pipelines. Petroleum coke is a solid product which must be transported by rail, barge or truck (Teitman, Tr. 3417–3425;

Twomey, Tr. 1741–1743, 1769–1770; Clausen, Tr. 1384–1386; CX 3(b), CX 4(b)).

(e) Petroleum coke is utilized in a manner more typical of coal than petroleum products, and it cannot be marketed through the ordinary distribution channels for petroleum products (Musser, Tr. 526, 596–597; Kemnitzer, Tr. 4733–4736; McClain, Tr. 1951; Clausen, Tr. 1386–1387; RX 1).

15. "Coking" is not a necessary or essential refinery operation. Rather, coking is one of several options open to refiners for processing heavy residual oils, *i.e.*, the residuum which remains after completion of other refinery processes and which is too heavy to process through catalytic cracking units. These alternatives are (a) production of fuel oils, (b) de-asphalting, (c) residuum hydro-cracking, or (d) coking.

The decision to exercise the coking option is influenced by market conditions with respect to fuel oil, the need for catalytic cracker feedstock at the refinery, and the ability to make reliable arrangements to dispose of the petroleum coke (RX 1, pp. 3–4; Kemnitzer, Tr. 4730–4736, 4738; Decker, Tr. 966–968; Musser, Tr. 533–534; Clausen, Tr. 1368–1370, 1385, 1394–1397; Twomey, Tr. 1740–1752, 1789; Murray, Tr. 3910–3915).

C. The Relevant Product Market

16. As alleged in the complaint the evidence establishes that the relevant product market consists of "industrial quality" delayed green and calcined petroleum coke, which is defined as that petroleum coke which contains 2.8 percent sulphur or less. Excluded from the "relevant market" are all fluid coke (regardless of sulphur content), all delayed petroleum coke containing more than 2.8 percent sulphur, and all needle coke (*i.e.*, low-sulphur delayed petroleum coke prepared from special feedstock).

The established complaint theory is that petroleum coke meeting the 2.8 percent sulphur criterion is used for industrial purposes, while cokes containing higher amounts of sulphur are used for fuel purposes and are not suitable for use industrially except when blended with low sulphur coke. For purposes of this theory, "industrial" means use of the petroleum coke for its carbon content, whereas "fuel" means use of the petroleum coke essentially for its BTU or heating value (see *e.g.*, C. definition; Biehl, Tr. 327–330; Triska, Tr. 4277–4279).

17. The sulphur content of green and calcined petroleum coke is an appropriate basis for distinguishing between fuel and in-

dustrial utilization of those products even though infrequently a high sulphur coke at a low price may be used for industrial purposes. With regard to product utility the market must be governed by the rule not the exception.

18. Among refiners and marketers, as well as users, there is express recognition of the fact that low sulphur (industrial quality) and high sulphur (fuel grade) petroleum cokes fall into separate and distinct commercial markets; such recognition is premised on commercial and competitive realities (Garey, Tr. 181–185; Nobel, Tr. 640–645; Adams, Tr. 999–1000; Roberts, Tr. 1221–1222; Beatty, Tr. 1655, 1696; Henderson, Tr. 1798–1802; McClain, Tr. 1864–1867, 1960; McIntyre, Tr. 1999; Joseph, Tr. 2169–2170; Evans, Tr. 4093–4094, 4106, 4111). Such recognition is also demonstrated by experts in evaluating low sulphur content as a quality criteria for selecting or blending coke utilized principally by certain major industries for industrial purposes (Parker Tr. 3564–3565, 3851–3853; Roberts, Tr. 1226–1227, 1250–1251; Holmes, Tr. 1284–1285, 1288–1289; Bauld, Tr. 1306–1308, 1312–1314; Garlitz, Tr. 1409–1413, 1431–1432; Walker, Tr. 1445–1449, 1473–1476; Beatty, Tr. 1701–1702; Shinozaki, Tr. 4386–4387; Garvey, Tr. 209–210; McClain, Tr. 1890–1891; Nelson, Tr. 4484–4487, 4488–4489).

19. During 1964, seven refineries in the United States produced a high sulphur delayed petroleum coke containing in excess of 2.8 percent sulphur; total production was 1,344,344 net tons (CX 1300).

20. During 1965, eight refineries in the United States produced a high sulphur delayed petroleum coke containing in excess of 2.8 percent sulphur; total production was 1,707,345 net tons (CX 1301).

21. During 1969, eleven refineries in the United States produced a high sulphur delayed petroleum coke containing in excess of 2.8 percent sulphur; total production was 2,457,265 net tons (CX 1302).

22. Over 90 percent of the low sulphur coke produced in the United States is used for industrial purposes (Henderson, Tr. 1798–1799), high sulphur coke is used similarly for fuel (McClain, Tr. 1865).

23. Illustrative of the fuel use to which high sulphur coke is primarily put are the following:

(a) All of the production of high sulphur delayed petroleum coke by American at Yorktown, Virginia, is sold to VEPCO for its

BTU value and is consumed as a fuel (CX 54, CX 55; McClain, Tr. 1865).

(b) With few exceptions, all of the production of high sulphur delayed petroleum coke containing in excess of 2.8 percent sulphur by Great Northern Oil Company at Pine Bend, Minnesota, is sold principally for its BTU value and consumed as a fuel (CX 56, CX 57, CX 58, CX 59, CX 60, CX 61, CX 62, CX 63, CX 64; McClain, Tr. 1865).

(c) With few exceptions, all of the production of high sulphur delayed petroleum coke containing in excess of 2.8 percent sulphur by Mobil at Paulsboro, New Jersey, is sold for its BTU value and consumed as a fuel (CX 65; McClain, Tr. 1865–1890).

(d) With few exceptions, all of the production of high sulphur delayed petroleum coke containing in excess of 2.8 percent sulphur by American at Eldorado, Arkansas, is sold for its BTU value and consumed as a fuel (CX 45, CX 46, CX 47, CX 48, CX 49, CX 50, CX 51, CX 52, CX 53).

(e) With regard to American's high sulphur coke produced at Whiting, Indiana, it is sold primarily for fuel (McClain, Tr. 1887–1888).

24. Of 3,871,051 tons of industrial quality petroleum coke sold in 1965, only approximately 35,390 tons were sold for probable fuel use, or approximately less than ½ percent of total sales in that year (CX 103, CX 1296).

25. During 1964 and 1965 Great Lakes paid the following prices at the designated refineries for its purchases of green industrial quality petroleum coke:

	Low	*High*
American, Texas City, Texas	$11.00	$11.21
Colorado, Wichita	11.38	14.40*
Continental, Ponca City	15.07	15.21
CRA, Coffeyville	9.90	10.07
Mobil, Torrance	7.00	8.90
Mobil, Beaumont	6.00	6.00
Sun, West Tulsa	11.34	11.43
Suntide, Corpus Christi	12.78	12.78
Texaco, Lockport	11.65	14.11*
Texaco, Amarillo	7.22	8.85
Texaco, Port Arthur	10.00	12.00
Texaco, Casper	7.22	8.36

* Average Prices

(CX 97–100, CX 134–137, CX 157–207).

26. During 1964 and 1965 American produced both a green industrial quality petroleum coke and a high sulphur delayed petroleum coke at Whiting, Indiana. The average dollar value received for the low sulphur coke was $11.13 whereas the average dollar value of the high sulphur petroleum coke sales was $5.64, the green industrial quality petroleum coke being sold at a 97 percent higher price. Sample invoices also indicate sales of the high sulphur Whiting petroleum coke at prices from $5.13 to $5.31 (CX 239, CX 240–247).

27. During 1964 and 1965 American produced a high sulphur content delayed petroleum coke at Yorktown, Virginia. Sample invoices for this period indicate that the high sulphur Yorktown petroleum coke sold for $3.37 to $3.74 a net ton whereas the American Texas City green industrial quality coke sold for $11.21, a price 200 percent greater than the Yorktown high sulphur petroleum coke (CX 338–340).

28. American produced a green industrial quality petroleum coke at Sugar Creek, Missouri. The average dollar value received during 1965 was $9.84. This dollar value received is 75 percent higher than that received for the high sulphur Whiting coke and 163 percent higher than the highest price for the Yorktown high sulphur coke (CX 103, CX 238).

29. During 1964 and 1965 Mobil also produced a high sulphur delayed petroleum coke at Paulsboro, New Jersey, and sales of this "fuel grade" petroleum coke were made at prices from $4.06 to $4.16 (CX 344–347).

30. Despite the relatively low price for the Mobil Paulsboro coke, this is the only refinery at which Mobil has encountered difficulty in disposing of the petroleum coke (Adams, Tr. 1098, 1103).

31. During 1964 and 1965 Mobil produced a green industrial quality petroleum coke at East St. Louis and sales of this petroleum coke were made at prices varying from $10 to $12.40 per ton, a price considerably greater than that received for the Paulsboro high sulphur petroleum coke (CX 111–112, CX 148–149, CX 344–347).

32. During 1964 and 1965 Mobil produced a green industrial quality petroleum coke at Trenton, Michigan, and sales of this petroleum coke were made at prices from $11.50 to $13.25 a net ton, a price considerably greater than that received for the Paulsboro high sulphur petroleum coke (CX 113, CX 150, CX 344–347).

33. During 1965 Mobil also produced some "High Sulphur Coke" at the Torrance, California, refinery which normally produces green industrial quality petroleum coke. Mobil sold the "High Sulphur Coke" for $2 per net ton compared to $8 per net ton for "regular coke," the green industrial quality petroleum coke being priced considerably higher than that received for "High Sulphur Coke" from the same refinery (CX 177).

34. Mobil's Beaumont, Texas, refinery had no difficulty in disposing of its green industrial quality petroleum coke, but experienced considerable difficulty when the sulphur content exceeded 3.0 percent as a result of a change in crude source (Evans, Tr. 4016–4020).

35. Gulf Oil Corporation produces a fluid petroleum coke at Purvis, Mississippi, and during 1964 sales of this fluid coke were made at $5.10 per net ton. Gulf Oil also sells green industrial quality petroleum coke at Port Arthur, Texas, and the base price in the contract for the sale of this green industrial quality petroleum coke is $12 per net ton, a price considerably higher than what Gulf receives for the Purvis fluid coke (CX 30, CX 360–362).

36. An examination of the contract price provisions demonstrates significant differences in price between industrial quality petroleum coke and cokes of higher sulphur content; and that presently significant price differences exist (CX 1378 *In Camera*) under normal and comparable conditions. Although price is normally an indicia of utility by the blending of petroleum cokes various undesirable qualities such as high sulphur and vanadium contents can be reduced to tolerable levels by mixing such petroleum cokes with other petroleum cokes having significantly less of these undesirable characteristics. Such blending can be accomplished either prior to or after calcining, if calcining is desired. Basically, this is a materials handling process (Roberts, Tr. 1222, 1273; Parker, Tr. 3599, 3600; McKewon, Tr. 466; Beatty, Tr. 1699; Adams, Tr. 1030; Garey, Tr. 205; Henderson, Tr. 1845–1846, 1848; Walker, Tr. 1456, 1473; see also, Phillips, Tr. 4654–4655). Great Lakes does substantial blending with the Beaumont 3.0 percent sulphur content petroleum coke. It also has blended small amounts of the high sulphur 5 percent American El Dorado petroleum coke (Parker, Tr. 3593–3597).

37. Mr. Parker, manager of the Great Lakes calcining facility at Port Arthur, Texas, where a significant amount of blending is done of various quality petroleum cokes, stated:

HEARING EXAMINER BUTTLE: Does the quality criteria for the most part have to do with the sulphur content rather than the vanadium content? THE WITNESS: Yes. (Parker, Tr. 3564-3565).

D. The Relevant Geographic Market

1. *United States*

38. The production of quality petroleum coke in the United States during 1964, 1965 and 1969 is substantially as set forth in Appendix A hereof.

39. During 1964 a total of 434,717 net tons of green and 422,077 net tons of calcined industrial quality petroleum coke were resold to ultimate users by firms engaged in the marketing of industrial quality petroleum coke. The calcined petroleum coke transposed to green (using average 20 percent weight loss) would equal 527,596 net tons for a total of 962,313 net tons or 25.5 percent of the total United States production of green industrial quality petroleum coke (See Appendices A & B made a part hereof).

40. During 1964 a total of 434,717 net tons of green industrial quality petroleum coke was sold to ultimate users in the United States by firms engaged in the marketing of industrial quality petroleum coke. Great Lakes sold 261,558 net tons or 60.2 percent of such total sales of green industrial quality petroleum coke (See Appendix B made a part hereof).

41. During 1964 an additional 104,149 net tons of green industrial quality petroleum coke were sold direct to the ultimate users by refineries whose production was not fully committed under long-term contracts. Including these sales in the domestic United States market, Great Lakes' share would be 48.5 percent (See Appendix B made a part hereof).

42. During 1964 a total of 422,077 net tons of calcined industrial quality petroleum coke was resold to ultimate users in the United States by firms engaged in the marketing of calcined industrial quality petroleum coke. Great Lakes sold 173,161 net tons or 41.0 percent of such total United States sales of calcined industrial quality petroleum coke (See Appendix B made a part hereof).

43. During 1965 a total of 562,288 net tons of green and 563,470 net tons of calcined industrial quality petroleum coke were resold to ultimate users by firms engaged in the marketing of industrial quality petroleum coke. The calcined petroleum coke transposed to green (using average 20 percent weight loss) would equal 704,337 net tons for a total of 1,267,225 net tons or 30.5 percent of the

total United States production of green industrial quality petroleum coke (See Appendices A & C made a part hereof).

44. During 1965 a total of 562,288 net tons of green industrial quality petroleum coke was resold to ultimate users in the United States by firms engaged in the marketing of industrial quality petroleum coke. Great Lakes sold 362,520 tons or 64.5 percent of such total sales of green industrial quality petroleum coke (See Appendix C made a part hereof).

45. During 1965 an additional 103,151 net tons of green industrial quality petroleum coke were sold direct by refineries whose production was not fully committed under long-term contracts. Including these sales in the domestic United States market, Great Lakes' share would be 54.5 percent (See Appendix C made a part hereof).

46. During 1965 a total of 563,470 net tons of calcined industrial quality petroleum coke was resold to ultimate users in the United States by firms engaged in the marketing of calcined industrial quality petroleum coke. Great Lakes sold 217,127 net tons or 38.6 percent of such total United States sales of calcined industrial quality petroleum coke (See Appendix C made a part hereof).

47. The United States as a whole constitutes a relevant geographic market in this case (Phillips, Tr. 4629–4630, 4635, 4639). Green industrial quality petroleum coke is a bulky heavy commodity removed from refineries by truck or rail. Because of the substantial freight costs in transporting green petroleum coke, it is necessary that refineries be situated within reasonable distance to plant locations or export facilities (McClain, Tr. 1875–1876; McIntyre, Tr. 2227–2229).

2. *Gulf Coast*

48. It is impractical to export green industrial quality petroleum coke from distant inland refineries or from refineries located near the Great Lakes region. The high cost of freight to the Gulf Coast places the coke at a non-competitive price with the Gulf Coast sources and the St. Lawrence Seaway is not well suited because of additional toll charges and a limited season prevents shipments during the winter months (McClain, Tr. 1877–1888; McIntyre, Tr. 2227–2229).

49. The freight rate from Duncan, Oklahoma for shipments of green industrial quality petroleum coke during 1965 to Houston, Texas, was in excess of $5.50 per net ton, a price which approximated the cost of the petroleum coke at the refinery. This rela-

tively high cost of freight prohibits continued exports on a regular basis from the Duncan refinery (McClain, Tr. 1875–1876).

50. The current freight rate from El Dorado, Kansas, to an export facility on the Gulf Coast is approximately $7.50 per net ton (McClain, Tr. 1875–1876).

51. The current freight rate for shipments of petroleum coke to the Gulf Coast from the Chicago area is approximately $8 to $8.50 per net ton for domestic use and for export shipments it would be approximately $1 less per net ton (McClain, Tr. 1877).

52. Because of the substantial freight costs in transporting green petroleum coke, it is necessary that refineries be situated within reasonable distance of export facilities or plant locations. One witness for respondent Great Lakes stated he believed that the refinery had to be within 150 to 200 miles for economical shipments, and 80 percent of the petroleum coke processed or shipped through the Port Arthur plant of Great Lakes comes within a 100 mile radius (Parker, Tr. 3562–3563, 3570–3572; McIntyre, Tr. 2227–2229, 2493).

53. During 1964 a total of 323,196 net tons of green and 341,904 net tons of calcined industrial quality petroleum coke were exported to Europe. The calcined petroleum coke transposed to green would equal 427,380 net tons for a total of 750,576 net tons or 19.9 percent of the total United States production of green industrial quality petroleum coke (See Appendix D made a part hereof).

54. During 1965 a total of 442,380 net tons of green and 429,756 net tons of calcined industrial quality petroleum coke was exported to Europe. The calcined petroleum coke transposed to green coke would equal 537,195 net tons for a total of 979,575 net tons or 25.3 percent of the total United States production of green industrial quality petroleum coke (See Appendix E made a part hereof).

55. During 1964 seven refineries in the Gulf Coast area produced a total of 1,151,479 net tons of green industrial quality petroleum coke. Of this amount 194,555 net tons were exported to Europe as green petroleum coke and 307,492 net tons of calcined petroleum coke expressed as 384,365 net tons of green petroleum coke (using average 20 percent weight loss) for a total of 578,920 net tons of green petroleum coke exported to Europe or 50.3 percent of the total Gulf Coast production of green industrial quality petroleum coke (CX 79, CX 80, CX 1294).

56. During 1964 a total of 194,555 net tons of green industrial quality petroleum coke was exported to Europe from Gulf Coast

sources and Great Lakes exported 181,719 net tons or 93.4 percent of the total exports of green industrial quality petroleum coke from Gulf Coast sources (See Appendix D made a part hereof).

57. During 1964 a total of 307,492 net tons of calcined industrial quality petroleum coke was exported to Europe from Gulf Coast sources and Great Lakes exported 288,462 net tons or 93.8 percent of the total exports of calcined industrial quality petroleum coke from Gulf Coast sources (See Appendix D made a part hereof).

58. During 1965 a total of 345,057 net tons of green industrial quality petroleum coke was exported to Europe from Gulf Coast sources and Great Lakes exported 274,588 net tons or 79.6 percent of the total exports of green industrial quality petroleum coke to Europe from Gulf Coast sources (See Appendices A & E made a part hereof).

59. During 1965 a total of 338,196 net tons of calcined industrial quality petroleum coke was exported to Europe from Gulf Coast sources and Great Lakes exported 289,500 net tons or 85.6 percent of the total exports of calcined industrial quality petroleum coke to Europe from Gulf Coast sources (See Appendices A & E made a part hereof).

3. *West Coast*

60. There were only two refineries in the West Coast area of the United States producing green industrial quality petroleum coke during 1964 and 1965—Mobil Oil at Torrance and Union Oil at Oleum. Three other refineries are located in California: Signal Oil produced fluid coke at Bakersfield, Tidewater produced fluid coke at Avon, and Union Oil produced a high sulphur delayed coke at Santa Maria. No other refineries produced petroleum coke in any of the west coast states, and other refineries situated in the western part of the United States are located in excess of 750 miles distance from export facilities (CX 79, CX 80, CXs 1294, 1295, 1297, 1298, 1300, 1301).

61. Great Lakes has exported green industrial quality petroleum coke to Japan from the Gulf Coast in the past; however, they have not done so in the past three or four years (Parker, Tr. 3628–3629).

62. During 1964 a total of 333,652 net tons of green and 151,380 net tons of calcined industrial quality petroleum coke was exported to Japan. The calcined petroleum coke transposed to green (using average 20 percent weight loss) would equal 189,225 net tons for a total of 522,877 net tons or 13.9 percent of the total

United States production of green industrial quality petroleum coke (See Appendices A & F made a part hereof).

63. During 1965 a total of 300,222 net tons of green and 154,185 net tons of calcined industrial quality petroleum coke was exported to Japan. The calcined petroleum coke transposed to green would equal 192,731 net tons for a total of 492,953 net tons or 12 percent of the total United States production of green industrial quality petroleum coke (See Appendices A & G made a part hereof).

64. During 1964 two refineries in the West Coast area produced a total of 717,661 net tons of green industrial quality petroleum coke. Of this amount 305,249 net tons were exported to Japan as green coke and 140,097 net tons as calcined petroleum coke expressed as 175,121 net tons of green petroleum coke (using average 20 percent weight loss) were exported to Japan for a total of 480,370 net tons of green petroleum coke exported or 66.9 percent of the total West Coast production of green industrial quality petroleum coke (See Appendices A & F made a part hereof).

65. During 1964 a total of 305,249 net tons of green industrial quality petroleum coke was exported to Japan from West Coast sources and Great Lakes exported 255,147 net tons or 83.6 percent of the total exports of green industrial quality petroleum coke to Japan from West Coast sources (See Appendix F made a part hereof).

66. During 1964 a total of 140,097 net tons of calcined industrial quality petroleum coke was exported to Japan from West Coast sources and Great Lakes exported 123,397 net tons or 88.1 percent of the total exports of calcined industrial quality petroleum coke to Japan from West Coast sources (See Appendix F made a part hereof).

67. During 1965 two refineries in the West Coast area produced a total of 742,348 net tons of green industrial quality petroleum coke. Of this amount, 217,520 net tons was exported to Japan as green petroleum coke and 150,042 net tons of calcined petroleum coke expressed as 187,553 net tons of green petroleum coke (using average 20 percent weight loss) were exported to Japan for a total of 405,073 net tons of green petroleum coke exported to Japan or 54.6 percent of the total West Coast production of green industrial quality petroleum coke (See Appendices A & G made a part hereof).

68. During 1965 a total of 217,520 net tons of green industrial quality petroleum coke was exported to Japan from West Coast

sources and Great Lakes exported 191,929 net tons or 88.2 percent of the total exports of green industrial quality petroleum coke to Japan from West Coast sources (See Appendix G made a part hereof).

69. During 1965 a total of 150,042 net tons of calcined industrial quality petroleum coke was exported to Japan from West Coast sources and Great Lakes exported 137,627 net tons or 91.7 percent of the total exports of calcined industrial quality petroleum coke to Japan from West Coast sources (See Appendix G made a part hereof).

E. Long-Term Contracts in Effect 1964–1965

1. *American Oil Company*

70. On October 2, 1959, Great Lakes Carbon Corporation and American Oil Company (a Maryland corporation) entered into a contract for a 20-year term commencing on January 1, 1960, for the petroleum coke produced at the Texas City, Texas refinery (CX 1, GLC Stipulation, Addendum 1; Crimmins, Tr. 4517–4521; GLC A. par. 7; AO A. par. 8; AO Admission).

71. During the early part of October 1959, the American Oil Company (a Maryland corporation) assigned the contract dated October 2, 1959 (CX 1) to its wholly-owned, dominated and controlled subsidiary, the American Oil Company (a Texas corporation) (CX 414, AO Admission; GLC Stipulation, Addendum 1).

72. By letter dated October 19, 1959, Great Lakes Carbon Corporation was notified of the assignment of the contract dated October 2, 1959, and consented to the assignment on October 20, 1959 (CX 415; AO Admission; GLC Stipulation, Addendum 1).

2. *Colorado Oil and Gas Corporation*

73. On June 19, 1961, Great Lakes Carbon Corporation entered into a contract with Derby Refining Company, division of Colorado Oil and Gas Corporation, for a 10-year term commencing on the date that coke is first produced at the Wichita, Kansas, refinery (CX 2; Colorado Oil & Gas A. par. 6; Colorado Oil & Gas Admission, par. 2; GLC Stipulation, Addendum 1; Crimmins, Tr. 4521–4522).

74. Petroleum coke production commenced at the Wichita, Kansas, refinery in February 1963 (Moore, Tr. 1171).

3. *Continental Oil Company*

75. On March 1, 1957, Great Lakes Carbon Corporation entered into a contract with Continental Oil Company for a 10-year term

commencing on March 1, 1959, for the petroleum coke produced at the Ponca City, Oklahoma, refinery (CX 3; Continental Oil A. par. 6, 7; GLC Stipulation, Addendum 1; Crimmins, Tr. 4524–4525).

76. On July 1, 1967, Great Lakes Carbon Corporation and Continental Oil Company entered into a contract terminating the contract dated March 1, 1957 (CX 3) and entered into another contract for a 10-year period commencing on October 1, 1967, and terminating on September 30, 1977, for the petroleum coke produced at the Ponca City, Oklahoma refinery (CX 1325; Continental Oil A. par. 6).

4. *CRA, Inc.*

77. On December 2, 1955, Great Lakes Carbon Corporation entered into a contract with Consumers Cooperative Association for a 10-year term commencing from the date coker construction completed at the Coffeyville, Kansas, refinery (CX 4; CRA, Inc., A. par. VI; GLC Stipulation, Addendum 1).

78. By letter agreement dated March 18, 1957, Great Lakes Carbon Corporation and Consumers Cooperative Association agreed that the termination date of the December 2, 1955 contract (CX 4) would be March 31, 1970 (CX 408; CRA, Inc. A. par. VI; GLC Stipulation, Addendum 1).

79. By letter agreement dated March 7, 1963, Great Lakes Carbon Corporation and Consumers Cooperative Association agreed to extend the terms of the contract dated December 2, 1955 (CX 4) to expire on March 31, 1975. This extension of the contract dated December 2, 1955 (CX 4) was accepted by Consumers Cooperative Association on April 3, 1963. Consumers Cooperative Association is a predecessor corporation of CRA, Inc. (CX 409; CRA A. par. VI; GLC Stipulation, Addendum 1; See Crimmins, Tr. 4526).

5. *Mobil Oil Company*

80. On January 30, 1946, Great Lakes Carbon Corporation entered into a contract with General Petroleum Corporation of California for a 20-year term commencing on this date for the petroleum coke produced at the Torrance, California refinery (CX 5; MO A. par. 8; MO Stipulation, Addendum 9; GLC Stipulation, Addendum 1).

81. General Petroleum Corporation of California subsequently changed its name to Mobil Oil Company, a division of Socony Mobil Oil Company, Inc. and by letter agreement dated March 7,

1963, Great Lakes Carbon Corporation and Mobil Oil Company, a division of Socony Mobil Oil Company, Inc., agreed to extend the January 30, 1946 contract (CX 5) for a 10-year term from January 30, 1966 until January 30, 1976, for the petroleum coke produced at Torrance, California (CX 6; MO A. par. 8; MO Stipulation, Addendum 9; GLC Stipulation, Addendum 1).

82. On November 4, 1960, Great Lakes Carbon Corporation entered into a contract with Mobil Oil Company, a division of Socony Mobil Oil Company, Inc., for a 10-year term commencing from the date of first production of petroleum coke and continuing until January 1, 1972, for the Beaumont, Texas refinery (CX 7; MO A. par. 8; GLC Stipulation, Addendum 1).

83. Petroleum coke production commenced at the Mobil Oil Corporation, Beaumont, Texas, refinery in June 1961 (MOX 1; Medlin, Tr. 3466; Evans, Tr. 4112).

6. *NCRA, Inc.*

84. On February 15, 1952, Great Lakes Carbon Corporation entered into a contract with National Cooperative Refinery Association for a period of 10 years commencing with the completion of the coking facilities for all of the petroleum coke to be produced at the McPherson, Kansas, refinery (CX 8; GLC Stipulation, Addendum 1; Crimmins, Tr. 4530).

85. By letter agreement dated March 19, 1957, Great Lakes Carbon Corporation and National Cooperative Refinery Association agreed that the contract dated February 15, 1952, (CX 8) shall expire on March 31, 1967, and this was accepted by National Cooperative Refinery Association on March 22, 1957 (CX 410; GLC Stipulation, Addendum 1).

86. Great Lakes Carbon Corporation allowed the contract dated February 2, 1952, as amended (CX 8, CX 410, CX 411, CX 412, CX 413) to expire on March 31, 1967, without renewal; however, thereafter Great Lakes Carbon Corporation exerted considerable effort to retrieve the petroleum coke produced at the McPherson, Kansas, refinery (Crimmins, Tr. 4552–4554).

87. From April 1, 1967, to the date of the issuance of the complaint in this matter, National Cooperative Refinery Association sold the petroleum coke produced at the McPherson, Kansas, refinery to Republic Coal and Coke Company (Crimmins, Tr. 4552–4554, 4559; Beatty, Tr. 1610).

88. Great Lakes Carbon Corporation entered into another contract for a 5-year term with National Cooperative Refinery Asso-

ciation for the petroleum coke produced at the McPherson, Kansas, refinery upon expiration of the three-year contract between Republic Coal and Coke Company and National Cooperative Refinery Association for the petroleum coke production at McPherson, Kansas (Crimmins, Tr. 4559; Beatty, Tr. 4879–4881).

7. *Sun Oil Company*

89. On March 1, 1957, Great Lakes Carbon Corporation entered into a contract with DX Sunray Oil Company for a term of approximately 10 years commencing on October 19, 1957 until February 28, 1967, for the petroleum coke produced at the West Tulsa, Oklahoma, refinery (CX 9; SO A. par. 7; GLC Stipulation, Addendum 1).

90. On January 8, 1967, Great Lakes Carbon Corporation entered into a contract with Sunray DX Oil Company for a three-year period terminating on February 28, 1970, for all of the petroleum coke produced at the West Tulsa, Oklahoma, refinery (SO A. par. 7).

91. DX Sunray Oil Company and Sunray DX Oil Company, are predecessor corporations of Sun Oil Company and on October 25, 1968, Sunray DX Oil Company merged into Sun Oil Company (SO A. par. 7; Twomey, Tr. 1723).

92. On January 15, 1970, Great Lakes Carbon Corporation entered into a contract with DX Division of Sun Oil Company for a term of three years commencing on March 1, 1970, until February 28, 1973, and for successive three-year terms thereafter for all of the petroleum coke produced at the West Tulsa, Oklahoma, refinery (CX 1324; SO A. par. 7).

8. *Suntide Refining Company*

93. On January 20, 1959, Great Lakes Carbon Corporation entered into a contract with Coastal Products Company for a period of 10 years commencing on the date coke is first produced for all of the petroleum coke produced at the Corpus Christi, Texas, refinery (CX 10; Suntide A. par. 7; GLC Stipulation, Addendum 1).

94. On January 15, 1970, Great Lakes Carbon Corporation entered into a contract with Suntide Refining Company for a three-year period from February 1, 1970, until January 31, 1973, and for successive three-year periods thereafter for all of the petroleum coke produced at the Corpus Christi, Texas, refinery (CX 1322; Suntide A. par. 7).

95. Coastal Products Company is a wholly-owned subsidiary of

Suntide Refining Company and Suntide Refining Company is a wholly-owned subsidiary of Sun Oil Company (SO A. par. 7; Suntide Refining A. par. 7).

9. *Texaco, Inc.*

96. On January 18, 1957, Great Lakes Carbon Corporation entered into a contract with the Texas Company for a term of seven years commencing on June 1, 1957, and ending on May 31, 1964, for all of the petroleum coke produced at the Port Arthur, Texas; Lockport, Illinois; El Paso, Texas; Amarillo, Texas and Casper, Wyoming, refineries (CX 11; Texaco A. pars. 6–7; Texaco Stipulation, Addendum 11; GLC Stipulation, Addendum 1).

97. On February 14, 1964, Great Lakes Carbon Corporation entered into a contract with Texaco, Inc., for a term of five years commencing on June 1, 1964, and ending on May 31, 1969, for all of the petroleum coke produced at the Port Arthur, Texas; Lockport, Illinois; El Paso, Texas; Amarillo, Texas and Casper, Wyoming, refineries (CX 12; Texaco, A. pars. 6–7; Texaco Stipulation, Addendum 11; GLC Stipulation, Addendum 1).

98. By letter agreement dated July 16, 1969, Great Lakes Carbon Corporation and Texaco, Inc., agreed to amend the contract dated August 14, 1964, (CX 12) extending the contract for a one-year period from July 31, 1969 to July 31, 1970, and thereafter conferring upon the seller the right to terminate upon 90-days notice (CX 1327; Texas A. par. 7).

99. Since 1932 when Texaco, Inc., and its predecessor corporations first commenced producing petroleum coke, it has sold all petroleum coke produced at any refinery to Great Lakes Carbon Corporation (Beatty, Tr. 1692, 1709; Crimmins, Tr. 4354; Glenn, Tr. 4214).

F. Long-Term Contracts Since 1965

1. *Sinclair Refining Company*

100. On March 15, 1968, Great Lakes Carbon Corporation entered into a contract with Sinclair Refining Company for a term of nine years from the start up of production until October 31, 1978, and for successive nine-year periods thereafter for all the petroleum coke produced at the Houston, Texas, refinery. Start up of production was estimated to be on October 31, 1968 (CX 13; GLC A. par. 9; GLC Stipulation, Addendum 1).

101. Sinclair Refining Company was merged into Atlantic-Richfield Company and Atlantic-Richfield Company now operates the

Houston refinery and sells petroleum coke pursuant to the March 15, 1968 contract (CX 13; Decker, Tr. 919–925; Beatty, Tr. 1548–1556, 1601, 4855–4856).

2. *Standard Oil Company of California*

102. On December 1, 1967, Great Lakes Carbon Corporation entered into a contract with Standard Oil Company of California for a three-year term commencing on the first day of the month in which the coker is completed and for successive years thereafter, for the petroleum coke produced at the El Segundo, California, refinery (CX 14, GLC A. par. 9; GLC Stipulation, Addendum 1).

103. The production of petroleum coke commenced in 1969 and this contract is described as a "commission" contract (CX 1296; Beatty, Tr. 1556–1558, 1701, 4864–4867).

3. *Texaco, Inc.*

104. On August 24, 1967, Great Lakes Carbon Corporation entered into a contract with Texaco, Inc., for an initial period of five years from the date of the start of initial production and from year-to-year thereafter for the petroleum coke produced at the Los Angeles, California, refinery (CX 15; GLC A. par. 9; Texaco A. par. 9; Texaco Stipulation, Addendum 11; GLC Stipulation, Addendum 1).

105. By letter agreement dated August 24, 1967, it was agreed that the parties could cancel the above contract (CX 15) upon 12-months notice prior to March 31, 1970. The production of petroleum coke at Los Angeles commenced in October 1968 (CX 1326; Beatty, Tr. 1559–1563, 1701).

106. Though the contract dated August 24, 1967, with Texaco, Inc., was originally a "commission" contract, the parties have amended this contract and it is now an outright purchase contract (Beatty, Tr. 1701).

4. *Champlin Oil and Refining Company*

107. On February 15, 1967, Swiss Aluminum, Ltd., assigned its interests in a contract dated June 2, 1960 (CX 20) as amended on October 17, 1960 (CX 21) to Great Lakes Carbon Corporation for a term commencing on September 29, 1966, and ending on December 31, 1969, for the petroleum coke produced by Champlin Oil & Refining Company at the Enid, Oklahoma, refinery (CX 1238; GLC A. par. 9; Beatty, Tr. 4858–4860, 4871–4874).

5. *Marathon Oil Company*

108. On March 27, 1967, Great Lakes Carbon Corporation entered into a contract with Marathon Oil Company to purchase approximately 50,000 tons per year of petroleum coke for an initial term of 10 months commencing on March 1, 1967, and ending on December 31, 1967, and continuing thereafter unless cancelled on two-years notice, for petroleum coke produced at the Robinson, Illinois, refinery (CX 417; GLC Stipulation, Addendum 1; Beatty, Tr. 4871–4874).

6. *NCRA, Inc.*

109. Commencing in 1970, Great Lakes Carbon Corporation will purchase pursuant to a five-year contract, all of the green petroleum coke produced by NCRA, Inc. at the McPherson, Kansas, refinery (Beatty, Tr. 4879–4881).

G. Great Lakes—Refinery Commitments and Sales

1. *Refineries Committed During 1964 and 1965*

110. During calendar year 1964 Great Lakes Carbon Corporation purchased pursuant to the contracts, all of the green industrial quality petroleum coke produced by nine corporations—13 designated refineries. All of the green industrial quality petroleum coke contained not more than 2.8 percent sulphur content. Purchases were from the following refineries:

American Oil, Texas City, Texas
Colorado Oil & Gas, Wichita, Kansas
Continental Oil, Ponca City, Oklahoma
CRA, Inc., Coffeyville, Kansas
Mobil Oil, Torrance, California
Mobil Oil, Beaumont, Texas
NCRA, Inc., McPherson, Kansas
Sun Oil, West Tulsa, Oklahoma
Suntide Refining, Corpus Christie, Texas
Texaco, Inc., Lockport, Illinois
Texaco, Inc., Amarillo, Texas
Texaco, Inc., Port Arthur, Texas
Texaco, Inc., Casper, Wyoming.

(CX 82–93, 95–100, 122–130, 157–191, 195–207, 1294–1295; American Oil Stipulation, Addendum 3; Colorado Oil & Gas Stipulation, Addendum 5:MO Stipulation, Addendum 9; SO Stipulation, Addendum 10; Texaco Stipulation, Addendum 11; GLC A. par. 8; Colorado Oil & Gas A. par. 6; Continental Oil A. par. 3; CRA, Inc.

A. par. VI; MO A. par. 9; SO. A. par. 8; Suntide Oil A. par. 8; Texaco A. par. 8).

2. *Refiners Committed During 1969*

111. During calendar year 1969, Great Lakes Carbon Corporation purchased or marketed pursuant to the contracts all of the green industrial quality petroleum coke produced by 11 corporations at 15 designated refineries. Twelve of the refineries produced a green industrial quality petroleum coke with a sulphur content of less than 2 percent, one produced petroleum coke with 2.2 percent maximum, one produced a petroleum coke with a 2.5 percent maximum, and one produced two types of petroleum coke, a low sulphur green industrial quality petroleum coke containing less than 2 percent sulphur and a medium sulphur content petroleum coke containing approximately 3.5 percent sulphur.

American Oil, Texas City, Texas
Champlin Oil & Refining Co., Enid, Oklahoma
Colorado Oil & Gas, Wichita, Kansas
Continental Oil, Ponca City, Oklahoma
CRA, Inc., Coffeyville, Kansas
Mobil Oil, Torrance, California
Sun Oil, West Tulsa, Oklahoma
Suntide Refining, Corpus Christi, Texas
Texaco, Inc., Port Arthur, Texas
Texaco, Inc., Lockport, Illinois
Texaco, Inc., Amarillo, Texas
Texaco, Inc., Casper, Wyoming
Atlantic-Richfield, Houston, Texas
Texaco, Inc., Los Angeles, California
Standard Oil Company (California), El Segundo, Calif.

(CX 1292, 1296; GLC A. pars. 7–8; AO A. par. 8; Continental Oil A. par. 13; Colorado Oil and Gas A. par. 6; CRA, Inc., A. par. VI; MO A. par. 8, 9; SO A. par. 7; Suntide Refining, A. par. 7; Texaco, A. pars. 6–7).

112. In addition to the foregoing total output contracts in effect during 1969, Great Lakes purchased pursuant to contract approximately 50,000 net tons of green industrial quality petroleum coke from Marathon Oil Company, Robinson, Illinois, refinery (CX 417; GLC Stipulation, Addendum 1; Beatty, Tr. 4871–4874).

H. Quality Coke Production and Volume

1. *United States Production of Green Industrial Quality Petroleum Coke*

A. 1964

113. During 1964, 31 refineries in the United States produced a total of 3,766,520 net tons of green industrial quality petroleum coke. Great Lakes' purchases from 14 specified refineries totalled 1,596,397 net tons or 42.4 percent of the total United States production of green industrial quality petroleum coke (See Appendix A).

114. During 1964, 13 refineries production of green industrial quality petroleum coke was fully committed to other purchasers and during 1964 these refineries produced 1,682,266 net tons of green industrial quality petroleum coke or 44.6 percent of the total United States production of green industrial quality petroleum coke (See Appendix A).

115. During 1964, four refineries (American Gilsonite, Cities Service, East Chicago, Skelly and Pure Oil at Toledo) in the United States produced 487,857 net tons of green industrial quality petroleum coke. This petroleum coke was produced at refineries whose production was not fully committed for sale. This amount represents 13.0 percent of the total United States production of green industrial quality petroleum coke (See Appendix A).

116. During 1964, American Gilsonite Company calcined most of the green industrial quality petroleum coke it produced and only small tonnages of this green coke were available for sale (CX 1305 a–j, CX 1305 q, CX 129).

117. During 1964, Cities Service Oil Company at its East Chicago refinery, sold 39,918 net tons of green industrial quality petroleum coke pursuant to a contract with Union Carbide Corporation and 35,918 net tons of green industrial quality petroleum coke pursuant to a contract with Air Reduction Company, Incorporated, and thus only 92,452 net tons were not committed under contract (CX 23, CX 27, CX 1305 f, CX 1294; See also Appendix A).

118. During 1964, Skelly Oil Company sold 63,794 net tons of green industrial quality petroleum coke pursuant to a contract with Air Reduction Company, Incorporated. Thus only 72,153 net tons of petroleum coke were not committed under contract (CX 39, CX 1305 o, CX 1294; See also Appendix A).

119. During 1964, Union Oil (Pure) sold 30,018 net tons of green industrial quality petroleum coke to ultimate consumers or to resellers (See Appendix A).

B. 1965

120. During 1965, 33 refineries in the United States produced a total of 3,871,051 net tons of green industrial quality petroleum coke. Great Lakes' purchases from the 14 specified refineries totalled 1,628,639 net tons or 42.1 percent of the total United States production of green industrial quality petroleum coke (See Appendix A).

121. During 1965, 13 refineries' production of green industrial quality petroleum coke was fully committed to other purchasers. These refineries produced 1,804,308 net tons of green industrial quality petroleum coke or 46.6 percent of the total United States production of green industrial quality petroleum coke (See Appendix A).

122. During 1965, four refineries (American Gilsonite, Cities Service, East Chicago, Skelly and Pure Oil at Toledo) in the United States produced 438,104 net tons of green industrial quality petroleum coke. This petroleum coke was produced at refineries whose production was not fully committed for sale. This amount represents 11.3 percent of the total United States production of green industrial quality petroleum coke (See Appendix A).

123. During 1965, American Gilsonite Company calcined most of the green industrial quality petroleum coke it produced. Thus, only part of that production was available for sale as green industrial quality petroleum coke (CX 1295, CX 1307 s, CX 1307 x, CX 1307 a–o, a–p; See Appendix A).

124. During 1965, Cities Service Oil Company at its East Chicago refinery sold 45,757 net tons of green industrial quality petroleum coke produced at East Chicago, Indiana, to Union Carbide Corporation. Thus only a part of the production at this refinery was not totally committed under contract (CX 27, CX 1295, CX 1307 f; See Appendix A).

125. During 1965, Skelly Oil Company sold 91,630 net tons of green industrial quality petroleum coke produced at McPherson, Kansas, to Air Reduction Company, Incorporated pursuant to a contract. Thus, only 11,950 net tons was not totally committed under contract (CX 39, CX 1295, CX 1307 o; See Appendix A).

126. During 1965, Union Oil (Pure) sold 42,551 net tons of green industrial quality petroleum coke to ultimate consumers or resellers (See Appendix A).

c. 1969

127. During 1969, 37 refineries in the United States produced a total of 6,389,655 net tons of green industrial quality petroleum coke. Great Lakes purchased from 14 specified refineries and marketed the production of two other specified refineries, totalling 2,478,234 net tons or 38.8 percent of the total United States production of green industrial quality petroleum coke (See Appendix A).

128. During 1969, 15 refineries' production of green industrial quality petroleum coke was fully committed to other purchasers. These refineries produced 3,478,396 net tons of green industrial quality petroleum coke or 54.4 percent of the total United States production of green industrial quality petroleum coke (See Appendix A).

129. During 1969, three refineries (American Gilsonite, Cities Service at East Chicago, and Skelly in the United States) produced 433,025 net tons of green industrial quality. This petroleum coke was produced at refineries whose production was not totally committed for sale. This represents 6.8 percent of the total United States production of green industrial quality petroleum coke (See Appendix A).

130. During 1969, American Gilsonite Company calcined all of the green industrial quality petroleum coke it produced. Thus, this production of 101,413 net tons was not available for sale as green industrial quality petroleum coke (See Appendix A; Beatty, Tr. 1585–1586).

131. During 1969, most of the production of green industrial quality petroleum coke produced by Skelly Oil Company at Eldorado, Kansas, was sold pursuant to a contract with Air Reduction Company, Incorporated and approximately 50,000 net tons were not totally committed under contract to purchasers engaged in reselling green industrial quality petroleum coke (CX 39, CX 1296; See Appendix A).

132. During 1969, Union Oil (Pure) did not produce green industrial quality petroleum coke (CX 1295, CX 1296).

2. *Gulf Coast Area Production of Green Industrial Quality Petroleum Coke*

a. 1964

133. During 1964, the following 7 refineries produced green industrial quality petroleum coke in the States of Texas and Louisiana at refineries located in reasonable proximity to export facilities:

	Net Tons
American Oil, Texas City, Texas	149,166
Mobil Oil, Beaumont, Texas	288,000
Suntide Refining, Corpus Christi, Texas	68,306
Texaco, Inc., Port Arthur, Texas	57,750
Continental Oil, Lake Charles, La.	41,238
Gulf Oil, Port Arthur, Texas	178,572
Humble Oil, Baton Rouge, La.	368,447
	1,151,479

(CX 79, CX 80, CX 1294; See also Appendix A).

134. During 1964, these 7 refineries produced a total of 1,151,749 net tons of green industrial quality petroleum coke which constitutes 30.6 percent of the total United States production of green industrial quality petroleum coke. The 4 refineries committed to Great Lakes produced a total of 563,222 net tons or 48.9 percent of the total production of green industrial quality petroleum coke in the Gulf Coast area (CX 1294; See also Appendix A).

135. During 1964, only 611 net tons of the production of green industrial quality petroleum coke by Continental at Lake Charles, Louisiana was marketed as green coke, the balance was calcined by Continental and marketed as calcined industrial quality petroleum coke (CX 28, CX 29, CX 1305 i, CX 1294).

136. During 1964, all of the production of Gulf Oil Corporation at Port Arthur, Texas, and by Humble Oil and Refining Company at Baton Rouge, Louisiana was sold pursuant to contracts with Aluminum Company of America and Reynolds Metals Company respectively (CX 30, CX 31, CX 32, CX 33, CX 1293, CX 1305 j–k).

137. During 1964, no green industrial quality petroleum coke produced in the Gulf Coast area of the United States was available for sale to other firms engaged in the marketing of green industrial quality petroleum coke and competitors of Great Lakes (CX 79, CX 80, CX 1294).

138. The La Gloia Oil and Gas Company refinery, located at Tyler, Texas, is approximately 175 miles distance from export facilities and therefore not within reasonable proximity and during 1964, 1965 and 1969 all of the production of green industrial quality petroleum coke at this refinery was committed to Aluminum Company of America pursuant to contracts (CX 34, CX 35, CX 1294, CX 1295).

139. The only other refinery in Texas was the Texaco refinery at Amarillo and this refinery is approximately 575 miles and therefore not within reasonable proximity to export facilities. During 1964, 1965, and 1969 all of the production of green industrial quality petroleum coke at this refinery was committed to Great Lakes (CX 11, CX 12, CX 79, CX 80, CX 1295, CX 1296).

B. 1965

140. During 1965, the following refineries produced green industrial quality petroleum coke in the States of Texas and Louisiana at refineries located in reasonable proximity to export facilities:

	Net Tons
American Oil, Texas City, Texas	184,101
Mobil Oil, Beaumont, Texas	281,120
Suntide Refining, Corpus Christi, Texas	79,375
Texaco, Inc., Port Arthur, Texas	60,290
Cities Service, Lake Charles, La.	81,504
Continental Oil, Lake Charles, La.	40,365
Gulf Oil, Port Arthur, Texas	170,186
Humble Oil, Baton Rouge, La.	344,000
Shell Oil, Norco, La.	24,701
	1,265,642

(CX 79, CX 80, CX 1295; See also Appendix A)

141. During 1965, these 9 refineries produced a total of 1,265,642 net tons of green industrial quality petroleum coke which constituted 32.7 percent of the total United States production of green industrial quality petroleum coke. The four refineries committed to Great Lakes produced 604,886 net tons of green industrial quality petroleum coke or 47.8 percent of the total Gulf Coast area production of green industrial quality petroleum coke (CX 1295; See also Appendix A).

142. During 1965, all of the production of green industrial quality petroleum coke produced by Cities Service International, Inc., at Lake Charles, Louisiana was sold pursuant to contracts with Mitsui and Company, Ltd. and S.A.V.A. and exported by these firms (CX 24, CX 25, CX 26, CX 1295, CX 1307 e; See also Appendices A and C).

143. During 1965, all of the production by Gulf Oil Corporation at Port Arthur, Texas, was sold to Aluminum Company of America pursuant to a contract, most of the production by Humble Oil

and Refining Company at Baton Rogue, Louisiana was sold to Reynolds Metals Company pursuant to a contract and the production by Shell Oil at Norco, Louisiana, was committed to Kaiser Aluminum and Chemical Corporation pursuant to a contract (CX 30, CX 31, CX 32, CX 33, CX 38, CX 1295; See also Appendix C).

c. 1969

144. During 1969, the following refineries produced green industrial quality petroleum coke in the States of Texas and Louisiana at refineries located within reasonable proximity to export facilities:

	Net Tons
American Oil, Texas City, Texas	151,000
Atlantic-Richfield, Houston, Texas	40,190
Suntide Refining, Corpus Christi, Texas	86,567
Texaco, Inc., Port Arthur, Texas	26,843
Cities Service, Lake Charles, La.	324,628
Humble Oil, Baton Rouge, La.	637,000
Shell Oil, Norco, La.	236,000
Tenneco Oil, Chalmette, La.	98,167
	1,600,395

(CX 79, CX 80, CX 1296).

145. This total production of 1,600,395 net tons of petroleum coke in the Gulf Coast area constituted 25.0 percent of the total national production of green industrial quality petroleum coke (CX 1296; See Appendix A).

146. Great Lakes purchased 304,600 net tons of petroleum coke pursuant to its contracts or 19.0 percent of the total production of green industrial quality petroleum coke in the Gulf Cost area (CX 1, CX 10, CX 12, CX 1327, CX 13, CX 1296).

147. During 1969, Great Lakes purchased an additional 297,000 net tons of petroleum coke containing approximately 3.0 percent to 3.4 percent sulphur content from the Mobil, Beaumont, Texas refinery. Most of the 3.0 percent sulphur content petroleum coke is blended and calcined with other lower sulphur content petroleum cokes and most of the 3.4 percent sulphur content petroleum coke is exported to the Great Lakes stockpile in Holland. This 3.4 percent sulphur content Beaumont coke is subsequently sold by Great Lakes or its agents to European steel companies and the petroleum coke is used as a blend with coal cokes in making metallurgical coke for use in blast furnaces (CX 1293; Triska, Tr. 4275).

148. The contract for the sale of the Mobil, Beaumont, Texas petroleum coke includes a variable price provision based upon the sulphur and vanadium contents of the petroleum coke with a starting price based upon a 1.7 percent sulphur content petroleum coke. Though pre-on-stream testing of the crude indicated a 3 percent sulphur content petroleum coke, the 1.7 percent sulphur base was established to allow for this contingency because of the duration of the contract and the possibility of different crude sources and blending of crudes during this period. During 1964 and 1965 Mobil produced 288,000 and 281,120 net tons of green industrial quality petroleum coke containing less than 2.8 percent sulphur at Beaumont, Texas (CX 7, CX 1294, CX 1295; Adams, Tr. 1012–1015; Evans, Tr. 4016–4020).

149. Great Lakes' total purchases of green industrial quality petroleum coke in the Gulf Coast area, with the inclusion of the 297,000 net tons of Beaumont petroleum coke, totals 601,600 net tons or approximately 31.7 percent of the total of 1,897,395 net tons produced in the Gulf Coast area (CX 1293, CX 1296).

3. *West Coast Area Production of Green Industrial Quality Petroleum Coke*

A. 1964

150. During 1964, two refineries produced green industrial quality petroleum coke in the State of California:

	Net Tons
Mobil Oil, Torrance, California	499,686
Union Oil, Oleum, California	217,975
	717,661

(CX 79, CX 80, CX 1294, CX 1295).

151. The Mobil, Torrance green industrial petroleum coke was committed to Great Lakes and the Union Oil, Oleum green industrial quality petroleum coke is committed to its wholly-owned subsidiary, Collier Carbon and Chemical Company (CX 5, CX 6, CX 416, CX 43, CX 44, CX 1294).

152. During 1964, a total of 717, 661 net tons of green industrial quality petroleum coke was produced by the two refineries in the West Coast area. This amount constitutes 19.1 percent of the total national production of green industrial quality petroleum coke. Great Lakes purchased 499,686 net tons or 69.6 percent of the total production of green industrial quality petroleum coke in the West Coast area (CX 1294; See also Appendix A).

B. 1965

153. During 1965, two refineries produced green industrial quality petroleum coke in the State of California:

	Net Tons
Mobil Oil, Torrance, California	501,094
Union Oil, Oleum, California	241,254
	742,348

(CX 79, CX 80, CX 1295; See also Appendix A).

154. During 1965, a total of 742,348 net tons of green industrial quality petroleum coke was produced by the two refineries in the West Coast area. This amount constituted 19.2 percent of the total United States production of green industrial quality petroleum coke. Great Lakes purchased 501,094 net tons or 67.5 percent of the total production of green industrial quality petroleum coke in the West Coast area (CX 1295).

C. 1969

155. During 1969, five refineries in the State of California produced green industrial quality petroleum coke:

	Net Tons
Mobil Oil, Torrance, California	792,000
Standard Oil, El Segundo, California	320,000
Texaco, Inc., Los Angeles, California	485,545
Atlantic-Richfield, Watson, California	676,000
Union Oil, Oleum, California	316,000
	2,589,545

(CX 79, CX 80, CX 1296).

156. During 1969, a total of 2,589,545 net tons of green industrial quality petroleum coke was produced by the five refineries in the West Coast area. This amount constituted 40.5 percent of the total United States production of green industrial quality petroleum coke (CX 1296; See also Appendix A).

157. All of the production of the Mobil, Torrance, California, refinery, the Standard Oil, El Segundo, California, refinery and Texaco, Los Angeles, California, refinery was committed to Great Lakes. These 3 refineries produced 1,597,545 tons or 61.7 percent of the total production of green industrial quality petroleum coke in the West Coast area (CX 5, CX 6, CX 416, CX 14, CX 15, CX 1326, CX 1296; See also Appendix A).

158. During 1969, all of the green industrial quality petroleum coke produced by Union Oil Company at Oleum, California, was sold to its wholly-owned subsidiary Collier Carbon and Chemical Company (CX 43, CX 44, CX 1296; See also Appendix A).

159. During 1969, all of the green industrial quality petroleum coke produced by Atlantic-Richfield at Watson, California was sold to three purchasers (Harvey Aluminum, Mitsui, and Wilson Carbon) pursuant to contracts (CX 17, CX 18, CX 19, CX 1296).

I. Long-Term Contracts as a Business Necessity

160. A coker cannot be installed or operated unless the refinery makes reliable arrangements to dispose of the petroleum coke as and when the coke is produced. The coking unit is integrated into the overall refinery operations. The coker operates continuously. Coker feed stock is transported to the coking unit on a daily basis. The functioning of other refinery units such as the catalytic cracker depend upon the coker's daily yield of lighter oils. The refinery balance and operating efficiency depend upon the proper functioning of each of the units, including the coker. Unplanned interruptions of operations will cause a "back-up" in the processing of petroleum and a loss of efficiency. As an incident of the operation of the coker, drums of petroleum coke (containing up to 3,000 tons) are produced every 24 hours. The coke must be removed from the drum every day, or the coking unit will not be able to function. Consequently, refiners will not install or operate coking units in the absence of reliable arrangements to dispose of the coke output (Clausen (Texaco), Tr. 1385–1389, 1395, 1405–6; Glenn, (Texaco), Tr. 4222–4224, 4170–4174, 4196, 4218–4219; Medlin, (MO), Tr. 3467; Teitman, (MO), Tr. 3418, 3441; Grun, (Gulf), Tr. 396, 402–403; see also GLCX 102 (d) and (e): Decker, (Atlantic-Richfield), Tr. 966–968, 973; Musser, (American), Tr. 592–594, 597, 598, 601–602; McCulley, (Continental), Tr. 2145–2146; McCrum, (CRA, Inc.), Tr. 910–916 Twomey, (Sun), Tr. 1749–50, 1770, 1780–1785, 1789–1791; RX 1, pp. 5 *et seq.*; Kemnitzer, Tr. 4737–4738; Beatty, Tr. 4874–4878; McClain, Tr. 1895–1898, 1957–1958; Nobel, Tr. 655–656; GLCX 4 & 5).

161. The only economically feasible methods available to refiners for the commercial disposition of petroleum coke are contracts disposing of the petroleum coke output to a qualified buyer or vertical integration into the petroleum coke business. Spot sales of petroleum coke as produced at the refinery are not economically feasible, as conceded by complaint counsel (Tr. 4549; RX 1; Kem-

nitzer, Tr. 4733–4737; Glenn, Tr. 4195–4197, 21–44, 4244–4245; Twomey, Tr. 1775–1778, 1780, 1784–1785; Musser, Tr. 592–594, 598, 599, 602–603; Garey, 215; Grun, Tr. 404–06; Phillips, Tr. 4633–4637, 4640–4644).

162. Contracts for the disposition of petroleum coke output must be for a reasonable period of years to at least achieve a "payout." Although testimony indicates a sufficient period should be allowed to cover investment return, profit is a business risk that must normally be assumed and not protected unless required by public interest (*e.g.*, a utility) (Phillips, Tr. 4605–4607; Kemnitzer, Tr. 4742–4743, 4754–4755). Contract justification is demonstrated as follows:

a. The investment in new cokers involves multimillion dollar expenditures which typically require a five-year "payout" period under some circumstances. (Kemnitzer, Tr. 4753–4755; Medlin, Tr. 3514; Evans, Tr. 4043, 4047–4054, 4092–4094; Roberts, Tr. 1262–1267).

b. Since it is essential to coker operations that the coke be removed from the coking unit as it is produced, and failure to have the coke removed will cause the refinery to cease coke operations and to ultimately back up the other products used and produced at the refinery, contracts for a reasonable period of years are essential to assure removal of the petroleum coke (Phillips, Tr. 4599–4614; Musser, Tr. 520–521, 533–534, 592–594; Moore, Tr. 1185–1186, 1197–1199; McCall, Tr. 830–831; McCrum, Tr. 850–851, 901–906; Murray, Tr. 3899–3902, 3906, 392–393, 3965–3966; Teitman, Tr. 3440–3441; Twomey, Tr. 1744; Clausen, Tr. 1384–1386; Glenn, Tr. 4143–4144, 4148; Roberts, Tr. 1262–1267; Evans, Tr. 4092–4094, 4052–4054).

163. Representatives of both respondent and non-respondent refiners expressed the opinion that their companies would not have constructed or operated cokers in the absence of reasonable term contracts to assure disposition of the petroleum coke (Decker, Tr. 968; Grun, Tr. 401–403; (see also GLCX 102 (d) & (e); McCrum, Tr. 901–906; Noble, Tr. 655–656; GLCX 2, 3, 4, & 5; McCulley, Tr. 2154–2155; Medlin, Tr. 3471–3476; Kemnitzer, Tr. 4776 "refinery management will not allocate resources to petroleum coke business * * * except in very special cases.")).

164. In addition to the investment consideration, it is essential from the standpoint of the refinery's operating efficiency and product balance that a contract assure the regular and reliable disposition of the petroleum coke output. The term of years required to

assure reasonable certainty from the simple operations standpoint varies according to respondent witnesses from two to ten years, or an average of five years in response to conditions in the petroleum business at the time of contract renewals, the quantities of petroleum coke involved, and the needs of the petroleum coke purchaser. The foregoing testimony however, must be conservatively scrutinized in the presence of current and usual requirements herein discussed suggesting 3 to 5 years is adequate and acceptable (Twomey, Tr. 1780–1787; Musser, Tr. 592–603; McCulley, Tr. 2145–2149; Glenn, Tr. 4187–4192; Kemnitzer, Tr. 4749–56).

165. From the petroleum coke purchasers' standpoint, supply contracts are a business necessity for the following reasons:

a. Substantial investments in facilities are required in order to engage in the petroleum coke business. Sizing, screening, handling and storage facilities typically cost several million dollars. Calcining plants require investments of approximately $4,000,000 dollars for a new kiln and $7,000,000 for a grass roots plant installation. A reasonable term of years is required to achieve the payout cost of the investment (Beatty, Tr. 1669, 1686–1689, 4874–4876; Evans, Tr. 4047–4054; Henderson, Tr. 1854–1858; Roberts, Tr. 1267, 1274–1275; McClain, Tr. 1945–1946).

b. Transportation costs with respect to petroleum coke are extremely critical to firms in that business, so that an assured source of coke supply within reasonable proximity of the petroleum coke plant is essential to the efficient and competitive operation of that plant. It is customary to obtain a source of supply from a refinery within 200 miles of the calcining plants (Beatty, Tr. 1609, 4878–4879; Phillips, Tr. 4602–4604; Roberts, Tr. 1262–1263, 1274; Henderson, Tr. 1854–1855; Parker, Tr. 3561–3563, 3567–3571).

c. Operators of calcining plants need a steady and reliable supply of green petroleum coke of known quality and adequate quantity to permit efficient and competitive operations of their plant (View of Port Arthur calcining plant; Parker, Tr. 3532–3555; Beatty, Tr. 4876–4878; Shea, Tr. 3664–3676; Nelson, Tr. 4467–4474; Roberts, Tr. 1274–1275; Henderson, Tr. 1855; McClain, Tr. 1945–1946, 1952–1954).

d. Interruption of the source of petroleum coke supply to a calcining plant causes severe operational problems and loss of efficiency. For example, when a kiln must be shut down, damage to refactory bricks are likely due to heat changes. Because the kiln itself must operate 24 hours a day, 365 days a year, a loss of

supply increases the costs per ton which flows through the kiln (Parker, Tr. 3549–3550, 3613–3614, 3576–3579; Nelson, Tr. 4472–4474).

e. Firms engaged in the petroleum coke business must meet the demands of their customers or corporate affiliates for a continuous supply of petroleum coke at competitive prices (Beatty, Tr. 1687–1689, 4930–4931; Henderson, Tr. 1855; Triska, Tr. 4268–4269; Shinozaki, Tr. 4337–4340).

f. The petroleum coke business is risky because of the importance of a proximate and regular supply of petroleum coke, and the refiner's option to discontinue coking. A contract to purchase petroleum coke is necessary to reduce that risk to a level acceptable to businessmen to encourage their investment in the petroleum coke business (Triska, Tr. 4257–4259; Crimmins, Tr. 4514–4516; Phillips, Tr. 4600–4614; Parker, Tr. 3561).

166. In some of its applications, petroleum coke utilized for fuel, is directly competitive with coal, which is sold on a long-term contract basis.[4] This comparison has no application to industrial coke involving a separate market.

167. It would be an unreasonable business risk for a non-integrated firm to invest in a calciner without a reasonable contract assurance of green petroleum coke supply (Henderson, Tr. 1854–1858; Roberts, Tr. 1262–1264A, 1267; Beatty, Tr. 4874–4876).

168. The ability to enter into long-term contracts to sell the petroleum coke output has been an incentive favoring the installation of cokers at petroleum refiners for the following reasons:

a. Historically, difficulties with petroleum coke have been a serious deterrent to coker installations. The first petroleum coke operations commenced in 1910 with the installation of batch cokers at several refineries. However, there were no practical methods for disposing of the petroleum coke until after 1935, when Great Lakes created the petroleum coke business. As a result, some refiners were discouraged from installing cokers, and other refiners closed down the cokers because of poor marketability of the product. These experiences with coke are still a factor influencing refinery managements in connection with a decision to install a

[4] The U.S. Department of the Interior, Bureau of Mines, recommended in 1964 that metallurgical coal exporters to Japan offer the purchasers 10-to-35 year contracts in order to enhance exports of that product. Petroleum coke is directly competitive with metallurgical coal in the P.C. coke applications (Beatty, Tr. 1671–1673, 4846–4851; Triska, Tr. 4268–4269; Shinozaki, Tr. 4339–4340, 4366–4369).

coker (GLCX 118 (a) & (b); Glenn, Tr. 4137–4138; TX–30, 31 & 32; Medlin, Tr. 3467).

b. Since the establishment of the petroleum coke business in 1935, the number of petroleum cokers has appreciably increased. Of the 52 U.S. refineries operating cokers in 1969, ten (American Gilsonite, Grand Junction; Cities Service, E. Chicago; Continental Oil, Lake Charles; Skelly Oil, El Dorado; Standard Oil (Ohio) at Lima and Toledo; Union Oil at Oleum, Lemont, and Santa Maria; and Signal Oil, Bakersfield) had vertically integrated into some phase of the petroleum coke business. The other 42 refineries are not engaged in the petroleum coke business and dispose of their petroleum coke output by selling it to firms engaged in that business (CX 80 (a) & (b)).

c. During 1970 and the first quarter of 1971, five new cokers were constructed at refineries. One of these (Crown Central Petroleum Corporation's Houston refinery) entered into a joint venture with Republic Carbon Company, which established a calcining plant at Houston, Texas. The other four refineries contracted to sell their petroleum coke to firms engaged in the petroleum coke business (Beatty, Tr. 4881–4882; McClain, Tr. 1868).

d. Contracts whereby the refiner retains the right to change the quality and quantity of petroleum coke produced are a particular incentive to coker installations by those refineries which process crude oils from various sources (Kemnitzer, Tr. 4787–4788; Evans, Tr. 4019; Clausen, Tr. 1378, 1396, 1400–1401; Twomey, Tr. 1749, 1762–1766).

169. For the most part, refiners have sold the output to a single purchaser. In certain special circumstances, a few refiners have been able to contract to sell their petroleum coke to more than one customer. In each instance, the refinery had available to it (i) substantial petroleum coke storage facilities; (ii) two or more customers with compatible business needs for the petroleum coke; (iii) coker feedstocks of such stability to permit the refiner to commit to the production of specific amounts of petroleum coke of given quality specifications; and (iv) agreement among the customers to abide by essentially similar contract terms as to specification, delivery and duration of the contract. Some of the circumstances permitting more than one purchaser are as follows:

a. The Cities Service, Lake Charles, La., refinery has available substantial "safety-valve" storage facilities at the Port of Lake Charles and at the Gulf Coast Aluminum calcining plant; was in a position to contract for the long-term production of specific quan-

tities and qualities of petroleum coke; and was able to contract with compatible customers willing to abide by the same contractual terms, who used the coke in calcining and who were cooperative in loaning and borrowing petroleum coke as needed to load ships (Newman, Tr. 5214, 5219–5222, 5225–5226; CX 24, CX 25, CX 26).

b. The Atlantic-Richfield coker at Watson, California, has available substantial coke storage facilities at the refinery and at Harvey's calcining plant; was in a position to commit to the production of petroleum coke of specified quantity and quality; and negotiated customer compatibility in the form of contractual provisions limiting Harvey to the calcined coke business, Mitsui to the sale of green petroleum coke in Japan, and Wilson to the sale of green petroleum coke in places other than Japan (CX 17, CX 18, CX 19; Dieudonne, Tr. 411–414).

c. Marathon's refinery at Robinson, Illinois, has available substantial storage and other handling facilities at its refinery and at the neighboring General Carbon calcining plant; was able to commit to the production of a specified quantity of petroleum coke; and produces a petroleum coke of extremely high quality which is easily marketed for the production of special aluminum anodes, as well as graphite electrodes. Moreover, Marathon is integrated into the petroleum coke business with overseas calciners and its recent entry into coke marketing (CX 36, CX 417, CX 421; Beatty, Tr. 4872–4874; Biehl, Tr. 309–313).

170. The respondents, and most other refineries, are not so situated, for the following reasons:

a. They do not have available coke storage facilities;

b. They require flexibility in selection of coker feedstocks; and

c. Compatible purchasers willing to abide by the same contract terms are a rarity. Mobil has experienced difficulties when it sold to multiple purchasers (Evans, Tr. 4099–4101, 4103, 4115, 4120; Kemnitzer, Tr. 4760–4763, 4787–4788).

171. At the refineries designated in the complaint, respondents have disposed of their petroleum coke output on the basis of long-term, full output contracts in preference to vertical integration. If such contracts were unreasonably limited or prohibited, however, respondents would have to re-evaluate vertical integration, arrange for a non-commercial disposition of coke, or discontinue coking (Kemnitzer, Tr. 4749–4750; Garey, Tr. 185–186, 189–191, 214–216; Glenn, Tr. 4194–4198, 4214–4216, 4244–4245; Clausen,

Tr. 1385–1389, 1395, 1405–1406; Evans, Tr. 4067, 4114; Phillips, Tr. 4607–4614).

J. Background Development of the Petroleum Coke Business by Great Lakes Carbon Corporation

172. Prior to 1932, petroleum coke was virtually unsaleable. Refineries had attempted to sell the product, but no regular outlet was developed. As a result of the lack of a market, mountainous storage piles of petroleum coke, totaling several million tons, accumulated at Texas and adjacent coastal and interior refineries, creating an expense for handling the coke into storage, taking up valuable storage space within the refinery, as well as adding to the fire hazards around the refineries. As a result, refiners were reluctant to install cokers and some refineries discontinued coking (GLCX 113, GLCX 118, pars. 2 & 3; Glenn, Tr. 4137–4139).

173. In 1932, Great Lakes undertook to create a market for petroleum coke. Great Lakes constructed large plants for sizing and screening the petroleum coke, transferring it into railroad cars or vessels at ports of loading. The coke was transported to terminals in Brooklyn, N.Y., and the Chicago area, where Great Lakes sold the petroleum coke as fuel, some of it in the form of briquettes sold under a trade name. Through these efforts, Great Lakes successfully sold most of the accumulated storage (GLCX 113, GLCX 118, pars. 4 & 5).

174. In the course of its efforts in creating a market for petroleum coke, Great Lakes conceived of a revolutionary idea for producing calcined petroleum coke.

a. Prior to 1935, petroleum coke had been used in small quantities by metallurgical companies who desired a material having the highest possible content of pure fixed carbon for use in the manufacture of carbon anodes, carbon electrodes and other carbon products. For those applications, the metallurgical firms purchased petroleum coke at various refineries in raw form and transported it to the point of consumption where it was calcined in electric, vertical kilns (Nelson, Tr. 4462–4463; GLCX 112 (a) & (b), GLCX 113, GLCX 118 (c), par. 6).

b. The vertical kiln process was a batch process, not a continuous one. The kiln could only hold about ten tons at a time. There were stringent quality requirements for the green petroleum coke fed into the kiln, particularly with respect to size (only lump coke, no fines) and volatile content (high volatile content would cause

fusion and disruption of the calcining operation). Moreover, the calcining or heating of the green coke was not uniform, so that some coke was overcalcined, while other coke in the batch was insufficiently calcined. After calcining, the kiln had to be cooled for five days before it was manually emptied (GLCX 112; Nelson, Tr. 4467–4471).

c. Due to the high transportation costs, disparate quality, and operational inefficiency of the vertical kiln calcining methods, the metallurgical firms preferred coal coke (foundry or pitch coke) over petroleum coke as a source of carbon (GLCX 118 (c) & (d), par. 6).

d. In 1934, Great Lakes conceived the idea of establishing a rotary calciner near a source of petroleum coke supply, calcining the coke at that point and selling calcined coke as carbon to the aluminum industry. The idea had commercial validity because (i) a substantial saving in freight cost could be achieved, since the moisture (constituting 15 percent to 30 percent of the weight) would be eliminated by calcining near the refinery; and (ii) the rotary kiln, by operating continuously at even and consistent temperatures, permitted better quality control and more efficient operation than vertical kilns.

Moreover, the rotary kiln process is a continuous one, with the kiln operating 24 hours a day, receiving green coke into the kiln continuously and discharging the calcined coke continuously from the other end of the kiln. The temperature can be applied uniformly to all the material sent through the kiln. The rotary calciner can take coke "fines" as well as lump coke, and it can handle petroleum coke with higher volatile content than was possible in the electric kiln. The tumbling action of the particles through the kiln yields a uniform, properly calcined product (Nelson, Tr. 4471–4474; GLCX 118 (d)).

175. Implementation of that idea required a source of green coke situated near the calciner in order to achieve the contemplated efficiency in transportation.

In addition, Great Lakes needed an assured source of coke adequate to satisfy the rotary calciners' need for continuous feed or raw petroleum coke (Nelson, Tr. 4471–4474; Crimmins, Tr. 4513; Parker, Tr. 3543, 3549–3550, 3613–3614).

176. In 1935, Great Lakes entered into a ten-year contract with Texaco, Inc., to purchase the output of petroleum coke at the Texaco, Port Arthur, Texas, refinery, as, when and to the extent such petroleum coke was produced. On the basis of that source of

supply, Great Lakes constructed the first rotary kiln petroleum coke calciner. The calciner was built at Port Arthur, Texas, adjacent to the Texaco refinery (GLCX 118(d), par. 8; GLCX 113; Crimmins, Tr. 4513; Parker, Tr. 3560–3561, 3580, 3601–3603).

177. The rotary calciner was a revolutionary innovation, and Great Lakes was successful in selling calcined coke to aluminum companies and also to manufacturers of carbon electrodes. In 1937 Great Lakes constructed a calciner at Lockport, Illinois, obtaining its petroleum coke supply from the Texaco refinery at Lockport, Illinois. In 1938 Great Lakes built a second kiln at its Port Arthur, Texas, plant, again obtaining its supply of petroleum coke at Texaco refineries in Port Arthur, Texas; Amarillo, Texas; and Fort Worth, Texas. In 1940, following the westward expansion of the aluminum industry, Great Lakes entered into a long-term contract with the Shell Oil Company to purchase the petroleum coke output at the refinery at Dominquez, California, and Great Lakes built a rotary calcining plant near the refinery at Wilmington, California. In 1942, Great Lakes constructed a rotary calcining plant at Calumet, Illinois, which initially obtained its green petroleum coke from the Defense Supply Agency during World War II. After the war, Great Lakes contracted to purchase the petroleum coke produced at Shell's Wood River, Illinois, plant in order to supply the Calumet calciner (GLCX 118(e), par. 9; GLCX 114; Crimmins, Tr. 4515–4516; Triska, Tr. 4257–4259, 4281–4282).

178. After the commencement of World War II, the Shell Oil Company refinery at Dominguez, California, ceased to produce petroleum coke and, instead, refined fuel oil for the Navy. Since the production of calcined coke was essential for the war effort, the Defense Supply Agency obtained green petroleum coke sufficient to keep the calciner operating. At the end of the war, Great Lakes was not able to obtain a regular source of supply and, since it was not feasible to operate on the basis of spot purchase, closed the Wilmington plant and disbanded its West Coast operations. The plant was subsequently reopened in 1948 on the basis of a 20-year contract to purchase the petroleum coke produced by a new coker installed by General Petroleum Company in Wilmington, California (Triska, Tr. 4257–4259; Crimmins, Tr. 4515–4516).

179. In 1956 Great Lakes built a devolatizing plant at Caspar, Wyoming, which obtained its petroleum coke supply from Texaco's refinery in Caspar. In 1964 Great Lakes built a calcining plant in Enid, Oklahoma, which was more conveniently located to the com-

pany's coke supplies in Oklahoma and Kansas (GLCX 118(e), par. 9).

180. Great Lakes continued its efforts to create and develop new uses for petroleum coke, both as a fuel and as a source of carbon.

a. In 1941 it organized the first research and development laboratory devoted to the study of petroleum coke and its applications. The company has continued to operate the laboratory (which was moved to Elizabethton, Tennessee in 1962) and has introduced numerous innovations and improvements which have contributed to the development and growth of the petroleum coke business. Among the innovations are needle coke (petroleum coke made from special coker feedstocks which, after calcining, is used in making graphite electrodes); fortified coke (a blend of coal and petroleum coke for foundry use); and significant and extensive work on improvements in the calcining of petroleum coke and the utilization of pitch (Shea, Tr. 3648–3651, 3671–3572, 3678–3680; Triska, Tr. 4260–4262, 4263–4270, 4281).

b. The domestic supply of petroleum coke has always exceeded demand. Consequently Great Lakes established a worldwide marketing organization and has invested heavily in terminals, storage, crushing and screening facilities in foreign countries in order to facilitate the sale of petroleum coke to foreign users. For example, Great Lakes has recently invested in a $3,000,000 coke-handling and storage facility in Ghent. The overseas facilities are essential to compete with foreign producers of green petroleum coke and calcined petroleum coke and to permit utilization of the least expensive methods of ocean transportation. Moreover, green petroleum coke is degradable in transport, so that sizing and screening overseas is the most efficient method for processing that product (McClain, Tr. 1985–1986; Roberts, Tr. 1252–1262; Beatty, Tr. 4842–4844, 4928–4929).

c. Great Lakes continued its work on development of fuel uses for petroleum coke, which it had pioneered in 1932. Great Lakes made extensive efforts to develop the utilization of petroleum coke by the Gulf Power Company in Florida, and its laboratory work has resulted in novel methods for making fuel briquettes (GLCX 118(a) & (b); Evans, Tr. 4007–10, Shea, Tr. 3680, 3688–3691).

d. In 1963 Great Lakes requested A. A. Triska to pursue his theories with respect to the utilization of petroleum coke blended with metallurgical coal for the production of a blast furnace coke. After more than six years' work with steel mills in Europe, Japan

and the United States, Mr. Triska was successful in selling P.C. coke to the steel industry. As a result, between two and three million tons of green petroleum coke have been sold to the steel industry (Triska, Tr. 4263–4268, 4281, 4289–4295, 4310–4311; GLCX 108).

K. Production Growth and Competition

181. An expert witness, William Kemnitzer, called by the respondent refiners, has had experience with petroleum coke for some 40 years and authored studies of coking and the petroleum coke business in 1935 and 1965. Mr. Kemnitzer testified (Tr. 4748):

> I have noted this one striking development over the years I have been interested in coking, that there are many more operators in it today, many more cokers and many more purchasers than there were 30 years ago, many more.

The foregoing, however, must be considered in context with other evidence discussed herein, that such new entries are integrated or self-users and not normally in the separate business of buying and selling coke similar to Great Lakes.

182. As of 1935 the coke that had been produced was piling up with no takers. Refineries were reluctant to install cokers, and the trend was toward closing down existing facilities (GLCX 118(a) & (b); Glenn, Tr. 4137–4140; GLC 113).

183. In 1965 there were cokers in operation at 45 refineries in the United States which produced 6,640,907 tons of petroleum coke (CX 1292 (b)).

184. In 1969 there were cokers in operation at 52 refineries in the United States, and they produced a total of 10,056,920 tons of petroleum coke, an increase of over 50 percent between 1965 and 1969 (CX 1293(a) & (b); CX 80(a) & (b); Evans, Tr. 4055).

185. In 1970 and the first quarter of 1971, new cokers came on stream at Shell Oil Company's Wilmington, California, refinery; Humble Oil's refinery at Benecia, California; Clark Oil Company's Wood River, Illinois refinery; Crown Central Petroleum Corporation's Houston, Texas refinery; and Coastal States' refinery at Corpus Christi, Texas. The Shell refinery had a petroleum coke production capacity of 600,000 tons per year, and the Crown refinery had a production capacity of 100,000 tons (CX 80(b); Beatty, Tr. 4869–4870, 4881–4882; Evans, Tr. 4055; McClain, Tr. 1868).

186. In 1965 there were 22 refinery cokers in foreign countries

which produced 2,271,000 tons of petroleum coke (CX 1303(a) & (b)).

187. In 1969 there were cokers in operation at 32 refineries located outside the United States which produced 6,710,000 tons of petroleum coke in that year, an increase of 146.6 percent in the four-year period (CX 1304(a) & (b); GLCX 105).

188. The foreign petroleum coke production is available to purchasers in competition with that sold by United States exporters (Beatty, Tr. 4897, 4929; McClain, Tr. 1942–1943; Shinozaki, Tr. 4339–4340, 4366–4369).

189. There is a reasonable possibility that petroleum coke production may expand at its present rate in the United States and at an increasing rate of growth in foreign countries (Kemnitzer, Tr. 4782–4785).

190. *Union Carbide Corporation*

a. In 1945 the Union Carbide Corporation established rotary kiln calciners at Clarksburg, West Virginia, and Niagara Falls, N.Y. Union Carbide entered into long-term petroleum coke purchase contracts with refineries in Pennsylvania, Ohio, Illinois, and Indiana. During the period 1945 to 1965, Union Carbide also purchased calcined petroleum coke and green petroleum coke. Union Carbide used the petroleum coke in the production of graphite electrodes, carbon products, silicon metals, and calcium carbide; and also sold raw and calcined petroleum coke in the United States or in foreign countries (GLCX 118(e)-(f)).

b. Union Carbide is an active competitor in the sale of calcined petroleum coke. For example, in 1964 Union Carbide sold 124,852 tons of petroleum coke to the domestic aluminum industry. In that same year, Great Lakes Carbon sold 96,056 tons. It is the opinion of the accountant called by complaint counsel that Union Carbide was a leading supplier of calcined petroleum coke to the aluminum industry in that year and, in fact, had sold more to that industry than did Great Lakes. In 1971 Union Carbide acquired General Carbon and Chemical Corporation, which firm has been engaged in the petroleum coke business since 1956 (CX 1305(p); CX 1305(am); Lutyk, Tr. 3058–3059; McClain, Tr. 1978).

191. *Collier Carbon and Chemical Corporation*

a. In 1946 the R.T. Collier Corporation contracted to purchase the petroleum coke output of the Union Oil Company's Oleum refinery and built a rotary kiln calcining plant at Alviso, California. Since that time, Collier has been an active and growing competitor in the petroleum coke business. In 1954 Collier (which had

been acquired by Union Oil Company) entered into a ten-year contract with Union to purchase the petroleum coke output at Oleum and built a new rotary calciner at Contra Costa, California to replace the Alviso calciner. In 1959 Collier entered into an 11-year contract with Union Oil Company to purchase the petroleum coke output at Union's Santa Maria refinery and Collier built a calciner on an adjoining site. In 1962, a second calciner was built at Santa Maria. In 1971, Collier expanded east of the Mississippi River, constructing a calciner at Lemont, Illinois. That plant obtains its source of petroleum coke supply from the refinery operated by its parent company, Union Oil Company at Lemont (GLC 118(p); Henderson, Tr. 1797, 1803, 1847–1848, 1853).

b. Mr. Henderson, president of Collier Carbon and Chemical Corporation, called as a witness by complaint counsel, testified that an assured source of supply close to the calcining plant is "essential to constructing a calciner" and that an assured source of supply is necessary to operate a calciner and to serve calcined coke customers. He also testified that Collier would not build a calciner unless it had a contract source of supply or an assured source of supply from its parent company, and that, in fact, it would be an unreasonable business risk to construct a calcining plant unless the company had a contract of reasonable duration (Henderson, Tr. 1854–1858).

c. In 1969, Collier Carbon and Chemical Corporation obtained a contract to purchase the petroleum coke output at a refinery operated by the Union Pacific Railroad. That contract is of a five-year duration, and the coke purchased from Union Pacific is sold as green coke in both the United States and foreign countries, including the Japanese steel industry. Collier could not have built a calciner on the basis of less than a 5 year contract unless the price of the coke was very inexpensive and, in the case of the Union Pacific arrangement, such a price would have been so low "that there would not have been much attraction" to Union Pacific (Henderson, Tr. 1858–1859; CX 422(a); Shinozaki, Tr. 4341–4343).

192. *Republic Carbon Products Company* (formerly Republic and Coke Company)

a. Prior to 1970, when it entered the calcined coke business, Republic functioned as a contract marketer of green petroleum coke for various refineries. Between 1946 and 1969, Republic contracted to market petroleum coke produced at the American Oil Company refineries at Sugar Creek, Missouri; Neodesha, Kansas;

Casper, Wyoming; Whiting, Illinois and Wood River, Illinois; at the Mobil refineries located at Trenton, Michigan and Paulsboro, N. J.; at the Sun Oil Company refinery at Duncan, Oklahoma; at the El Dorado, Kansas refinery of Skelly Oil Company, at the Midland Cooperative refinery at Cushing, Oklahoma; the Great Northern Oli Company at Pine Bend, Minnesota; and the N.C.R.A. refinery at McPherson, Kansas. In 1969, Republic marketed 1,800,000 tons of green petroleum coke, an amount which represents approximately 18 percent of total U.S. production of petroleum coke in that year (McClain, Tr. 1862–1895; CX 1293).

b. In 1969, Republic was acquired by AMAX Inc., (formerly American Metal Climax). Following that acquisition, Republic entered into the production of calcined petroleum coke, constructing a calcining plant at Houston, Texas under the name International Calciners, Inc. In order to obtain the green petroleum coke needed for the calciner, Republic negotiated a joint venture agreement with Crown Central Petroleum Corporation, whereby the calciner would be built next to Crown's refinery and would purchase the coke output of a coker to be constructed at Crown's Houston refinery. To supplement that supply source, Republic also negotiated a contract to purchase the output of another new coker being installed at the Coastal States' refinery at Corpus Christi, Texas. That contract is for a five-year term, with a mutual option to renew for another five years (McClain, Tr. 1931–1935, 1955–1956, 1961–1962).

c. It has been Republic's experience that virtually all refiners producing petroleum coke desire contracts to dispose of the coke (unless they enter the coke business directly), that the problems associated with coke production are compounded when the refinery has no storage facilities, and that especially with respect to new cokers, refiners consider a reasonable term contract disposing of the by-product coke as it is produced to be an essential part of the refinery planning and overall operations (McClain, Tr. 1949–1957).

d. The necessity for contracts has not interfered with Republic's growth and expansion and, in fact, purchase contracts of varying duration are needed to meet Republic's customer requirements. Purchasers installing calciner operations need the long-term assurance of a suitable supply of green petroleum coke, and Republic could "absolutely" not have installed its calcining plant unless it had the long-term assurance of "feed coke." (McClain, Tr. 1944–1946, 1954–1955).

e. Republic is an active and growing competitor in the petroleum coke business. In 1970, Republic continued its growth, successfully outbidding Great Lakes to purchase the petroleum coke output of a new coker to be installed at the Clark Oil Company refinery at Wood River, Illinois. In addition to bidding on new cokers, Republic is reasonably knowledgeable as to when its competitors' contracts with operating cokers are due to expire and, as a regular and routine part of Republic's competitive efforts enters into negotiations with those refineries (McClain, Tr. 1959; Beatty, Tr. 4881).

193. *Wilson Carbon Co.*

Wilson Carbon, a subsidiary of International Mineral and Chemical Co., entered the petroleum coke business in approximately 1955. Wilson has functioned as a marketer of green and calcined petroleum coke, obtaining its supply primarily from American Gilsonite Company, Tidewater Oil Company, Atlantic-Richfield's Watson, California refinery; Humble's refinery at Benecia, California; and Shell's refinery at Wilmington, California. Wilson is an active and growing competitor in the petroleum coke business. It has established a foreign marketing organization and, by 1970, had grown to be a large exporter of petroleum coke from the United States to Europe. Wilson has also made trial shipments to Japan and is soliciting business there (Beatty, Tr. 4868–4869, 4881, 4920, 4947–4948; Dieudonne, Tr. 414, 422; McClain, Tr. 1966–1968; Triska, Tr. 4296–4297; Shinozaki, Tr. 4341, 4398).

194. *American Gilsonite Company*

American Gilsonite operates a coker and calciner. Its raw coke supply is derived from both gilsonite and petroleum coke. The calcined products are sold domestically and in foreign countries. Gilsonite has been an active competitor in the petroleum coke business (GLCX 109(a); Beatty, Tr. 1585–1586; McClain, Tr. 1938, 1968).

195. *Continental Oil Company, Lake Charles, La.*

In 1956 Continental Oil Company constructed a calciner at its Lake Charles, Louisiana refinery. Prior to construction, Continental contracted to sell the needle and regular coke calcined at its Lake Charles' plant to Union Carbide and Carbon Corp. Pursuant to that contract, Union Carbide agreed to purchase the calcined coke output at that plant for a period of ten years and the contract was renewed for ten years in 1965. Continental subsequently installed coker-calciner combination plants at the Conoco refinery at Immingham, England and Mizushima, Japan. The Immingham

plant sells calcined and green coke in competition with U.S. exporters, including Great Lakes, in the United Kingdom, Scandanavia and Europe. Conoco's coke has displaced, "pound for pound," petroleum coke formerly exported from the United States. The Japanese plant presently produces needle coke. Continental is considered a competitor in the domestic and foreign petroleum coke business (Beatty) Tr. 4889–4890, 4897, 4905, 4918–4919; GLCX 118(f); McClain, Tr. 1976–1978).

196. *Mountaineer Carbon Co.*

In 1956 Mountaineer Carbon Co., a joint venture of Standard Oil Co. of Ohio (Sohio) and Consolidation Coal Company, constructed a calcining plant at Cresap, West Virginia. Mountaineer contracted to purchase the petroleum coke output at Sohio's, Lima, Ohio and Toledo, Ohio refineries. The contract with Sohio was for a term of five years; was renewed for five years in 1962; and in 1966, after Sohio acquired Consolidation's 50 percent interest in the company, Mountaineer became a wholly-owned subsidiary of Sohio. Mountaineer is an active competitor in the petroleum coke business and sells green and calcined petroleum coke to domestic customers and for export. Mountaineer expanded its operations several times between 1956 and 1966, obtaining its coke supply principally from Sohio refineries (GLCX 118(g); Beatty, Tr. 1586; GLCX 79 B & C).

197. *General Carbon and Chemical Corporation*

a. General Carbon and Chemical Corporation built a calciner in 1958. In connection with the construction and operation of that calciner, General entered into a series of contracts. By contract dated November 25, 1957, Union Carbide agreed to make payments to General Carbon and Chemical Corporation in consideration of General's agreeing to purchase raw delayed petroleum coke from Union Carbide and from Socony Mobil Oil Company and agreeing to sell calcined coke produced to purchase the entire production of raw delayed petroleum coke at Mobil's East St. Louis refinery for a term of five years. Union Carbide entered into a five-year contract with Marathon Oil Company to purchase the entire raw coke production at Marathon's Robinson, Illinois refinery. On October 31, 1957, General leased from Marathon land at Robinson, Illinois adjoining the refinery, on which land the calcining plant was built. On February 1, 1959, the General contract with Union Carbide was amended by a 14-year contract. That and a subsequent amendment are identified as CX 1225 and 1226 (GLCX 118(g)-(h)).

b. The Marathon petroleum coke which was part of the supply for this plant had formerly been under contract to Great Lakes. Union Carbide and General outbid Great Lakes, and Marathon entered into the new contract rather than renew with Great Lakes (Beatty, Tr. 4859).

c. General has been an active competitor in the petroleum coke business, selling calcined coke to Union Carbide and other graphite and aluminum producers in the United States and in foreign countries. General's principals provided know-how for the construction of the Swiss Aluminum calciner at Porto Marghera, Italy; and General helped obtain a source of green petroleum coke for the Swiss, entering into a contract to purchase the output of Champlin's, Enid refinery (GLCX 109; Beatty, Tr. 4857–4861, 4910–4911, 1586; McClain, Tr. 1938, 1968).

d. In 1971 Union Carbide acquired General Carbon.

198. *Kaiser Aluminum & Chemical Corp.*

a. Prior to 1959, Kaiser Aluminum & Chemical Corp., had purchased all the calcined coke needed in its operations. In 1959 Kaiser constructed a calciner at Purvis, Mississippi, purchasing the plant's raw petroleum coke supply by virtue of a five-year contract with Gulf Oil Corporation, whereby Kaiser agreed to purchase the fluid petroleum coke output of the Gulf Purvis refinery. In 1960 Kaiser opened a calciner at Gary, Indiana, which obtained its petroleum coke supply on the basis of a five-year contract with Republic Coal & Coke Company (now Republic Carbon Division of American Metal Climax, Inc.).

In 1963 Kaiser contracted to purchase the inventory and fluid petroleum coke output of the Humble Oil & Refining Company refinery at Billings, Montana. The contract was for an initial term of eight years, and Kaiser constructed a calcining facility at Mead, Washington.

In June 1964 Kaiser contracted to purchase substantially all the petroleum coke to be produced from a coker to be constructed at Shell's Norco, Louisiana refinery. Kaiser constructed a calciner adjacent to Shell's refinery property line. The contract with Shell was for an initial term of eight years.

In 1966 Kaiser contracted to purchase the petroleum coke output of a new coker installed by Tenneco at its Chalmette, Louisiana refinery. Kaiser constructed a calciner adjacent to the refinery and produces calcined petroleum coke at that plant. In 1970 Kaiser contracted to purchase the petroleum coke output of a new coker installed at the Albans, Louisiana refinery of Gulf Oil Cor-

poration. Kaiser constructed a new calcining plant at Gramercy, Louisiana near that plant (GLCX 118(g)-(h); Beatty, Tr. 4913–4914; McClain, Tr. 1871–1873).

b. Kaiser does not consume all the calcined petroleum coke produced at these plants and is an active competitor in the petroleum coke business. Kaiser solicits business in the metallurgical trade in competition with Great Lakes and other sellers to calcined coke and has established Kaiser International, which is very active throughout the world in selling calcined petroleum coke (Beatty, Tr. 1584–1585, 4913–4916, 4962–4963; McClain, Tr. 1972–1975; Garlitz, Tr. 1410).

199. *Reynolds Metals Company*

a. Prior to 1963, Reynolds Metals Company purchased the green and calcined coke needed in its operations. In 1963 Reynolds Metals Company entered into a ten-year contract to purchase the anticipated production of petroleum coke at a coker to be constructed at Humble's Baton Rouge, Louisiana refinery. The contract also provided for construction by Reynolds of a calciner in the Baton Rogue, Louisiana area. The calciner was constructed and Reynolds used the petroleum coke provided there in its operations and also sold green and calcined petroleum coke to domestic and foreign customers (GLCX 118(i)).

b. Dr. Irving Roberts, vice president of Reynolds Metals Company called as a witness by complaint counsel, testified that a long-term contract to purchase petroleum coke was necessary to amortize the investment and to assure the source of supply for the calciner, and that such a contract was essential to Reynolds even if there were no other contracts by any other companies in the United States. Reynolds preferred a 20-year contract, but proceeded on the basis of a ten-year term because Humble wanted the shorter term (Roberts, Tr. 1264–1264A, 1267).

c. Reynolds is a competitor in the petroleum coke business. It publishes a price for domestic sales of calcined petroleum coke; has extensively solicited foreign business, particularly in Europe, and has shipped as much as 100,000 tons of calcined petroleum coke to Europe annually (Roberts, Tr. 1243, 1253, 1260–1262).

200. *Harvey Aluminum Co.*

In 1966 Harvey built a calcining plant on the basis of a 15-year contract with Atlantic-Richfield's Watson, California refinery, whereby Harvey obtained its green coke supply from Atlantic-Richfield. Harvey constructed the calciner and has been a competitor in the sale of calcined coke in the United States and abroad

(CX 17; McClain, Tr. 1975–1976; Beatty, Tr. 1588, 4886–4887; Henderson, Tr. 1813).

201. *Gulf Coast Aluminum Co.*

This subsidiary of Swiss Aluminum entered into a 20-year contract with Cities Service's, Lake Charles, Louisiana refinery to purchase petroleum coke and built a calciner and aluminum smelter in Lake Charles. The calciner commenced operations in 1969 and primarily supplies calcined coke to the Swiss Aluminum combine (Beatty, Tr. 1604–1605; McClain, Tr. 1978–1979; GLCX 109).

202. Of the twelve foregoing domestic companies identified as entrants into the petroleum coke market, six such entries were backward integration by end users—Union Carbide; General Carbon (formerly an adjunct of Union Carbide and now its wholly-owned subsidiary); Kaiser Aluminum, Reynolds Metals; Harvey Aluminum, and Gulf Coast Aluminum.

a. Each such entrant was classed by Dr. Phillips, Great Lakes Carbon's expert, as "socially undesirable," since each was not in the business of marketing coke primarily but in another business to which coke marketing was merely incidental and sporadic (Phillips, Tr. 4669–4672; see also 4607–4610; Beatty, Tr. 1539–1540).

b. Each such "entrant" who testified (Reynolds and Union Carbide) stated that it was not in the business of selling coke but sold coke sporadically and only to the extent that supply exceeded intra-company demand (CX 1305 y, aa, ac; CX 1307 a, ad, ah; Roberts, Tr. 1243–1244, 1253, 1261; Henderson, Tr. 1861; McClain, Td. 1937, 1971–1972; Beatty, Tr. 4917–4919, 4956–4958, 4961–4962; Bauld, Tr. 1332–1336).

c. None of the six can be classified as an active competitor of Great Lakes Carbon, except in a limited sense since they are not in the business of marketing petroleum other than during the periods of excess supply, and they do not serve the day-to-day needs of countless users (See GLCX 109 for calcining capacities; For Kaiser see Roberts, Tr. 1272; McClain, Tr. 1871, 1873, 1937; Henderson, Tr. 1814; Beatty, Tr. 4958–4960.) (For Harvey see Henderson, Tr. 1813; Beatty, Tr. 1588; McClain, Tr. 1938, 1975–1976.) (For General Carbon see Bauld, Tr. 1334–1335; McClain, Tr. 1939, 1968, 1978; Beatty, Tr. 1667, 4910–4911). None marketed coke during 1964 and 1965. No evidence is in the record as to any sales by Gulf Coast Aluminum, the only evidence is they were

constructing a calciner and competed to the extent they purchased coke.

203. Of the remaining six "entrants" four were the result of vertical integration forward by oil companies—Collier Carbon (a subsidiary of Union Oil); American Gilsonite; Continental Oil; and Mountaineer Carbon (a subsidiary of Standard Oil of Ohio).

a. Of these, one—Continental Oil— produces no relevant product but only needle coke (McCulley, Tr. 2142–2144).

b. Another, American Gilsonite, is no longer producing petroleum coke of any quality (GLCX 109 for calcining capacity; CX 1305q, CX 1307s, for sales of calcined coke during 1964 and 1965; Beatty, Tr. 1585–1586; Henderson, Tr. 1814; McClain, Tr. 1968).

c. A third, Collier Carbon, has been recognized by complaint counsel as a competitor. Its market share in 1969 was less than 5 percent of the resale market. As an oil company subsidiary, Collier does not compete with Great Lakes Carbon for a source of petroleum coke supply (CX 43, 44 for contracts; CX 1305 b, r, z, ag, ah; CX 1307 b, t, z, al, am for Collier's sales; Henderson, Tr. 1797).

d. And the fourth, Mountaineer Carbon, has but one calcining facility, two parent company refinery sources, and sells almost completely in the domestic market (CX 41 for sale contract; CX 1305 d, t, CX 1307 d, w, for Mountaineer's sales; Beatty, Tr. 1586, 4916, 4919; McClain, Tr. 1966, for nature of Mountaineer's sales).

204. Of the remaining two, Republic Carbon and Wilson Carbon, neither is a full-line, significant competitor to Great Lakes.

a. Republic Carbon has been in the "middle-man" coke business since 1923; had no calcining facility until 1971; sold only green coke prior to 1971; had contracts for relevant product coke production covering less than 8 percent of the supply as of 1969; at present, has but one calcining facility. Of the 1,800,000 tons of petroleum coke marketed by Republic in 1969, almost half, 877,549 tons, was not quality coke, *i.e.*, low sulphur delayed petroleum coke (CX 16, 37, 42, 1377 for contracts; CX 1305 e, x; CX 1307 e, ab, for Republic's sales; McClain, Tr. 1863, 1868–1869, 1877–1880, 1882–1883, 1960; Beatty, Tr. 4911–4912 for nature of Republic's sales).

b. The remaining company, Wilson Carbon, has but one quality coke refinery source under contract (approximately 200,000 tons, or 3.1 percent of national production in 1969); has no calcining facilities; and markets primarily green high sulphur fluid coke (CX 19 for contract; CX 1305 ae, ai, aj; CX 1307 x, ai, aj, ao, ap

for Wilson's sales; McClain, Tr. 1966–1968 for nature of Wilson's sales).

205. Several refiners in the United States have integrated into the direct sale of green petroleum coke to users.

a. Prior to 1962, Cities Service's E. Chicago, Indiana refinery installed storage and other petroleum coke-handling facilities and has sold green petroleum coke in competition with other firms in the petroleum coke business (McKewon, Tr. 441–451; McClain, Tr. 1937–1938).

b. In 1964 Skelly Oil Company terminated the contract to sell its petroleum coke output to Republic Carbon and thereafter commenced the direct marketing of its coke in competition with other firms in the petroleum coke business (CX 40; McClain, Tr. 1973–1978, 1963–1964; Walker, Tr. 1456–1467, 1482–1486; Metcalf, Tr. 1497–1503, 1595, 1523).

c. In 1969 Signal Oil Company sold its fluid petroleum coke in competition with firms in the petroleum coke business (Henderson, Tr. 1813–1814; Shinozaki, Tr. 4397).

d. In 1970 Marathon Oil Company commenced direct selling of green and calcined petroleum coke in competition with other firms in the petroleum coke business (Garlitz, Tr. 1428, 1430).

206. With regard to the four domestic refineries heretofore identified as competitors:

a. Signal Oil Company produces only fluid coke and thus is not a competitor in the relevant product (CX 1299, Refinery Stipulation; Henderson, Tr. 1814).

b. Marathon Oil Company's only relevant product refinery is at Robinson, Illinois, and that refinery's production is committed to Great Lakes and Union Carbide (CX 36, CX 417, CX 1296; McClain, Tr. 1971).

c. Cities Service at East Chicago and Skelly Oil at El Dorado are partially committed to term contracts but have been considered by complaint counsel to be essentially open refineries. Their total output of relevant product coke amounts to less than 4 percent of national production (CX 27, 1230, 1231 for Cities Service's contractual commitments; CX 39, 420 for Skelly Oil's contractual commitments; CX 1305 f, CX 1307 f, for Cities Service's sales and CX 1305 o, CX 1307 o for Skelly Oil's sales; McClain, Tr. 1937, 1951, 1965 for nature of sales).

d. None of these refineries is engaged in calcining, screening, sizing or any other "middleman" function (Phillips, Tr. 4640–4643).

207. In sum, of the total of sixteen companies identified as "competitors" only three probably may significantly be classified as such: Republic, Collier and Mountaineer. Other than Great Lakes, these appear to be the only companies which are primarily engaged in the resale of petroleum coke and have calcining facilities. And only Republic may compete for a supply of petroleum coke, since the other two are subsidiaries of oil company coke producers.

208. *Hawley Fuel Corporation*

Representatives of the Hawley Fuel Corporation testified that Hawley had attempted to buy petroleum coke on a contract basis since 1955 but without success. Complaint counsel cite this as evidence of foreclosure.

a. Hawley Fuel Corporation, a subsidiary of Belco Petroleum Co., is primarily a coal producer but also buys some coal from other producers for resale. Export business accounts for 75–80 percent of Hawley's total sales and metallurgical coal constitutes 95 percent of those export sales. Hawley exports 4 to 5 million tons of coal per year, and its sales in 1970 were approximately 60 million dollars (McIntyre, Tr. 1995, 1998; Joseph, Tr. 2174, 2179).

b. Unlike Great Lakes, Hawley does not have its own overseas offices and facilities but, instead, operates its coal business through a network of independent overseas agents. Beginning in 1956, Hawley received inquiries from its overseas agents for petroleum coke. These inquiries were not orders but requests for quotations. McIntyre, the vice president in charge of purchasing for Hawley, had direct responsibility for obtaining coke. From time to time, he sent an inquiry to every refinery named on the list he maintained in his files. In addition, he made an unspecified number of phone calls (McIntyre, Tr. 1998, 2002–2004, 2025, 2065–2066; Joseph, Tr. 2175–2177).

c. The inquiries sent by McIntyre were form letters and were merely attempts to explore availability. Several of the letters were directed to refineries which had no coking facilities. Many of the letters listed size and other specifications for coke that refinery producers could not meet. Other letters failed to give either specifications or volume. Roger Garey, who had responsibility for petroleum coke sales on behalf of respondent American Oil, testified that persons seriously interested in obtaining petroleum coke did not use form letters, write directly to refineries, or fail to give specifications and volume. Hawley contacted refineries at irregu-

lar intervals and as much as two years elapsed between contracts to some refineries (McIntyre, Tr. 2094, 2242–2245, 2286–2287, 2543, 2566; Garey, Tr. 199–205, 223–224; CX 431, 432, 434, 435, 557, 558, 594, 597, 598, 606).

d. The inquiries were for spot quotations, and Hawley would require guarantees as to moisture, vanadium and volatile content. Although size was an important specification to Hawley, few refineries approached by McIntyre had facilities for sizing and screening. In soliciting quotations from refineries, McIntyre expressed interest in both fluid and delayed coke and cokes having a sulphur content ranging up to 4 to 5 percent. He regarded high and low sulphur cokes as interchangeable, particularly for some uses (McIntyre, Tr. 2230–2231, 2236–2237, 2239, 2242, 2628–2629, 2743–2753, 2804; Joseph, Tr. 2202).

e. McIntyre testified that Hawley was interested in coastal refineries because shipments from them resulted in lower inland freight costs as opposed to shipments from inland refineries. However, Joseph, the president of Hawley, testified that its customer-agents were interested in delivered price; and that delivered price is governed by the price of the raw material at the source, plus interim transportation and not necessarily the location of the raw material. Hawley's delivered prices to the ultimate user overseas included the cost of inland freight, ocean freight, insurance, obtaining export licenses and other documents, boat charter, Hawley's commission, that of its immediate customer-agent and any sub-agents, plus any expenses added on by agents and sub-agents. The various costs of shipping coke to Europe, including transportation to pier, loading, ocean freight, insurance, and unloading, storing and reshipping in Europe are not unique to Hawley (McIntyre, Tr. 2000, 2611–2614, 2805).

f. Hawley had little experience in the marketing of petroleum coke and needed lead time of six to eight weeks to ship petroleum coke from the refinery to the pier. Hawley's inability to speedily remove coke from a refinery is directly related to its method of doing business with respect to petroleum coke. Hawley bought petroleum coke only as an accomodation to coal customers. It would not buy coke on speculation and would accept a refiner's offer to sell only when it had a definite buyer, even when the price was well below the market. Petroleum coke sales have not been a serious part of Hawley's business and, in making spot purchases of petroleum coke, McIntyre was not permitted to close transactions on his own authority as he was with respect to coal. He

needed the approval of his superiors to accept an offer of coke, because they wanted to match the coke offer with an order before committing Hawley to the purchase (McIntyre, Tr. 2255, 2296–2298, 2341–2342, 2354–2360, 2676–2678, 2688–2710, 2827–2835; Joseph, Tr. 2179–2180).

g. The record reveals numerous occasions when Hawley failed to avail itself of opportunities to purchase coke. In several instances where an explanation was given, the reason was not an inability to purchase the coke desired but the inability of its sales organization with its tiers of agents, commissions, and costs to sell at a delivered price to the ultimate user against European competition. Two prime examples illustrating Hawley's inability to market petroleum coke effectively in the export market are revealed in the offer by Shell at its Norco refinery and an offer by Republic to sell coke from Sunray's refinery at Duncan.

(1) Shell offered Hawley a spot purchase of delayed coke from its Norco refinery on the Gulf Coast at $7.39 per long ton, loaded and trimmed on vessel at Burnside, Louisiana. Although the price was well below the market, Hawley was unable to timely sell the coke after Shell granted a reasonable extension of time. Shell sold the coke while Hawley waited for successive tiers of agents to find a customer for it in competition with European competitors (McIntyre, Tr. 2327–2402; GLCX 30, 31, 32, 33a–b, 34, 35, 36, 37a–b, 38, 39, 40a–b, 41a–b, 42, 43, 44, 45, 46, 47a–b, 48, 49a–b).

(2) Republic offered Hawley 10,000–12,000 tons of 1.8 percent sulphur coke for delivery within a two-week period with subsequent shipments at the rate of 5,000 tons per month. The coke was sized and within the specifications of Hawley's inquiry. Hawley was unable to sell the coke competitively in Europe with the price of $10.22 per net ton dumped and trimmed in vessel at Houston, Texas. This price included the price of the coke at the source, inland freight, and dumping and trimming charges. The source of the coke offered was the Sunray DX refinery at Duncan, Oklahoma, an inland location, and the price was lower than that paid by Great Lakes for run-of-kiln coke f.o.b. at Texaco's Port Arthur refinery on the Gulf Coast (McIntyre, Tr. 2221–26, 2243–2245, 2323–2325; GLCX 13, 13A, 14, 14C).

h. In his testimony, McIntyre identified other instances where Hawley received offers but failed to commit itself to purchase coke available on both a spot and continuous supply basis for export:

(1) 10,000 tons of coke breeze at $12 per gross ton loaded and dumped in vessel at Philadelphia (McIntyre, Tr. 2020–2025; GLCX 50, 51).

(2) 20,000 tons of sized coke at $8.50 per gross ton loaded and dumped in vessel at Philadelphia (McIntyre, Tr. 2405–2407; GLCX 52).

(3) 80,000 tons of fluid coke at $5.10 per net ton at Purvis, Mississippi; $11.42 per net ton loaded and trimmed aboard vessel at Burnside, Louisiana; and $12.36 loaded and trimmed aboard vessel at Mobile, Alabama (McIntyre, Tr. 2407–2426; GLCX 43A–B, 54, 55, 56, 57A–B, 58A–B, 59A–B).

(4) 3,000 tons at $13.50 per metric ton at Houston, Texas (McIntyre, Tr. 2426–2437; GLCX 15A–B, 60, 61, 62).

(5) A supply of Cities Service East Chicago, Indiana, coke at $12 per short ton (1960) f.o.b. rail cars East Chicago, Indiana (McIntyre, Tr. 2438–2442; GLCX 63).

(6) 10,000 tons per month Cities Service East Chicago, Indiana coke at $11 per short ton (1961) f.o.b. East Chicago, Indiana and additional cost for loading for export at Toledo, Ohio—$5.23 per short ton; Norfolk or Newport News, Va.—$7.71½ per short ton; and Philadelphia, Pa.—$7.38½ per short ton (McIntyre, Tr. 2442–2444; GLCX 64A–B, 65).

(7) Calcined Cities Service, Lake Charles coke in quantities of 10,000 tons at $41 per metric ton loaded and trimmed on ship (McIntyre, Tr. 2447–2451; GLCX 65, 66, 67).

(8) 4,000 tons screened raw Cities Service, East Chicago, Indiana coke at $11 per short ton (1962) f.o.b. refinery (McIntyre, Tr. 2451–2452; GLCX 68).

(9) 25,000 tons run-of-pile Cities Service, East Chicago, Indiana coke at $9.50 per short ton (1965) f.o.b. refinery (McIntyre, Tr. 2468–2469; GLCX 70).

(10) 2,000–3,000 tons Standard Oil of Ohio uncalcined coke at $15.42 per short ton delivered in hopper bottom cars to piers at Norfolk, Va. (McIntyre, Tr. 2481–2485; GLCX 73).

(11) A supply of Standard Oil of Ohio raw run-of-pile coke (McIntyre Tr. 2486–2488; GLCX 74, 75).

(12) A supply of calcined coke from Standard Oil of Ohio (Mountaineer) (McIntyre, Tr. 2488–2500; GLCX 76A–B, 77, 78, 79A–B, 80A–B).

(13) A supply of calcined coke from Reynolds Metal Company (McIntyre, Tr. 2504–2509; GLCX 83).

(14) A supply of raw coke from Reynolds—Humble (McIntyre, Tr. 2509–2518).

(15) Other opportunities Hawley failed to pursue were offered by Marathon Oil Company, Commerce Petroleum Corporation, Spencer-Simson-Young, Pure Oil, Sunray DX, and Mid-Continental Coal (McIntyre, 2524–2526, 2575–2576, 2579–2580, 2595–2598, 2601).

i. McIntyre testified that Hawley first became interested in buying on a contract basis between 1960 and 1963, and McIntyre was ultimately instructed by his superiors to seek coke on a contract basis rather than spot. In subsequent years, the limited effort made by Hawley to find a source of coke on a contract basis are not indicative of a businessman seeking a source of supply in a tight market. McIntyre did not change his approach in seeking a contract source; he did not determine which refineries sold on contract nor whether such refineries sold their entire output; he did not determine the specifics of such contracts; he did not maintain separate files with contract information in them; he did not note expiration dates of contracts between oil companies and coke purchasers for follow up; he did not pursue routine business practices in respect to cultivating oil company personnel. La Gloria Oil and Gas Company wrote to Hawley, invited discussion in view of a scheduled contract expiration, and stated that the nature of its operation and the excessive expense of storage required a long-term contract to insure the constant movement of coke out of the plant. Hawley did not pursue the matter, and Joseph testified that he was never aware that any coke producer had informed Hawley of an approaching contract expiration and willingness to enter discussions (McIntyre, Tr. 2288–2290, 2299–2308, 2562–2565; GLCX 27, 28, 29; Joseph, Tr. 2191).

j. The record reveals that subsequent to 1960, the period Hawley contends it became interested in obtaining a coke supply on a contract basis, three oil companies informed Hawley of intentions to install new coking facilities. Humble invited Hawley to discuss a commitment regarding the output of a new coker contemplated at Baton Rogue, Louisiana and Hawley declined, indicating it was only interested in spot purchases. Crown Petroleum invited Hawley to discuss a contract of three-to-five years duration with respect to the output of a contemplated new coker at Houston, Texas, and Hawley replied that it was only interested in spot purchases. Cities Service informed Hawley that it was planning the installation of new coking facilities at Lake Charles, Louis-

iana. What efforts Hawley made to obtain a contract were unknown to McIntyre (McIntyre, Tr. 2264–2265, 2274–2277, 2285–2294, 2452–2468; GLCX 16, 17, 18, 22, 23, 24).

k. McIntyre testified that for the purposes of obtaining a supply of coke for exportation to Europe Hawley had no interest in the following inland refineries:

Champlin—Enid, Okla.	Tr. 2227
Sunray DX—Duncan, Okla.	Tr. 2226
Continental—Ponca City, Okla.	Tr. 2227
Sunray—West Tulsa, Okla.	Tr. 2227
CRA—Coffeyville, Kansas	Tr. 2227
NCRA—McPherson, Kansas	Tr. 2227
Colorado Oil & Gas—Wichita, Kansas	Tr. 2227–8
Texaco—Casper, Wyoming	Tr. 2228
Texaco—Lockport, Illinois	Tr. 2228–9
Texaco—El Paso, Tex.	Tr. 2232–3
American Oil—El Dorado, Ark.	Tr. 2232–3
Texaco—Amarillo, Tex.	Tr. 2233
Suntide—Corpus Christi, Tex.	Tr. 2240–41

l. McIntyre further testified that for purposes of obtaining a supply of coke for export to Europe, he was interested in the following Gulf Coast refineries:

American—Texas City, Tex.	Tr. 2241
Mobil—Beaumont, Tex.	Tr. 2241–3
Texaco—Port Arthur, Tex.	Tr. 2243
Tenneco—Chalmette, La.	Tr. 2259–61
Humble—Baton Rouge, La.	Tr. 2261

Of the five Gulf Coast refineries in which McIntyre claimed to have interest, two offered Hawley the opportunity to discuss a contract for the coker's output, and one, Mobil's Beaumont refinery, has been trying to dispose of a surplus since 1966. Hawley's expression of interest in Texaco's Port Arthur refinery is entitled to little weight in that Hawley was unable to sell against foreign competition a more competitively priced coke, when sized, dumped and trimmed in vessel at Houston.

m. When Tenneco Oil Company proposed to build a new coker, it approached Hawley, while considering whether to sell the output in the domestic or foreign market. Thereafter, Mark Joseph, Hawley's president, personally dealt with Tenneco's executives on several occasions. Hawley prepared a survey for Tenneco evaluat-

ing the feasibility of disposing of the output in the export market. The "broad-based" survey did not reach the point of disclosing specific purchasers in any specific country. Joseph never reached the point of naming a purchase price. Tenneco subsequently decided to sell its petroleum coke to Kaiser, which constructed a calciner next to the refiner. It is reasonable to infer that Tenneco selected Kaiser as the more reliable of the two in moving coke out of the refinery expeditiously. Tenneco was the only company with which Hawley discussed taking a full output of petroleum coke (Joseph, Tr. 2171–2173, 2182–2183, 2190, 2210; McIntyre, Tr. 2259–2261; GLCX 10, 11A–C, 12).

n. Joseph testified that in 1964 and 1965 Hawley was not interested in West Coast refineries. However, after the Japanese steel industry began to use increased amounts of petroleum coke, Hawley, sometime subsequent to 1966, developed an interest in obtaining a source of petroleum coke on the West Coast for export to Japan. In this connection, McIntyre testified that he was interested in the Signal and Union refineries (Union had refineries at Oleum and Santa Maria, California) Hawley displayed no interest in contracting Atlantic-Richfield at Watson; Shell at Wilmington, California; Phillips at Avon, California; Texaco at Los Angeles, California; Mobil at Torrance, California; or Standard Oil of California at El Segundo. Texaco, at least, was actively seeking customers for its Los Angeles, California coker at that time (McIntyre, Tr. 2238–2240; Joseph, Tr. 2202–2206).

o. During the period since 1955, in which Hawley claims it could not obtain a petroleum coke supply, Wilson Carbon entered the petroleum coke business, established its own overseas marketing organization, obtained sources of supply of petroleum coke, and grew to be a large exporter of petroleum coke to Europe. It is found as a fact that Hawley Fuel was not entirely foreclosed from a petroleum coke supply as a result of long-term contracts. Unfirm offers of purchase inimical to refinery business necessity were equally responsible for Hawley's failure to obtain coke.

L. Conformity of Non-Respondent Contracts with Respondent Contracts as an Indicia of an Industry-Wide Practice

209. On August 14, 1950, Republic Coal & Coke Company entered into a contract with Standard Oil Company (Indiana) for a one-year period commencing on January 1, 1951 to December 31, 1952, and year to year thereafter for the petroleum coke produced at the Whiting, Indiana; Wood River, Illinois; Sugar Creek, Mis-

souri; Neodesha, Kansas, and Casper, Wyoming refineries. Petroleum coke production ceased at the Wood River, Illinois, Neodesha, Kansas and Casper, Wyoming refineries prior to 1964 (CX 16; American Answer, Par. 8; American Admission; Great Lakes Stipulation, Addendum 1; McClain, Tr. 1960).

210. Standard Oil Company (Indiana) is the parent corporation of American (Musser, Tr. 544).

211. This contract dated August 14, 1950, between Republic Coal and Coke Company and Standard Oil Company (Indiana) (CX 16) has continued in effect until the present date (McClain, Tr. 1882–1889).

212. On December 22, 1965, Harvey Aluminum (Inc.) entered into a contract with Richfield Oil Corporation for a term of 15 years from the date of the completion of the coker and the calcining facilities for the petroleum coke produced at the Watson, California refinery (CX 17).

213. During 1968 Richfield Oil Corporation and Atlantic Refining Company merged and the Watson, California refinery is currently operated by the Atlantic Richfield Company (Dieudonne, Tr. 409, 410).

214. By letter agreement dated September 24, 1965, Mitsui and Company Ltd. entered into a contract with Richfield Oil Corporation for a one-year term effective on the date that the coking facilities are completed and renewable thereafter by mutual consent for a minimum of 50,000 metric tons and a maximum of 70,000 metric tons of petroleum coke per year produced at the Watson, California refinery (CX 18).

215. The letter agreement dated September 24, 1965, (CX 18) was accepted by Mitsui and Company on October 29, 1965 and this contract has remained in effect to the present date (CX 18, CX 1296; Dieudonne, Tr. 413).

216. On July 5, 1966, Wilson Carbon Corporation entered into a contract with Richfield Oil Corporation for an initial term of 6½ years effective June 1, 1966 and terminating on December 1, 1972 and continuing thereafter until terminated at any time by either party upon one year written notice (CX 19).

217. On June 2, 1960, General Carbon and Chemical Corp. and Aluminum-Industrie-Aktien-Gesellschaft jointly and severally entered into a contract with Champlin Oil and Refining Company for a period of ten years commencing upon the date of the completion of the coking facilities and thereafter until terminated by either party upon two-year written notice for the petroleum coke pro-

duced at the Enid, Oklahoma refinery. The contract specifies a minimum quantity of 32,850 tons per year and an average of 36,500 tons per year (CX 20).

218. By letter agreement dated October 17, 1960, General Carbon and Chemical Corp. and Aluminum-Industrie-Aktien-Gesellschaft and Champlin Oil and Refining Company entered into an agreement amending the contract dated June 2, 1960 (CX 20) to state that the contract is for 36,500 tons of petroleum coke per year and that if Champlin Oil produces more coke at its Enid, Oklahoma refinery, the joint buyers are to be given the first right of refusal (CX 21).

219. Sometime prior to December 2, 1963, Aluminum-Industrie-Aktien-Gesellschaft changed its name to Swiss Aluminum Ltd. (CX 22).

220. On February 15, 1967 Swiss Aluminum Ltd. assigned its rights in the above contract, as amended, for a three year term commencing on September 29, 1966 and ending on December 31, 1969 (CX 1238).

221. On May 8, 1962, Air Reduction Company, Incorporated entered into a contract with Cities Service Oil Company for a term of four years commencing on July 1, 1962 and terminating on December 31, 1966, for the buyer's requirements of green petroleum coke used at the Louisville, Kentucky and Keokuk, Iowa plants for petroleum coke produced at the East Chicago, Indiana refinery (CX 23).

222. On July 1, 1961, Union Carbide Corporation entered into a contract with Cities Service Oil Company for a term of four years commencing on January 1, 1962 and terminating on December 31, 1966, for 50,000 net tons of petroleum coke annually produced at the East Chicago, Indiana refinery (CX 27).

223. On September 27, 1966, Union Carbide Corporation entered into a contract with Cities Service Oil Company for an initial term of three years commencing on January 1, 1967 and terminating on December 31, 1969, and year to year thereafter for undetermined amounts of green petroleum coke produced annually at the East Chicago, Indiana refinery (CX 1230).

224. On January 1, 1967 Union Carbide Corporation entered into a contract with Cities Service Oil Company for an initial period of three years commencing on January 1, 1967 and ending on December 31, 1969, and year to year thereafter for 10,000 tons per year for petroleum coke produced at the East Chicago, Indiana refinery (CX 1232, CX 1233, CX 1234, CX 1235).

225. By letter agreement dated May 27, 1969 Union Carbide Corporation and Cities Service Oil Company amended the contract dated January 1, 1967 (CX 1232) to change the net tons of petroleum coke to be delivered thereunder to 2,000 net tons during 1969 and 3,000 net tons thereafter (CX 1235).

226. On August 1, 1964, Mitsui and Company Ltd. and Cities Service International, Inc., entered into a contract for an initial term commencing from the first production date through February 28, 1975, and automatically thereafter for successive two-year periods for 35,000 tons plus or minus 5 percent per annum for petroleum coke produced at Lake Charles, Louisiana refinery (CX 24).

227. On February 1, 1964, Societa Alluminio Veneto Per Azioni (S.A.V.A.) and Cities Service International, Inc. entered into a contract for an initial term of approximately eight years commencing with the first production date and continuing through December 31, 1972 for 110,000 tons plus or minus 5 percent per annum of petroleum coke produced at Lake Charles, Louisiana refinery (CX 25).

228. On March 2, 1964, S.A.V.A. and Cities Service International, Inc., entered into an amendatory agreement amending the terms of the February 1, 1964 contract (CX 25) extending the terms of the agreement from the date of first production for ten years or through February 28, 1975, whichever is longer, for the petroleum coke produced at the Lake Charles, Louisiana refinery (CX 26 a–b).

229. By letter of agreement dated February 14, 1964, Cities Service International, Inc. and S.A.V.A. agreed that notification of first production as required in Article 3.1 of the contract dated February 1, 1964 (CX 25) was changed to read notification shall be prior to February 28, 1965 (CX 26 c).

230. On January 1, 1965, Union Carbide Corporation, Carbon Products Division, entered into a contract with Continental Oil Company for a ten-year term commencing on January 1, 1965 and ending upon December 31, 1974, for unspecified amounts but in no event more than 107,800 net tons of petroleum coke to be produced at the Lake Charles, Louisiana refinery (CX 29).

231. On May 13, 1960, Aluminum Company of America entered into a contract with Gulf Oil Corporation for a period of ten years from the date of first delivery of coke and from year to year thereafter for the petroleum coke produced at the Port Arthur, Texas refinery (CX 30).

232. On September 7, 1961, Reynolds Metals Company and Humble Oil and Refining Company entered into a contract for a term of ten years from the delivery date or until January 1, 1973, for approximately 330,000 tons per year of petroleum coke to be produced at the Baton Rouge refinery (CX 31, CX 32).

233. By letter agreement dated July 31, 1964, Reynolds Metals Company and Humble Oil and Refining Company agreed to amend the September 7, 1961 contract (CX 31) whereby commencing on January 1, 1968, Reynolds Metals agreed to purchase a minimum of 430,000 tons of petroleum coke per annum (CX 33).

234. On January 23, 1962, Aluminum Company of America and La Gloria Oil and Gas Company entered into a contract for a period of three years beginning April 1, 1961, for 27,500 tons of petroleum coke per annum produced at the Tyler, Texas refinery (CX 43).

235. On February 11, 1964, Aluminum Company of America and La Gloria Oil and Gas Company entered into a contract for a period of three years beginning April 1, 1964 for all the production of petroleum coke up to 28,875 tons per year produced at the Tyler, Texas refinery and this contract has continued in effect (CX 35; Beatty, Tr. 1607–08).

236. On July 1, 1963, Union Carbide Corporation, Carbon Products Division, entered into a contract with Marathon Oil Company for a term of three years commencing on July 1, 1963 and ending on June 30, 1966. A maximum of 120,000 tons and a minimum of 100,000 tons per year of petroleum coke to be produced at the Robinson, Illinois refinery and this contract has continued in effect (CX 36; Beatty, Tr. 1607–08).

237. The contractual commitments pursuant to the contract dated July 1, 1963 (CX 36) approximated the petroleum coke productive capacity at the Robinson, Illinois refinery during 1964 and 1965 (CX 36, CX 1294, CX 1295).

238. On October 1, 1951, Republic Coal and Coke Company and Socony-Vacuum Oil Company, Inc., entered into a contract for an original period of three months commencing on October 1, 1951 and for successive quarterly renewal periods thereafter for all the petroleum coke produced at the Trenton, Michigan refinery (CX 37).

239. The contract dated October 1, 1951 (CX 37) has been automatically renewed for each successive period and continues to the present date (McClain, Tr. 1889; Evans, Tr. 4087–4094; Beatty, Tr. 1608–1609).

240. On June 11, 1964, Kaiser Aluminum and Chemical Corporation entered into a contract with Shell Oil Company for a primary period of eight years beginning on July 15, 1965 and ending on July 14, 1973, and from year to year thereafter for 200,000 tons plus or minus 5 percent per year of petroleum coke produced at the Norco, Louisiana refinery (CX 38).

241. On June 1, 1962, Republic Coal and Coke Company entered into a contract with Skelly Oil Company for a primary term of five years from the date of first shipment and for an additional term of five years for all of the green petroleum coke produced at the El Dorado, Kansas refinery (CX 40).

242. The contract dated June 1, 1962 between Republic Coal and Coke and Skelly Oil was terminated on March 18, 1964 (CX 40; McClain, Tr. 1963–1964).

243. On April 4, 1964 Air Reduction Company, Incorporated entered into a contract with Skelly Oil Company for an approximate term of 2½ years commencing on April 4, 1964 and terminated on December 31, 1966 for the buyer's requirements of green petroleum coke used at the Louisville, Kentucky; Keokuk, Iowa, and Ivanhoe, Virginia plants (CX 40).

244. On December 1, 1962 Mountaineer Carbon Company and the Standard Oil Company (Ohio) entered into a contract for a term of five years effective January 1, 1963 and for year to year thereafter for the buyer's requirements of petroleum coke produced at the Toledo and Lima, Ohio refineries (CX 41).

245. The buyer's requirements of petroleum coke produced pursuant to the contract dated December 1, 1962 (CX 41) approximate the refineries' productive capacity of petroleum coke produced at Toledo and Lima, Ohio (CX 41, CX 1294, CX 1295, CX 1296; McClain, Tr. 1966).

246. On July 26, 1963, Republic Coal and Coke Company entered into a contract with Sunray DX Oil Company for a primary term of three years from the date of first shipment of coke and for year to year thereafter for all the petroleum coke produced at Duncan, Oklahoma (CX 42).

247. Kaiser Aluminum and Chemical Corporation entered into a contract with Tenneco Oil Company for all the green petroleum coke produced at the Chalmette, Louisiana refinery (CX 1296; Joseph, Tr. 2171–2173).

248. On July 22, 1954, R. T. Collier Corporation and Union Oil Company of California entered into a contract for a ten-year term effective July 1, 1954 and continuing until June 30, 1964, and from

year to year thereafter for all of the petroleum coke produced at the Oleum, California refinery (CX 43).

249. By letter agreement dated October 30, 1956, R. T. Collier Corporation and Union Oil Company of California agreed to amend the contract dated July 22, 1954 (CX 43) to extend the effective date of the agreement to continue until December 31, 1966, and from year to year thereafter (CX 44).

250. On January 7, 1968 Republic Coal & Coke Company and Midland Cooperatives, Incorporated entered into a contract for an initial three year term commencing on May 1, 1969 through April 30, 1972, and for successive three-year terms thereafter for all of the green industrial quality petroleum coke containing less than 2 percent sulphur produced at the Cushing, Oklahoma refinery (CX 1377 d–i).

251. Production commenced at the Midland Cooperatives, Incorporated, Cushing, Oklahoma refinery in 1969 (CX 1296; McClain, Tr. 1869).

M. Interstate Commerce

1. *Great Lakes*

252. Great Lakes has been and is now engaged in "commerce" as that term is defined in the Federal Trade Commission Act. At certain refineries operated by respondent refinery producers, Great Lakes purchases green petroleum coke and transports such coke to one of its manufacturing plants or storage areas located near the producing refinery. Great Lakes processes green petroleum coke into calcined petroleum coke, or resells the green petroleum coke to customers located in various states and foreign nations. Calcined petroleum coke processed by Great Lakes is transported and sold from its various "manufacturing plants" to purchasers located in various States of the United States and in foreign nations. (Compl., Par 3, Great Lakes Ans., Par. 3.)

2. *American*

253. By a contract which commenced in 1960 and continues until 1980, American agrees to sell, and Great Lakes to purchase, all petroleum coke produced by the American Refinery located at Texas City, Texas. Pursuant to such contract, petroleum coke sold and delivered by American to Great Lakes is loaded into railroad cars at the refinery, as and when produced, and American consigns rail cars in such manner and in accordance with such routings as Great Lakes may direct. Title passes from American to Great Lakes upon delivery into the rail cars. (CX 1)

254. The general accounting office of American located at Chicago, Illinois receives from its Texas City refinery reports as to shipments of petroleum coke made to Great Lakes, and based upon these reports, this office issues invoices billing Great Lakes, and then receives payment therefor. (Musser, 534–36) Negotiations regarding, and sale of, petroleum coke for all American refiners is handled by one American employee at the corporate headquarters in Chicago. Subsequent to the commencement of a contract, its administration is also handled by this one employee. His responsibilities pertaining to negotiating, contracting, and administrating petroleum coke sales amounts to about five percent of a usual workload. (Garey Tr. 219; Musser Tr. 534) In negotiating contracts for the sale of petroleum coke, American employees use both the telephone and the mail in dealing with customers located in numerous states throughout the country (Musser Tr. 526–27).

255. The manager of a refinery generally must take what crude is delivered to his facility by the American supply planning operations department located at the Chicago headquarters managerial level, and then operates the refinery in such a manner to produce the product mix needed by its marketing department for a particular time period. (Musser Tr. 537–38)

256. American produces petroleum coke in refineries located at Texas City, Texas, Eldorado, Arkansas, Sugar Creek, Missouri, and Yorktown, Virginia. (Musser Tr. 518)

257. Petroleum coke production is an integral part of refinery operations, being closely related, intermixed and allied with the process of extracting the maximum gasoline and other light products from a barrel of crude. (Musser Tr. 533–34) The type of production expected from a particular American refinery would be directed at corporate headquarters in Chicago by the refinery operations group. Being a by-product, coke production at a particular refinery relates to monthly runs in proportion to the amount of gasoline distillates, and other light end products which a refinery is scheduled to produce. (Musser Tr. 520–21) A disruption of coking operations at a particular refinery for a prolonged period of time would disrupt operations of other products by requiring a different balance and type of runs to get gasoline and other light products (Musser Tr. 520–21).

3. *Colorado*

258. For a period of ten years which commenced in 1961, Colorado (with offices in Wichita, Kansas) agrees by contract to sell

and deliver, and Great Lakes (with offices in New York, New York) purchase, all petroleum coke produced by Colorado at its Wichita, Kansas refinery, as, when, and to the extent produced. (CX 2a) Pursuant to such contract, Great Lakes accepts delivery of petroleum coke as and when it is loaded into railroad cars at the Colorado refinery, either directly from production or, at the election of Colorado, from an intermediate storage maintained at the refinery at Colorado's expense. Great Lakes pays Colorado on or before the 20th day of each month all sums due for deliveries of coke made during the preceding calendar month. (CX 2a–b, e)

259. Colorado sells and delivers green industrial quality petroleum coke to Great Lakes f.o.b. its Wichita, Kansas refinery for shipment of Great Lakes via railroad cars to destinations determined by Great Lakes. (Colorado, Ans., Par. 3) That the petroleum coke produced by Colorado at Wichita is shipped by Great Lakes to its facilities at Port Arthur, Texas on the Gulf Coast, and to the Chicago, Illinois area is indicated by the railroad bills of lading for such shipments. (Moore Tr. 1182–84)

260. The operation of the coker unit at the Wichita refinery is considered by the president of the Colorado corporate division which operates that facility as being an integral part of the overall operation of the refinery. If, for some reason, the operation of the coker unit was disrupted, this would produce immediate and direct effects on the entire operation of the refinery. (Moore Tr. 1168)

261. Crude sources for the Colorado refinery at Wichita, Kansas are received principally from fields in south central Kansas, and in lesser amounts from the Okalhoma panhandle and the Rocky Mountain areas. The Oklahoma crudes are transported by the Jayhawk pipeline, and the Rocky Mountain crude by an American Oil pipeline which originates in Wyoming. (Moore Tr. 1166–67)

262. Such interstate means of communication as the mail and telephone between Colorado offices in Wichita, Kansas and Great Lakes offices in New York, New York, and Chicago, Illinois were used in both negotiating the contract in 1962, and thereafter in administrating its operation. (Moore Tr. 1182)

4. *Continental*

263. For a period which commenced in 1959 and continues through 1977, Continental (having executive offices in Houston, Texas) agrees by contract to sell and deliver to Great Lakes (having executive offices in New York, New York) all petroleum coke

produced by Continental at its refinery located at Ponca City, Oklahoma, if, when, and as produced. (CX 3a; 1325) Petroleum coke sold and delivered pursuant to said contracts is loaded by Continental into railroad cars furnished by Great Lakes; title to the coke passing to Great Lakes upon delivery into the railroad cars. Continental consigns railroad cars in such manner and in accordance with such routings as Great Lakes may designate. (CX 3b)

264. Continental sells and delivers green petroleum coke at its Ponca City, Oklahoma refinery f.o.b. railroad cars and said railroad cars are arranged for by Continental and consigned to Great Lakes (Continental Ans. Par. 3).

265. The crude source for the Ponca City, Oklahoma refinery would include that received by pipeline from Kansas and West Texas fields, as well as Oklahoma. That coke subsequently produced as a residual by-product of refining these crudes is sold to Great Lakes, which buys and then ships at least a portion across state lines. (McCall Tr. 812, 823, 829, 836; McCulley Tr. 2152)

266. A back-up in refinery operations which would affect the production of other products would result if for some reason the petroleum coke would not be moved from the Ponca City refinery. (McCall Tr. 830–31)

267. The principal responsibility for negotiating, and subsequent administration of, the contracts for sale of petroleum coke produced by Continental refineries at Lake Charles, Louisiana and Ponca City, Oklahoma is located at corporate headquarters in Houston, Texas. During the course of such negotiations and administration, such interstate means of communications as the mail and the telephone are used between Houston, Ponca City, and Great Lakes office in New York, New York. (McCall Tr. 733, 777–78, 821; McCulley Tr. 2150–52)

5. *CRA*

268. For a period of years which commenced in 1955 and continues through 1975, CRA agrees by contract to sell, and Great Lakes purchase, all of the petroleum coke produced at its refinery at Coffeyville, Kansas, as, when and to the extent produced within certain specifications. (CX 4; Tr. 408, 409, 423, 1323) Pursuant to such contract, Great Lakes accepts delivery of all petroleum coke upon loading by CRA into railroad cars, f.o.b. at the Coffeyville refinery, either immediately after production or, at the election of CRA, from intermediate storage at the refinery between produc-

tion and shipment. Great Lakes shall pay CRA on or before the 20th day of each month all sums due for deliveries of petroleum coke during the preceding calendar month. (CRA, Ans. Par. 3, CX 4b)

269. Such interstate means of communications as the mails and telephones are used in the negotiation and subsequent administration of the CRA contract between its offices in Coffeyville, Kansas, and Great Lakes offices, in Chicago, Illinois. (McCrum Tr. 866)

270. CRA operates refineries at Coffeyville, Kansas, Philipsburg, Kansas, and Scottsbluff, Nebraska. An occasional exchange of crudes or residiums occurs between its refineries; often times fuel oil being transferred by rail tank car to the coker unit at Coffeyville so as to extract the more valuable light ends. Crude for the Coffeyville refining is received by pipeline from Kansas and Oklahoma. (McCrum Tr. 850–53)

271. Profitability of the Coffeyville refining operations is increased by the coker unit, which extracts from low profit residuums the more commercially valuable gasoline and other light products, and incidentally produces petroleum coke as a by-product. (McCrum Tr. 850–51)

6. *Mobil*

272. By a contract which commenced in 1960 and continues until 1972, Mobil (which has its principal office in New York, New York) has agreed to sell to Great Lakes (which also has its principal office in New York, New York) all petroleum coke produced at the Mobil Beaumont, Texas refinery, when and in what quantities produced. (CX 7a) Pursuant to such contract, the petroleum coke is loaded by Mobil into rail cars as produced and in accordance with such routings as Great Lakes may designate. Title passes from Mobil to Great Lakes upon delivery into the rail car. (CX 7a) Any controversy or claim arising out of, or relating to this such contract, or breach thereof, is to be settled by arbitration to be held in New York City, and the contract is to be interpreted under the laws of New York State. (CX 7h)

273. For a period of years which commenced in 1946 and continues until 1976, by contract Mobil has agreed to sell, and Great Lakes purchase, all petroleum coke produced by the Mobil refinery located at Torrance, California. (CX 5, 6) Pursuant to such contracts, delivery is made f.o.b. by Mobil into railroad cars or trucks furnished by Great Lakes at the Torrance refinery as produced, or at the election of Mobil, on a schedule arranged between the par-

ties after the coke is allowed to come to rest in a concentration area. Great Lakes pays on or before the 20th of each month all sums due to Mobil for deliveries made during the preceding calendar month. (CX 5, 6)

274. Both Alaskan and Middle East crudes are refined at Torrance. At Beaumont, mid-continent sweet crude from Oklahoma, West Texas, sour crude and Louisiana off-shore crude is refined. (Adams Tr. 1083, 1086)

275. Petroleum coke was produced by Mobil during the period 1964 to 1970 by refineries located at Beaumont, Texas, Torrance, California, Trenton, Michigan, Paulsboro, New Jersey, and East St. Louis, Missouri. (Adams Tr. 993–94; CX 5, 6, 7, 37, 65)

276. Responsibility for the coordinated planning and direct operation for all new refineries which comprise the North American Division of Mobil is held by Roscoe Murry, the operation manager of that division. His function is to operate all these refineries as a system in order to produce for marketing the primary products at the most optimum economical means. To do so various operational planning documents by which the "Mobil System" functions are prepared by his office at the New York headquarters. (Evans Tr. 3899–3902, 3906)

277. Being a by-product, coke is not included in these Mobil System schedules but the ability to dispose of it would have a decided effect upon this planning. A failure to dispose of coke would cause a back-up in a refinery's operations which could create an uneconomical situation and eventually result in reduced crude runs. Hence, the operation of the cokers located at those four of nine refineries which have this facility plays an integral part in the overall operation of the Mobil System. Even though a by-product, coke production is, therefore, part of the Mobil System. (Evans Tr. 3899–3902, 3906, 3920–23, 3965–66; Tietman 3440–41)

278. Negotiation, contracting, and administration of the sale of petroleum coke for all Mobil refineries is the immediate responsibility of the product line coordinator for that product, T. J. Evans, whose office is located at the Mobil corporate office in New York. (Adams Tr. 1020–21, 1053, 1071–74) Responsibility for the negotiating and administrating contracts for the sale of all petroleum coke produced by Mobil refineries demands approximately 20 percent of Evans' time. He is the "coke man" for Mobil. (Adams Tr. 1022–24, 1053; Evans Tr. 4000, 4086) In contract negotiations for petroleum coke, his major consideration of concern to Mobil is to

move the coke out of the refinery as produced, and selling price is a secondary consideration. (Adams Tr. 1010–11)

279. Interstate communication facilities such as the mails and telephone are necessarily used by Mobil in negotiating and administrating sales of petroleum coke since this responsibility is located at its New York headquarters, and coordination is required among the producing refineries and their customers, all of which are located elsewhere in various different states. Moreover, the billing of the almost daily shipment made pursuant to such contracts originate with the producing refinery. It transmits the necessary information to the Mobil area billing office, which sends the prepared billing to purchaser and subsequently receives payment for it. As to the Beaumont and Torrance refineries, this billing office is at Dallas, Texas and Los Angeles, California respectively. The billing is made to Great Lakes headquarters in New York, New York. (Adams Tr. 1053–54, 1071, 1072–74)

280. For the sale of petroleum coke Mobil received, for example in 1965, approximately $9 million, and for 1969, approximately $10 million. (Adams Tr. 1147) Total annual sales of Mobil for those years for all products marketed is approximately $7 billion. (Adams Tr. 1157–59)

7. *Sun and Suntide*

281. For a period which commenced in 1957 and continues until 1973, Sun (the successor corporation of the Sunray DX Oil Company, which is now a division of Sun) has contracted to sell and deliver, and Great Lakes buy, take delivery of, and pay for, all petroleum coke produced by Sun at its West Tulsa, Oklahoma refinery (CX 9; 1324). Pursuant to such contract, Great Lakes takes delivery of the coke as produced by Sun f.o.b. the refinery by loading the coke into rail cars consigned in such manner and by such routings as Great Lakes designates. Title passes from Sun to Great Lakes as coke is loaded. Sun promptly sends by United States mail to Great Lakes the bills of lading and shipping documents concerning the coke so loaded. Great Lakes pays Sun on or before the 15th of each month for all coke delivered during the preceding calendar month. (CX 9)

282. For a period which commenced in 1959 and continues until 1973 by contract Suntide (for an initial 10-year period through its wholly-owned subsidiary, Coastal Products Company (Suntide, Ans. Par. 7; CX 10)) has agreed to sell and deliver, and Great Lakes buy, take delivery of, and pay for all petroleum coke pro-

duced at the Suntide refinery located at Corpus Christi, Texas. (CX 10; 1322) Pursuant to such contract, Great Lakes takes delivery of the coke as produced by Suntide, which delivers f.o.b. refinery by loading it into rail cars consigned by Suntide in the manner and by such routings as Great Lakes may designate. Title passes from Suntide to Great Lakes as the coke is loaded. Suntide sends promptly by United States mail to Great Lakes the bills of lading and shipping documents concerning the coke so loaded. (CX 10; 1322)

283. Texas panhandle and Oklahoma fields are the crude source for the Tulsa refinery, and Texas fields for the Corpus Christi refinery. Coke produced at Tulsa is shipped by rail to Great Lakes calcining facility at Enid, Oklahoma; and at Corpus Christi, to its calcining facility at Port Arthur, Texas. (Twomey Tr. 1748–50, 1769–70)

284. Since October 25, 1968, Sun Oil Company has existed as the surviving corporation resulting from mergers among its Suntide Refining Company and Sunray DX Oil Company. Suntide Refining Company exists as a separate wholly-owned subsidiary corporation of Sun Oil Company, and as such it is the owner of the refinery located at Corpus Christi, Texas. All assets and liabilities of Sunray DX Oil Company have been assumed by Sun Oil Company, which now operates that former company as a corporate division. (Twomey Tr. 1723, 1785–87)

285. Petroleum coke is produced by Sun at three of its refineries; at Tulsa, Oklahoma and Corpus Christi, Texas, which is purchased by Great Lakes, and at Duncan, Oklahoma, which is purchased by Republic Carbon Company. Neither the local refinery manager nor other refinery personnel take part in contract administration or negotiations, except for overseeing quality of production and delivery. (Twomey Tr. 1739–40) Rather, negotiation and management of the sale of all petroleum coke sold by Sun is the sole responsibility of one employee located at its Tulsa, Oklahoma office, who with one assistant does all the work directly involving the marketing of that product. (Twomey Tr. 1724–26, 1739–40)

286. In the course of discharging this responsibility, such interstate communication facilities as the mails and the telephone are used in dealing with the purchasers, located in New York and Chicago. Billing information as to coke delivered pursuant to the contract is sent to the Sun office in Tulsa, Oklahoma, which then sends billing invoices to Great Lakes. Annual petroleum coke sales

by Sun are approximately $3 million annually, of which $2.2 million is received from Great Lakes. Sun's total sales of all products was about $2 billion in 1967. (Twomey Tr. 1745, 1748, 1789–90)

287. As to both the Tulsa and the Corpus Christi refineries, if the coke output was not removed promptly as produced, serious economic and operational consequences would soon result for the refinery would begin to back-up restricting the supply of light ends available to other units, and increasing the cost of the principal end products. Tulsa production is most generally shipped by rail to Great Lakes facility at Enid, Oklahoma; and Corpus Christi production is most generally shipped to Great Lakes at Port Arthur, Texas. (Twomey Tr. 1744)

288. Although no direct supply demand relationship exists between the refinery production of coke and the ability to sell that production, such production is directly responsive to the demand for gasoline and similar light products for, as a consequence of satisfying these demands, coke production will necessarily increase. Income from sales of the coke so produced as a by-product is costed as by-product revenue. This revenue serves to reduce the cost of producing the principal products. (Twomey Tr. 1773, 1774)

8. *Texaco*

289. For a period which commenced in 1934 and continues at least through 1970, by contract Texaco has agreed to sell, and Great Lakes purchase, all petroleum coke produced by Texaco refineries located at Port Arthur, Texas, Lockport, Illinois, El Paso, Texas, Amarillo, Texas, and Casper, Wyoming. (CX 11, 12; 1327) For a period which commenced in 1967 and continues through mid-1972, by contract Texaco has similarly agreed to sell, and Great Lakes purchase all petroleum coke (except that required of Texaco in its own operations) produced at the Texaco Los Angeles, California refinery. (CX 15)

290. Texaco is obligated, pursuant to such contract, to sell and deliver coke to Great Lakes into rail cars o rtrucks only if, when, and to the extent coke is produced. Title to the coke passes from Texaco to Great Lakes upon delivery, and Great Lakes is fully responsible for the coke immediately thereafter. (CX 11, 12; 1327)

291. Texaco refineries which have coker facilities are located at Lockport, Illinois, Casper, Wyoming, Port Arthur, Texas, Ama-

rillo, Texas, El Paso, Texas and Los Angeles, California. All coke produced by these refineries has been under contract for sale to Great Lakes for more than the past twenty-seven years; and for at the least the past six years under still existing contracts. No Texaco produced petroleum coke has been sold to any purchaser other than Great Lakes. (Clauson Tr. 1370–71)

292. Whether a Texaco refinery should produce fuel oil, or instead of fuel oil, petroleum coke, is a decision by Frank A. Clauson, the manager of the process division of Texaco's domestic refinery department, who has offices in Houston, Texas. Texaco has cokers at six of its twelve domestic refineries; and of those six, three also have asphalt facilities. This division is strictly a manufacturing organization; negotiations and marketing of petroleum coke produced throughout the nation are being handled by the Texaco petrochemical department in New York (Clauson, Tr. 1367, 72, 79–81).

293. The coker at the Port Arthur, Texas refinery was shut down in October 1970, so as to produce at that facility more fuel oil in response to an existing general shortage of fuel oil marketing demands on the East Coast. Based on an economic evaluation of this East Coast market, the coking operation at the Texaco Port Arthur refinery was discontinued so as to provide the capacity to satisfy that fuel oil demand (Clauson, Tr. 1369–1370).

294. The individual producing refinery plays only a production role in the administration of the contract for sale of petroleum coke; *i.e.*, obtaining and loading the rail cars directly from the coker, shipping that car to wherever Great Lakes may instruct, and transmitting to the Texaco New York headquarters monthly data as to the total amount shipped. The New York office then bills Great Lakes. Such interstate communication facilities as the mails and the telephone are normally used between the refineries, the New York office, and Great Lakes in the administration of these contracts (Clauson, Tr. 1379–1381).

295. The crude source for the Lockport, Illinois refinery is West Texas and Louisiana; for the Casper, Wyoming refineries, Wyoming and Montana crude; for the Port Arthur, Texas refinery, Texas and Louisiana crudes; for the El Paso, Texas refinery, crudes from Utah, New Mexico, and West Texas; for the Amarillo, Texas refinery, all Texas crude; and for the Los Angeles refinery, all California crudes except for small amounts of crude imported from Sumatra (Clauson, Tr. 1382–1384).

296. The operation of the coker at a Texaco refinery is very closely integrated into entire operations of Texaco, and its entire production slate for gasoline and other light products is dependent on the operation of the coker. Consequently, if the disposition of petroleum coke was impaired, Texaco may either have to make other disposition arrangements such as dumping, or possibly revert back to the production of fuel oil. Operational charges as may be required of such alternatives are major, requiring the addition of extensive facilities which would require substantial time and expense. (Clauson 1384–86)

N. Indicia of Anticompetitive Effect and Foreclosure as Related to Contract Terms

1. *Dominance and Concentration*

298. Of the three principal criteria by which the completeness of an industry's structure are evaluated (*i.e.*, entry barriers, economies of scale, and concentration), concentration is the most important (Folsom, Tr. 5259–5260). Most economists would have concern for a particular industry's competitive viability if the concentration ratio exceeds a situation in which the market share of the relevant product held by the top four firms exceed 50 percent (Folsom, Tr. 5263–5264).

299. High concentration is manifested by the fact that as to *all* purchasers of green industrial quality petroleum coke at the refinery source in the United States, Great Lakes' share in 1964, 1965 and 1969 of 42.4, 42.1 and 38.8 percent is equal to that of the total of shares held by its next six largest competitors, the individual market shares of which firms range only from approximately 5 to 10 percent (Appendix A).

300. This dominance at the refinery source is illustrated by the applicable four and eight firm concentration ratios as to all purchasers in 1964, 1965 and 1969:

Green Industrial Quality Petroleum Coke
Top Ten of All Purchasers
Ranking and Percentage Share
(% of Total by All)

Firms	1964	1965	1969
Great Lakes	(1) 42.4%	(1) 41.1%	(1) 38.4%
Republic	(2) 10.8	(2) 10.3	(3) 7.6
*Reynolds	(3) 9.8	(3) 8.9	(2) 10.0
*Union Carbide	(4) 7.9	(4) 8.1	(7) 4.5
Collier	(5) 5.8	(5) 6.2	(6) 5.0
Wilson	—	—	(4) 7.0
Mountaineer	(6) 4.8	(6) 5.3	4.2
*S.A.V.A	—	1.6	(8) 4.5
*Alcoa	(7) 5.5	(7) 5.2	3.2
*Airco	(8) 2.6	(8) 2.7	2.3
*Kaiser	—	.6	(5) 5.2
TOTALS	89.6%	90.0%	91.9%
CONCENTRATION RATIO			
4-Firm:	70.9%	68.4%	63.0%
8-Firm:	89.6%	87.8%	82.2%

*Denotes non-middlemen firms; *i.e.*, the inclusion as a "middleman reseller" a firm, the business of which is not primarily to resell, but to consume in use, petroleum coke. [Note inclusion of Collier and Mountaineer, both subsidiaries of oil companies—Union and Sohio. As subsidiaries, they need not compete for a refinery source of supply but are included as reseller only because the prime function of the subsidiary is to market petroleum coke.]

301. When considered in the context of only those firms which seek to compete with Great Lakes in the performance of the well recognized middleman function, *i.e.*, purchases made primarily for subsequent resale and not for use, the market dominance held by Great Lakes is even more manifest. In terms of four firm concentration ratios, when including as "resellers" those firms the business of which is *not* primarily to resell but produce or use (indicated by * above) dominance by Great Lakes over the middleman function is well illustrated:

Green Industrial Quality Petroleum Coke
All Middlemen-Resellers [1]
Ranking and Percentage Share
(% of Total by All)

Firms	1964	1965
Great Lakes	(1) 62.3%	(1) 60.7%
Republic	(2) 17.7	(2) 15.4
*Collier	(3) 8.8	(3) 9.1
Wilson	(6) 1.1	(5) 4.1
*Mountaineer	(4) 7.3	(4) 7.8
Defler	(7) 1.0	(7) 1.4
Carchem	(5) 1.8	(6) 1.5
TOTALS	100.0%	100.0%
	4-Firm Concentration Ratios	
	96.2%	92.9%

[1] Includes resale of all industrial quality petroleum coke.

*As noted in the above findings, both Collier and Mountaineer, being subsidiaries of oil companies, need not compete for sources of supply. Included here as resellers only because the prime function of the subsidiary is to market petroleum coke.

Similar, or even greater concentration ratios and market dominance by Great Lakes are manifest when the industrial quality petroleum coke market is viewed in terms of total net ton resales for the years 1964 and 1965 in the following economically significant sales markets:

[A] Domestic Resales Markets

	1964		1965	
	Green	Calcined	Green	Calcined
Great Lakes	60.2%	41.0%	64.5%	38.6%
Republic	26.7	—	26.8	—
*Mountaineer	8.7	27.5	4.2	23.3
*Collier	3.7	17.3	2.6	22.0
*Am. Gilsonite	—	10.2	—	7.8

(Appendices B, C)

[B] Resale Exports to Europe
from the Gulf Coast Area

	1964—% of Total		1965—% of Total	
	Green	Calcined	Green	Calcined
Great Lakes	93.4%	93.8%	79.6%	85.6%
*Reynolds	5.1	1.6	2.6	13.8
*S.A.V.A	—	—	17.8	—
*Union Carbide	—	4.6	—	.6
Republic	1.5	—	—	—

(See Appendices D and E)

[C] All Exports to Japan for Resale

	1964		1965	
	Green	Calcined	Green	Calcined
Great Lakes	76.5%	81.5%	84.3%	89.6%
Collier	15.0	11.0	8.5	8.0
Mitsui	—	—	1.9	—
Wilson	8.5	7.5	5.3	2.4
TOTALS	100.0%	100.0%	100.0%	100.0%

Only Great Lakes and Collier exported to Japan from the West Coast area both green and calcined coke in 1964 and 1965. When so evaluated:

Resale Exports to Japan from the West Coast Area

	1965		1964	
	Green	Calcined	Green	Calcined
Great Lakes	88.2%	91.7%	83.6%	88.1%
Collier	11.8	8.3	16.4	11.9
TOTALS	100.0%	100.0%	100.0%	100.0%

(See Appendices F and G)

*Note: Asterisk indicates an inclusion as a "reseller" a firm, the business of which is not primarily to resell, but to produce or use, petroleum coke.

302. However, complaint counsel have stipulated to the accuracy of the following relationships (GLCX93 and 94; Tr. 4424–4426):

Percertage of U.S. Production of Petroleum Coke Subject to Great Lakes Carbon Corporation Purchase Contracts

	% of Alleged Relevant Market	% of Total Production
1964	41.7%	27.3%
1965	41.4%	27.1%
1969	24.5%	21.5%

Percentage of U.S. Production of Petroleum Coke Subject to Great Lakes Carbon Corporation Commission Contracts

	% of Alleged Relevant Market	% of Total Production
1964	0	0
1965	0	0
1969	12.6%	8%

2. *New Entry and Foreclosure*

303. Although the term of the contract is insignificant when entry appears relatively easy at all levels despite these contractual terms, if there are substantial barriers to entry, then the longer the contract, the more anticompetitive is the result (Phillips, Tr.

4667–4669). The very nature of the business itself as heretofore indicated with tendencies toward vertical integration, complications of coke disposal except to calciners in proximity, bulk removal problems and high investment cost of entry, creates an impediment or barrier to entry if contract terms are too long or too short and incompatible with business necessity.

3. *Nature and Reasonableness of Contract Terms and Conditions*

304. No contract in issue, or in evidence, includes a provision that the refinery producer shall refrain from dealing with competitors of Great Lakes (CX 1–15, CX 45–53, CX 408–417, CX 1238, CX 1322–1327). Some contracts however do provide for the taking of the total output of a particular refinery.

305. Respondents American Oil, Continental Oil, Mobil Oil and Sun Oil have sold petroleum coke to competitors of Great Lakes (CX 16, CX 28, CX 29, CX 1236–1237).

306. No contract in issue provides that Great Lakes shall purchase its entire petroleum coke requirements (*i.e.*, Great Lakes requirements) from a refinery producer.

307. Great Lakes purchases quantities of petroleum coke from non-respondent refinery producers, including Atlantic-Richfield, Champlin, Marathon, NCRA and Standard Oil of California (CX 13, CX 1238, CX 417, CX 8, CX 410–413, CX 14).

308. There are no contracts at issue evidencing respondents operating several refineries deal on an exclusive basis with a purchaser except in the sense that particular refineries enter into total output contracts which is tantamount to exclusive contracts with those refineries. Exclusive contracts may be a necessity to insure refinery coke disposal in the absence of more than one calciner within proximity capable of efficiently meeting disposal requirements.

309. Unreasonably long-term contracts (*i.e.*, 7–10 years) are not required to meet long-term sales commitments. In this connection the following testimony is significant:

Q. * * * Am I correct in saying that you were able to obtain a commercial contract for a period of two years?
A. Yes, sir. (Shinozaki, Tr. 4389).

* * * * * * *

Q. Based on your experience in dealing with the Japanese steel industry, do you think you would be successful, sir, in offering them a contract for petroleum coke for, say two years? Do you think you could sell petroleum coke to the Japanese steel industries for two years as you did in the first round?
A. Yes, I think so. (Shinozaki, Tr. 4391).

310. Each calcining facility of Great Lakes is supplied by multiple refinery sources, *i.e.*, Port Arthur by Beaumont, Houston, Corpus Christi, Texas City; Calumet by Lockport, Robinson, Coffeyville, Wichita; Enid by Ponca City, Tulsa, Amarillo, El Dorado, etc. (Parker, Tr. 3560). Since numerous calcining facilities of Great Lakes are supplied by multiple refinery sources, it would appear there is no business necessity on the part of that calciner to have exclusive contracts at each of the multiple sources unless refinery requirements make it necessary.

That 7 to 20 year long-term contracts normally are not a business necessity is substantiated by the fact that, subsequent to the commencement of this proceeding, Great Lakes entered into several renewal contracts for the purchase of petroleum coke containing terms of three years or less (See CX 1324, Sunray DX Oil Company, 3 years; CX 1322, Suntide Refining Company, 3 years; CX 1327, Texaco, 1 year). Significant also is the fact that several contracts involving companies identified by Great Lakes as competitors are for periods of three years or less (See, *e.g., Republic Coal & Coke Co.;* CX 16 (American Oil), CX 37 (Mobil Oil), CX 42 (Sunray DX Oil Co.); *Mitsui & Co.:* CX 18 (ARCO); *Air Reduction Co.*: CX 23 (Cities Service), CX 39 (Skelly Oil); and *Union Carbide:* CX 1232, 1233 (Cities Service)). From the foregoing, as heretofore stated, it would appear it is normally not a business necessity to either Great Lakes or respondent refineries to have long-term contracts in excess of three years unless equipment construction involves a five-year payout period.

Furthermore, proof of the benefits of short-term, three year maximum contracts is found with respondent Great Lakes itself. From 1952 through 1967, NCRA sold its entire coke output to Great Lakes under an initial ten year, five year extenion contract. In 1967, after 15 years of foreclosure, Republic Coal & Coke outbid Great Lakes and obtained the NCRA output on a *three year* contract. In 1970, after the termination of the latter contract, Great Lakes was successful in regaining the NCRA coke.

311. Exclusive or total output contracts with a refinery are not always essential to the efficient and economical operation of a coke producing refinery. The overriding concern of respondent refinery producers with regard to green petroleum coke is the assured disposition of the complete output as produced. Evidence of record, nevertheless, establishes that the assured removal of this product may be met satisfactorily by the sale of the petroleum coke to multiple purchasers (Dieudonne, Tr. 412; McKewon, Tr.

450–451). Indeed, the evidence not only establishes that selling to multiple purchasers may promote greater flexibility to the refinery without significant increases in cost (Newman, Tr. 5125; Teitman, Tr. 3431), but additionally shows that disposal to multiple customers is a regularly occurring business practice for several coke producing refineries. Illustrative are the following refineries which currently are, or in the past have, sold to more than one customer.

Refinery	Number of Purchasers	Reference
Cities Service (Lake Charles)	3	CX 24, 25, 26; Newman, Tr. 5213–5215.
ARCO (Watson)	3	CX 17, 18, 19; Evans, Tr. 4104–4105
Marathon (Robinson)	2	CX 36, 417; Evans, Tr. 4105
Mobil (E. St. Louis)	2–4	Evans, Tr. 4004
Mobil (Paulsboro)	2	Murray, Tr. 3952; MB, p. 35
Cities Service (E. Chicago)	6	CX 23, 27, 1305 f, 1307 f
Sunray DX (Duncan)	7	CX 118
Skelly (El Dorado)	3	CX 39, 40, 420, 1305 o
Union Oil (Pure) (Toledo)	3–4	CX 1305 g, 1307 h
American Gilsonite (Gilsonite)	2	CX 1307 a, o
Sinclair (Houston)	2	Beatty, Tr. 4856–4857

312. The testimony of William J. Kemnitzer, an expert witness called on behalf of all respondent refineries, demonstrates that all contracts do not have to be on an exclusive or total output basis with a refinery. It is indicated as follows:

Q. Now I take it from your testimony that a requirement of a full-output agreement is satisfied where you have one or more purchasers of petroleum coke at the refinery, who either singularly or collectively agree that they will take every pound of petroleum coke produced at the refinery and remove it from the premises. Is that accurate?

A. Well, I think so. If I understand your question, yes. (Kemnitzer, Tr. 4787).

Q. Let me assume there were two contacts for the production of the petroleum coke produced at Beaumont and that they were split 50-50 so that on one day you could have the rail cars that were going to go to one purchaser under the coke drums and another day you could have the rail cars that were going to go to another purchaser under the coke drums.

I take it from your testimony here that would be a perfectly feasible operation?

A. May I ask you if you are assuming that the coke is all of the same quality?

Q. That over time the coke delivered to each one is of equal quality.

A. If the coke is of equal quality, yes * * * (Kemnitzer, Tr. 4788).

With regard to multiplicity, Kemnitzer testified:

HEARING EXAMINER BUTTLE: What is the trouble with multiplicity of buyers? Is it scheduling, disposal or what?

A. I don't think there is any trouble at all. You could have multiplicity of buyers up to a certain extent, providing they all operated under the same contract verbatim. (Kemnitzer, Tr. 4761).

313. On the issue of an acceptable and average term of years for contracts, Mr. Kemnitzer appeared to be saying with reluctance that five years would be acceptable if it had to be and that five years was the average period needed to amortize the cost of a new coker but that he preferred a longer period for the higher output cokers (Kemnitzer, Tr. 4749–4756).

314. Augmenting the illegal practices of respondents in entering into excessively long-term total output or exclusive contracts is the industry-wide practice in this regard which aggravates the anti-competitive effect of such contracts of each respondent. Minimal quantity of coke output is therefore an inappropriate defense in the presence of an industry-wide practice even though unassociated with a combination and conspiracy.

CONCLUSIONS

A. Evidentiary Evaluation and Application of Law

1. *Long Term Contracts for Purchase of Total Coke Output of a Refinery—Exclusivity*

Long-term exclusive or requirements contracts to take all of the relevant products [5] (*i.e.*, industrial quality petroleum coke 2.8 percent or less sulphur content) pursuant to a substantial or industry-wide practice involving a large share of the market are inherently suspect and potentially anticompetitive but not illegal per se in the presence of business necessity and absence of adverse competitive effect. Under the foregoing circumstances adverse competitive effect or foreclosure may be imputed from evidence indicating the contracts are unreasonable because they exceed the term of years required by business necessity since the purpose served can only be to impede competition. Evidence of significant new entry in the relevant market, however, may vitiate the inference or presumption that the period of such contracts has an adverse competitive effect. Lack of new entry on a comparable competitive basis in the relevant market, of course, conversely, is negative proof corroborative of the fact that the presumption or inference may prevail. Excessively long-term exclusive, or take all of total output contracts on the one hand tend to approach vertical inte-

[5] of a particular refinery

gration which obviously is anticompetitive. On the other hand, contracts for an inadequate term which fail to take cognizance of business necessity are anticompetitive also since they foreclose new entry or encourage vertical integration by refineries to assure the efficient disposal of coke as a residue without inhibiting gasoline production.

If the exclusive long-term contracts are illegal, then participation in those contracts as a party makes either party to the contract violative of Section 5. On the other hand, if a contract can be justified as a business necessity by either party, neither of the parties thereto is in violation thereof. In the absence of an alleged combination and conspiracy, this hearing examiner has taken the position that this case must be resolved as nine separate cases since there are nine contracting respondents except that evidence as to one respondent must be applied to all other respondents to the extent that such evidence is reflective of an industry-wide practice. Aggravation of the anticompetitive effect of the long-term contracts or industry-wide practices is considered by the hearing examiner from two perspectives: (1) does it aggravate the effect of established anticompetitiveness; (2) does minimal quantity marketing of the relevant product by any one respondent affect competition in the presence of an industry-wide practice. The record appears to evidence an affirmative answer. The anticompetitive effect resulting from long-term contracts of each respondent must be measured in terms not only of its own engagement therein (which may or may not involve sufficient volume to support a conclusion there has been a violation), but also in terms of an industry-wide aggravating effect which has a tendency to make contracts for minimal volume anticompetitive as a part of the industry-wide mosaic, regardless of the absence of a combination and conspiracy. The *Luria* case seems to support this view as follows:

> Some of the smaller mills such as Bucyrus and Edgewater object to their inclusion in the Commission's Order, claiming that their purchases are too insignificant to be unlawful. We cannot separately view individual purchases by those mills whose annual requirements are not quantitatively significant. All contribute to the unlawful result and all should share in the consequences. *Luria Bros.* v. *FTC*, 389 F.2d 847, 863 (3rd Cir. 1968).

Respondents have taken the position that they do not concede long-term contracts to be an industry-wide practice. However, this is inconsistent with their theory that long-term, exclusive contracts or contracts to take all of the relevant product is a business

necessity.[6] If there is a business necessity in the industry, as respondents claim, it must be an industry-wide practice as otherwise held to be evidenced in the findings hereof.

In *FTC* v. *Motion Picture Advertising Service Co., Inc.*, 344 U.S. 392 (1953), exclusive contracts for a duration of over one year, and generally beneficial to both the purchaser and seller, were found to constitute an undue restraint upon competition, and were thus held unlawful under Section 5 of the Federal Trade Commission Act. There, as here, use of long-term, exclusive type contracts was a practice among a very substantial segment of the industry. The Court held, with regard to the illegality of this type business arrangement, that:

> The point where a method of competition [exclusive contracts] becomes unfair will often turn on the exigencies of a particular situation, trade practices or the practical requirements of the business in question. (344 U.S. at 396)

The above citation applied to the findings supported by the evidence herein, establishes that long-term, exclusive contracts of the type in issue (*i.e.*, 7 to 20 years) are neither reasonable nor necessary to the quality petroleum coke industry. On the contrary, the evidence indicates that the practical requirements of the industry justify total output contracts no longer than three years or five years to cover a normal payout period for newly constructed plant and equipment, and to encourage new entry. These periods are for the most part currently adopted by the industry for contract purposes, although formerly from 7 to 20 years.

Unlike the factual circumstances in *United States* v. *El Paso Natural Gas Co.*, 376 U.S. 651 (1964), the investment in coking or calcining equipment is significantly less than that required for the construction of natural gas pipeline facilities. Consequently, such investment in cokers or calciners can be justified through contracts of shorter duration than those sanctioned in *El Paso*.

The practicalities and realities of the petroleum coke industry frequently, although not always, permit the sale of that product to multiple customers without the necessity of contracting for the total output of a particular refinery which is tantamount to exclusivity.

In *Tampa Electric Co.* v. *Nashville Coal Co.*, 365 U.S. 320, 334 (1961), a 20 year contract for the supply of coal was held lawful, the Court concluding that "* * * at least in the case of public utilities the assurance of a steady and ample supply of fuel is

[6] *i.e.* in some instances for periods of seven or more years.

necessary in the public interest *** otherwise consumers are left unprotected against service failures owing to shutdowns; and increasingly unjustified costs might result in more burdensome rate structures eventually to be reflected in the consumer's bill." The obvious concern of the Court for the overriding needs of the consumer public, as voiced in Tampa, is plainly not served in the instant matter where the record clearly established (1) an unlimited restrictive and anticompetitive method of distribution of a raw material from source to ultimate user, and (2) a distant relationship between the ultimate consumer public and the processors and sellers of petroleum coke as a raw material. Additionally, factual circumstances absent in Tampa, and upon which the Court relied heavily, such as a seller with a dominant position in the market as was found in *Standard Fashion Co.* v. *Magrane-Houston Co.* 258 U.S. 346 (1922), and an industry-wide practice of relying on exclusive contracts, as in *Standard Oil Co. of California* v. *United States,* 337 U.S. 293 (1949), are present in the case herein.[7] Furthermore, in Tampa, the alleged illegal act applied to only one contract involving less than 1 percent of the total marketed production in the relevant market; the instant matter involves numerous contracts and an industry-wide practice of exclusive or total output of refinery contracts, the effect of which is to foreclose a substantial percent of the relevant market where there has been in many instances no business necessity therefor.

The vice to the challenged long-term contracts is the foreclosure of access to supply, thus reducing the potentiality of entry by other prospective competitors, and the establishment of barriers to entry. (Phillips, Tr. 4615–16, 4670–71, 4697–99; Folsom, Tr. 5287–89) In this regard it is significant that the exclusive contractual practices of Great Lakes appear to have had a greater anticompetitive effect than those of others in the industry because of their dominance as evidenced regardless of cause (*i.e.,* efficiency or otherwise). There may be some error in the statistics in this regard. Statistics are often faulty but they may at least as here be sufficiently accurate to afford reasonable approximation of results when one considers all of the circumstances evidenced. Even though others may presently be equally dominant, which respondents urge, the effect of the concentrated industry on the market

[7] Contrary to the contention of respondent Great Lakes (Great Lakes Brief, p. 14), other companies in the petroleum coke business did in fact utilize long-term contracts in order to meet the practices of using long-term contracts existing elsewhere, a practice initially instituted by Great Lakes. (Roberts, Tr. 1235, 1237–38)

is greatly enhanced by the practices of Great Lakes and other respondents. That the practices have recently ceased in the presence of government surveillance cannot be determinative of violation. Furthermore, respondent counsel still urge the probable need of total output contracts of over seven years at their business discretion. Business convenience does not constitute business justification.

2. *Relevant Product Market*

It is alleged that the relevant product market in this proceeding consists of the purchase and sale of industrial quality petroleum coke. For the purposes of this proceeding, industrial quality petroleum coke has been defined by complaint counsel as that petroleum coke containing not more than 2.8 percent sulphur by weight. (Tr. 264–265, 533–39, 3115–3125)

The purpose of market definition is "to recognize competition where, in fact, competition exists" *Brown Shoe Co.* v. *United States,* 370 U.S. 294, 326 (1962). Determination of the market is necessary to provide a meaningful basis for analysis of competitive effects. It is not an abstract or academic exercise and, for this reason, the decisions uniformly direct us to the "trade realities" for lines of commerce. *United States* v. *Philadelphia National Bank,* 374 U.S. 321, 357 (1963).

Counsel supporting the complaint have the burden of proving that the product market so defined is an "area of effective competition" for antitrust purposes. *Brown Shoe Co.* v. *United States,* 370 U.S. 294 (1962); *Columbia Broadcasting System, Inc.* v. *F.T.C.,* 414 F.2d 974, 978 (7th Cir. 1969). As the Court stated in the *Brown Shoe* case, 370 U.S. at 325:

> The boundaries of [a product market for antitrust purposes] may be determined by examining such practical indicia as industry or public recognition of the sub-market as a separate economic entity, the product's peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price change and specialized vendors.

The alleged product market is recognized as a separate economic entity by industry sources as demonstrated by a product preference on the part of major industries.

The relevant product (*i.e.*, quality coke) is also characterized by a distinctive price range if nonquality variables are eliminated (*e.g.*, transportation costs, etc.).

Petroleum coke which has been excluded from the relevant market exerts some but not significant competitive influence on the

"relevant" product since buyers among quality coke users sometimes blend nonquality coke with the "relevant" quality coke to achieve low sulphur content. This is also corroborative of the preferred industrial utility of low sulphur coke.

3. *Relevant Geographic Market*

Contrary to respondents' contention, the "West Coast and Gulf Coast" are relevant geographic submarkets in that production facilities located within their boundaries are in close proximity to ocean shipping ports making such production a relevant product economically not only suitable for export to Japan and Europe, but utilized for that purpose. The evidence shows that the West and Gulf Coasts of the United States are economically separable as sources of supply for foreign customers. Sales of coke from other ports and foreign countries may be competitive with exports from the West and Gulf Coasts but this is not significantly relevant to competition within the West Coast and Gulf Coast markets.

4. *Interstate Commerce*

Typical of all refinery respondent contentions is that of Mobil which asserts that no jurisdiction is here present because Mobil's conduct has occurred intrastate, was not in commerce, and thus not subject to nor recognizable under the Federal Trade Commission Act.

As stated by complaint counsel, the fundamental defect inherent in this contention made by all respondent refinery producers is manifest in this conclusion of law by Mobil. The anticompetitive conduct which is the subject of the complaint in this matter is the practice by these respondents of using long-term (7–20 years) exclusive, total output contracts in the sale of industrial quality petroleum coke to Great Lakes. These contracts constitute the fundamental practice which constitute the charged unfair method of competition "in commerce."

The anticompetitiveness present is caused by the nature of these contracts, and not by particular f.o.b. deliveries intrastate. In the context of this case, the f.o.b. deliveries of the type here present, being (1) an integral part of the overall refinery operation and (2) made pursuant to exclusive, total-output, long-term contractual commitments, are themselves in the flow of commerce.

The inappropriateness of respondents' position is illustrated by the fact that if each such delivery of coke was not pursuant to a

long-term exclusive total output contract but rather each a f.o.b. spot-type sale, to various multiple purchasers, then the decision in *F.T.C.* v. *Bunte Bros., Inc.*, 312 U.S. 349 (1941) might be applicable to this situation.

In *Ford Motor Co.* v. *F.T.C.*, 120 F.2d 175, 183, the Court states:

> The Federal Trade Commission Act was enacted under the power of Congress to regulate interstate and foreign commerce and by its express terms (Section 4, 15 U.S.C.A. § 44) deals only with such commerce. Interstate commerce includes intercourse for the purpose of trade which results in the passage of property, persons or messages from within one state to within another state. All of those things which stimulate or decrease the flow of commerce, although not directly in its stream, are essential adjuncts thereto and the Congress has power to confer on the Federal Trade Commission their regulation. Stafford v. Wallace, 258 U.S. 495, 516, 42 S.Ct. 397, 66 L. Ed. 735, 23 A.L.R. 229

Contract negotations here are clearly within the scope of this case.

B. The American Oil Company, Maryland, as a Proper Party—Motion To Dismiss

The American Oil Company, a Maryland corporation, has consistently maintained prior to and throughout the proceeding that it did not manufacture or sell petroleum coke to the Great Lakes Carbon Corporation from any refinery under the contracts complained of herein. However, it did enter into a long-term contract with Great Lakes for the sale of coke and then did arrange for an assignment of the contract to its wholly-owned subsidiary with the approval of Great Lakes before delivery of coke was due.

As indicated by respondent American Oil at page 6 of their motion to dismiss it is stated:

> The contract covering the only sale of petroleum coke complained of as having been made by this respondent was effectively assigned to The American Oil Company, a Texas corporation, in October 1959, prior to the effective date of such contract (i.e., January 1, 1960) and prior to any petroleum coke being produced and/or delivered pursuant thereto. The validity of the contract and of the assignment is uncontroverted and is not in issue in this proceeding. Such documents CX 1a–1i, CX 414 a–b and CX 415, were offered into evidence by complaint counsel for the truth of their contents and were so received by the Hearing Examiner. Transcript 91, 194, 3132; also see Addenda 1 & 3 to transcript of 2/1/71 (stipulations of complaint counsel as to validity of contract and assignment).

The assignment is conclusive of the fact that this respondent entered into a long-term contract with Great Lakes and arranged for

the assignment thereof and delivery of oil from the refinery of its controlled subsidiary, the American Oil Company of Texas.

Not even exercise of some degree of supervision by a 100 percent stockholder is sufficient to render a subsidiary the instrumentality or alter ego of a corporation. "That a stockholder should show concern about the company's affairs, ask for reports, sometimes consult with its officers, give advice, and even object to its proposed action is but the natural outcome of a relationship.* * *" *U.S.* v. *Elgin J. & E. Ry.*, 298 U.S. 492, 503–504 (1936). Even the fact that the Parent considers its subsidiaries to be members of a "family" does not destroy the separate existence of each member. *New Orleans & N. E. Ry. Co.* v. *Hewett,* 341 F.2d 406, 408 (5th Cir 1965).

Where corporations are concerned, therefore, any court or agency is bound by the general rule that the corporate entity must be recognized and upheld, unless specific unusual circumstances warrant an exception. There are specific unusual circumstances present in the instant case.

As stated by the court in *Steven* v. *Roscoe Turner Aeronautical Corporation,* 324 F.2d 157 (7th Cir. 1963), at 160: "In order to establish that a subsidiary is the mere instrumentality of its parent, three elements must be proved: Control by the parent to such a degree that the subsidiary has become its mere instrumentality; fraud or wrong by the parent through its subsidiary, e.g., torts, violation of a statute or stripping the subsidiary of its assets; and unjust loss or injury to the claimant such as insolvency of the subsidiary."

Respondent American Oil fails to recognize that unusual circumstances are present here involving their original contractual relationship with Great Lakes and its imposition of responsibility thereunder upon their wholly-owned Texas company pursuant to their arranged assignment with Great Lakes. It is the contract that is in issue here, not the delivery of coke under an assigned contract sponsored by the parent company. The American Oil motion to dismiss must therefore be denied.

C. Claimed Prejudice by Respondent Mobil Oil Company

Counsel for Mobil Oil assert that they have been misled as to the theory of complaint counsel's case asserted in the Statement of Issues and in subsequent argument as follows:

1. The illegal acts, practices or methods charged in the complaint consist

not of the conduct of an individual respondent refinery producer alone but of the aggregate, multi-state conduct of all respondent refinery producers.

2. Where, as here, specific unfair conduct charged as to each respondent refinery producer is not illegal standing alone but rather only in the aggregate constitute the alleged violation.

There is no merit to this contention. The hearing examiner has since the beginning of trial made the issues clear on the record. The charges alleged in the complaint are not dependent on proof that no violation of Section 5 is present in the absence of industry-wide aggravation. To the contrary, the hearing examiner has made it clear that the case as to each respondent must be evaluated separately. In some instances if take-all output contracts involve substantial product volume, this may be anticompetitive in and of itself. If the volume contracted for is minimal aggravation of anticompetitiveness because of an industry-wide practice of long-term exclusive refining—calciner contracts may also result in a Section 5 violation.

Furthermore, the hearing examiner is not bound by statements of counsel but the issues raised by the pleadings concerning which there has been no doubt in this case. Additionally, complaint counsel have indicated at the post-hearing conference they agree with the hearing examiner's version of the issues in this case of which respondents have been fully apprised as reflected by the pleadings and statements of the hearing examiner before and during the trial.

D. Scope and Requirements of Order

The evidence seems to be clear that although 7 to 20 year contracts to take all of the relevant product from particular refineries heretofore has been prevalent perhaps prior to Commission surveillance, that currently three, four, and five year contracts prevail especially among respondents. Furthermore, Mr. Kemnitzer has testified that although 10-year contracts where new calciners were installed would relieve anxiety, five years would be acceptable if it had to be. Where new equipment is involved, there is a basis for protecting a five-year payout period either as to cokers or calciners and it would appear that three-year contracts would be sufficient otherwise to insure efficient and continuous disposal of coke without interfering with the manufacture of gasoline. This, in any event, is becoming a current practice which in and of itself is evidence reflective of business necessity although respondents contend ten years may be necessary for purposes of amortization.

Nevertheless, it is apparent that non-respondent refineries or calciners may seek exclusive contracts of over three to five years and respondents should be afforded the opportunity to compete with longer term non-respondent contracts on notice to the Commission. The effect of this will be to afford the Commission full opportunity of policing and prohibiting violative contracts among respondents. Permitting five-year terms where new equipment is involved as heretofore indicated will also have the effect of encouraging and protecting new entry and will discourage vertical integration which is obviously anticompetitive since it will destroy the separate market entirely.

On the question of exclusivity, requiring that justification therefor be filed with the Commission, would seem appropriate to encourage selling coke to multiple buyers if this can be accomplished by appropriate scheduling and because of the proximity of more than one available calciner to refineries.

Accordingly, premised upon the findings and conclusions herein, Section 5 of the Federal Trade Commission Act has been violated and the following order shall issue.

ORDER

It is ordered, That respondent Great Lakes Carbon Corporation shall on or before December 31, 1972, with each petroleum refiner with which it presently has a contract to purchase the full amount of the regular green industrial quality petroleum coke production at a refinery in the United States extending more than three years beyond the effective date of this order, execute an amendment reducing the term of such contract to a period no longer than three (3) years from the effective date of such amendment. As used in this order the term regular green industrial quality petroleum coke (hereafter referred to as "petroleum coke") is as defined in the complaint and does not include needle coke.

It is further ordered, That respondent Great Lakes Carbon Corporation, its officers, directors, representatives or employees, successors and assigns, directly or through any corporate or other device, in connection with the purchase in commerce, as "commerce" is defined in the Federal Trade Commission Act, of petroleum coke, do forthwith cease and desist from entering into any contract or agreement, express or implied, on entering into any commission contract or agreement, with any petroleum refiner to purchase the full amount of petroleum coke produced at any refinery in the United States unless the term of

such contract or agreement shall be for five (5) years or less in the event new calcining or coking equipment has been or is to be installed by either of the contracting parties and unless any period thereof, otherwise shall be for three (3) years or less. Great Lakes Carbon Corporation may meet in good faith any offers for longer periods of years made to petroleum refiners by other actual or prospective purchasers of petroleum coke for the full amount of petroleum coke produced at a refinery; *Provided, however,* That when an offer is made by a new entrant into the petroleum coke business in the United States, who is not otherwise a user of petroleum coke and who requires such coke in connection with the initial construction and operation of a facility to calcine petroleum coke in the United States, Great Lakes Carbon Corporation may not meet the offer of such new entrant to purchase for a period in excess of five years petroleum coke produced at a refinery or refineries not designated in the complaint. This proviso shall be in effect for a period of ten years from the entry of this order, and shall be applicable to the offer or offers of any such new entrant for the production of any single such refinery, or of multiple refineries when necessary to assure such new entrant of not more than 200,000 tons plus or minus ten (10) percent of petroleum coke. Great Lakes Carbon Corporation may contract to purchase petroleum coke from any refinery, including respondents' refineries, in the quantities and for such period of years as are necessary to meet in good faith a competitive offer to supply Great Lakes Carbon Corporation's actual or potential customers. Great Lakes Carbon Corporation may contract to purchase such coke for resale as fuel for the period of years necessary to fulfill a contract to supply petroleum coke for use as fuel substitute for coal, heating oil, or natural gas. In the event that Great Lakes Carbon Corporation enters into any such contract for more than three (3) years, it shall within thirty (30) days after the execution of such contract file a report with the Federal Trade Commission setting forth the circumstances relating thereto.

It is further ordered, That respondent Great Lakes Carbon Corporation shall not renew or extend any existing contract for the purchase of the full production of petroleum coke at any refinery more than six (6) months prior to the termination of the contract being renewed or extended.

It is further ordered, That within sixty (60) days from the effective date of this order, respondent Great Lakes Carbon Corporation shall submit to the Federal Trade Commission a report in

writing setting forth in detail the manner in which it intends to comply with this order and within thirty (30) days after the end of each year, shall file a report in writing, identifying each refinery in the United States with which Great Lakes Carbon Corporation entered into a contract to purchase the full output of petroleum coke during the previous calendar year and specifying the period of years covered by any such contract. Within thirty (30) days after the end of each five (5) year period during which this order is in effect Great Lakes Carbon Corporation shall file a report in writing listing each of the refineries with which it has a contract to purchase petroleum coke together with a copy of each such contract and the quantities and quality of petroleum coke purchased annually thereunder from each such refinery. Such five-year reports shall not become a part of the public record.

It is further ordered, That respondents, American Oil Company, Colorado Oil and Gas Corporation, Continental Oil Company, CRA, Inc., Mobil Oil Company, Sun Oil Company, Suntide Refining Company, and Texaco, Inc. (hereinafter referred to as respondent oil companies), shall each, on or before December 31, 1972, execute an amendment with respondent Great Lakes Carbon Corporation reducing to a period not in excess of three (3) years from effective date of such amendment the term of any contract then in existence for the purchase of the full amount of petroleum coke produced at the refineries designated in the complaint, to wit:

American Oil Company, a Texas Corporation: Texas City, Texas refinery
Colorado Oil and Gas Corporation: Wichita, Kansas refinery
Continental Oil Company: Ponca City, Oklahoma refinery
CRA, Inc.: Coffeyville, Kansas refinery
Mobil Oil Company: Beaumont, Texas refinery and Torrance, California refinery
Sun Oil Company: West Tulsa, Oklahoma refinery
Suntide Refining Company, subsidiary of Sun Oil Company: Corpus Christi, Texas refinery
Texaco, Inc.: Amarillo, Texas refinery; Caspar, Wyoming refinery; Lockport, Illinois refinery; and Port Arthur, Texas refinery.

It is further ordered, That respondent oil companies, their officers, directors, representatives or employees, successors and assigns do forthwith cease and desist from entering into any contract or agreement, express or implied, to sell the full amount of

petroleum coke produced at any refinery designated in the complaint unless the original term of such contract or agreement shall be for five (5) years or less in the event new calcining or coking equipment has been or is to be installed by either of the contracting parties and unless any period thereof otherwise shall be for three (3) years or less. Respondent oil companies may meet in good faith any offer by a coke producer to supply the full amount of petroleum coke from a refinery not designated in the complaint for a period of years longer than that provided for in this order, and respondent oil companies may contract to sell petroleum coke for such term as is necessary to meet in good faith such offer. *Provided, however,* That when an offer is made to sell, for a period in excess of five years, petroleum coke produced at a refinery or refineries not designated in the complaint to a new entrant into the petroleum coke business in the United States, who is not otherwise a user of petroleum coke and who requires such coke in connection with the initial construction and operation of a facility to calcine petroleum coke in the United States, no respondent oil company may meet such offer, with petroleum coke produced at refineries designated in the complaint. This proviso shall be in effect for a period of ten years from the entry of this order, and shall be applicable to the offer or offers to any such new entrant for the production of any single refinery, or of multiple refineries not designated in the complaint, when necessary to assure such new entrant of not more than a minimum of 200,000 tons plus or minus ten percent (10%) of petroleum coke.

It is further ordered, That respondent oil companies shall hereafter not enter into any contracts for the sale of the full production of petroleum coke of a refinery with one purchaser only without submitting a written justification therefor to the Federal Trade Commission.

It is further ordered, That respondent oil companies shall not renew or extend any existing contract for the purchase of the full production of petroleum coke at any refinery more than six (6) months prior to the termination of the contract being renewed or extended.

It is further ordered, That, during the effective period of this order, respondent oil companies shall submit to the Federal Trade Commission within thirty (30) days following execution a copy of each new contract entered into and a copy of any agreement to renew an existing contract, and such copies shall not become part of the public record.

It is further ordered, That the provisions of this order shall not apply to any contract relating to the sale of petroleum coke produced at the refineries designated in the complaint when said coke is to be used as fuel substitute for coal, heating oil or natural gas.

This order shall terminate and cease to be effective twenty years from the date of entry of this order, except as otherwise provided herein.

CHART APPENDICES

A—Total United States Production of Green Industrial Quality Petroleum Coke Containing Less Than 2.8% Sulphur For The Years Indicated.

B—Tabulation Showing 1964 Domestic Sales of Green and Calcined Petroleum Coke Containing Not More Than 2.8% of Sulphur By Weight, by Resellers and Refineries Not Fully Committed.

C—Tabulation Showing 1965 Domestic Sales of Green and Calcined Petroleum Coke Containing Not More Than 2.8% of Sulphur By Weight, by Resellers and Refineries Not Fully Committed.

D—Tabulation Showing Exports to Europe and Exports to Europe From Gulf Coast During 1964 of Green and Calcined Petroleum Coke Containing Not More Than 2.8% Sulphur by Weight.

E—Tabulation Showing Exports to Europe and Exports to Europe From Gulf Coast During 1965 of Green and Calcined Petroleum Coke Containing Not More Than 2.8% Sulphur by Weight.

F—Tabulation Showing Exports to Japan and Exports to Japan From West Coast During 1964 of Green and Calcined Petroleum Coke Containing Not More Than 2.8% Sulphur by Weight.

G—Tabulation Showing Exports to Japan and Exports to Japan from West Coast During 1965 of Green and Calcined Petroleum Coke Containing Not More Than 2.8% Sulphur by Weight.

APPENDIX A

Great Lakes Carbon Corp., et al.—D. 8805

Total United States production of Green Industrial Quality Petroleum Coke containing less than 2.8% sulphur for the years indicated

Identity and Location of Refinery Production Committed to Great Lakes	1964 Production In Short Tons	Percent	1965 Production In Short Tons	Percent	1969 Production In Short Tons	Percent
American Oil, Texas City, Texas	149,166	4.0	184,101	4.8	151,000	2.4
Colorado Oil & Gas, Wichita, Kansas	30,217	0.8	27,260	0.7	32,508	0.5
Continental Oil, Ponca City, Oklahoma	130,139	3.5	122,802	3.2	107,263	1.7
CRA, Inc., Coffeyville, Kansas	63,148	1.7	69,077	1.8	67,816	1.1
Mobil Oil, Torrance, California	499,686	13.3	501,094	12.9	792,000	12.4
Mobil Oil, Beaumont, Texas	188,000	7.6	281,120	7.2	-0-	-0-
NCRA, McPherson, Kansas	75,888	2.0	80,070	2.1	-0-	-0-
Sun Oil (Sunray), West Tulsa, Oklahoma	65,988	1.7	60,009	1.6	101,001	1.6
Suntide Refining, Corpus Christi, Texas	68,306	1.8	79,375	2.0	86,567	1.4
Texaco, Inc., Lockport, Illinois	94,265	2.5	85,832	2.2	97,825	1.5
Texaco, Inc., Amarillo, Texas	26,290	0.7	29,640	0.8	33,744	0.5
Texaco, Inc., Port Arthur, Texas	57,750	1.5	60,290	1.6	26,843	0.4
Texaco, Inc., Casper, Wyoming	47,554	1.3	47,969	1.2	47,402	0.7
Atlantic Richfield, Houston, Texas	-0-	-0-	-0-	-0-	40,190	0.6
Standard Oil (California), El Segundo, California	-0-	-0-	-0-	-0-	320,000	5.0
Texaco, Inc., Los Angeles, California	-0-	-0-	-0-	-0-	485,545	7.6
Champlin Oil, Enid, Oklahoma	-0-	-0-	-0-	-0-	38,530	0.6
Marathon Oil, Robinson, Illinois	-0-	-0-	-0-	-0-	50,000	0.8
	1,596,397	42.4	1,628,639	42.1	2,478,234	38.8
Production Committed to Others (Purchasers)						
Champlin Oil, Enid, Oklahoma (Swiss Aluminum)	46,433	1.2	40,422	1.0	-0-	-0-
Marathon Oil, Robinson, Illinois (Union Carbide)	108,878	2.9	119,923	3.1	85,190	1.3
American Oil, Whiting, Indiana (Republic)	132,893	3.5	129,284	3.3	60,000	0.9
American Oil, Sugar Creek, Missouri (Republic)	90,000	2.4	88,614	2.3	106,000	1.7
Cities Service, Lake Charles, Louisiana (Sava, Mitsui)	-0-	-0-	81,504	2.1	324,628	5.1
Continental Oil, Lake Charles, Louisiana (Union Carbide)	41,238	1.1	40,365	1.0	-0-	-0-
Gulf Oil, Port Arthur, Texas (Alcoa)	178,572	4.7	170,186	4.4	171,000	2.7
Humble Oil, Baton Rouge, Louisiana (Reynolds)	368,447	9.8	344,000	8.9	637,000	10.0
LaGloria Oil, Tyler, Texas (Alcoa)	28,440	0.7	29,081	0.8	33,000	0.5
Midland Coop, Refinery, Cushing, Oklahoma (Republic)	-0-	-0-	-0-	-0-	12,000	0.2
Mobil Oil, Trenton, Michigan (Republic)	84,849	2.3	84,697	2.2	76,000	1.2
Mobil Oil, East St. Louis, Missouri (Union Carbide)	106,654	2.8	106,957	2.8	129,000	2.0
NCRA, McPherson, Kansas (Republic)	-0-	-0-	-0-	-0-	103,282	1.6
Shell Oil, Norco, Louisiana (Kaiser)	-0-	-0-	24,701	0.6	236,000	3.7
Standard Oil (Ohio), Lima, Ohio (Mountaineer)	70,093	1.9	97,139	2.5	127,000	2.0
Standard Oil (Ohio), Toledo, Ohio (Mountaineer)	110,738	2.9	108,205	2.8	157,960	2.5
Sunray DX (Sunray), Duncan, Oklahoma (Republic)	97,056	2.6	97,976	2.6	130,169	2.0
Union Oil, Oleum, California (Republic)	217,975	5.8	241,254	6.2	316,000	4.9
Atlantic Richfield, Watson, California (Wilson, Mitsui, Harvey)	-0-	-0-	-0-	-0-	676,000	10.6
Tenneco, Chalmette, Louisiana (Kaiser)	-0-	-0-	-0-	-0-	98,167	1.5
	1,682,266	44.6	1,804,308	46.6	3,478,396	54.4
Production Not Fully Committed						
American Gilsonite, Gilsonite, Colorado	153,824	4.1	141,660	3.6	**101,413	1.6
Cities Service, East Chicago, Indiana	*168,068	4.5	*150,313	3.9	177,612	2.8
Skelly Oil, El Dorado, Kansas	*135,947	3.6	*103,580	2.7	*154,000	2.4
Union Oil (Pure), Toledo, Ohio	30,018	0.8	42,551	1.1	-0-	-0-
	487,857	13.0	438,104	11.3	433,025	6.8
GRAND TOTAL	3,766,570	100.0	3,871,051	100.0	6,389,655	100.0

Source: CX 1294, 1295, 1296.
*Denotes partially comitted pursuant to a contract.
**All green production sold as calcined petroleum coke.

APPENDIX B

Tabulation showing 1964 domestic sales of Green and Calcined Petroleum Coke containing not more than 2.8% of sulphur by weight, by resellers and refineries not fully committed.

	Total Net Tons	Percent of Resellers	Percent of Total	Aluminum	Silicone Carbide	Carbon and Graphite	Calcium Carbide	Steel and Iron	Miscellaneous
Green Petroleum Coke (CX 1305 a-g)									
Resellers									
Great Lakes Carbon	[1] 261,558	60.2	48.5	72,757	52,971	----------	12,460	27,420	95,950
Collier Carbon	16,068	3.7	3.0	15,657	----------	----------	----------	----------	411
H. R. Defler Corp	3,160	.7	.6	----------	----------	----------	----------	----------	3,160
Mountaineer Carbon	37,701	8.7	7.0	10,507	----------	26,992	----------	----------	202
Republic Coal & Coke	116,230	26.7	21.6	80,586	1,447	2,684	31,468	----------	45
Total	434,717	100.0	80.7	179,507	54,418	29,676	43,928	27,420	99,768
Refineries Not Fully Committed									
Cities Services (Ind.)	*97,755	----------	18.1	22,986	----------	39,918	35,698	----------	(847)
Union Oil (Toledo)	6,394	----------	1.2	6,324	----------	----------	----------	----------	70
Total	104,149	----------	19.3	29,310	–0–	39,918	35,698	–0–	(777)
Grand Total	538,866	----------	100.0	208,817	54,418	69,594	79,626	27,420	98,991
Calcined Petroleum Coke (CX 1305 p-u)									
Great Lakes Carbon	[2] 173,161	----------	41.0	96,056	----------	59,294	----------	8,963	8,848
American Gilsonite	43,095	----------	10.2	43,095					
Collier Carbon	73,054	----------	17.3	68,206	----------	487	----------	----------	4,361
H. R. Defler	342	----------	.1	----------	----------	----------	----------	----------	342
Mountaineer Carbon	116,148	----------	27.5	87,859	----------	13,019	----------	----------	15,270
Wilson Carbon	16,277	----------	3.9	12,920	----------	----------	----------	----------	3,357
Total	422,077	----------	100.0	308,136	----------	72,800	----------	8,963	32,178

( ) Denotes credit. *Partially committed pursuant to a contract.

[1] Includes 13,373 net tons shipped to Great Lakes Carbon plants.

[2] Includes 47,226 net tons shipped to Great Lakes Carbon plants.

APPENDIX C

Tabulation showing 1965 domestic sales of Green and Calcined Petroleum Coke containing not more than 2.8% of sulphur by weight, by resellers and refineries not fully committed.

	Total Net Tons	Percent of Resellers	Percent of Total	Aluminum	Silicone Carbide	Carbon and Graphite	Calcium Carbide	Steel and Iron	Miscellaneous
	Green Petroleum Coke (CX 1307 a-h)								
Resellers									
Great Lakes Carbon	[1] 362,520	64.5	54.5	84,966	12,094	40,423	8,149	92,019	124,869
Collier Carbon	14,407	2.6	2.1	10,235	2,156				2,016
H. R. Defler Corp	11,031	1.9	1.7		7,301	108			3,622
Mountaineer Carbon	23,750	4.2	3.6	566		23,142			42
Republic Coal & Coke	150,580	26.8	22.6	93,180		11,191	23,104	6,784	16,321
Total	562,288	100.0	84.5	188,947	21,551	74,864	31,253	98,803	146,870
Refineries Not Fully Committed									
Cities Services (Ind.)	*75,434		11.3	21,633		53,692			109
Sunray D.X	21,091		3.2				19,050	60	1,981
Union Oil (Toledo)	6,626		1.0	6,500					126
Total	103,151		15.5	28,133	–0–	53,692	19,050	60	2,216
Grand Total	665,439		100.0	217,080	21,551	128,556	50,303	98,863	149,086
	Calcined Petroleum Coke (CX 1307 r-y)								
Great Lakes Carbon	[2] 217,127		38.6	140,942	1,423	9,607		29,116	36,039
American Gilsonite	43,715		7.8	43,715					
Collier Carbon	123,960		22.0	117,644		468			5,848
Continental Oil (La.)	18,353		3.3			18,353			
H. R. Deffler	780		–0–						780
Mountaineer Carbon	131,410		23.3	97,613		15,059			18,738
Wilson Carbon	28,125		5.0	28,125					
Total	563,470		100.0	428,039	1,423	43,487		29,116	61,405

[1] Includes 31,437 net tons shipped to Great Lakes Carbon Corp. plants.
[2] Includes 23,834 net tons shipped to Great Lakes Carbon Corp. plants.
*Partially committed pursuant to a contract.

APPENDIX D

Tabulation showing exports to Europe and exports to Europe from Gulf Coast during 1964 of Green and Calcined Petroleum Coke containing not more than 2.8% sulfur by weight

	Exports to Europe			
	Green Petroleum Coke		Calcined Petroleum Coke	
	Total tons	Percent	Total tons	Percent
Great Lakes Carbon	255,183	79.0	290,060	84.8
Collier Carbon	—	—	5,200	1.5
H. R. Defler	3,866	1.2	—	—
Republic Coal & Coke	2,919	.9	—	—
Reynolds Metals	9,917	3.1	5,000	1.5
Swiss Aluminum	46,433	14.3	—	—
Union Carbide	—	—	14,030	4.1
Union Oil (Toledo)	4,878	1.5	—	—
Wilson Carbon	—	—	27,614	8.1
Total	323,196	100.0	341,904	100.0

	Exports to Europe from Gulf Coast			
	Green Petroleum Coke		Calcined Petroleum Coke	
	Total Tons	Percent	Total Tons	Percent
Great Lakes Carbon	181,719	93.4	288,462	93.8
Republic Coal & Coke	2,919	1.5	—	—
Reynolds Metals	9,917	5.1	5,000	1.6
Union Carbide	—	—	14,030	4.6
Total	194,555	100.0	307,492	100.0

Source: CX 1305 V—1305 AE.

APPENDIX E

Tabulation showing exports to Europe and exports to Europe from Gulf Coast during 1965 of Green and Calcined Petroleum Coke containing not more than 2.8% sulphur by weight

	Exports to Europe			
	Green Petroleum Coke		Calcined Petroleum Coke	
	Total Tons	Percent	Total Tons	Percent
Great Lakes Carbon	305,002	68.9	295,500	68.8
Collier Carbon	—	—	6,382	1.5
H. R. Defler	3,872	.9	—	—
Republic Coal & Coke	4,121	.9	—	—
Reynolds Metals Co	9,099	2.1	46,696	10.8
S.A.V.A	61,370	13.9	—	—
Swiss Aluminum	40,422	9.1	—	—
Union Carbide Corp	—	—	38,798	9.0
Union Oil (Toledo)	14,385	3.3	—	—
Wilson Carbon Co	4,109	.9	42,380	9.9
Total	442,380	100.0	429,756	100.0

	Exports to Europe From Gulf Coast			
	Green Petroleum Coke		Calcined Petroleum Coke	
	Total Tons	Percent	Total Tons	Percent
Great Lakes Carbon	274,588	79.6	289,500	85.6
Reynolds Metals Co	9,099	2.6	46,696	13.8
S.A.V.A	61,370	17.8	—	—
Union Carbide Corp	—	—	2,000	.6
Total	345,057	100.0	338,196	100.0

Source: CX 1307 Y—1307 AJ.

APPENDIX F

Tabulation showing exports to Japan and exports to Japan from West Coast during 1964 of Green and Calcined Petroleum Coke containing not more than 2.8% sulphur by weight

	Exports to Japan			
	Green Petroleum Coke		Calcined Petroleum Coke	
	Total tons	Percent	Total tons	Percent
Great Lakes Carbon	255,147	76.5	123,397	81.5
Collier Carbon (Ishiyama)	50,102	15.0	16,700	11.0
Wilson Carbon	28,403	8.5	11,286	7.5
Total	333,652	100.0	151,383	100.0

	Exports to Japan from West Coast			
	Green Petroleum Coke		Calcined Petroleum Coke	
	Total Tons	Percent	Total Tons	Percent
Great Lakes Carbon	255,147	83.6	123,397	88.1
Collier Carbon (Ishiyama)	50,102	16.4	16,700	11.9
Total	305,249	100.0	140,097	100.0

Source: CX 1305 af-aj.

APPENDIX G

Tabulation showing exports to Japan and exports to Japan from West Coast during 1965 of Green and Calcined Petroleum Coke containing not more than 2.8% sulphur by weight

	Exports to Japan			
	Green Petroleum Coke		Calcined Petroleum Coke	
	Total Tons	Percent	Total Tons	Percent
Great Lakes Carbon	252,867	84.3	138,078	89.6
Collier Carbon (Ishiyama)	25,591	8.5	12,415	8.0
Mitsui & Co., Inc	5,815	1.9	—	—
Wilson Carbon	15,949	5.3	3,692	2.4
Total	300,222	100.0	154,185	100.0

	Exports to Japan From West Coast			
	Green Petroleum Coke		Calcined Petroleum Coke	
	Total Tons	Percent	Total Tons	Percent
Great Lakes Carbon	191,929	88.2	137,627	91.7
Collier Carbon (Ishiyama)	25,591	11.8	12,415	8.3
Total	217,520	100.0	150,042	100.0

Source: CX 1307 ak-ap.

ABBREVIATIONS APPENDIX

A—Answer
AO—American Oil Co.
C—Complaint
COL—Colorado Oil & Gas Co.
CON—Continental Oil Co.
GLC—Great Lakes Carbon Corp.
MO—Mobil Oil Co.
PHC—Prehearing Conference
R—Respondent
SO—Sun Oil Co.
SR—Suntide Refining Co.
T—Texaco, Inc.
X—Exhibit

DEFINITION APPENDIX

Reference to "long-term contracts" used generally (*i.e.* without term identification) in findings and conclusions applies to any contracts for a term of several years and does not apply only to contracts of 7 to 20 years alleged in the complaint to be anticompetitive.

OPINION OF THE COMMISSION

BY MACINTYRE, *Commissioner*:

This matter is before the Commission on appeal from an initial decision of an administrative law judge (hearing examiner) in which it was found that respondent Great Lakes Carbon Corporation, a processor and reseller of petroleum coke, and eight (8) oil refining companies,[1] have violated Section 5 of the Federal Trade Commission Act, 15 U.S.C. 45, through the use of certain long-term contracts in the purchase and sale of such coke. The administrative law judge issued an order requiring a reduction in the duration of those contracts from the seven (7) to twenty (20) year periods currently in use to periods of no more than three (3) to five (5) years, together with various forms of supplemental relief. Respondents appeal from this initial decision, challenging both the finding of a law violation and the relief ordered. Counsel supporting the complaint challenge only the adequacy of the order issued by the administrative law judge.

[1] The oil companies named in the complaint are American Oil Company; Colorado Oil and Gas Corporation; Continental Oil Company; CRA, Inc.; Mobile Oil Company; Sun Oil Company; Suntide Refining Company; and Texaco, Inc.

ISSUES ON APPEAL

The major arguments of the refiners[2] on this appeal are (1) that the sales made pursuant to the long-term contracts challenged in this complaint are all intrastate in character and hence not subject to the jurisdiction of the Federal Trade Commission; (2) that those contracts, considered singly or collectively, do not have the effect of injuring or lessening competition; (3) that the examiner erred as a matter of law in evaluating those contracts in terms of their aggregate (collective) effect rather than weighing the legality of *each* of them independently of the others; (4) that those contracts are justifiable on grounds of economic necessity, *i.e.*, that if not permitted to enter into these exclusive (full-output) contracts with a single buyer, and for unlimited periods of time, the refiners would have to "seriously consider forward vertical integration into the coke business;"[3] and that (5) in the case of some of the smaller coke producers, the quantities of the product involved are *de minimis*. In addition, one of the refiners, American Oil, argues that it is not a proper party to the proceeding since a subsidiary corporation, not the parent itself, was the party to the challenged contract.

Respondent Great Lakes' major arguments on appeal go to some of these same issues, including its contention (1) that competition has not in fact been lessened by the challenged contracts and (2) that they are in fact justified by "business necessity." As evidence that competition has not been injured here. Great Lakes maintains that a substantial number of new entrants have appeared in the processing of petroleum coke in recent years, thus producing a substantial decline in its own market share; that its market share in 1969 was in fact only 21.5% (or less) rather than the 38.8 percent attributed to it by the administrative law judge; that the administrative law judge arrived at that erroneous market share figure by incorrectly excluding from the product market a substantial quantity of petroleum coke that is in fact substitutable for that included in his definition of that product market; and that, rather than creating a "foreclosure" of others from the petroleum coke market, the contracts in question exist in an industry that has had for many years and continues to have a product surplus.[4]

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[2] See, *e.g.* Appeal Brief of Respondent Mobil Oil Corporation, January 24, 1972.

[3] *Id.*, p. 63.

[4] Appeal Brief of Great Lakes Carbon Corporation, January 24, 1972.

Counsel supporting the complaint do not, as noted, challenge the administrative law judge's factual findings but they do argue that his proposed order is inadequate to remedy the law violations found. In addition to cutting back on the duration of these contracts, complaint counsel would have the Commission enter an order prohibiting any of the named refiners from selling, and Great Lakes from buying, more than 50 percent of the annual coke output of any single refinery, subject to a proviso permitting a particular buyer to take all of a refinery's output if it could not be sold to another buyer on comparable terms.[5]

I

Petroleum Coke Industry

Raw petroleum coke as it comes from the refinery is a solid black mass having a physical appearance somewhat similar to coal.[6] Its production involves the addition of a new facility to the refinery, a coking plant or "coker." This facility consists of the equipment to separate, via high-temperature processing, the refinery's heavy residual oils (the residue from the initial refining process) into two components, "lighter" oils (gasoline and the like) and the product in issue here, petroleum coke. The former becomes a part of the refinery's regular product line and is marketed in the usual way. The latter, a solid rather than a liquid, is collected in a large cylindrical drum, [7] removed mechanically, and loaded onto rail cars for shipment. The coker is operated on a continuous (24–hours a day) basis, producing up to 3,000 tons of coke per day. One or more of these drums are filled each day, with alternates being filled while the coke is being removed from those filled during the preceding day.

Petroleum coke is produced not to meet the demand for petroleum coke itself but to meet the demand for gasoline and the other "lighter" fuels that are the primary objective of the refiner in installing a coker. The economic value of those liquid fuel products is relatively high, while the value of coke is relatively low, *i.e.*,

[5] Appeal Brief of Counsel Supporting the Complaint, January 24, 1972, Appendix A, Paragraph II. Complaint counsel's proposed order would direct respondent Great Lakes, in this regard, to cease and desist from agreeing with any refiner "to purchase or market in excess of fifty percent (50%) of the estimated annual production of petroleum coke produced at any refinery in the United States * * *," subject to the proviso mentioned above. *Ibid.*

[6] Photographs of the product are included in the record as CX 75 and 76.

[7] Photographs of a coking facility are included in the record as MOX (Mobil Oil Exhibits) 2a–2e.

approximately $10 per ton in the raw form in which it leaves the refinery. In the case of some refineries, for example, it would be economical to install a coker even if the coke itself was given away at the refinery or hauled away to a fairly distant dumping site.[8] To the refiner, the coke is a "by-product," something that is unavoidably produced in an effort to produce something else of significantly higher value. The overall purpose of a refinery is to take a barrel of crude oil and "squeeze" from it the maximum in economic value, *i.e.*, the best combination of highest-valued products. Running the crude through the refinery the first time yields a certain quantity of these high-value "lighter" products, including gasoline, plus the much less valuable "heavy" residual oil mentioned above. By installing a coker, the refiner can repeat the process, that is, extract an additional quantity of lighter fuels from the heavy residuals left over from the initial refining process. As one of the refiner respondents put it here, coking enables the refiner "to squeeze a barrel of crude one more time." [9]

The supply (production) of petroleum coke is not totally unrelated, however, to the demand for it. In the early part of the century, the few refiners that had installed cokers had no economical way of disposing of the mountains of valueless coke they produced and the accumulated stockpiles ran into the millions of tons. The aluminum and other metallurgical firms bought some of it (in lieu of coal coke) but the then-available processing technology, particularly the "batch" method of calcining it, severely restricted its consumption. Respondent Great Lakes Carbon, the pioneer in the development of the coke industry, began working off these stockpiles in 1932 by constructing large plants for sizing, screening, and selling it for fuel, including "briquettes" sold under a trade name.[10] In 1934, however, Great Lakes developed a superior technology for processing petroleum coke, the rotary calciner, and conceived the idea of locating it near the source of the coke, the oil

[8] This is not universally true, however, since only slightly over 50 of the country's 270 refineries in 1969 had installed such facilities.

[9] Appeal Brief of Continental Oil, January 24, 1972, p. 4. This is not to say, however, that the refiners are unconcerned with the price they get for this "by-product." In their own internal bookkeeping, for example, the revenue received from the sale of their petroleum coke is applied to their sales of the "lighter" fuels produced jointly with it, thus reducing the total cost of the latter. This means, of course, that the higher the price received for its coke, the lower the cost (and the higher the profits) incurred on those jointly-produced fuel products. Tr. 1132–33. And while the revenue from coke sales is not a large percentage of a refinery's total income, it is not insignificant in absolute terms. Mobil Oil alone, for example, received nearly $10 million from its sales of petroleum coke in 1969. Tr. 1148–49. A new coking facility, by way of comparison, costs about $4 million.

[10] Findings 172–180, Initial Decision of October 29, 1971, pp. 44–49 [pp. 1577–81 herein].

refinery. Since the calcining process reduces the weight of the coke by 15 percent to 30 percent (by removing the moisture), a significant freight saving resulted. In addition, however, the new rotary kiln, by operating continuously (24 hours a day, seven days a week), and at even and consistent temperatures, substantially lowered the cost and improved the quality of the product. These developments, in turn, significantly increased the demand for petroleum coke, particularly by industrial users such as the aluminum and carbide firms. With this growth in demand, the disposal problem has been greatly reduced if not solved entirely; the refiner desiring to install a coker (in order to improve its yield of gasoline and other light-end fuels) is no longer required to devote valuable land space to a coke stockpile and, indeed, can realize substantial revenues from a product formerly considered a liability rather than an asset.[11]

Relevant Product Market

Petroleum coke has two principal uses, (1) as a fuel (BTU) and (2) as a source of carbon in certain manufacturing processes. In the former use, it commands a price in the general range of $5 per ton and is purchased by the steel and other industries solely for its fuel (BTU) value. In the second use category, on the other hand, it commands a price of about twice that amount—some $10 per ton—and is purchased soley for its carbon content by the manufacturers of such industrial products as aluminum anodes (*e.g.*, Alcoa and Kaiser) and carbon electrodes (*e.g.*, Union Carbide). Whether a given refiner can sell its coke output at the higher carbon-use price or whether it must accept the lower fuel-use price is determined primarily by the sulphur content of its product, a factor that, in turn, is determined by the sulphur content of the particular crude oil that it happens to be using at that refinery. A low-sulphur crude stream produces a low-sulphur petroleum coke and, conversely, high-sulphur crude yields high-sulphur coke. Sulphur is a contaminant to those users of coke that desire it for its carbon content and becomes harmful to their end products (*e.g.*, aluminum anodes) when present in large quantities.

The administrative law judge correctly found the relevant market here to be "industrial quality" delayed green and calcined

[11] Few refineries have the available land space for storing a significant quantity of coke. A coker produces, as noted, up to 3,000 tons per day and approximately an acre of storage land area is required for each 15,000 tons on hand. Tr. 597; 3467–68; 4741–43; 4763–65; RX 1. The latter quantity, 15,000 tons, is thus equivalent to 5 days production for a coker of this size.

petroleum coke, defined as coke used for its carbon content and containing 2.8 percent sulphur or less.[12] As detailed in his findings and as summarized in our own attached supplementary findings,[13] the major users of petroleum coke testified at length to the effect that, in the industrial uses to which they put the product, there are no economically feasible substitutes for low-sulphur petroleum coke of the kind described in the complaint and found here to constitute the relevant product market. They cannot substitute the cheaper high-sulphur coke for the more expensive low-sulphur coke they require in their operations. True, a small amount of the cheaper high-sulphur coke can be used in some of these industries by "blending" it with a sufficient amount of unusually low-sulphur coke. Thus a user that can tolerate a maximum sulphur content of 2 percent can stay within that limit by mixing equal quantities of coke containing, respectively, 1 percent and 3 percent sulphur. The extent to which this can be done, however, is limited by the availability of coke having a sulphur content *lower* than the desired maximum. Total production of industrial quality (low-sulphur) petroleum coke in 1965 was 3,871,051 tons, over 90 percent of it having been used for industrial (carbon-use) purposes. Total production of non-industrial quality (high-sulphur) coke in that year was 1,707,345 tons, the bulk of it having been used for fuel.[14] As a representative of Republic Carbon summarized this product distinction:

Q. Did you distinguish in the marketing between these two types of coke?

A. The low sulphur coke went primarily for the metallurgical applications, industrial use, and the high sulphur went primarily for fuel.[15]

Respondent Great Lakes takes particular exception to the term "industrial quality" in describing the relevant market here, arguing that it has no currency in the industry in question and that, in effect, a steel firm buying petroleum coke for use as a fuel is no less an "industrial" user than an aluminum company buying a higher grade of the product for use in the production of aluminum anodes. To this extent, of course, the dispute on the relevant product issue is a sematic one. As indicated in the testimony quoted above, the industry does in fact equate "industrial use" with carbon-content uses of the product ("metallurgical applications")

[12] Findings 16–37, Initial Decision of October 29, 1971, pp. 10–15 [pp. 1545–50 herein].

[13] Finding 315, Findings of the Commission, pp. 2–4 [pp. 1662–64 *infra*].

[14] Findings 16–24, Initial Decision of October 29, 1971, pp. 10–12 [pp. 1545–47 herein].

[15] Tr. 1887–88.

and does in fact use that term to distinguish that portion of the industry's output from the part that is used as a fuel, even though the latter users are, in more general terms, obviously "industrial" firms. Whatever the terminology employed, however, the fact is that there are two distinct markets for petroleum coke, one in which it is sold as a fuel (BTU content) and another in which it is sold for its carbon content. And the evidence is clear that the general dividing line between these two market uses for the product is the quantity of a contaminant (sulphur) in a given lot of it, with 2.8 percent sulphur by weight marking the upper limit at which the bulk of the product can generally be sold in that carbon-use (versus fuel-use) market.[16]

II

Concentration and Vertical Integration

Even if we included all petroleum coke in the relevant product market, however, as urged by respondent Great Lakes, its share of that market would still be sufficiently large to call into question the competitive effects of the long-term contracts in issue here. As found by the administrative law judge and as affirmed here by us, respondent Great Lakes Carbon accounted for 42.4 percent of all purchases of industrial quality petroleum coke produced in the United States in 1964, 42.1 percent of that produced in 1969. [17] These are the shares of the market that were committed to Great Lakes in those years under the seven (7) to twenty (20) year full-output contracts at issue here. Similar contracts were also used by other coke purchasers, as detailed in the administrative law judge's Appendix A to his initial decision (reproduced on opposite page) and summarized in the table below:

	1964	1965	1969
Committed to Great Lakes	42.4%	42.1%	38.8%
Committed to Other Firms	44.6	46.6	54.4
Uncommitted	13.0	11.3	6.8
	100.0%	100.0%	100.0%

Source: CX 1294-96 (Appendix A, Initial Decision of October 29, 1971, p. 119) p. 1625 herein].

Great Lakes' market shares in the two relevant geographical submarkets, the Gulf Coast and West Coast areas, are considerably higher than its share of the overall national market.[18]

[16] Note 13, *supra*.

[17] Finding 316, Findings of the Commission, pp. 4-6 [pp. 1664-65 herein].

[18] Findings 48-69, Initial Decision of October 29, 1971, pp. 17-20 [pp. 1551-55 herein], and Appendices C-G pp. 121-125 [pp. 1637-40 herein].

APPENDIX A

Great Lakes Carbon Corp., et al.—D. 8805

Total United States production of Green Industrial Quality Petroleum Coke containing less than 2.8% sulphur for the years indicated

Identity and Location of Refinery Production Committed to Great Lakes	1964 Production In Short Tons	Percent	1965 Production In Short Tons	Percent	1969 Production In Short Tons	Percent
American Oil, Texas City, Texas	149,166	4.0	184,101	4.8	151,000	2.4
Colorado Oil & Gas, Wichita, Kansas	30,217	0.8	27,260	0.7	32,508	0.5
Continental Oil, Ponca City, Oklahoma	130,139	3.5	122,802	3.2	107,263	1.7
CRA, Inc., Coffeyville, Kansas	63,148	1.7	69,077	1.8	67,816	1.1
Mobil Oil, Torrance, California	499,686	13.3	501,094	12.9	792,000	12.4
Mobil Oil, Beaumont, Texas	188,000	7.6	281,120	7.2	-0-	-0-
NCRA, McPherson, Kansas	75,888	2.0	80,070	2.1	-0-	-0-
Sun Oil (Sunray), West Tulsa, Oklahoma	65,988	1.7	60,009	1.6	101,001	1.6
Suntide Refining, Corpus Christi, Texas	68,306	1.8	79,375	2.0	86,567	1.4
Texaco, Inc., Lockport, Illinois	94,265	2.5	85,832	2.2	97,825	1.5
Texaco, Inc., Amarillo, Texas	26,290	0.7	29,640	0.8	33,744	0.5
Texaco, Inc., Port Arthur, Texas	57,750	1.5	60,290	1.6	26,843	0.4
Texaco, Inc., Casper, Wyoming	47,554	1.3	47,969	1.2	47,402	0.7
Atlantic Richfield, Houston, Texas	-0-	-0-	-0-	-0-	40,190	0.6
Standard Oil (California), El Segundo, California	-0-	-0-	-0-	-0-	320,000	5.0
Texaco, Inc., Los Angeles, California	-0-	-0-	-0-	-0-	485,545	7.6
Champlin Oil, Enid, Oklahoma	-0-	-0-	-0-	-0-	38,530	0.6
Marathon Oil, Robinson, Illinois	-0-	-0-	-0-	-0-	50,000	0.8
	1,596,397	42.4	1,628,639	42.1	2,478,234	38.8
Production Committed to Others (Purchasers)						
Champlin Oil, Enid, Oklahoma (Swiss Aluminum)	46,433	1.2	40,422	1.0	-0-	-0-
Marathon Oil, Robinson, Illinois (Union Carbide)	108,878	2.9	119,923	3.1	85,190	1.3
American Oil, Whiting, Indiana (Republic)	132,893	3.5	129,284	3.3	60,000	0.9
American Oil, Sugar Creek, Missouri (Republic)	90,000	2.4	88,614	2.3	106,000	1.7
Cities Service, Lake Charles, Louisiana (Sava, Mitsui)	-0-	-0-	81,504	2.1	324,628	5.1
Continental Oil, Lake Charles, Louisiana (Union Carbide)	41,238	1.1	40,365	1.0	-0-	-0-
Gulf Oil, Port Arthur, Texas (Alcoa)	178,572	4.7	170,186	4.4	171,000	2.7
Humble Oil, Baton Rouge, Louisiana (Reynolds)	368,447	9.8	344,000	8.9	637,000	10.0
LaGloria Oil, Tyler, Texas (Alcoa)	28,440	0.7	29,081	0.8	33,000	0.5
Midland Coop, Refinery, Cushing, Oklahoma (Republic)	-0-	-0-	-0-	-0-	12,000	0.2
Mobil Oil, Trenton, Michigan (Republic)	84,849	2.3	84,697	2.2	76,000	1.2
Mobil Oil, East St. Louis, Missouri (Union Carbide)	106,654	2.8	106,957	2.8	129,000	2.0
NCRA, McPherson, Kansas (Republic)	-0-	-0-	-0-	-0-	103,282	1.6
Shell Oil, Norco, Louisiana (Kaiser)	-0-	-0-	24,701	0.6	236,000	3.7
Standard Oil (Ohio), Lima, Ohio (Mountaineer)	70,093	1.9	97,139	2.5	127,000	2.0
Standard Oil (Ohio), Toledo, Ohio (Mountaineer)	110,738	2.9	108,205	2.8	157,960	2.5
Sunray DX (Sunray), Duncan, Oklahoma (Republic)	97,056	2.6	97,976	2.6	130,169	2.0
Union Oil, Oleum, California (Republic)	217,975	5.8	241,254	6.2	316,000	4.9
Atlantic Richfield, Watson, California (Wilson, Mitsui, Harvey)	-0-	-0-	-0-	-0-	676,000	10.6
Tenneco, Chalmette, Louisiana (Kaiser)	-0-	-0-	-0-	-0-	98,167	1.5
	1,682,266	44.6	1,804,308	46.6	3,478,396	54.4
Production Not Fully Committed						
American Gilsonite, Gilsonite, Colorado	153,824	4.1	141,660	3.6	**101,413	1.6
Cities Service, East Chicago, Indiana	*168,068	4.5	*150,313	3.9	177,612	2.8
Skelly Oil, El Dorado, Kansas	*135,947	3.6	*103,580	2.7	*154,000	2.4
Union Oil (Pure), Toledo, Ohio	30,018	0.8	42,551	1.1	-0-	-0-
	487,857	13.0	438,104	11.3	433,025	6.8
GRAND TOTAL	3,766,570	100.0	3,871,051	100.0	6,389,655	100.0

Source: CX 1294, 1295, 1296.
*Denotes partially comitted pursuant to a contract.
**All green production sold as calcined petroleum coke.

Respondent Great Lakes maintains, on the other hand, that these figures do not accurately reflect its true market shares. By including the fuel-use (high-sulphur) cokes as a part of the relevant market, it gets its own share of the national market down to 21.5 percent or less in 1969.[19] And since its share of the petroleum coke industry in the mid-1940's had been no less than 100 percent,[20] it points to this dramatic "decline" in concentration as evidence that competition is already effective in the industry and is getting more so as time goes on.

In fact, however, all of these market share figures seriously understate the true measure of respondent Great Lakes' market power in the petroleum coke industry by failing to take into account the degree of vertical integration in it. Thus it is not, as Great Lakes suggests, the entry of a horde of new "competitors" that accounts for this continuing reduction in its share of the relevant product market here but increasing vertical integration on the part of both the initial sellers (refiners) and the ultimate buyers (end users). As found by the administrative law judge and as developed further in our own supplementary findings, [21] sixteen (16) firms have undertaken to market petroleum coke since 1935. Four (4) of these are oil companies attempting to market their own raw coke directly to the end user ("forward integration"), none of them having facilities for calcining, sizing, screening, or performing the various other "middleman" functions that Great Lakes performs. Another six (6) are instances of "backward integration" into the middleman function by the end users of the product, *i.e.*, Union Carbide, General Carbon, Kaiser Aluminum, Reynolds Metals, Harvey Aluminum, and Gulf Coast Aluminum. These latter firms are of course primarily engaged in other businesses, their sales of petroleum coke on the general market being generally limited to those instances in which their current inventory exceeds the internal needs of their own firms. They are not engaged, therefore, in active and continuing competition with Great Lakes in the day-to-day selling of petroleum coke. There are four (4) significant firms serving the *non-integrated* market for industrial quality petroleum coke—Great Lakes, Republic, Collier, and Mountaineer—and Great Lakes accounts for some two-thirds

[19] Note 4, *supra*, p. 8.

[20] *Ibid.* As the founder of the industry and the developer of its basic technology, respondent Great Lakes' 100 percent share of the market until the entry of others in the mid-1940's is of course unexceptional. Someone has to be first in every "new" industry and the first one is, more or less by definition, the entire industry on the day of its founding.

[21] Finding 317, Findings of the Commission, pp. 6–7 [pp. 1664–66 herein].

of the aggregate sales of this group of firms.[22] It is here that we find the true measure of its power to influence price and exclude competitors.

Vertical integration involves the bringing of successive stages of the overall production-processing-marketing chain under a common ownership. There are a number of reasons for the phenomenon, two of the more common being (1) the hope of achieving greater technical efficiencies (cost savings) and (2) the desire to avoid being underpaid or overcharged by one or more of the various links in that distributive chain. On the first point, the classical case for vertical integration is illustrated by an industry in which one or more operations performed at an initial stage of production have to be duplicated at a subsequent stage if not performed immediately, *e.g.*, the merging of ingot casting and component shaping into a continuous operation in the steel industry, thus saving the cost of having to reheat the steel at the subsequent stage. In other words, a lower unit cost is incurred if the two operations are performed together by a single firm than if they are performed by two firms operating at different locations and at successive points in time.

The second incentive for vertical integration, the desire to avoid being underpaid or overcharged, involves the situation where competition is not functioning effectively at one of the various stages in the overall distributive chain, *i.e.*, the situation in which one of those stages is in the control of one or more firms wielding some degree of monopoly power and thus possessing the ability to raise prices or exclude competitors. Hence a "middleman" standing between a producer, on the one hand, and an end user, on the other, would be expected to use whatever degree of monopoly power it holds to widen its own margin—the difference between what it pays and what it charges—in one or both of two ways, (1) by lowering the price it pays to the producer and/or (2) by raising the price at which it sells to the end user. Vertical integration would thus be expected to occur in the petroleum coke industry when either the seller (refiner) felt that it could process and sell its own coke direct to the end user at a higher price (net) than it was getting from the middleman or when the end user (*e.g.*, an aluminum producer) felt that it could buy direct from the refiner and process on its own at a lower net cost than the price it was currently paying to the middleman. The higher the middleman raises his margin the greater the economic incentive for either his

[22] CX 1305, 1307.

suppliers to integrate forward or for his customers to integrate backwards.

The converse of this proposition is also true, that is, the narrower the middleman's margin, the weaker the incentive of his suppliers and customers to integrate into the processing function. If it is true that competition causes prices (and margins) to be lower than they would be under conditions of monopoly—and this is one of the central premises of the antitrust laws—[23] then it is not true, as respondents allege here, that exposing Great Lakes to the competition of new entrants into the processing of petroleum coke would result in still more vertical integration. On the contrary, the reasonable expectation would be that any change that increased the intensity of competition at the middleman level —*e.g.*, one that encouraged new entry and thus enlarged the number of efficient middleman competitors—would thus be expected to *reduce* rather than increase the economic incentive for either forward or backward integration.

The high degree of vertical integration in this industry appears to be, much as this line of analysis suggests, a rather direct result of respondent Great Lakes' dominance of it over the years, a dominance it has maintained largely as a result of the long-term exclusive contracts at issue in this matter. There is no evidence here, for example, that there are any technical efficiencies to be realized from a combining of any two or more of the three stages of the petroleum coke productive cycle, *e.g.*, coking plus calcining or calcining plus any of the various forms of end-use manufacture. Indeed, the refiner respondents were at some pains in this proceeding to establish that their processing and marketing skills are limited to "liquids" and that, so great is their lack of expertise in handling "solids" (coke), that they would be better off if they didn't have to produce it at all.[24] Nor is there any suggestion here that such end users as Alcoa and Union Carbide are more technically proficient at performing these various petroleum coke middleman functions—sizing, storing, screening, calcining, and so forth—than respondent Great Lakes or that there are any other technical efficiencies to be realized from a combining of those

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[23] The basic antitrust law, as the Supreme Court has said, "rests on the premise that the unrestrained interaction of competiive forces will yield the best allocation of our economic resources, the *lowest prices*, the highest quality and the greatest material progress, while at the same time providing an environment conducive to the preservation of our democratic political and social institutions." *Northern Pacific Railway Co.* v. *United States*, 356 U.S. 1, 2 (1958) (emphasis added).

[24] See, *e.g.*, Tr. 1394.

functions with the end-use operations (*e.g.*, the manufacture of aluminum anodes) they subsequently engage in.

There is evidence, on the other hand, that one of the major reasons for the backward integration of the aluminum firms into the processing of petroleum coke was their dissatisfaction with Great Lakes' dominance of that market and the prices it charged them. A representative of Reynolds Metals, for example, testified that his firm had begun calcining its own coke because, among other things, it "wanted to take advantage of the projected cost savings that would result from calcining it ourselves. *We knew that Great Lakes had a large share of the industry and we wanted to be independent of them.*" [25] Thus in 1963 Great Lakes was quoting a price of over $33 per ton for calcined coke on the East Coast, while both it and a competitor, Collier Carbon, were selling it for $26 to $27 per ton on the *West* Coast. "Well, I think it is obvious that the presence of Collier helped keep the price down on the west coast." [26]

Vertical integration thus gets a lower price for the integrating firm itself but it does not lower the price Great Lakes charges the rest of its buyers, those that, for one reason or another, do not find it feasible to be "independent" of Great Lakes. The effect of this vertical integration is not to create a larger number of competing sellers in the general petroleum coke market and thus put additional competitive pressure on Great Lakes there but simply to insulate a small group of integrated buyers from the thrust of that middleman's power over the price of that product. In economic terms, then, the vertically-integrated buyers (Alcoa, Kaiser, Union Carbide, etc.) are in a separate market and Great Lakes' market power would be evaluated most appropriately in terms of its share of the remaining market, the one in which the large number of *non-integrated* buyers have to acquire their coke needs.

In order to find that competition is functioning effectively in this market, then—*i.e.*, that Great Lakes does not have an inordinate share of the market and is not using its market power there to maintain noncompetitive prices and exclude competitors—we would have to reject the central thrust of the Reynolds testimony mentioned above, namely, that one of the major reasons for its entry into the calcining of petroleum coke was to escape Great Lakes' excessive prices. And to accept respondents' arguments that any diminution of that firm's control of the market would

[25] Tr. 1233 (emphasis added).
[26] Tr. 1234.

induce more rather than less vertical integration would require us to accept a proposition that goes against not only the relevant economic principles but what seems to us an important conclusion of that Reynolds official. Asked if his firm would have integrated backwards into coke processing if Great Lakes had had more competition, that Reynolds representative thought "perhaps not." [27] On the basis of the record presented here, we think the inference that it would not is inescapable.

We conclude that competition is not functioning effectively in the relevant product market here, industrial quality petroleum coke, and that it is particularly ineffective in the important non-integrated sector of that market, the one in which the hundreds of smaller buyers of this product have to purchase their coke requirements.

III

Business Justification

Both Great Lakes and the several respondent refiners defend these contracts on the asserted ground of "business justification," [28] a term evidently intended to suggest that it would be either less convenient or less economical for them to operate without those arrangements than with them. If it had been established on the record that there were significant efficiencies of a technical nature associated with the sale of a refinery's entire output of petroleum coke to a single purchaser over a period of seven (7) to twenty (20) years, *i.e.*, that all or a large part of the nation's output of petroleum can be gotten to its end users at a lower cost if it all goes through a middleman with a dominant share of the relevant market rather than a middleman with only a moderate share of it, then we would be confronted with the broad question of whether there is a general "efficiencies" defense in antitrust law. That clearly is not the case here, however, as discussed above. On the contrary, Great Lakes' price seems to be, if anything, somewhat higher than the price that would be expected to prevail in an effectively competitive petroleum coke market rather than lower, a fact that, if consistent with a claim of superior efficiency, could hardly be consistent with *both* that claim and its further insistence on the competitiveness of its industry.

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[27] Tr. 1242.

[28] See, *e.g.*, Appeal Brief of Great Lakes Carbon Corporation, January 24, 1972, p. 51, and Appeal Brief of respondent Mobil Oil Corporation, January 24, 1972, pp. 60–65.

If, on the other hand, respondents are arguing that a practice otherwise condemned by the antitrust laws is made lawful simply upon a showing that it enchances the industry's profits, we can find no support for the proposition in either the statute involved or the decided case law.[29] Since the refiners involved in this proceeding have actively sought these long-term arrangements with respondent Great Lakes, it is clear that they do not regard them as contrary to their own self-interests, *i.e.*, they plainly do not consider themselves "underpaid" for their petroleum coke. While the evidence in the record casts very little light on this aspect of the refiners' motivations in seeking out these exclusive long-term contracts with a single middleman, the refiners, not being eleemosynary institutions, obviously have an economic incentive to dispose of their petroleum coke on the best terms they can get and this means, other things being equal, the higher the price the better. The price they can get, as producers of the raw material, is obviously affected by the price that can be charged to the ultimate purchaser or end user (*e.g.*, the aluminum companies) and this, in turn, depends in part on the intensity of the competition in the downstream markets. One of the ways to maintain a relatively high price for a raw material is to channel the bulk of it through a single middleman—thus creating a monopoly or near monopoly at that functional level—in the hopes that he can be persuaded to share with his suppliers (via relatively high raw-material prices) the larger price overcharges he imposes on the ultimate purchasers of the product. Effective competition at the middleman level, by lowering the final price to the end user, would thus reduce not only the middleman's own margin but the price he is able (and willing) to pay the suppliers of his raw material. It is a common observation, for example, that the manufacturers of many consumer products are very much interested in having their retail dealers avoid competing with each other and thus avoid using price cuts to "give away to consumers" money that could otherwise be divided between that manufacturer himself and his noncompeting dealers.

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[29] "There would seem to be no question but that the Columbia Record Club could, in fact * * * take in more revenue if it had a monopoly on the mail order distribution of these records than if it had to compete with others selling those same records through the mail. This follows from the elementary economic principle that the sale of any product is more profitable, *i.e.*, that more money can be gotten for it, if it is sold in a monopolized rather than a competitive market * * * We know of no principle of law under which a private interest in realizing the fruits of a purchased monopoly must be given precedence over the public interest in preventing such monopolies." *In re Columbia Broadcasting System, Inc., et al.*, 72 F.T.C. 27, 331 (1967), *aff'd in part and remanded* 414 F.2d 974 (7th Cir. 1969), *cert. denied* February 23, 1970.

Whatever the reasoning of the refiners here, however, it is plain that they are not anxious to see competition intensified in the processing of petroleum coke. It is equally plain, moreover, that there are no *technical* justifications for the duration of these contracts. The complaint in this matter challenged two features of those agreements, namely, their duration and the fact that, by providing generally for the sale of the entire output of the particular refineries involved (full-output contracts) to a single buyer, they necessarily excluded (foreclosed) other actual or potential middleman-competitors from fair access to the market. As noted above, 42.4 percent of total United States production of industrial quality petroleum coke had been committed to Great Lakes pursuant to such long-term contracts in 1964, 42.1 percent in 1965, and 38.8 percent in 1969. Other buyers, particularly the larger integrated end-users (*e.g.*, Alcoa, Reynolds, Union Carbide), had entered into similar agreements, these other long-term contracts tying up another 44.6 percent, 46.6 percent, and 54.4 percent in those years, respectively.[30] This left, then, only 13.0 percent of the total supply of such coke uncommitted in 1964, 11.3 percent in 1965, and 6.8 percent in 1969. Given the seven (7) to twenty (20) year duration of most of these contracts, plus the fact that they are generally renewed at expiration time for similarly lengthy periods, it is difficult to see how an effectively competitive middleman market could ever develop here[31] to serve the non-integrated sector of the industry and, indeed, it has not done so in several decades, as illustrated by the weakness of the competition Great Lakes currently faces there.

With no evidence that superior technical efficiencies are associated with these long-term contracts, respondents nevertheless argue that those arrangements ought to be upheld as a necessary protection from an unacceptable degree of "risk" in their industry. One of the refiners puts it this way: "Mobil must remain unfettered in its independent right to engage in full-output contracts for long or short terms, as determined by its own assessment of the risk factors associated with this unwanted refinery

[30] Pp. 9–10 [p. 1647 herein].

[31] Respondent's attempt to rebut the obvious fact of successful foreclosure here by pointing to complaint counsel's inability to produce a would-be entrant who had tried to get in but had been repulsed. The one example offered by complaint counsel in this regard, Hawley Fuel Corporation, a subsidiary of a large coal producer, illustrated only the difficulty of entering on a "spot" market basis (a brokerage type operation involving no processing facilities). Finding 208, initial decision of October 29, 1971, pp. 62–70 [pp. 1592–98 herein]. Where the barriers around a market are as formidable as these 7–20 year full-output contracts, however, that market's competitive vigor is hardly established by pointing out that nobody has even thought it worthwhile to *try* to get in.

by-product, and dependent upon the term of years offered by purchasers in the free play of the market place." [32] The "risk factors" in question are those involved in the construction of new plants at two of the stages of the production process here, coking and processing (calcining, etc.).

As previously noted, a refinery has the option of installing a coker or not, depending on how it assesses the relative prices of the heavy residual oils it routinely produces versus the return to it from the lighter fuels (including gasoline) that can be produced in somewhat larger quantities per barrel of crude if a coking plant is added to the refinery. The cost of installing such a coking plant is in the range of $4 million to $7 million, a cost that is generally amortized (recovered) within not more than five (5) years. Processing facilities, including a calcining plant, involve costs in the same general range and a similar "pay-out" or cost recovery period.[33] Since a petroleum coker produces up to 3,000 tons of the product per day—a volume not removable on a "spot sale" basis —a prudent refiner will not install a facility as expensive as a coking unit unless he has in hand, at the time that investment decision is made, a contract for the disposition of the coke to be produced for that period of time. And since a calcining plant involves a continuous operation (24 hours per day, seven days a week) and high levels of temperature with significant losses of efficiency (including reheating costs) from interruptions in production, a prudent investor there will not put up the money for the construction of a new calcining plant unless he also has in hand a contract assuring him an adequate supply of raw coke for a duration at least equal to the pay-out period on that investment.[34]

The first difficulty with all this as a "justification" for these challenged seven (7) to twenty (20) year contracts, however, is that the "pay-out" period for both the producer's (refiner's) coking unit and the processor's calcining plant is only five (5) years at most.[35] Once the initial costs of these producing and processing facilities have been recovered, steady and efficient operations can be more than adequately maintained under contracts of no more than three (3) years duration, as is illustrated by the fact that Great Lakes itself entered into several such short-term renewal

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[32] Appeal Brief of respondent Mobil Oil Corporation, January 24, 1972, p. 65.

[33] Findings 160–167, initial decision of October 29, 1971, pp. 38–41 [pp. 1571–74 herein].

[34] *Ibid.*

[35] *Id.*, Findings 309–310, pp. 96–97 [pp. 1618–19 herein].

contracts after this proceeding was commenced and some of its competitors had already done so earlier.[36]

Great Lakes seeks to escape the thrust of the evidence on this point, however, by arguing that it not only needs protection from competition during the period in which it is recovering the full *cost* of each of its plant facilities but during the subsequent period when it is acquiring, in addition, what it deems to be a reasonable *profit* on those investments. In other words, the administrative law judge, in considering the problem of business necessity in regard to these long-term contracts, has improperly excluded from his analysis, according to respondent, the matter of a fair profit. Great Lakes concedes that, in the case where new facilities are to be constructed, no more than five (5) years is required to get back the original cash laid out but argues that "ten years is required to achieve a reasonable return on the investment * * *" [37] The administrative law judge rejected this argument, noting that "profit is a business risk that must normally be assumed and not protected unless required by the public interest (*e.g.*, a utility.)" [38]

The issue here is not, as Great Lakes suggests, whether the five (5) year period in question is defined as one permitting the recovery of only initial costs, on the one hand, or those costs plus some amount of profit, on the other. The important fact, rather, is simply that, as shown by the record, the industry regards such a period as adequate to permit the continuing construction of new coking and calcining plants. It is the ability to get rid of the raw coke, on the one hand, and the ability to get it, on the other, together with the relative prices of the several products involved, that determines the number of such new plants that will be built, not the existence of unnecessarily long supply contracts. Beyond that, however, a five (5) year old plant does not suddenly vanish at the end of that period and does not cease to be profitable merely because its owner has been required to start competing with others at that point for sales and supplies in the open market. The notion that new plants will not be built in an allegedly competitive industry unless the builders are allowed to shield those plants from competition not only long enough to get back their full costs but what they consider an adequate profit as well as one that is alien to the antitrust laws.[39]

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[36] Finding 318, Findings of the Commission, pp. 7–8 [pp. 1666–67 herein].
[37] Appeal Brief of Great Lakes Carbon Corporation, January 24, 1972, p. 25.
[38] Finding 162, initial decision of October 29, 1971, p. 39 [p. 1572 herein].
[39] Note 23, *supra*. [p. 1651].

IV

Interstate Commerce, De Minimis, and Proper Parties

The refiner respondents involved in this action argue that, since title passes to Great Lakes upon the loading of the coke into the rail cars on their own premises, there is no interstate commerce involved in their sale of it pursuant to the long-term out-put contracts challenged in the complaint. Great Lakes buys the coke f.o.b. the refinery, arranges with the various carriers (*e.g.*, railroads) for the placement of cars on the refiners' premises for loading by the latters' employees, causes the coke to be transported to its own storage and processing (*e.g.*, calcining) facilities, and then sells it to users located in various states and in foreign countries.[40] In addition, however, an extensive network of interstate activity is involved in the negotiation of these contracts and in the subsequent performance of the obligations created by them.[41] Crude supplies are also frequently drawn from fields located in states other than the ones in which the refineries themselves are located, *e.g.*, the use of Alaska and Middle East crude in the production of coke at Mobil's refinery in Torrance, California.[42] To find, under these circumstances, that a significant volume of commerce between two such giant industries as petroleum refining, on the one hand, and aluminum production, on the other, does not occur in interstate commerce would be to make a mockery of the intent of a statute designed to prevent precisely the kind of multi-state restraints of trade involved in this proceeding.[43]

Three (3) of the refiner respondents have argued that their production of the relevant product was *de minimis* in character

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[40] Finding 252, initial decision of October 29, 1971, p. 78 [p. 1604 herein].

[41] Thus American Oil entered into a twenty (20) year contract in 1960 to sell Great Lakes all of the petroleum coke produced at its Texas City, Texas, refinery. The negotiation of this contract involved communications by both mail and telephone between American's headquarters in Chicago, Illinois, and Great Lakes' headquarters in New York, New York. Performance under the contract involves shipment reports by the Texas City refinery to American's headquarters in Chicago, reports that are used by the latter in preparing invoices to Great Lakes' headquarters in New York. Payment is made by Great Lakes in New York to American in Chicago. The kind, quality, and amount of petroleum coke produced at this Texas refinery, like that produced at its refineries in El Dorado (Arkansas), Sugar Creek (Missouri), and Yorktown (Virginia), is determined by American Oil personnel in its planning operations department, one that is, again, located in its Chicago, Illinois headquarters. See Findings 253–296, *id.*, pp. 79–89 [pp. 1604–14 herein].

[42] Finding 274, *id.*, p. 83 [p. 1609 herein]; Tr. 1083, 1086.

[43] See *e.g.*, *Federal Trade Commission* v. *Cement Institute*, 333 U.S. 683, 695–96 (1948); *United States* v. *Southeastern Underwriters Assn.*, 322 U.S. 533 (1944); and *In Re Bakers of Washington*, 64 FTC 1079, 1109–23 (1964), and 66 FTC 1223 (1964), *aff'd sub nom Safeway Stores, Inc.* v. *Federal Trade Commission*, 366 F.2d 795 (9th Cir. 1966).

and hence that their long-term output contracts could not have contributed substantially to the anticompetitive effects alleged in the complaint. Thus Colorado produced 33,508 tons (0.5 percent of national production) in 1969; CRA produced 66,816 tons (1.1 percent in that year); and Sun and Suntide produced 101,001 tons (1.6 percent) and 86,567 tons (1.4 percent), respectively.[44] A related argument, one going to the issue of whether the administrative law judge applied the proper rule of law in "aggregating" the competitive effects of these contracts rather than weighing the legality of each of them independently of the others, is also raised by the various refiner respondents. In their analysis, none of these long-term output contracts can be found unlawful unless a finding is made that it is *individually* so restrictive as to substantially injure or lessen competition in the industry, wholly apart from the simultaneous effects of similarly restrictive contracts being used by others in that market.

This is not the law in antitrust. It has long been settled that a series of restraints, each quantitatively too small to significantly impair the effectiveness of competition in an industry, can be sufficiently restrictive in the *aggregate* as to seriously impair the effectiveness of the competitive process. The right to individually restrain trade in insignificant amounts, to the extent that there can be said to be such a "right," has always been held subordinate to the larger public interest in preserving effectively competitive product markets. As the court said in the *Luria* case, for example: "Some of the smaller mills such as Bucyrus and Edgewater object to their inclusion in the Commission's Order, claiming that their purchases are too insignificant to be unlawful. We cannot separately view individual purchases by those mills whose annual requirements are not quantitatively significant. All contribute to the unlawful result and all should share in the consequences." Luria Bros. v. *Federal Trade Commission*, 389 F.2d 847, 863 (3d Cir. 1968). See also *Motion Picture Advertising Service Co., Inc.* v *Federal Trade Commission*, 344 U.S. 392, 396 (1953); *Federal Trade Commission* v. *National Lead Co.*, 352 U.S. 419, 428 (1956); and *Federal Trade Commission* v. *Ruberoid Co.*, 343 U.S. 470, 473 (1952).

One of the refiner respondents, the American Oil Company, a Maryland corporation, argues that it was not a proper party to this proceeding since a subsidiary, American Oil Company (Texas), not the parent itself, is currently the party to the chal-

[44] *Id.*, Appendix A (p. 11, *supra*) [p. 1648 herein].

lenged contract.[45] It was the parent corporation that had originally entered into that contract, however, the subsidiary's obligations under it being the result of a subsequent assignment by the parent. As the administrative law judge correctly held, a parent corporation's "imposition of responsibility" for an illegal contract on its wholly-owned subsidiary is not sufficient ground for dismissing the complaint as to the initiating parent.[46]

V

Order

Both the complaint counsel and respondents challenge the order issued by the administrative law judge, the latter maintaining that no order at all should have been issued and the former arguing that the order in question is inadequate to remedy the violations found and restore the effectiveness of competition in the petroleum coke industry. Complaint counsel's major objection to the order, as noted above, goes to its failure to prohibit the "exclusivity" feature of these contracts, *i.e.*, to require an abandonment of the policy of refineries selling, and Great Lakes buying the entire output of the refineries involved. Complaint counsel's proposed order[47] then would have limited not merely the duration of these contracts but their full-output characteristics as well.[48]

The administrative law judge found, and we think correctly so, that there are no technical or economic barriers to the sale of petroleum coke to two or more buyers by a refinery.[49] The coke is removed from the refinery by railroad cars and there is no reason, as the record makes clear that these cars could not be as readily consigned to several alternate purchasers as to one, assuming that they are willing to take coke of a similar quality, *i.e.*, coke of the quality regularly produced by the refinery in question. The testimony of this point seems quite unambiguous to us:

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[45] Appeal Brief for respondent, The American Oil Company, a Maryland Corporation, January 26, 1972, pp. 6–20.

[46] Initial decision of October 29, 1971, pp. 107–108 [pp. 1627–28 herein].

[47] *See* appeal brief of counsel supporting the complaint, January 24, 1972, Appendix A, Paragraph II.

[48] Under complaint counsel's proposed order, the refiners would be directed to cease and desist from agreeing to sell, and Great Lakes to case and desist from agreeing to buy, "in excess of fifty percent (50%) of the estimated annual production of petroleum coke produced at any refinery in the United States * * *," subject to a proviso permitting a particular buyer to take all of a refinery's coke output if it could not be sold to another buyer on comparable terms. *Ibid.*

[49] Findings 311–312, initial decision of October 29, 1971, pp. 97–99 [pp. 1619–20 herein].

HEARING EXAMINER BUTTLE: What is the trouble with multiplicity of buyers? Is it scheduling, disposal or what?

A. I don't think there is any trouble at all. You could have multiplicity of buyers up to a certain extent, providing they all operated under the same contract verbatim.[50]

We have modified the order of the administrative law judge with the objective of removing entry barriers (long duration and exclusivity of contracts) that have heretofore made it more difficult than would have otherwise been the case for interested firms to enter the "middleman" function in question and thus bring to an end a single firm's historic dominance of that branch of our commerce. The order provisions which limit duration of contracts to three years generally and five years where new coking plants are involved have been altered to cover contracts for amounts in excess of fifty percent (50%) of the estimated annual production of the industrial quality petroleum coke instead of just contracts for the full amount of industrial quality petroleum coke.[51] If duration limitations were imposed solely on contracts providing for supply of the full amount of industrial quality petroleum coke as proposed by the administrative law judge, the order might be construed as permitting respondents to enter into contracts unlimited in duration for amounts of petroleum coke equaling 99 percent or less of annual production.

The provision limiting contracts in excess of 50 percent of annual production of petroleum coke to three years duration generally and five years when new plants are involved, hopefully will break the dominant hold which Great Lakes has imposed on the coke supply segment of the market and provide an effective incentive for new entry in the "middleman" sector.

An appropriate order accompanies this opinion.

FINDINGS AS TO THE FACTS, CONCLUSIONS AND ORDER

The Federal Trade Commission issued its complaint in this matter on November 26, 1969, charging that respondent Great Lakes Carbon Corporation, a processor and reseller of petroleum coke,

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[50] Tr. 4761.

[51] Another small clarification is the insertion of the term *nonrespondent* preceding the term coke producer in the section of the order allowing respondent oil companies to meet in good faith offers by coke producers. This word is necessary to clarify that respondents may "meet competition" for new entrants only with nonrespondents and not with each other. We are also making other modifications for purposes of clarification and consistency.

and eight (8) oil refining companies[1] have violated Section 5 of the Federal Trade Commission Act, 15 U.S.C. 45, through the use of certain long-term contracts in the purchase and sale of petroleum coke. A series of prehearing conferences were held between February 26, 1970, and January 25, 1971. Testimony and other evidence in support of and in opposition to the allegations of the complaint were received in evidentiary hearings held between January 26, 1971, and June 11, 1971. In an initial decision of October 29, 1971, the administrative law judge (hearing examiner) concluded that the charges were supported by the evidence and issued an order that would require certain modifications in those petroleum coke contracts and other supplementary relief.

The Commission, having considered the appeal filed by respondents and complaint counsel and the entire record, and having determined that the administrative law judge's findings of fact, conclusions, and order, as modified and supplemented herein, should be adopted as the findings, conclusions, and order of the Commission,now makes its findings as to the facts, its conclusions drawn therefrom, and its order.

FINDING AS TO THE FACTS

Nos. 1 through 314. For its Findings numbers 1 through 314, the Commission finds the facts to be, except as modified and supplemented herein, as set forth in the Findings 1 through 314 (pages 4 through 100 [pp. 1541–1621 herein]) of the administrative law judge's initial decision of October 29, 1971, and adopts those findings as its own.

315. The relevant product market is, as alleged in the complaint and as found by the administrative law judge, industrial quality delayed green and calcined petroleum coke, defined as petroleum coke of this quality containing 2.8 percent sulphur or less. Initial decision, Findings 16–37, pp. 10–15 [pp. 1545–50 herein]. Coke meeting this definition has separate and distinct uses and commands a price substantially greater than coke not having these characteristics. Whereas coke of this quality is bought for its carbon content and used in the manufacture of such industrial products as aluminum anodes (*e.g.*, Alcoa and Kaiser) and carbon electrodes (*e.g.*, Union Carbide), non-industrial quality coke is

[1] The oil company respondents named in the complaint are American Oil Company; Colorado Oil and Gas Corporation; Continental Oil Company; CRA, Inc.; Mobil Oil Company; Sun Oil Company; Suntide Refining Company; and Texaco, Inc.

bought almost entirely for its fuel (BTU) value. Sulphur is a contaminant to the users of industrial quality coke and becomes harmful to their end product (*e.g.*, aluminum anodes) when present in large quantities (generally over 2.8 percent).

The major users of petroleum coke testified at length to the effect that, in the industrial uses to which they put the product, there are no economically feasible substitutes for low-sulphur petroleum coke of the kind described in the complaint and found here to constitute the relevant product market. They cannot substitute the cheaper high-sulphur coke for the more expensive low-sulphur coke they require in their operations. Reynolds Metals buys no petroleum coke containing more than 2.8 percent sulphur (tr. 1226); Alcoa's specifications call for a maximum sulphur content of 2 percent (tr. 1288–89); Union Carbide uses no coke containing more than 2 percent sulphur (tr. 1306–1314); Aircor Speer, a producer of carbon and graphite products, buys no coke containing more than 2 percent sulphur (tr. 1409–1413); and Carborundum Company, world's largest manufacturer of silicon carbide for abrasives, uses coke containing 2 percent to 3 percent sulphur (tr. 1445–1447). A representative of respondent Great Lakes testified that petroleum coke containing more than 2.8 percent sulphur is not normally used in the silicon carbide industry, the graphite industry, the calcium carbide industry, the ferro alloy industry, or the aluminum industry. Tr. 4484–90.

A small amount of the cheaper high-sulphur coke can be used by some of these industries by "blending" it with a sufficient amount of unusually low-sulphur coke. Thus a user that can tolerate a maximum sulphur content of 2 percent can stay within that limit by mixing equal quantities of coke containing, respectively, 1 percent and 3 percent sulphur. The extent to which this can be done, however, is limited by the availability of coke having a sulphur content *lower* than the desired maximum. While over 90 percent of the low-sulphur coke produced in the United States is used for industrial purposes (carbon content of the product), the bulk of the high-sulphur coke has to be sold as a fuel (BTU or heat content) and at approximately half the price of the former. Tr. 1798–1799; 1865–1890; CX 239, 240–247; CX 338–340; CX 103, 238; CX 111–112, 148–149, 344–347; CX 113, 150, 344–47; CX 177; CX 30, 360–362. A representative of Republic Carbon summarized the distinction involved this way:

Q. Did you distinguish in the marketing between these two types of coke?

A. The low sulphur coke went primarily for the metallurgical applications,

industrial use, and the high sulphur went primarily for fuel. (Tr. 1887–1888.)

316. Respondent Great Lakes accounted for 42.4 percent of all purchases of industrial quality petroleum coke produced in the United States in 1964, 42.1 percent of that produced in 1965, and 38.8 percent of that produced in 1969. CX 1294–96, summarized in initial decision, Appendix A, p. 119 [p. 1665 herein] (reproduced below). This is the share of the market that was committed to Great Lakes in those years under the long-term contracts at issue here. Similar contracts were used by other coke purchasers, the shares committed to Great Lakes and those other purchasers being summarized in the table below (*ibid*) :

	1964	1965	1969
Committed to Great Lakes	42.4%	42.1%	38.8%
Committed to Other Firms	44.6	46.6	54.4
Uncommitted	13.0	11.3	6.8
	100.0	100.0	100.0

CX 1294–96 (Appendix A).

With 38.8 percent of all industrial quality coke produced in the United States in 1969 committed to Great Lakes and 54.4 percent of it committed to other purchasers under these long-term contracts, only 6.8 percent of it was thus left "uncommitted" or available for sale on the open market. *Ibid.*

317. Respondent Great Lakes Carbon's share of the relevant coke market has declined significantly over the years, from approximately 100 percent in the mid–1940's (Great Lakes was the original developer of the petroleum coke industry in the United States, including its technological base, the rotary calciner for the processing of raw coke) to, as noted, 38.8 percent in 1969. This decline in overall market share does not represent, however, a proportional decline in its market power. Sixteen (16) firms have undertaken to market petroleum coke since 1935. Four (4) of these are oil companies attempting to market their green coke directly to the end user, none of them having facilities for calcining, sizing, screening, or performing the various other "middleman" functions. Four (4) of the others are oil companies that have attempted to develop their own middleman organization, *i.e.*, to "integrate forward." Another six (6) are instances of "backward integration" into the middleman function by end users of the product, namely, Union Carbide; General Carbon (a wholly-owned subsidiary of Union Carbide); Kaiser Aluminum; Reynolds;

Great Lakes Carbon Corp., et al.—D. 8805

Total United States production of Green Industrial Quality Petroleum Coke containing less than 2.8% sulphur for the years indicated

Identity and Location of Refinery Production Committed to Great Lakes	1964 Production In Short Tons	Percent	1965 Production In Short Tons	Percent	1969 Production In Short Tons	Percent
American Oil, Texas City, Texas	149,166	4.0	184,101	4.8	151,000	2.4
Colorado Oil & Gas, Wichita, Kansas	30,217	0.8	27,260	0.7	32,508	0.5
Continental Oil, Ponca City, Oklahoma	130,139	3.5	122,802	3.2	107,263	1.7
CRA, Inc., Coffeyville, Kansas	63,148	1.7	69,077	1.8	67,816	1.1
Mobil Oil, Torrance, California	499,686	13.3	501,094	12.9	792,000	12.4
Mobil Oil, Beaumont, Texas	188,000	7.6	281,120	7.2	-0-	-0-
NCRA, McPherson, Kansas	75,888	2.0	80,070	2.1	-0-	-0-
Sun Oil (Sunray), West Tulsa, Oklahoma	65,988	1.7	60,009	1.6	101,001	1.6
Suntide Refining, Corpus Christi, Texas	68,306	1.8	79,375	2.0	86,567	1.4
Texaco, Inc., Lockport, Illinois	94,265	2.5	85,832	2.2	97,825	1.5
Texaco, Inc., Amarillo, Texas	26,290	0.7	29,640	0.8	33,744	0.5
Texaco, Inc., Port Arthur, Texas	57,750	1.5	60,290	1.6	26,843	0.4
Texaco, Inc., Casper, Wyoming	47,554	1.3	47,969	1.2	47,402	0.7
Atlantic Richfield, Houston, Texas	-0-	-0-	-0-	-0-	40,190	0.6
Standard Oil (California), El Segundo, California	-0-	-0-	-0-	-0-	320,000	5.0
Texaco, Inc., Los Angeles, California	-0-	-0-	-0-	-0-	485,545	7.6
Champlin Oil, Enid, Oklahoma	-0-	-0-	-0-	-0-	38,530	0.6
MarathonOil, Robinson, Illinois	-0-	-0-	-0-	-0-	50,000	0.8
	1,596,397	42.4	1,628,639	42.1	2,478,234	38.8
Production Committed to Others (Purchasers)						
Champlin Oil, Enid, Oklahoma (Swiss Aluminum)	46,433	1.2	40,422	1.0	-0-	-0-
Marathon Oil, Robinson, Illinois (Union Carbide)	108,878	2.9	119,923	3.1	85,190	1.3
American Oil, Whiting, Indiana (Republic)	132,893	3.5	129,284	3.3	60,000	0.9
American Oil, Sugar Creek, Missouri (Republic)	90,000	2.4	88,614	2.3	106,000	1.7
Cities Service, Lake Charles, Louisiana (Sava, Mitsui)	-0-	-0-	81,504	2.1	324,628	5.1
Continental Oil, Lake Charles, Louisiana (Union Carbide)	41,238	1.1	40,365	1.0	-0-	-0-
Gulf Oil, Port Arthur, Texas (Alcoa)	178,572	4.7	170,186	4.4	171,000	2.7
Humble Oil, Baton Rouge, Louisiana (Reynolds)	368,447	9.8	344,000	8.9	637,000	10.0
LaGloria Oil, Tyler, Texas (Alcoa)	28,440	0.7	29,081	0.8	33,000	0.5
Midland Coop. Refinery, Cushing, Oklahoma (Republic)	-0-	-0-	-0-	-0-	12,000	0.2
Mobil Oil, Trenton, Michigan (Republic)	84,849	2.3	84,697	2.2	76,000	1.2
Mobil Oil, East St. Louis, Missouri (Union Carbide)	106,654	2.8	106,957	2.8	129,000	2.0
NCRA, McPherson, Kansas (Republic)	-0-	-0-	-0-	-0-	103,282	1.6
Shell Oil, Norco, Louisiana (Kaiser)	-0-	-0-	24,701	0.6	236,000	3.7
Standard Oil (Ohio), Lima, Ohio (Mountaineer)	70,093	1.9	97,139	2.5	127,000	2.0
Standard Oil (Ohio), Toledo, Ohio (Mountaineer)	110,738	2.9	108,205	2.8	157,960	2.5
Sunray DX (Sunray), Duncan, Oklahoma (Republic)	97,056	2.6	97,976	2.6	130,169	2.0
Union Oil, Oleum, California (Republic)	217,975	5.8	241,254	6.2	316,000	4.9
Atlantic Richfield, Watson, California (Wilson, Mitsui, Harvey)	-0-	-0-	-0-	-0-	676,000	10.6
Tenneco, Chalmette, Louisiana (Kaiser)	-0-	-0-	-0-	-0-	98,167	1.5
	1,682,266	44.6	1,804,308	46.6	3,478,396	54.4
Production Not Fully Committed						
American Gilsonite, Gilsonite, Colorado	153,824	4.1	141,660	3.6	**101,413	1.6
Cities Service, East Chicago, Indiana	*168,068	4.5	*150,313	3.9	177,612	2.8
Skelly Oil, El Dorado, Kansas	*135,947	3.6	*103,580	2.7	*154,000	2.4
Union Oil (Pure), Toledo, Ohio	30,018	0.8	42,551	1.1	-0-	-0-
	487,857	13.0	438,104	11.3	433,025	6.8
GRAND TOTAL	3,766,570	100.0	3,871,051	100.0	6,389,655	100.0

Source: CX 1294, 1295, 1296.
*Denotes partially committed pursuant to a contract.
**All green production sold as calcined petroleum coke.

Harvey Aluminum; and Gulf Coast Aluminum. These latter firms are primarily engaged in other businesses, their sales of coke on the market being limited to those instances in which their supply exceeds the internal needs of their own firms, thus removing them from the category of active and continuous competition with Great Lakes in the day-to-day selling of petroleum coke. There are four (4) significant firms serving the *non-integrated* market for industrial quality petroleum coke—Great Lakes, Republic, Collier, and Mountaineer—and Great Lakes accounts for nearly two-thirds of the aggregate sales of this group of firms. CX 1305, 1307.

The fact that the integrated end-users of the product do not exert a downward pressure on the price of such coke in the *general* coke market served by Great Lakes and its non-integrated competitors is illustrated by the testimony of a representative of Reynolds Metals. His firm had begun calcining its own coke because, among other things, it "wanted to take advantage of the projected cost savings that would result from calcining it ourselves. We knew that Great Lakes has a large share of the industry and we wanted to be independent of them." Tr. 1233. In 1963, for example, Great Lakes was quoting a price of over $33 per ton for calcined coke on the *East* Coast, while both it and a competitor, Collier Carbon, were selling for $26 to $27 per ton on the *West* Coast. "Well, I think it is obvious that the presence of Collier helped keep the price down on the west coast." Tr. 1234. Vertical integration thus gets a lower price for the integrating firm itself but it does not lower the price Great Lakes charges the rest of its buyers, those that, for one reason or another, do not find it feasible to "be independent" of Great Lakes. In economic terms, then, the vertically-integrated buyers (Alcoa, Kaiser, Union Carbide, etc.) are in a separate market and Great Lakes' market power would be evaluated most appropriately in terms of its share of the remaining market, the one in which the non-integrated buyers have to acquire their coke needs and in which, as noted, Great Lakes retains an overwhelmingly dominant share.

318. There is no "business justification" for exclusive output contracts of seven (7) to twenty (20) years duration in the petroleum coke industry. The "pay-out" period for both the producer's (refiner's) coking unit and the processor's calcining plant is five (5) years, *i.e.*, this is the period in which the industry amortizes (recovers the cost) of those facilities. Since each of these facilities involves a cost of several million dollars, the investment will not be undertaken by either the refiner or the prospective calciner

unless arrangements can be made in advance to assure the refiner an outlet for his coke and the calciner a dependable supply of it for that duration. Once the costs of these producing and processing facilities have been recovered, however, the relevant consideration in this regard is simply assuring that efficiency is not impaired in their operation. Where the construction of new plants is not involved, three (3) year contracts are quite adequate, as is illustrated by the fact Great Lakes itself entered into several such short-term renewal contracts after this proceeding was commenced (CX 1322, 1324, 1327) and some of its competitors had already done so earlier (CX 16, 18, 23, 37, 42, 1232–33).

Limiting the permissible duration of these contracts will not, as argued by respondents, result in further vertical integration rather than more independent competition at the middleman level. As found above, one of the factors that caused Reynolds to integrate backward into calcining was the weakness of competition at the processing level and the accompanying high prices to end users such as itself, which is consistent with the principle that, when a middleman holds a substantial degree of market power, he will be expected to at least attempt to use it to widen his own margin in one or both of two ways, (1) by lowering the price at which he buys and/or (2) by raising the price at which he sells. The higher his mark-up becomes, the greater the incentive will be for either the seller (refiner) or end-user (*e.g.*, an aluminum company) to integrate into the middleman function. Conversely, the more intense the price competition becomes at the middleman level, the narrower his margin will be and thus lower the incentive for forward or vertical integration by suppliers or users. Reynolds considered Great Lakes' prices excessive and, as noted, entered into the middleman function in part to escape them. Asked if Reynolds would have integrated backward into coke processing if Great Lakes had had more competition, the Reynolds representative thought "perhaps not." Tr. 1242. The inference here is thus that making this industry more competitive at the middleman level by encouraging the entry of non-integrated processors will reduce rather than increase the incentive for further vertical integration by the refiner and end users of this product.

CONCLUSIONS

1. Except as modified and supplemented herein, the Commission accepts and adopts the conclusions of the administrative law judge

in this matter (pages 101 through 110 [pp. 1621–30 herein], initial decision, October 29, 1971).

2. All of the respondents named in the instant complaint are corporations engaged in commerce, as "commerce" is defined in Section 5 of the Federal Trade Commission Act, and the acts and practices at issue herein occurred in the course of such commerce. The negotiation of and performance under these long-term contracts between Great Lakes and these eight (8) refiners involve a systematic flow of interstate goods and communications, including a routine flow of communications across state lines between the headquarters of the contracting firms, between their respective operating units, and between their respective operating units and headquarters offices.

3. The relevant product market in which to assess the competitive effects of the long-term output contracts challenged in this proceeding is industrial quality delayed green and calcined petroleum coke having a sulphur content of 2.8 percent or less as defined in the complaint. Such coke has uses that are separate and distinct from all other varieties of coke and sells for a price that is approximately double that of other cokes.

4. The relevant geographic markets in which to evaluate the competitive effects of the contracts challenged herein is the United States as a whole and the Gulf Coast and West Coast areas. Petroleum coke is a heavy bulky commodity of relatively low value (approximately $10 per ton) and thus is relatively expensive to ship from one geographic market to another. Freight cost thus becomes an economic barrier separating the country into distinct submarkets for weighing the significance of competitive restraints.

5. Respondent Great Lakes Carbon accounted for 42.4 percent of all purchases of industrial quality petroleum coke produced in the United States in 1964, 42.1 percent of that produced in 1965, and 38.8 percent of that produced in 1969. Its share of the non-integrated portion of this national market (exclusive of the integrated refiners and end-users) is approximately two-thirds and its share of the two specific submarkets, the Gulf Coast and West Coast areas, is similarly very large.

6. Respondent Great Lakes and each of the refiners named herein have entered into one or more long-term (7 to 20 years) contracts under which Great Lakes agrees to buy and the refiners agree to sell the full petroleum coke output of certain named refineries. The effect of such contracts has been to create and

maintain Great Lakes' historic dominance of the processing sector of the petroleum coke industry and to inhibit and lessen the effectiveness of competition therein.

7. There is no "business justification" for full-output coke contracts having a duration of more than five (5) years where a new coker or a new calcining plant is to be constructed or otherwise more than three (3) years in duration. New plants are fully amortized in the industry at the end of five (5) years and three (3) year contracts are more than sufficient to permit the most economical operation of existing facilities.

8. The competitive effects of these long-term contracts, including those of the smaller refiners, have not been and are not now *de minimis*. As was said in the *Luria* case: "Some of the smaller mills such as Bucyrus and Edgewater object to their inclusion in the Commission's Order, claiming that their purchases are too insignificant to be unlawful. We cannot separately view individual purchases by those mills whose annual requirements are not quantitatively significant. All contribute to the unlawful result and all should share in the consequences." *Luria Bros.* v. *F.T.C.*, 389 F.2d 847, 863 (3d Cir. 1968).

9. Respondent the American Oil Company, a Maryland corporation, having entered into one of the long-term contracts at issue here and subsequently assigned it to a subsidiary, the American Oil Company (Texas), is a proper party to this proceeding.

ORDER

This matter having been heard by the Commission on the exceptions of the respondents to the administrative law judge's initial decision finding that certain of respondents' contracts for the purchase and sale of petroleum coke constitute unfair acts or practices or unfair methods of competition in violation of Section 5 of the Federal Trade Commission Act, 15 U.S.C. 45, and directing revisions in those contracts and supplemental relief: and

The Commission having determined that the administrative law judge's findings of fact and conclusions of law, as modified and supplemented herein, should be adopted as the findings and conclusions of the Commission, and that the administrative law judge's order should be modified, and as modified herein, adopted as the order of the Commission:

Now, therefore, it is ordered, That respondents' exceptions to the administrative law judge's initial decision be, and they hereby are, denied:

It is further ordered, That the administrative law judge's findings of fact and conclusions of law, as modified and supplemented herein, be, and they hereby are, adopted as the findings and conclusions of the Commission, and that the following cease and desist order be, and it hereby is, entered.

I.

It is ordered, That respondent Great Lakes Carbon Corporation, its successors and assigns, shall within sixty (60) days after the effective date of this order, with each petroleum refiner with which it presently has a contract to purchase or market an amount in excess of fifty percent (50%) of the estimated annual production of the regular green industrial quality petroleum coke at a refinery in the United States extending more than three years beyond the effective date of this order, execute an amendment reducing the term of such contract to a period no longer than three (3) years from the effective date of such amendment. As used in this order the term regular green industrial quality petroleum coke (hereafter referred to as "petroleum coke") is as defined in the complaint and does not include needle coke.

II.

It is further ordered, That respondent Great Lakes Carbon Corporation, its officers, directors, representatives or employees, successors and assigns, directly or through any corporation, subsidiary, or other device, in connection with the purchase in commerce, as "commerce" is defined in the Federal Trade Commission Act, of petroleum coke, do forthwith cease and desist from entering into any contract or agreement, express or implied, or entering into any commission contract or agreement, with any petroleum refiner to purchase or market an amount in excess of fifty percent (50%) of the estimated annual production of petroleum coke produced at any refinery in the United States unless the term of such contract or agreement shall be for five (5) years or less in the event a new calcining kiln or coking unit has been or is to be installed by either of the contracting parties and operating within twenty-four (24) months of the date the contract is entered into and unless any period thereof otherwise shall be for three (3) years or less. Great Lakes Carbon Corporation may meet in good faith any offers for longer periods of years made to petroleum refiners by other actual or prospective purchasers of petroleum

coke for amounts up to the full amount of petroleum coke produced at a refinery; *Provided, however,* That when an offer is made by a new entrant into the petroleum coke business in the United States, who is not otherwise a user of petroleum coke and who requires such coke in connection with the initial construction and operation of a facility to calcine petroleum coke in the United States, Great Lakes Carbon Corporation may not meet the offer of such new entrant to purchase for a period in excess of five years petroleum coke produced at a refinery or refineries not designated in the complaint. This proviso shall be in effect for a period of ten years from the entry of this order, and shall be applicable to the offer or offers of any such new entrant for the production of any single such refinery, or of multiple refineries when necessary to assure such new entrant of not more than 200,000 tons plus or minus ten (10) percent of petroleum coke. Great Lakes Carbon Corporation may contract to purchase petroleum coke from any refinery, including respondents' refineries, in the quantities and for such period of years as are necessary to meet in good faith a competitive offer to supply Great Lakes Carbon Corporation's customers. Great Lakes Carbon Corporation may contract to purchase such coke for resale as fuel for the period of years necessary to fulfill a contract to supply petroleum coke for use as fuel substitute for coal, heating oil, or natural gas. In the event that Great Lakes Carbon Corporation enters into any such contract for more than three (3) years, it shall within thirty (30) days after the execution of such contract file a report with the Federal Trade Commission setting forth the circumstances relating thereto.

Nothing herein shall prohibit respondent Great Lakes Carbon Corporation from purchasing in excess of fifty percent (50%) of the estimated annual production of gree industrial quality petroleum coke during any calendar year from any refinery producer at any individual refinery if said refinery producer at any individual refinery is unable to sell the additional production at the refinery to any other purchaser on substantially similar prices, terms, and conditions of sale as offered by respondent Great Lakes Carbon Corporation.

III.

It is further ordered, That respondent Great Lakes Carbon Corporation, its successors and assigns, shall not renew or extend any existing contract for the purchase or marketing of an amount in

excess of fifty percent (50%) of the estimated annual production of petroleum coke at any refinery more than six (6) months prior to termination of the contract being renewed or extended.

IV.

It is further ordered, That within sixty (60) days from the effective date of this order, respondent Great Lakes Carbon Corporation, its successors and assigns, shall submit to the Federal Trade Commission a report in writing setting forth in detail the manner in which it intends to comply with this order and within thirty (30) days after the end of each year, shall file a report in writing, identifying each refinery in the United States with which Great Lakes Carbon Corporation entered into a contract to purchase more than fifty percent (50%) of estimated annual output of petroleum coke during the previous calendar year and specifying the period of years covered by any such contract. Within thirty (30) days after the end of each five (5) year period during which this order is in effect Great Lakes Carbon Corporation shall file a report in writing listing the refineries with which it has a contract to purchase petroleum coke together with a copy of each such contract and the quantities and quality of petroleum coke purchased annually thereunder from each such refinery. Such 5-year reports shall not become a part of the public record, unless otherwise directed by the Commission.

V.

It is further ordered, That respondents, the American Oil Company, Colorado Oil and Gas Corporation, Continental Oil Company, CRA, Inc., Mobil Oil Corporation, Sun Oil Company, Suntide Refining Company, and Texaco, Inc. (hereinafter referred to as respondent oil companies), their successors and assigns, shall each, within sixty (60) days after the effective date of this order* execute an amendment with respondent Great Lakes Carbon Corporation reducing to a period not in excess of three (3) years from the effective date of such amendment the term of any contract then in existence for the purchase of an amount in excess of fifty percent (50%) of the estimated annual production of petroleum coke produced at the refineries designated in the complaint, to wit:

* Amended in accordance with the Commission's order dated June 27, 1973.

The American Oil Company, a Texas corporation: Texas City, Texas refinery

Colorado Oil and Gas Corporation: Wichita, Kansas refinery

Continental Oil Company: Ponca City, Oklahoma refinery

CRA, Inc.: Coffeyville, Kansas refinery

Mobil Oil Corporation: Beaumont, Texas refinery, and Torrance, California refinery

Sun Oil Company: West Tulsa, Oklahoma refinery

Suntide Refining Company, subsidiary of Sun Oil Company: Corpus Christi, Texas refinery

Texaco, Inc.: Amarillo, Texas refinery; Casper, Wyoming refinery; Lockport, Illinois refinery; and Port Arthur, Texas refinery.

VI.

It is further ordered, That respondent oil companies, their officers, directors, representatives or employees, successors and assigns, directly or through any corporation, subsidiary, division or other device, do forthwith cease and desist from entering into any contract or agreement, express or implied, to sell or for the marketing of an amount in excess of fifty percent (50%) of the estimated annual production of petroleum coke produced at any refinery designated in the complaint unless the original term of such contract or agreement shall be for five (5) years or less in the event a new calcining kiln or coking unit has been or is to be installed by either of the contracting parties and operating within twenty-four (24) months of the date the contract is entered into and unless any period thereof otherwise shall be for three (3) years or less. Respondent oil companies may meet in good faith any offer by a non-respondent coke producer to supply up to a full amount of petroleum coke output from a refinery for a period of years longer than that provided for in this order when such offer is made to a new entrant into the petroleum coke business in the United States, who is not otherwise a substantial user of petroleum coke and who requires such coke in connection with the initial construction and operation of a facility to calcine petroleum coke in the United States. This exception shall be applicable to the offer or offers to any such new entrant for the production of any single refinery or of multiple refineries when necessary to assure such new entrant of not more than 200,000 tons plus or minus ten percent (10%) of petroleum coke.

Nothing herein shall prohibit respondent oil companies from

selling or marketing in excess of fifty percent (50%) of the estimated annual production at any refinery during any calendar year to Great Lakes Carbon Corporation or to any other individual purchaser if said respondent oil company is unable to sell or market the additional production of petroleum coke to any other purchaser on substantially similar prices, terms and conditions of sale as offered by respondent Great Lakes Carbon Corporation or any other purchaser.

In the event that any respondent oil company enters into any contract for sale of more than fifty percent (50%) of the estimated annual production of petroleum coke during any calendar year at any refinery designated in the complaint to one purchaser, which contract covers more than three (3) years in duration, it shall file a report with the Federal Trade Commission setting forth the justification thereof satisfying the above provisions.

VII.

It is further ordered, That respondent oil companies, their successors and assigns, shall not renew or extend any existing contract for the sale or marketing of the production of petroleum coke (exceeding 50 percent of estimated annual production) at any refinery more than six (6) months prior the termination of the contract being renewed or extended. During the effective period of this order, respondent oil companies shall submit to the Federal Trade Commission within thirty (30) days following execution a copy of each new contract entered into and a copy of any agreement to renew an existing contract, and such copies shall not become part of the public record, unless otherwise directed by the Commission.

VIII.

It is further ordered, That, within sixty (60) days from the effective date of this order, respondent oil companies, corporations, their successors and assigns, shall submit to the Federal Trade Commission a report in writing setting forth in detail the manner in which each intends to comply with this order and within thirty (30) days after the end of each year, shall file a report in writing setting forth in detail the manner in which respondent is complying with each applicable requirement of this order, accompanied by such documents as are necessary to constitute a showing that respondent is in full and faithful compliance herewith.

IX.

It is further ordered, That the provisions of this order shall not apply to any contract relating to the sale of petroleum coke produced at the refineries designated in the complaint when said coke is to be used as fuel substitute for coal, heating oil or natural gas.

X.

This order shall terminate and cease to be effective twenty years from the date of entry of this order.

Chairman Engman not participating.

IN THE MATTER OF

CORNING GLASS WORKS

ORDER, OPINION, ETC., IN REGARD TO THE ALLEGED VIOLATION OF THE FEDERAL TRADE COMMISSION ACT

Docket 8874. Complaint, January 13, 1972—Decision, June 5, 1973.

Order and opinion requiring a Corning, New York manufacturer, advertiser, seller, and distributor of Pyrex, Corning Ware, and Corelle Livingware brands of glass household products for food preparation, serving, and storage, among other things in connection with any fair trade programs of those products, to cease illegal price-fixing and refusal-to-deal activities. The respondent is also required to abrogate Wholesaler Fair Trade Contracts where resale is in free trade jurisdictions, and to abrogate fair trade contracts with retailers in signer-only states which were obtained by wholesalers in free trade states subject to the illegal boycott provision.

COMPLAINT

Pursuant to the provisions of the Federal Trade Commission Act, as amended, and by virtue of the authority vested in it by said Act, the Federal Trade Commission, having reason to believe that Corning Glass Works, a corporation, hereinafter referred to as respondent, has been and is now in violation of Section 5(a) (1) of said Act, and it appearing to the Commission that a proceeding by it in respect thereof would be in the public interest, hereby issues its complaint stating its charges as follows:

COUNT I

PARAGRAPH 1. Unless otherwise required by context, the follow-