IN THE MATTER OF

ETHYL CORPORATION, ET AL.

FINAL ORDER, OPINION, ETC., IN REGARD TO ALLEGED VIOLATION OF SEC. 5 OF THE FEDERAL TRADE COMMISSION ACT

Docket 9128. Complaint, May 30, 1979—Final Order, March 22, 1983

This Final Order requires the nation's two leading producers of lead-based antiknock gasoline additives, among other things, to cease announcing price changes in advance of the period contractually required for advance notice to customers, and using a "most-favored-nation" clause in any contract for the sale or delivery of lead-based antiknock compounds. Further, when stating a delivered price for any lead-based antiknock compound, the companies must also quote the product's point of origin price, a separate price for shipment, and allow customers to arrange for their own shipping and delivery. While the order does not prohibit the companies when acting individually from selecting their own customers, establishing their own prices, and selling at a delivered price or point of origin in good faith to meet the equally low price of a competitor, it does not exempt the companies' pricing practices from antitrust law.

Appearances

For the Commission: *Robert A. Burka, Edward T. Colbert, Thomas J. Keary, Stephen C. Palmer, Peter M. Kazon* and *Raymond T. Diamond.*

For the respondents: *Daniel K. Mayers, John H. Harwood, David Westin* and *Kathleen M. Russo, Wilmer, Cutler & Pickering,* Washington, D.C., for Ethyl Corporation. *Daniel M. Gribbon, Allan J. Topol, Terry Coleman* and *Edward R. Mackiewicz, Covington & Burling,* Washington, D.C. and *W.E. MacIntyre,* in-house counsel, for E.I. du Pont de Nemours and Co. *Alan S. Ward, Shirley Z. Johnson, Thomas J. Segal* and *Phillip A. Proger, Baker & Hostetler,* Washington, D.C., *Louis R. Sernoff* and *Michael Kelly, Morgan, Lewis & Bockius,* Washington, D.C. and *John W. Thomas,* in-house counsel, for PPG Industries, Inc. *Champ W. Davis* and *David C. Bogan, Chadwell, Kayser, Ruggles, McGee & Hastings,* Chicago, Ill. and *James S. Lambe,* in-house counsel, for Nalco Chemical Co.

INITIAL DECISION BY

ERNEST G. BARNES, ADMINISTRATIVE LAW JUDGE

AUGUST 5, 1981

PRELIMINARY STATEMENT

On May 30, 1979, the Commission filed the complaint in this proceeding charging that respondents Ethyl Corporation, E.I. du Pont de Nemours and Company, PPG Industries, Inc., and Nalco Chemical Company had violated Section 5 of the Federal Trade Commission Act, 15 U.S.C. 45.[1] It is alleged that these four companies have engaged in certain marketing practices which had the effect of reducing uncertainty about competitors' prices of lead-based antiknock compounds; such reduced uncertainty, it is alleged, unfairly facilitated

[1] Respondents, individually, were formally notified of the Commission's investigation of their marketing practices in the lead-based antiknock compound market in early January, 1978. (CX 2210A-D)

the maintenance of substantially uniform price levels and the reduction or elimination of price competition in the lead-based antiknock compound market. (Complaint, Par. 13)

Paragraph 12 of the complaint identifies these marketing practices as follows:

(a) Each respondent has quoted and sold lead-based antiknock compounds only on the basis of a delivered price inclusive of transportation;

(b) Respondents Ethyl and Du Pont have utilized a "most favored nation" clause in their standard form sales contracts which promises that the buyer will receive the lowest price at which the same product is sold to any other customer, and have followed a policy of granting such treatment when sales are on a spot basis and not pursuant to an existing contract. Respondent Nalco has used a "most favored nation" clause in a substantial number of its sales contracts; and

(c) Each respondent (i) has utilized a 30-day advance notice of price change clause in sales contracts, and (ii) has frequently given advance notice of price changes to the press, directly or indirectly to other respondents, and to existing and potential customers in excess of 30 days.

In separately filed answers, each respondent generally admitted the use of some or all of these practices, as alleged in the complaint, but denied that they had the effect of reducing uncertainty about competitors' prices, or that they facilitated uniform price levels in the lead-based antiknock compound market. In addition to denying that these practices had any effect on competition, respondents also raised issues [3] concerning the relationship between the practices and the free speech protection provided in the First Amendment to the Constitution of the United States. While respondents admitted certain jurisdictional facts and that each respondent shipped lead-based antiknock compounds in interstate commerce, each denied that the challenged practices violated the Federal Trade Commission Act.

Nalco, joined by Ethyl and Du Pont, moved on May 20, 1980, for summary decision, which was denied by an order dated June 10, 1980.

Following reciprocal discovery by all parties, the administrative trial commenced on June 9, 1980. Complaint counsel concluded its case-in-chief on July 24, 1980, after 25 days of hearings. Complaint counsel called as witnesses 12 employees of respondents, seven employees of various-sized oil refining companies, and Dr. George Hay, a professor of law and economics from Cornell Law School. Respondents' motions to dismiss at the close of complaint counsel's case-in-chief were denied.

Ethyl's defense began on October 7, 1980, continued for four days during which it called to testify two of its employees, three employees of independent refining companies, an employee of National Economic Research Associates, and Jesse W. Markham, an economist from the Harvard Business School. Du Pont's defense began October 14, 1980, continued for six days, and consisted of the testimony of four of its employees, the employee of an independent refining company, and H. Michael Mann, an economist from Boston College. PPG's defense began October 23, 1980, continued for five days, and consisted of the testimony of three of its employees, two employees of consulting firms, and Michael Glassman, an economist from Glassman-Oliver Economic Consultants Inc. Nalco's defense began November 5, 1980, continued for three days, and consisted of the testimony of one of its employees, and Dennis William Carlton, an economist from the University of Chicago.

On rebuttal, complaint counsel presented two employees of the Federal Trade Commission—Charles A. Pidano, Jr., a certified public accountant, and David T. Sheffman, an economist,[2] during the week of December 8, 1980. Respondents Du Pont and Nalco each presented one surrebuttal witness, an employee of Du Pont, and Nalco's economist, Dr. Carlton, during February 1980. [4]

During the course of the proceeding over 3300 exhibits were admitted in evidence, and the transcript of testimony exceeds 8,000 pages. The record was formally closed on March 23, 1981.

A motion to dismiss the complaint was filed by Du Pont on October 10, 1980. By order of October 22, 1980, a ruling on the motion was deferred until after the close of the record and submission of briefs. In November, Nalco renewed its motion for summary decision. A ruling on this motion was deferred as well.

On October 1, 1979, Du Pont filed a lawsuit against the Commission and its individual Commissioners in U.S. District Court for the District of Delaware. Du Pont, subsequently joined by Ethyl and PPG as *amici curiae,* sought a declaration (but no injunctive relief) that the issuance of the instant complaint exceeded the scope of the Commission's authority because the challenged practices are not unfair or unlawful under Section 5 of the Federal Trade Commission Act, 15 U.S.C. 45. Du Pont also asserted that the prohibition on public announcements of antiknock compound prices in the Commission's Notice Order violated Du Pont's rights under the First Amendment to the Constitution. In November 1979, Du Pont moved for summary judgment before the district court and the Commission subsequently moved to dismiss the complaint. The district court, per Chief Judge Latcham, denied Du Pont's motion on April 9, 1980 and granted the Commission's motion to dismiss the complaint because of Du Pont's failure to exhaust its administrative remedies. The court further held that issuance of the complaint did not impede constitutionally-protected speech. *E. I. du Pont de Nemours and Co.* v. *FTC,* 488 F. Supp.

[2] Dr. Scheffman is a tenured Associate Professor of Economics at the University of Western Ontario, and a visiting staff economist at the FTC's Bureau of Economics.

747 (D. Del. 1980). No notice of appeal from the district court's judgment was filed.

This proceeding is now before the Administrative Law Judge for decision based upon the complaint, the answers, pleadings, testimony and other documentary evidence of record, proposed findings of fact and conclusions of law, and legal authority submitted by the parties. These submissions have been given careful consideration and, to the extent not adopted herein in the form proposed or in substance, are rejected as not supported by the record or as immaterial. All motions not heretofore or herein specifically ruled upon, either directly or by the necessary effect of the conclusions in this Initial Decision, are hereby denied.

Having heard and observed the witnesses and after having carefully reviewed the entire record in this proceeding, together with the proposed findings of fact and conclusions of law submitted by the parties, the Administrative Law Judge makes [5] the following findings of fact and conclusions, and issues the Order set out at the end hereof.[3]

Findings of Fact

I. IDENTITY OF THE RESPONDENTS

1. Respondent Ethyl Corporation ("Ethyl") is a Virginia corporation with its principal place of business at 330 South Fourth Street, Richmond, Virginia. In 1977, its sales were in excess of $1.2 billion, its assets were over $974 million, and its net income was approximately $78 million. Ethyl manufactures and sells lead-based antiknock compounds in the United States, with production facilities located in Baton Rouge, Louisiana and Pasadena, Texas. In 1977, its gross sales of antiknock compounds were in excess of $200 million. (Complaint ¶¶ 2–3; Ethyl Answer ¶ 2)

At all times relevant hereto Ethyl has sold and shipped lead-based antiknock compounds in interstate commerce. (Complaint ¶ 2; Ethyl Answer ¶ 5) [6]

2. Respondent E. I. du Pont de Nemours and Company ("Du Pont")

[3] The findings of fact include references to supporting evidentiary items in the record. The supporting evidence cited in each instance is not necessarily all-inclusive of the record evidence. The following abbreviations have been used:

F. - Findings of this Initial Decision followed by the number of the finding being referenced.
References to the transcript are designated by the name of the witness and followed by the page number(s).
CX.- Complaint counsel's exhibits followed by its number and the referenced page(s).
REX.- Ethyl's Exhibits followed by its number and the referenced page(s).
RDX.- Du Pont's Exhibits followed by its number and the referenced page(s).
RPX.- PPG's Exhibits followed by its number and the referenced page(s).
RNX.- Nalco's Exhibits followed by its number and the referenced page(s).

is a Delaware corporation with its principal place of business at 1007 Market Street, Wilmington, Delaware. In 1977, its sales were in excess of $9.4 billion, its assets were over $7.4 billion, and its net income was approximately $545 million. Du Pont manufactures and sells lead-based antiknock compounds in the United States with production facilities located in Deepwater, New Jersey and Antioch, California. Du Pont also has an antiknock compound blending facility in Beaumont, Texas. In 1977, Du Pont's gross domestic antiknock compound sales exceeded $200 million. (Complaint ¶¶ 4–5; Du Pont Answer ¶¶ 4–5)

At all times relevant hereto, Du Pont has sold and shipped lead-based antiknock compounds in interstate commerce. (Complaint ¶2; Du Pont Answer ¶¶ 5, 11)

3. Respondent PPG Industries, Inc. ("PPG") is a Pennsylvania corporation with its principal place of business at One Gateway Center, Pittsburgh, Pennsylvania. In 1977, PPG's sales exceeded $2.5 billion, assets were over $2.1 billion, and net income was approximately $91 million. PPG manufactures and sells lead-based antiknock compounds in the United States with its production facility located in Beaumont, Texas. PPG's gross sales of antiknock compounds were over $75 million in 1977. (Complaint ¶¶ 6–7; PPG Answer ¶¶ 6–7)

At all times relevant hereto PPG has sold and shipped lead-based antiknock compounds in interstate commerce. (Complaint ¶ 2; PPG Answer ¶¶ 7, 11)

4. Respondent Nalco Chemical Company ("Nalco") is a Delaware corporation with its principal place of business at 2901 Butterfield Road, Oak Brook, Illinois. In 1977, Nalco's sales were over $445 million, assets were over $285 million, and net income was approximately $50 million. Nalco manufactures and sells lead-based antiknock compounds in the United States, with its production facility located in Freeport, Texas. Its gross antiknock compound sales were over $75 million in 1977. (Complaint ¶¶ 8–9; Nalco Answer ¶¶ 8–9).

At all times relevant hereto Nalco has sold and shipped lead-based antiknock compounds in interstate commerce. (Complaint ¶ 2; Nalco Answer ¶¶ 9, 11)

II. LEAD-BASED ANTIKNOCK COMPOUNDS

A. *The Product, Its Characteristics And Uses*

5. There are two basic lead antiknock products: tetraethyl lead ("TEL") and tetramethyl lead ("TML"). (Tunis, 36–38; J. M. Robinson, 977–78; CX 922J, 923C) TEL has been commercially manufactured since the mid–1920's. (CX 960 O, 2002Z4) TML was first manufactured commercially in 1960. (CX 960 O) The basic compound is combined

with solvents, dyes, [7] antioxidants, and scavengers to form finished antiknock compound fluid. (Tunis, 39; CX 597E-N) The finished fluid is about 40% elemental (pig) lead. The scavengers combine with the lead in the engine's combustion chamber, so that the lead is exhausted as part of a gaseous compound instead of remaining in the engine. In most cases the scavenger consists of ethylene dichloride and ethylene dibromide. (Altman, 1326–37; Cantwell, 5211–12, 5236; Tunis, 39)

6. Lead-based antiknock compounds are added to motor fuel to improve the octane rating or performance of a gasoline engine. An octane rating is the measure of an engine's resistance to premature detonation, or "knock." (Tunis, 29) Antiknock compounds improve engine performance by slowing the combustion process of the engine to the point that the chemical energy of the fuel is equilibrated to the mechanical capability of the engine to absorb the chemical release, thus reducing "knock," or engine noise and vibration. Use of antiknock compounds allows an engine to do a given amount of work with less gasoline. (Tunis, 29–32, 37; Cantwell, 5168) Only a small amount of lead is contained in a gallon of gasoline. The cost of that lead per gallon of gasoline is minimal. (Day, 666–67; Werling, 3709; J. A. Robinson, 5385–86)

7. Antiknock compounds are usually sold as mixtures of TEL and TML. (Altman, 1382–83) However, some refiners use straight TEL; no refiner uses straight TML. (Altman, 1382–83) In 1976, Ethyl estimated that TML production constituted approximately 20% of total antiknock production. (REX 127P) Generally, TEL is more effective than TML in raising octane ratings when relatively small amounts of antiknock compounds are used. (Day, 611) The relative effect of TEL and TML on gasoline octane ratings is also a function of the gasoline blend available to the refiner. (Tunis, 42–44) TEL and TML may be combined into physical mixes, which are formed by blending the TEL and the TML without any chemical reaction. TEL and TML are more commonly combined into reacted mixes, which are formed by chemically reacting TEL and TML with a catalyst. (Tunis, 37–38; Altman, 1383) Types of antiknock compounds differ depending, *inter alia,* on the proportions of TEL and TML that are used in the physical mixes and the reaction mixes. (Tunis, 38; CX 597G, H, Q)

8. Individual antiknock compounds of a given type produced or sold by one respondent are substantially similar in composition to those of the same type produced or sold by another respondent. (Complaint ¶ 10; Ethyl Answer ¶ 4; Du Pont Answer ¶ 10; Nalco Answer ¶10; Steen, 3395) For example, the 50/50 mixture sold by Du Pont is not substantially different from that sold by Ethyl, Nalco or PPG. There are differences between a 50/50 mixture and a 75/25 mixture. (Tunis, 37–41)

9. Each respondent offers to sell a group of "standard" antiknock compound mixes. (Tunis, 182; Lockerbie, 698–700; J. M. Robinson, 1038; Altman, 1269; *e.g.,* CX 2A, 3A, [8] 4, 9, 13, 599F-G, 600–617, 1113Z22–Z33, 1142–62, 1345–49, 1360A-C) The standard antiknock compound mixes offered for sale by each respondent are listed by trade name on Appendix A, arranged so that each respondent's equivalent mixes are on the same line.

10. Ethyl, Du Pont and PPG offered several "special" or "nonstandard" antiknock compounds. (Lockerbie, 600; Fremd, 1599; Park, 1824–25; McNally, 2192–93; Werling, 3650–51) An Ethyl official testified that less than 1% of sales were nonstandard mixes. (Lockerbie, 820) The composition of special or nonstandard mixes was generally the same as each company's comparably-named standard mix with the exception of the scavenger: the special mixes contained only ethylene dichloride and had no ethylene dibromide. (Tunis, 39–40; Fremd, 1670; Werling, 3623) Special or non-standard mixes are listed on Appendix B, arranged so that equivalent mixes are on the same line.

11. [***]*

12. Lead-based antiknock compounds sold by each of the four respondents are homogenous. (Tunis, 369; CX 960Q; Complaint ¶ 10; Ethyl Answer ¶4; Du Pont Answer ¶10; Nalco Answer ¶ 10; Steen, 3395; Hay, 3803–04, 3998, 4123; J. M. Robinson, 979; Markham, 6781; Carlton, 6959–60; Mann, 5429) There is no variation in the quality or performance of the products sold by each of the four respondents. (Tunis, 369; Charles, 2510; McCormick, 2646, 2702; Solomon, 2816; Wilson, 3195; Steen, 3395; Dana, 4465; CX 960Q)

13. Lead-based antiknock compounds are dangerous to handle because organic lead is flammable and explosive (J. M. Robinson, 1181; Koehnle, 4585–86; Baker, 5757), and can cause serious illness or death if they are ingested or come into direct contact with the human body because they are highly toxic. (Tunis, 46; Altman, 1286; Baker, 5757; White, 5945–46, 5975)

B. *Substitutes for Lead-Based Antiknock Compounds*

14. Products other than lead-based antiknock compounds can be used to increase octane rating. (Tunis, 32–33) Chemicals such as toluene, benzene, and MMT, a manganese-based compound, can be added to gasoline to improve engine performance. (Altman, 1248; Park, 1907–09; McCormick, 2793–96, 2811–12; Werling, 3680; Cantwell, 5170; CX 1953N) These products have not gained commercial acceptance since they are available in only limited quantities and are more costly to use than lead-based antiknock compounds. (Altman, 1248; Park, 1907, 1924; McCormick, 2793–96; Cantwell, 5170; CX

* Throughout this document, [***] refers to *in camera* material that has been excised.

1953N) Certain [9] alcohols may also be used as octane enhancers, but they must be used in significant volumes and are substantially more expensive to use than lead-based antiknock compounds. (McCormick, 2794–96, 2811–12).

15. Octane ratings can also be increased by further refining the crude oil used to produce gasoline. (Tunis, 32–33; Altman, 1392–93; Cantwell, 5168–69) A number of different refining processes may be used, but the most important is catalytic reforming. (Altman, 1392–93; Cantwell, 5169) All of these processes, however, result in a yield loss; that is, more crude oil must be used to produce a given quantity of gasoline. (Tunis, 32–35; Cantwell, 169–70) Therefore, further refining, alone, is nearly always more expensive than adding antiknock compounds because of the increased crude oil costs. (Tunis, 33) Because each incremental unit of antiknock compound has less of an impact on raising octane ratings, at some point the cost of using additional antiknock compounds will exceed the cost of further refining. (Cantwell, 5169–70, 5185–86; RDX 332C) As the price of crude oil increased during the 1970s, the cost of reforming increased, making lead antiknock compounds relatively more valuable to refiners. (Tunis, 35, 51, 370; Day, 552–53; Cantwell, 5173–74) Witnesses uniformly testified that antiknock compounds were the most economical method of enhancing octane. (McCormick, 2634–35; Shouse, 2879; Steen, 3456–57; Fetter, 4538) Refiners had no real alternative to lead-based antiknock compounds. (Day, 554)

III. THE LEAD-BASED ANTIKNOCK COMPOUND MARKET

A. *Early History of the Market*

16. Ethyl's corporate predecessor was formed in 1924 as a joint venture of General Motors Corporation and Standard Oil Company of New Jersey to exploit a patent monopoly on lead-based antiknock compounds. Du Pont controlled General Motors at that time. (Glassman, Tr. 6015)[4] Du Pont, in 1959, was enjoined from voting its General Motors stock and subsequently disposed of its General Motors stock holdings (*see United States* v. *E. I. du Pont de Nemours and Co.,* 177 F. Supp. 1 (N.D. Ill. 1959)). Prior to 1948 Ethyl was the sole domestic marketer of lead-based antiknock compounds, which were first manufactured commercially by Du Pont at Deepwater, New Jersey. After 1938, antiknock compounds were also manufactured by Ethyl [10] in Baton Rouge, Louisiana. (Koehnle, 4645; Glassman, 6015–17) In 1962 Ethyl was purchased by the Albemarle Paper Company and all con-

[4] The history of Ethyl's formation and early relationship with Du Pont is described in detail by the district court in *United States* v. *E. I. du Pont de Nemours & Co.,* 126 F. Supp. 235, 301–13 (N.D. Ill. 1954), *rev'd on other grounds,* 353 U.S. 586 (1957).

nections with General Motors and with the Standard Oil Company of New Jersey were terminated. (Lockerbie, 851)

17. Du Pont began selling lead-based antiknock compounds in 1948 and until the early 1960's, Ethyl and Du Pont were the only domestic producers and marketers of lead-based antiknock compounds. (Lockerbie, 721; Glassman, 6016–17) The Houston Chemical Company entered the lead-based antiknock compound market in August 1961. (J. M. Robinson, 965; Fremd, 1734) Houston Chemical Company, acquired by PPG in March 1963, marketed antiknock compounds under the Houston Chemical Company name until 1978 when the Houston Chemical Company division was merged into PPG's Chemical Division - U.S. Thereafter, antiknock compounds were marketed under the PPG corporate name. (J. M. Robinson, 965–67) Nalco Chemical Company entered the market as a TML manufacturer in approximately 1964, when TML was a relatively new product. (CX 1956N, 960O; Altman, 1387)

B. *The Sellers of Lead-Based Antiknock Compounds*

18. The four respondents are the only domestic marketers of lead-based antiknock compounds. (Complaint ¶ 10; Ethyl Answer ¶4; Du Pont Answer ¶ 10; PPG Answer ¶ 10; Nalco Answer ¶10) No foreign firm has ever sold lead-based antiknock compounds in the United States. (Tunis, 218; Wilson, 3286–87, 3358–60) There are only three commercial manufacturers of each of the two basic lead antiknock products, TEL and TML. Ethyl, Du Pont and PPG each manufactures TEL (Tunis, 40–41; Werling 3630; Baker, 5763; CX 105); Ethyl, Du Pont and Nalco each manufactures TML. (Tunis, 40–41; Altman, 1383–84; Werling, 3630; Hay 3805; CX 105)

C. *The Purchasers of Lead-Based Antiknock Compounds*

19. Antiknock compounds are used exclusively by gasoline refiners and blenders. (Cantwell, 5168) Purchasers of antiknock compounds include six of the ten largest industrial corporations in the United States, *i.e.,* Exxon, Mobil, Texaco, Chevron, Gulf and Amoco (*Fortune* rankings August 1979). (CX 220M) During the period 1974–1979, there were 154 antiknock compound purchasers, with the ten largest accounting for more than 30 percent of total purchases. (REX 324A-Z17) The larger refiners operate more than one refinery; for example, Texaco operates eleven refineries (Wilson, 3233–34),[5] Exxon operates [11] five refineries (Payne, 3503),[6] and Chevron operates seven refin-

[5] Two refineries are located on the West Coast, one on Puget Sound, and one in Wilmington, California; others are located at Casper, Wyoming; Amarillo, Port Arthur and El Paso, Texas; Tulsa, Oklahoma; Lawrenceville and Lockport, Illinois; Eagle Point, New Jersey; and Baton Rouge, Louisiana. (Wilson, 3233–34)

[6] The Exxon refineries are located at Baton Rouge, Louisiana; Baytown, Texas; Bayway, New Jersey; Benicia, California; and Billings, Montana. (Payne, 3503)

eries.[7] (REX 198A) The larger oil refineries tend to be located near the antiknock compound production facilities on the Gulf, East and West Coasts. (Lockerbie, 789; J. M. Robinson, 1020–21; Charles, 2540; McCormick 2648; Wilson, 3233–34; Payne, 3516; Fetter, 4518–19) The gasoline refineries located inland tend to be smaller ones placed near crude oil production fields. (Tunis, 297; Solomon, 2823–25; Pittinger, 4556–57)

20. The respondents also were purchasers at certain times in order to meet their TEL and TML requirements. (Altman, 1333–34, 1476, 6651–53) Ethyl and Du Pont were generally self-sufficient in all types of antiknock compounds, but from time to time Du Pont purchased additional amounts of TML from Nalco. (Altman, 1333–35) PPG purchased most of its TML requirements from Nalco and some from Du Pont. (CX 1115C) PPG produced TML only sporadically (J. M. Robinson, 981), and has not produced any TML since 1977. (Baker, 5765) Nalco generally purchased its TEL requirements from PPG (Altman, 1476), and between 1974 and 1979 was PPG's second largest customer with purchases ranging between 12 to 24 million pounds annually. (RPX 1517E) Because many customers require mixtures of TEL and TML, Nalco both purchases TEL and exchanges its TML for TEL, so that it can supply mixed fluids to its customers. (Altman, 1356, 1476–77) Similarly and for the same reason, PPG both purchases TML and exchanges its TEL for TML. (Altman, 1292, 1334–35, 1356; CX 1955Z22) Respondents also swapped needed products on a pound for pound basis. (Altman, 1478, 6652–53)

21. Under another arrangement unreacted TEL and TML were sold to refiners who, pursuant to several different financial arrangements, had the antiknock compounds shipped to another respondent, which supplied additional antiknock compounds, reacted them, and had the completed mixes shipped to the customer for use. This procedure, by which a refiner purchased antiknock compounds from one respondent and had them shipped to another respondent, is sometimes referred to as a "multileg transaction." (Altman, 1423, 6643–44) [12]

D. *How Lead-Based Antiknock Compounds are Sold and Shipped*

1. General Character of Sales

22. Testimony by respondents' officials estimated that Ethyl had sales agreements with roughly half of its lead antiknock customers (Gill, 4720); Du Pont sold about half of its lead antiknock volume pursuant to sales contracts (Tunis, 357–58; McNally, 2116); PPG sold 15%–20% of its total lead antiknock sales volume pursuant to its

[7] The Chevron refineries are located at Richmond, El Segundo and Bakersfield, California; Salt Lake City, Utah; El Paso, Texas; Perth Amboy, New Jersey; and Pascagoula, Mississippi. (REX 198A)

standard form contract (Fremd, 1698–1700); and Nalco had between 30 and 40 lead antiknock customers, but it had contracts with fewer than 10 of these. (Altman, 1255–56) There were other contractual arrangements between respondents and their customers. For example, there were contracts of a continuing nature between PPG and Shell (CX 1167), PPG and Amoco (CX 1165; J. M. Robinson, 1090–91), PPG and Mobil (RPX 7), Nalco and Chevron (RNX 1289), Nalco and Union (RNX 1583), and Ethyl and Exxon (CX 1792).

23. Contracts used by the respondents with their antiknock customers were usually signed to cover a year's requirements and they called for a fixed minimum/maximum quantity to be purchased. (REX 6) The minimum amounts stated in the sales agreements were not regarded by either the antiknock suppliers or their customers as firm commitments and the volume requirements were not rigidly enforced. (Tunis, 357; J. M. Robinson, 1025–26; McNally, 2116, 2228–29; Charles, 2605; McCormick, 2718; Steen, 3493; Dana, 4474–76; Fetter, 4526–27; J. A. Robinson, 5349; *see* CX 915, 1267A, 1268A, 1549B; REX 6A-Z136) For instance, PPG's contracts were "more a production forecast than a rigid contract." (J. M. Robinson, 1026) Du Pont used its contracts to get estimates of amounts the customer would purchase in a calendar year. (Tunis, 357) As a result, customers often failed to purchase the minimum amount specified in their antiknock contracts. (*Compare* REX 6 with REX 324) Respondents, however, were alert to remind the refiners that they were not purchasing the amounts specified in the contracts, and continuous sales efforts were directed at assuring that the supplier would get the business which had been committed under the contracts. (RDX 193; RNX 1545–48, 1539) Some refiners awarded business to each supplier on a percentage basis. (Lockerbie, 795) These percentages, like the estimated poundage specified in the contracts, were not rigidly adhered to. (Tunis, 357; CX 1100D; RNX 1543, 1546–47; RDX 10B) Respondents' sales representatives, however, made every effort to assure that each supplier got its promised percentage or more. (CX 1075B; RNX 1543–45; RDX 70A, 193) Refiners were willing to commit significant volumes of business in exchange for direct price concessions. (Miller, 1992–94; McCormick, 2648–54; Solomon, 2814–15; Wilson, 3197–201; Payne, 3522; CX 1584B, 1588B) Nalco had a small sales force which made frequent customer contact more difficult. (CX 1956L; Altman, 1391–92) Ethyl, **[13]** Du Pont and PPG with larger sales forces were able to have frequent customer contact, even every day. (Tunis, 885; REX 295D)

24. [***]

25. Refiners have limited facilities for storing lead antiknock compounds and they maintain inventories of about 10 days supply. (J. M.

Robinson, 1078; Charles, 2525; Fetter, 4516) They also do not wish to store large quantities of lead antiknocks because of their toxic and explosive nature (Pittinger, 4571–72), and the cost associated with maintaining a large inventory. (Charles, 2525; Solomon, 2828, 2833; McCormick, 2664–65) Therefore, refiners rely on regular delivery from respondents to assure a supply of antiknock compounds. (J. M. Robinson, 1078) Under the contractual or percentage arrangements which the respondents have with their customers, a large number of individual transactions take place. For instance, in 1977, Ethyl alone had 4,856 separate transactions with its customers. (CX 32A-Z117)

26. Multiple sources of supply are also important to lead antiknock customers. (Charles, 2547; Solomon, 2853) Therefore, almost all the lead antiknock customers buy from at least two suppliers and some buy from all four. (Tunis, 241–42; Park, 1862, 1876; Charles, 2546–47, 2569–71; McCormick, 2636–37, 2699, 2754–55; Wilson, 3259; Shouse, 2869, 2871; Dana 4465; Fetter, 4506–07; Pittinger, 4550; J. A. Robinson, 5349; RDX 324; REX 324A-Z17)

27. Refiners often would increase or decrease an individual supplier's share of their requirements. (REX 324A-Z17; CX 882; RPX 1335). Refiners exerted pressure on lead antiknock suppliers for lower prices, pressing for explanation or recission of price increases (CX 1175F, 1225, 1229, 1231), seeking competitive bids (CX 1228; Wilson, 3202–03; Steen, 3392–94, 3404; F. 28–30, 152–155), threatening to shift business (CX 1231A-B), and negotiating for price discounts or other preferential treatment. (Wilson, 3203; Steen, 3404; CX 1310A, 1312, 1949; F. 156) Refiners frequently sought below-list prices. (J.M. Robinson, 1055) Refiners awarded additional business as a reward to a supplier who undercut a rival's list [14] price increase and as punishment to the supplier which first raised list prices. (Tunis, 398–99, 450; Wilson, 3305; RNX 1526; RPX 50B) Respondents have recognized that their large refinery customers have exerted pressure on suppliers to keep prices lower and competitive. (Lockerbie, 827–28; Glassman, 6100–01)

2. Bid Requests

(a) *Exxon*

28. Exxon solicited bids in 1975 for its 1976 antiknock compound business. (Steen, 3379–80, 3401–07) Each respondent was notified of the cancellation of existing contracts and the request for innovative pricing for Exxon's 1976 antiknock requirements. (CX 914, 1094A-C, 1413, 1745, 1949; Altman, 1369–71) Exxon requested pricing proposals such as an F.O.B. manufacturing-site pricing option, a volume-related discount option, an option to evaluate services separately, a weight

adjustment on tankcar loads, and a long-term contract arrangement with or without price escalators. (J. M. Robinson, 1059; Steen, 3396–97, 3401–07, 3423–36, 3480; Payne, 3511–18, 3522–28, 3539–40; CX 620, 631, 914, 122A, 1313, 1323, 1746, 1757, 1914, 1932A, 1949) Mr. W. C. Steen, a buyer for Exxon, testified that his "primary objective [in soliciting bids] was to try to create a competitive atmosphere" similar to that existing in the market for other chemical products that Exxon purchased. (Steen, 3403) Nalco, PPG, Ethyl and Du Pont responded to the bid request with their list prices. (Altman, 1369–71; Steen, 3418–20; CX 634, 636A-B; *see* F. 152)

In the fall of 1976, Exxon again requested bids from each of the respondents for its 1977 antiknock compound business. (Steen, 3423–27; CX 631A-B, 632, 1103, 1222A-B, 1373, 1750, 1751, 1956Z87) Du Pont, Ethyl and Nalco responded with list price bids. (CX 630; Altman, 1373; Miller, 1959–60; Steen, 3396, 3495) PPG, which had been excluded from Exxon's 1976 antiknock business, responded with a list price bid and an offer of a special service, which Exxon declined. (Steen, 3424–28; CX 1222; RPX 1517C; *see* F. 152)

Exxon solicited bids again late in 1977 for 1978 antiknock supplies. Again all respondents responded with list price bids. (Altman, 1373; Steen, 3428, 3431; CX 1320A-C, 1755; *see* F. 152)

In 1978, Exxon requested bids for its 1979 antiknock business, this time requesting bids on its entire needs, or simply its needs at the Baytown refinery, the world's largest refinery, located in proximity to antiknock facilities of each respondent. (Payne, 3522–27, 3530; Bonner, 5880) Each producer again quoted list prices with no separate quotation for Baytown. (Payne, 3528–31, 3538; CX 395A-C, 396A-B, 492H, 1081A-E, 1418A-B, 1571A-G) PPG's reply went beyond previous **[15]** responses, but was rejected "because no price concession was made." (Payne, 3531–37; CX 1273; *see* F. 152)

(b) *Texaco*

29. In 1975, Texaco requested bids for its business from each of the respondents. (CX 878A-C, 879, 1287A-C; *see also* Wilson, 3196–203, 3229–32; REX 948) The Texaco request asked for the option of a volume discount and a price exclusive of all services or, in the alternative, services unrelated to health and safety. (Wilson, 3192–98, 3327–28, 3245; CX 896, 898, 1194, 1713C-D) Each respondent ultimately responded to Texaco with a list price quotation. (Tunis, 426–29; Lockerbie, 765–66, 773–75, 778, 851; CX 903A-B, 1287A-C, 1713A-D); *see* F. 153)

(c) *Sun*

30. In 1973 and 1975, Sun requested bids for its antiknock com-

pound requirements from each of the respondents. Sun solicited volume discounts, F.O.B. manufacturing-site pricing, and pricing exclusive of services. (McCormick, 2648–54; CX 882A-B, 899, 1227, 1383, 1384, 1584, 1588, 1741, 1742A-B) Each respondent replied to the Sun requests by quoting list prices. (Tunis, 256–69; Lockerbie, 781, 851; McCormick, 2651–52, 2653, 2656–58; CX 1228A-B, 1385, 1584A-B, 1587A-B, 1588, 1692, 1691A-B, 1733; *see* F. 155)

3. Shipping

31. Because of their high toxicity, lead-based antiknock compounds require expensive tankcars and storage tanks specially designed and insulated to assure maximum protection against explosion or exposure to humans. Such tankcars and storage tanks cannot be used for purposes other than the transportation and storage of lead antiknocks. When no longer used for these purposes, such containers and any attachments which had contact with lead fluids are decontaminated, cut up and destroyed. (Tunis, 2197; Werling, 3697; White, 5961–62, 5973) Some small amounts of lead antiknocks compounds are shipped in 55–gallon drums and tanktrucks. (Gill, 4778; Krippahne, 5052)

Lead antiknock compounds are shipped in railroad tankcars owned or leased by each respondent. (Krippahne, 5148; Werling, 3697) In a few instances tankcars are "trip-leased" to a specific customer, which means that the car is loaded by a respondent and sent to a particular customer, unloaded, returned to the supplier, and loaded again for the same customer. The car at times will not be unloaded promptly, but held at the refinery. Under the trip-lease arrangement, no demurrage charge is assessed against the refiner. (Altman, 1545, 1547)

Respondents also utilize rail side tracks around the country where loaded tankcars are maintained as a storage depot [16] to enable respondents to respond quickly to a customer's request for lead antiknock compounds. (Tunis, 262; Altman, 1293; Krippahne, 5084, 5086)

IV. MARKET CHARACTERISTICS

A. *Production Methods and Costs*

32. Ethyl, Du Pont and PPG utilized similar production methods involving chemical reactions with sodium and lead to produce lead-based antiknock compounds. (Tunis, 86; J. M. Robinson, 1110; Altman, 1308–09) Lead is combined with sodium to form a lead-sodium alloy, which is then combined with ethyl cloride to form TEL and sodium chloride. The TEL produced is then washed, aerated and filtered, and eventually mixed with scavengers and other additives. (Baker, 5754; CX 1115C-D) TML is made in a similar manner except

that methyl chloride is used instead of ethyl chloride. (Baker, 5756) Nalco uses a different production process from that used by the other respondents. (Altman, 1309) Nalco's system produces lead in solution in an electrolytic cell and uses magnesium rather than sodium as a catalyst. (Altman, 1401; Carlton, 7068) Nalco developed this process through a joint research effort with Amoco which began in 1959. (RNX 1586) Du Pont produced TEL by each of the batch and continuous processes, principally the continuous one, and TML by the batch process. (Tunis, 85; CX 1955K) Ethyl and PPG produced antiknock compounds by the batch process only. (CX 1954N; J.M. Robinson, 1081–82) Nalco's manufacturing process was a continuous one. (Hay, 3805; Carlton, 7069–71)

33. The largest part of the cost of manufacturing lead antiknocks consists of raw materials. (Gill, 4732) Most—about 80 percent—of the costs of producing lead antiknocks are variable. (Gill, 4732–33; Baker, 5805–06) For instance, pig lead prices (pig lead constitutes approximately 40 percent of the finished antiknock fluid (F. 5)), rose 7 cents a pound in 60 days in 1978. (RPX 1400) Ethyl produced a portion of all the raw materials it needed to manufacture antiknocks, except for pig lead. (CX 1733B, 1747A, 2002–Z74; *see* Fremd, 1609) Du Pont produced all its necessary raw materials except for pig lead and scavengers. (CX 597N; *see* Fremd, 1609–10) The only raw material produced by PPG was ethyl chloride. (CX 115C; Fremd, 1609–10) Unlike either Du Pont or Ethyl, PPG also had to buy sodium. The sole source for sodium during the 1970's was Du Pont; Ethyl would not sell sodium to PPG. (CX 1279B; Fremd, 1722–23, 1610) Nalco did not produce any of the raw materials it needed to produce antiknock compounds. (CX 1330A-B; Fremd, 1610)

34. Because Nalco uses an electrolytic process, unlike other respondents, it had different [***] production costs. (Tunis, 86–87; Altman, 1308–09; RNX 714A-B, 735A-C; **[17]** RDX 135H) [***] Between 1973 and 1977, the cost of magnesium, a component of Nalco's process, escalated faster than the cost of sodium, which was used by the other manufacturers. (Altman, 1310, 1446; RNX 258, 714A-B, 735A-C, 747A-K) Nalco's cost comparison memorandum prepared for customers in April 1977, for example, compared Nalco's costs and profits for the years 1973 and 1976. During the intervening period Nalco's raw material costs increased 108% and the average selling price of antiknock increased 61%. (RNX 11B-C, 258) Between 1973 and 1977, the price of magnesium increased 173%. (RNX 12D) Between 1974 and 1977 various utilities, also a significant cost with Nalco's electrolytic process, increased 320% (electricity) and 341% (steam). (RNX 12E)

35. Ethyl, Du Pont and PPG could generally estimate the manufac-

turing costs of each other because they used similar processes. The respondents also were aware that Nalco's raw material and manufacturing costs were different from their own, [***] (Tunis, 85–87; Altman, 1308–09; Fremd, 1609–10; McNally, 2284–85; Baker, 5835–36; CX 1952Z100–Z101; RDX 135H; RNX 1198) TML, Nalco's principal product, was also more expensive to manufacture than TEL. (Fremd, 1748–49)

36. Du Pont's continuous process was more efficient and less costly to operate than any available batch process based on the lead-sodium reaction that Ethyl, PPG and Du Pont employed. (Tunis, 85–86; RDX 135H, CX 923I) Du Pont believed its manufacturing costs were also less than Nalco's manufacturing costs, but on a par with Ethyl's. (Tunis, 84–87; Altman, 1308–11; CX 2211)

37. Since five of the largest refiners owned Octel, a foreign antiknock compound producer, it can be assumed that these refiners had a good understanding of the basic costs involved in the antiknock compound manufacturing process. (*See* F. 104) Ethyl stated that the large refiners were able to accurately calculate the manufacturing costs of lead antiknock compounds. (CX 394Z2)

B. *Production Capacity*

1. Ethyl

38. Ethyl had two lead antiknock compound manufacturing facilities: one in Baton Rouge, Louisiana and one in Houston, Texas. (CX 591I-L, N-Z13; F. 1)

Ethyl's manufacturing department estimated the following production capacity for all lead-based antiknock compounds at these facilities: **[18]**

Year	Baton Rouge	Houston	Total
1974	346	210	556
1975	320	200	520
1976	320	200	520
1977	310	165	475
[***]	[***]	[***]	[***]

(CX 591K; Day, 594, 646).

Ethyl's annual production in its U.S. facilities in 1974-1978 and the first five months of 1979 was:

Year	Total Production
1974	511 million lbs.
1975	388 million lbs.
1976	433 million lbs.
1977	432 million lbs.
[***]	[***]

(CX 591J, Z9-Z11).

Ethyl had the following excess capacity in the years 1974-1979:

1974	45
1975	132
1976	87
1977	43
[***]	[***]

These figures represent the difference between Ethyl's actual production and its nominal capacity. (CX 591Z9-Z11; REX 334B, 335B)

Ethyl had available autoclave capacity equal to 165 million pounds per year in three separate closed facilities at Baton Rouge. These facilities were F building, with an annual capacity of 45 million pounds, and A and E buildings, each with 60 million pound annual capacities. (REX 335B; Day, 582–84) Each of these facilities was initially closed in the mid–1960's and had its equipment drained, washed and covered with a nitrogen blanket for protection. (CX 1954Q-X; Day, 578–821) F building was reopened in 1967 and again in 1973. (Day, 580–81; REX 335B) The 1973 reopening cost $700,000. (CX 1954Z13, Z26) In 1974–75, F building was shut down (CX 1954Z15), and reopened in 1976. (CX 1954Z21) A and E buildings remained idle and were begun to be dismantled in 1977 and 1978. (CX 1954U)

Between 1974 and 1978, the Baton Rouge capacity was decreased by 95 million pounds from 375 million to 280 million pounds because Ethyl did not install environmental equipment for F furnace. (REX 335D-G, 336D-E; CX 1954Z23–Z24) In late 1975 Ethyl estimated that that year's sales would be "roughly [19] 75% of peak sales a few years ago" and that each industry member would have 25% excess capacity the following year, 1976. (CX 394K, Z2; Day, 591)

Ethyl's capacity to produce lead antiknock compounds was reduced from 1975 to 1978 in part because of limitations imposed on the operation of its furnaces by the Louisiana Air Control Commission and the Texas Air Control Board, and because the federal clean air standards required the installation of high energy scrubbers and tails gas burning systems. (Day, 576, 656–57; REX 335F-I; CX 1954Z3, Z5, Z21–Z24, Z27–Z28) However, through restoration and debottlenecking capacity at its Houston facility, Ethyl could have increased annual production capacity there by 75 million pounds, from 165 to 240 million pounds, at a cost of $10 million. (CX 497E; Day, 593–98)

On July 1, 1980, Ethyl closed its Houston lead antiknock compound manufacturing plant. (Day, 622–23)

2. Du Pont

39. Du Pont had two lead antiknock compound manufacturing plants during the period 1974–1979, one located in Deepwater, New Jersey, and one in Antioch, California. Du Pont also had an antiknock compound blending facility at Beaumont, Texas. (Tunis, 40–41, 303–04; F. 2)

In 1975 Du Pont closed two plants. The first, a TML plant, with a 71 million pound annual capacity, was closed down on January 1, 1975. It could have been kept operational at a cost of $750,000 to comply with environmental regulations. (CX 1847D, 1955P-Q) The second plant, with a 65 million pound annual capacity, was closed in April 1975 but reopened in August 1976. (CX 1847D, 1955W-Y) The second plant then was closed about a year later, in September 1977 (CX 1847E), and maintained in "standby" condition. That building was taken off standby (but kept intact) in March 1978. (CX 1955Z7–Z8) These two plants represented 25% of Du Pont's total capacity. (CX 969L) To restore one of the units to active production would cost approximately $2 million and would take about one year. (CX 1955Z30)

Du Pont believed that demand was substantially less than the industry's installed production capacity. (Tunis, 88–89) In early 1974 Du Pont projected there would be "excess manufacturing capacity industrywide" as the market declined (CX 920H; Tunis, 91–93), and by late 1974 or early 1975, Du Pont believed there was already excess industry capacity and was concerned that it would increase because of reduced demand. (CX 924Q, 960D; Tunis, 94–95)

At the end of 1977, Du Pont had had "excess production capacity available" for "the past several years." (CX 926J, 1653A; McNally,

2139) This excess capacity continued until at least mid-1978. (CX 1113Z75) Du Pont had 100 and 80 million [20] pounds of excess operational capacity on an annualized basis for 1978 and 1979, respectively. (CX 1113Z92-Z94) As Du Pont saw demand declining it decreased its operational capacity. (Tunis, 89-90, 93; CX 922H-I, 923B, 969L, 1955K-R, W-Z) In early 1979, Du Pont announced that it would close its lead antiknock compound production facility in Antioch, California, in October 1980, an advance notice of almost twenty months. (CX 1955Z28)[8]

In its "Organic Chemicals Department Annual Report" dated December 1975, Du Pont noted that its sales volume was 84 percent of its available capacity in 1974 and 94 percent in 1975. (CX 922K) In the annual report dated December 1976, Du Pont noted that it had used 89 percent of its available capacity in 1975 and 99 percent in 1976. (CX 923E)

3. PPG

40. PPG has one lead antiknock production facility at Beaumont, Texas, where it has produced lead antiknock compounds since 1961. (J. M. Robinson, 965; F. 3) PPG's maximum capacity to produce was rated at about 113 million pounds of TEL. To meet that rate, all 24 autoclaves in the West Plant and 8 autoclaves in the East Plant had to operate at maximum output and could produce TEL only. PPG could produce about 3.5 million pounds of TML by switching the two specially adapted autoclaves from TEL production to TML production; but that resulted in a direct loss of over 2 pounds of TEL capacity for every pound of TML production, and an additional loss of production for about a week from the two autoclaves being switched to TEL. As a result, PPG's maximum rated capacity to produce TEL and TML together was approximately 105 to 106 million pounds of TEL and 3.5 million pounds of TML. (Baker, 5756, 5762-66, 5829-33)

From 1974 to 1976, PPG did not have any significant excess capacity. (J. M. Robinson, 1078) From June 1976 through the first few months of 1977, PPG expected 100% production. (RPX 1341, 1345; Baker, 5829) A PPG market analysis indicated that PPG operated at 86% capacity in 1977, 100% in 1978, and 88% in 1979. (CX 1278G; Baker, 5829) Both production and capacity were reduced in 1978, and PPG terminated lead antiknock production in its 8 East Plant autoclaves in August 1978. (J. M. Robinson, 1015; Baker, 5829) In response to unexpectedly high demand toward the end of 1978, however, the East Plant was put back in operation beginning in late April 1979. Both sodium and lead were in short supply in 1979, delaying and

[8] A copy of an article in *The Wall Street Journal* dated May 1, 1981, attached to Du Pont's Reply Brief, states that Du Pont plans to close its antiknock facilities at Antioch, California, by August 1, 1981.

raising the [21] cost of the East Plant start-up. (RPX 1429; Baker, 5775–76) The East Plant was closed permanently in December 1979. (Baker, 5776) [***]

PPG has not, since approximately 1973, authorized spending for plant modernization or improvement, except with regard to environmental protection. (Baker, 5772)

4. Nalco

41. Nalco has produced lead antiknock compounds at one facility in Freeport, Texas, since it entered the market in 1964. (Altman, Tr. 1401–02, 1477; F. 4) Its production has been limited to TML. (Altman, 1477)

In the latter part of the 1960's Nalco expanded its production capacity 50%. (Altman, 1401–02) Nalco's daily capacity during the 1970's was at least 375,000 pounds, or approximately 137 million pounds per year. (Altman, 1398–99, 1517–18; CX 1527H) Nalco's capacity and actual production were as follows:

	1974	1975	1976	1977	1978	1979[9]
Capacity	137	137	137	137	[***]	[***]
Production	119[10]	105[11]	118[12]	122[13]	[***]	[***]
Excess Capacity	18	32	19	15	[***]	[***] [22]

Nalco's production decreased in late 1974 and early 1975 because of a raw material shortage (methyl chloride) which resulted in lost production. (RNX 17A-B, 140A-B, 353) Nalco returned to an increased percentage of production capacity through 1977. (Altman, 1312–14, 1400) Nalco has not shut down any production facilities, although it encountered reduced production capability because of state and federal pollution requirements. (Altman, 1317, 1402)

C. *Demand*

1. Inelasticity of Demand

42. Price elasticity or elasticity of demand measures the responsiveness of the quantity demanded of a particular product to the change in the price of that product. If demand is elastic, revenue decreases when price increases; and if demand is inelastic, revenue increases when price increases. When revenue stays constant at higher or lower

[9] Capacity and production figures for the first four months have been annualized.
[10] CX 1780D. Annual production of lead-based antiknock compound fluid is calculated by dividing the annual lead alkyl produced by the percentage it represents in the finished fluid.
[11] CX 1779A-X.
[12] CX 1778A-X.
[13] CX 1777A-X.
[14] CX 1776A-X. [Referenced data *in camera.*]
[15] CX 1775A-H. [Referenced data *in camera.*]

prices, demand is said to have unitary elasticity. (Glassman, 6255–56; Markham, 6781–82)

The demand for antiknock compounds is inelastic. (Hay, 3921, 3998, 4001; Mann, 5429; Glassman, 6257; Markham, 6782–84, 6832; Carlton, 6960) Because antiknocks are more efficient and economical than other methods of increasing the octane rating of gasoline, increases in price would have resulted in relatively small reductions in consumption. (Lockerbie, 742; Cantwell, 5205–06; RDX 332H-I; CX 1953Z279–Z80; F. 14–15) A study by Pace Engineering concluded that in 1975 lead antiknock compound prices could be increased 20% from 1974 levels without causing a reduction in consumption. (Tunis, 62–63; CX 972B) In the mid–1970's, Ethyl calculated that each 10% increase in price would result in only a 4% volume or consumption reduction. (CX 1953–Z279–Z80)

2. Decrease in Demand

43. Most automobiles manufactured since 1975 have required engines with catalytic converters which cannot burn leaded gasoline. (Tunis, 46–48; Werling, 3608) As older, lead-tolerant vehicles are retired, the market for lead-based antiknock compounds will shrink. (Werling, 3608) The following table by Du Pont indicates predicted sales of leaded gasoline for the remainder of this decade:

	Sales of Leaded Gasoline (billion gallons)	Total Gasoline Market (billion gallons)
1981	48.5	107.6
1985	26.3	103.2
1990	15.4	92.0

(Cantwell, 5233; CX 2007G). [23]

Present EPA lead-based antiknock compound usage regulations apply on a poolwide basis. The permissible amount of lead is a function of total amount of gasoline sold and as the unleaded volume grows, lead concentration in leaded gasoline will increase. (Werling, 3608–09; Cantwell, 5196) Domestic demand for antiknock compounds is estimated to decline to 400 million pounds for 1980 and is projected to be 300 million pounds in 1981. (Koehnle, 4628–29; CX 1219E) The market may stabilize in the 300 million pounds yearly range if heavy-duty trucks are exempt from EPA lead restrictions. (*See* F. 45)

During the period 1974–1979, there was some uncertainty in the demand for lead antiknocks. (Robinson, 1013–16; CX 201A, 1952Z51, Z59, 199G) In 1974 and 1975, the antiknock producers generally believed demand would decline because of EPA regulations. (CX 199A, E, 201B, 394Z2, 920I, 922J, 923C, 1928F) Demand measured in terms of sales of fluid pounds did decline between 1976 and 1979 by approximately 24%. (CX 406R, 1931B, D; REX 324Z17). The decline between 1979 and 1980 (on an annualized basis) was approximately 42%. (REX 324Z17)

D. *Government Regulations and Their Impact on the Market*

44. The EPA, pursuant to the 1970 amendments to the Clean Air Act, promulgated regulations to reduce the quantity of hydrocarbon emissions from automobiles, beginning with the 1975 model year (Pub. Law 91–604 Section 6(a), 84 Stat. 1690, 42 U.S.C. 1857 f–1(a), (b) (1976)). To meet the requirements of these regulations the automobile manufacturers were required to install catalytic converters on all new cars built beginning in 1975. Such converters require the use of unleaded gasoline. The regulations required all gasoline refiners to market at least one brand of lead-free gasoline, beginning in July 1974 when 1975 model cars and light trucks were first marketed. (40 C.F.R. 80.22 (1979)) These regulations were upheld in *Amoco Oil Co.* v. *EPA,* 501 F.2d 722 (D.C. Cir. 1974).

The EPA issued general lead phasedown regulations in November 1973. The initial regulations contemplated that the permissible amounts of lead in motor gasoline would be reduced in five steps ending in January 1979 when the allowable standard would be .5 gram of lead per gallon of finished gasoline in the total gasoline pool. (38 FR 33,734 (1973)) However, there were delays in the anticipated implementation of the phasedown regulations:

November 28, 1973	EPA promulgated its final regulations requiring that the amount of lead in the total gasoline pool be phased down. These regulations were to take effect on January 1, 1975, and the final step in the phasedown was to take place January 1, 1979, when **[24]** the pool would contain .5 gram of lead per gallon. (38 FR 33,734)
December 20, 1974	The United States Court of Appeals ordered the regulations set aside, with one judge dissenting. The majority and dissenting opinions were issued January 28, 1975. (*See Ethyl Corp.* v. *EPA,* 541 F.2d 1, 11 (D. C. Cir. 1976) (en banc).)
February 20, 1975	EPA formally suspended enforcement of the phasedown regulations as a result of the panel's decision. (40 FR 7,480)
March 17, 1975	EPA's petition for rehearing en banc was granted and panel decision was vacated. (*See* 541 F.2d at 11.)
April 18, 1975	EPA announced that it would continue suspension of the phasedown regulations pending the en banc decision. (40 FR 18,217)
May 20, 1975	The case was reargued en banc. (541 F.2d 1)
March 19, 1976	EPA regulations were upheld by the Court of Appeals en banc. (541 F.2d 1 (D.C. Cir. 1976))

March 24, 1976	EPA lifted suspension of the phasedown regulations with regard to certain reporting requirements. General implementation continued to be suspended pending the outcome of requests for Supreme Court review. (41 FR 13,984)
June 14, 1976	*Certiorari* was denied by the Supreme Court. (426 U.S. 941 (1976))
July 2, 1976	EPA stated that it would put the original phasedown schedule into effect unless comments were received demonstrating that compliance would not be feasible. (41 FR 28,352-53) **[25]**
September 24, 1976	EPA adopted a new schedule for implementation of phasedown regulations. On January 1, 1978, the pool average was to be .8 gram per gallon and on October 1, 1979 it was to be .5 gram. A refinery could receive a suspension of the .8 gram requirement, however, if it showed that it was making good faith efforts, such as procuring necessary equipment, to meet the October 1, 1979 deadline. (41 FR 42,675-77)
January 1, 1978	EPA's .8 gram per gallon standard was implemented. Refiners were permitted a suspension of the .8 gram requirement if good faith effort was being made to meet the .5 gram requirement scheduled for October 1979. Refiners with over 75% of the nation's gasoline refinery capacity were granted suspensions. (44 FR 53,144)
June 8, 1979	EPA suspended the .8 gram of lead per gallon requirement for all refiners for the period June 8, 1979 to October 1, 1979. In addition, EPA proposed delaying the October 1, 1979 effective date for the .5 gram of lead per gallon on a poolwide basis for one year because of fears of gasoline shortages. Refiners would be able to continue the general .8 gram standard (or more in certain circumstances) after October 1979 if certain requirements were met. EPA also noted that it might suspend some of the prerequisites for qualifying for the .8 gram per gallon standard. (44 FR 33,116-18)
September 12, 1979	The regulations proposed on June 8, 1979 were adopted (44 FR 53,144). A minimum poolwide lead usage of .8 gram of lead per gallon was permitted in each of the first three quarters of 1980 when all prerequisites for qualification were suspended. (45 FR 14,854-55; 45 FR 37,195-96; **[26]** 45 FR 55,134-35) Certain small refiners were allowed to use up to 2.65 grams of lead per gallon. These small refiner regulations are effective through at least October 1, 1982. (42 U.S.C. 7545(g) (1)-(4) (1979); 44 FR 46,275)
October 1, 1980	The 0.5 gram per gallon general standard went into effect. (40 C.F.R. 80.20 (1979)) Small refiners continue to receive the waivers noted above.

45. EPA has issued regulations which require a reduction in the emission levels of trucks as well as of automobiles. Emissions of light trucks were generally governed by regulations similar to those applicable to automobiles. These regulations were effective in July 1974 when 1975 models were first marketed, and today most new light trucks use catalytic converters that do not tolerate leaded gasoline. (40 C.F.R. 86.077–8 (1979)) Regulations affecting heavy-duty trucks were first proposed in February 1979 and, after a change in the implementation schedule, were to be effective with trucks manufactured for the 1984 model year. (44 FR 9,464; 45 FR 4,136) It was expected that manufacturers would install catalytic converters to meet those heavy-duty truck requirements. (44 FR 9,471) In April 1981, however, the EPA gave notice of its intention to revise permissible emission levels for heavy-duty trucks so that they would not have to use catalytic converters and, therefore, be able to run on leaded gasoline. (46 FR 21,628) Implementation of heavy-duty truck regulations are currently the subject of litigation in the Court of Appeals for the D.C. Circuit. (*See Motor Vehicle Manufacturers Ass'n* v. *EPA,* No. 80–2410 (D.C. Cir., filed November 20, 1980); *Motor Vehicle Manufacturers Ass'n* v. *EPA,* No.80–1290 (D.C. Cir., filed March 13, 1980)).

E. *Market Shares and Firm Size*

1. Concentration

46. The respondents are the sole domestic producers of lead-based antiknock compounds. (F. 18) Using the four-firm concentration ratio, which is the share of total sales accounted for by the four largest firms in the industry, the lead-based antiknock compound industry has the highest possible concentration—100%. (Hay, 3783–84; Markham, 6776–77; *see also* CX 1975I) [***] **[27]**

2. Sales by Respondents

47. From 1961 to 1974, respondents' shares of the entire lead antiknock market changed. PPG entered the lead antiknock market in 1961. (Fremd, 1734) Between 1961 and 1974, PPG's share of the lead antiknock market went from 0% to approximately 17%. (REX 324 Z17) Nalco entered the lead antiknock market in 1964. (Altman 1387) Between 1964 and 1974, Nalco's share of the lead antiknock market went from 0% to approximately 12%. Thus, between 1961 and 1974, Ethyl's and Du Pont's combined share of the domestic antiknock market fell from 100% to approximately 70%. (REX 325Z17)

48. Between 1974 and the first six months of 1980, the respondents made the following total sales of antiknock compounds to refiners measured by fluid pounds, as shown on Appendix C.

3. Shift in Market Shares of Individual Customers

49. Refiners often shifted business among respondents. Between 1974 and 1980, each respondent's share of some lead antiknock customers' purchases varied substantially. [***] **[28]** [***]

Stability of market shares is one index of the amount of competition in an oligopoly. Volatility of market shares is evidence of competition among rivals for the business of individual customers, while market share stability is consistent with limited competition. (Glassman, 6078–80; Markham, 6801–03, 6874)

F. *Barriers to Entry*

50. PPG entered the lead-based antiknock compound market in 1961. The original company, Houston Chemical Company, negotiated supply contracts with Amoco and Mobil prior to market entry. According to one PPG official, Houston Chemical "basically needed the Amoco contract and the Mobil contract to arrange financing for the company, in other words, to get the company started as such." (J. M. Robinson, 1004, 1092–93; *see also* Glassman, 6018) Houston erected its antiknock manufacturing plant next to Mobil Chemical Company. The Mobil arrangement provided for PPG to purchase ethylene from Mobil Chemical and Mobil to purchase antiknock compounds from Houston. (Robinson, 1009–10) Nalco entered the lead-based antiknock compound market in 1964, with an electrolytic process developed as a result of a joint research effort with Amoco which began in 1959. (RNX 1586A-Y; Altman, 6624–25) Amoco also provided Nalco with technical and marketing information to help Nalco enter the market. (RNX 1587A-K)

From 1964 throughout the 1970's there were no new entrants into the lead-based antiknock compound industry and the possibility of entry seemed low. (Tunis, 218–20, 368–70; Hay, 3784, 3924; Mann, 5431–32; Markham, 6779; Carlton, 6960) Government regulation of lead-based additives to gasoline has made it unlikely there will be future entrants or expansion by current producers. (Day, 549–51, 554, 631; Baker, 5765; Markham, 6779; Carlton 6960; CX 922J, 923C, 960P) **[29]**

V. PRICING

A. *Generally*

51. Each respondent sells its standard antiknock compounds pursuant to a list price which includes the cost of delivery. (F. 123; CX 600–617, 1646–1647, 1658–1660) The lead-based antiknock compound industry was subject to price controls between August 15, 1971 (36 FR 15,727, *et seq.*) and February 1, 1974. (39 FR 4,064, *et seq.*) The first

industry-wide price increase after the elimination of price controls on this industry was announced in early February 1974. (CX 342, 1970A; F. 53)

B. *TEL and TML Pricing*

52. In 1960 when TML was first sold, it was sold at a list price which was approximately 30% higher than the list price of TEL. During the period from 1960 to 1974 the TEL price rose from 35¢ per pound to 41¢ per pound, while the TML price declined from about 48¢ per pound to 43¢ per pound. (CX 1824B) As of May 25, 1978, TEL was priced at 73.62¢/lb. and TML was priced at 76.14¢/lb. On May 26, 1978, Ethyl initiated a list price reduction of TML, reducing its list price by 2.52¢/lb. to 73.62¢/lb. (Fremd, 1737–38, 1743; McNally, 2232–33; CX 478, 1952Z102–Z104, Z157) Du Pont, PPG, and Nalco matched Ethyl's TML price reduction. (Fremd, 1740; CX 1066A-B, 1247, 1516A) This reduction in the price of TML equalized the list price of TEL and TML for the first time. (*see* F. 53)

Shortly thereafter, on June 30, 1978, Du Pont initiated another TML list price reduction when it reduced its TML price 2.52¢/lb. below its competitors' prices. (Lockerbie, 812; Fremd, 1740–41; McNally, 2232–34, 2237; RDX 238A-B; CX 1113Z2) Ethyl, PPG and Nalco matched Du Pont's 2.52¢/lb. price reduction. (Fremd, 1741; CX 393, 1248) This reduction in the TML list price for the first time placed the TML list price below the TEL list price. (*see* F. 53)

PPG initiated another list price reduction on July 5, 1978, when it lowered its list price for TEL by 2.52¢/lb. (Lockerbie, 812; J.M. Robinson, 1032–33; Fremd, 1592, 1742; McNally, 2238; CX 1261) As a result of this list price change, the list price differential between TEL and TML disappeared. (CX 1970A-C; F. 53)

C. *List Price History of TEL and TML: 1974–May 1979*

53. Between 1974 and May 1979, there were both list price increases and list price decreases by all four respondents. Appendix D sets forth list price changes in lead **[30]** antiknock compounds between February 1, 1974 (the first list price change after price controls were lifted) and April 18, 1979 (the last list price increase prior to issuance of the complaint herein).

54. On six occasions from 1974 to 1979, respondents individually announced different list price increases. However, list prices were quickly made identical. For example, on March 1, 1977, Ethyl and Du Pont simultaneously announced price increases of different amounts. (CX 1188) The increases were in part attributable to a rise in the list price of pig lead used to make antiknock compounds. (CX 50, 938) Ethyl's March 1, 1977 announcement increased TEL and TML prices

.8¢ per pound, effective April 4, 1977. (CX 13) Du Pont also announced a list price increase on March 1, 1977 of 2.0¢ per pound to take effect April 7, 1977. (CX 813, 819A-F, 821) On March 4, Du Pont rolled back its list price increase to that of Ethyl's. (CX 939; Diggs, 2431) On March 7, both PPG and Nalco announced an 0.8¢ per pound list price increase effective April 7. (CX 1122, 1344, 1484, 1660G). On March 18, Ethyl changed its effective date from April 4 to April 7 (CX 12).

The .8¢ per pound increase announced originally by Ethyl, and adopted by all respondents, was effective on April 7, 1977. Twelve days later, on April 19, 1977, Ethyl announced a price increase of 1.8 ¢ per pound, effective May 26, 1977. (CX 16) The other respondents quickly followed. Thus, the original price increase of 2.0¢ per pound announced by Du Pont on March 1, 1977, was realized by all the respondents, plus an additional .6¢ per pound. (CX 814, 837; *see* F. 175–176)

55. There were other occasions when different list prices were announced. On February 1, 1974, the day price controls were lifted, Du Pont and Ethyl simultaneously announced different price increases. (CX 342, 349, 353, 973, 1970; Diggs, 2419–20; Werling, 3639–40) On May 14, 1975, Ethyl and Du Pont simultaneously announced different price increases. (CX 277, 278, 282, 640A-C) On December 10, 1975, Du Pont announced a price increase; on December 11, 1975, Ethyl announced a lower price increase, apparently unaware of Du Pont's previous price announcement. (CX 55, 228, 231, 255, 700, 702, 711, 1970A) On March 1, 1977, Ethyl and Du Pont simultaneously announced different price increases, again apparently without knowledge of each other's actions. (CX 13, 33, 50, 122, 814, 821, 833, 938A, 1970B)

56. On August 15, 1977, Du Pont announced a price increase. Four days later on August 19, 1977, Ethyl undercut Du Pont's price increase. (CX 19, 66, 101, 858, 1111) On December 15, 1977, Du Pont announced a price increase; on December 20, 1977, Ethyl again undercut Du Pont's price increase. (CX 80, 81, 535, 863, 868, 1113Z72, 1404) These latter pricing moves by Ethyl were stated to be attempts by Ethyl to increase its market share. (Lockerbie, 801–02; F. 145) **[31]**

57. Of the 24 increases in the price of lead antiknock compounds occurring during the period 1974–May 1979, 20 followed publicly announced increases in the price of lead; similarly, 3 of the lead antiknock price decreases during the period followed publicly announced decreases in the price of lead. (CX 50, 51, 52, 53, 54, 56, 58, 60, 139, 265, 342, 403, 432, 440, 445, 448, 455 461, 481, 485A-B, 595, 927A-B, 929A-B, 931A-C, 936A-B, 938A-C, 947A-B, 949A-B, 950A-B, 952A-B, 954A-B, 1055A-B, 1056A-B, 1059A-B, 1060A-B, 1062A-B, 1067A-B; REX 307)

D. *Off-List Price Transactions*

1. Direct Price Discounts Off List Price

(a) *Ethyl*

[***] **[32]** [***]

(b) *Du Pont*

60. Du Pont made no sales during the 1974–1979 period at a price less than list. (Tunis, 65–66, 114, 129, 411–12, 474–75; Park, 1822–23; Miller, 1990–91; McNally, 2264–65; CX 922N, 923K-L, 926T, 113Z78) Du Pont estimated that in view of its large market share, it would have required a 2.5% increase in sales volume to compensate for the loss of profits from a 1¢/lb. decrease in the price of lead-based anti-knock compounds. (Tunis, 114, 129, 411–12; Miller, 1990; McNally, 2141–42, 2166–67, 2246–47) Likewise, the December 1975 Annual Report of Du Pont's Organic Chemical Department stated:

> An alternative strategy would be attempt to hold or increase market share by selective discounting to meet competitive situations. This has been rejected because the potential earnings gain from increased shares is small compared with the risk of earnings loss through a reduction in market price which would probably result from competitive reaction. For example, a price decrease of only 4% would offset the earnings gain by increasing share from 35% to 40% of the market projected for 1980. (CX 922N)

(c) *PPG*

[***] **[33]** [***] **[34]** [***]

(d) *Nalco*

[***] **[35]** [***] **[36]** [***] **[37]**

2. Advance Sales or Forward Ordering

80. In the period after notice of a price increase, and before the higher prices became effective, customers engaged in "advance buying" by ordering more than their normal requirements during the 30–day price increase notice period. These orders normally were shipped and invoiced prior to the effective date of the new prices. (Tunis, 193–99; Lockerbie, 693–95; J. M. Robinson, 1046–47; Altman, 1470–71, 1533, 1542, 1546, 1552; McNally, 2125–28; McCormick 2707–08; Dana, 4498–99; CX 1956Z64–Z65; RDX 318) Respondents limited the amount of customers' advance purchases because of limitations on respondents' ability to produce, stockpile and deliver abnormally large amounts (Tunis, 195–200; Lockerbie, 694; J. M. Robinson, 1046–47, 1117; Koehnle, 4636–37; Gill, 4700, 4749–50; CX 1953Z93, Z95–

Z96; CX 959A); and because advance ordering delayed the effectiveness of the price increase and reduced respondents' profits. (Tunis, 194–95; Gill, 4700–01)

For a number of reasons, including for example, a shortage of tank car capacity or a desire to give a customer a temporary price break, respondents delivered (and sometimes invoiced) product at the old price after the effective date of a price increase. Only shipments invoiced and delivered after new prices became effective, and only such shipments as exceeded a normal 30–day ordering pattern, gave the receiving refiners what amounted to a price discount. (Park, 1917; Charles, 2590, 2592; Hay, 3823–24, 4308–11, 4324–25; Carlton, 6980–81, 7241–45; Markham, 6796–97) Thus, it logically can be anticipated that customers seek to take advantage of the old lower price by buying extra product at the time of a price increase, and respondents seek to maintain a limitation on such purchases.

81. Respondents' rules-of-thumb with respect to limitations on customers' forward orders serves as the basis for negotiation with customers seeking additional advance buying. Respondents often have been unable to restrict customers' advance orders to their unofficial limitations. (Tunis, 194–95, 397; Lockerbie, 694–95; J. M. Robinson, 1047–48; Altman, 1393–94, 1500, 1542, 1547–48; McNally, 2125–29; REX 186A-B; CX 1953Z94–Z95) Each respondent on occasion will accept customers' demands for additional forward purchases out of concern that one of the other respondents will fill any order that they refuse. (Tunis, 195; Lockerbie, 694, 839–40; Altman, 1502, 1542; McNally, 2128; REX 1I, 189B, 190, 191A, 911, 193, 194, 195A-B, 196B, 197, 207, 208, 209, 210, 211, 212, 213; RDX 166A-B; CX 1015) Some customers have found that they can obtain substantial antiknock fluid in advance of a price increase. (Park, 1915–17; McCormick, 2665, 2708; Dana, 4471, 4498–99; Fetter, 4516–17, 4534–35, 4537, 4543–44; REX 192; CX 1015A; RNX 1355) [***] **[38]** [***]

Ethyl has accepted orders for 45 days' normal supply at the old rate. (Lockerbie, 694; REX 10A, 184; CX 1953Z92, Z95–Z96) Du Pont has an "in-house guideline" to limit forward ordering to between four and six weeks' normal supply. (Tunis, 139, 194–98; McNally, 2125–29; REX 187; CX 959A) Du Pont has limited Sun Oil advance purchases. (RDX 318; McCormick, 2707–08) Du Pont's Director of Marketing until September 1977 testified that Du Pont in all cases invoiced prior to the price increase, but sometimes shipped some product after the price increase became effective. Payment was based on invoice date, not shipping date. (Tunis, 194, 507)

PPG has accepted orders for more than a customer's normal 30–day requirements and has refused to accept such orders. (J. M. Robinson, 1048) PPG gave a rebate off the increased price to compensate for the amount of antiknock which PPG was unable to deliver before the effective date of the price increase. (Robinson, 1117–19) [***]

Nalco has accepted orders for up to 60 days' normal supply at the time of a price increase notice. (Altman, 1270, 1497–500) Nalco has allowed customers to order antiknock compounds before the effective date of the price change with shipment after the effective date at the old price. (Altman, 1393–94, 1547–48) Nalco invoiced the customer at the old price and sometimes backdated an invoice. (Altman, 1438, 1533–34; CX 1878) [***]

82. Respondents' antiknock customers have realized savings through respondents' practice of accepting and filling advance orders based on price increases. (Charles, 2591–92; **[39]** McCormick, 2705–07; Solomon, 2832–34; RDX 311) [***]

3. Tolling Arrangements

83. Under a tolling arrangement a respondent purchases the raw material from the refiner, manufactures the completed antiknock product, and sells it back to the refiner according to a formula that specifies the price. (Lockerbie, 877) [***] **[40]** [***]

87. Mobil and Union purchased TML from Nalco and had it shipped to Du Pont for mixing with Du Pont's TEL prior to shipment to the refiners. Neither refiner realized any discount on Du Pont's TEL portion of the multi-leg transaction. Du Pont also realized a reaction fee on the mixture. (Tunis, 503–05)

4. Credit Terms

88. Special credit terms in the form of a delay in the buyer's payment were offered to both small and large refiners. (Altman, 1429; J. M. Robinson, 1210–11; Hay, 4157–69; Koehnle, 4608–11) Special credit terms and deferred billing are equivalent to a discount equal to the value of use of the money for the period payment is deferred beyond normal payment terms. (McCormick, 2642–46; Hay, 4167–69; *see also* Charles, 2530–34; CX 1585B-C) A firm price could be a discount if the price goes up during the time frame of the firm price. (Hay, 4326)

89. In April of 1976, Du Pont, Ethyl, and PPG all extended their credit period for Toscopetro, which was having financial problems, from 30 days to 90 days. (J. M. Robinson, 1096–98; Koehnle, 4609–11, 4630–31; REX 224A-B, 225A-B) In May of 1978, Good Hope Industries, which had been in bankruptcy proceedings since 1975, obtained credit from PPG and Du Pont. Ethyl later matched PPG's and Du Pont's credit terms. (Koehnle, 4609–11; REX 216A, 218A, 219). Subsequently, in late 1978 and early 1979, Du Pont, Ethyl, and PPG again extended Good Hope higher lines of credit. (REX 217, 221, 222)

Ethyl, since August of 1977, has offered Petroleum Industries favorable credit terms. (REX 227) Ethyl also has offered special credit terms to Delta Refining and Golden Eagle. (Koehnle, 4608–11) PPG met Ethyl's credit terms at Golden Eagle. (J. M. Robinson, 1098–99)

Since 1978, Nalco has offered certain small refiners—including Plateau, Giant, and Thriftway—extended credit terms of between 60 and 90 days. (Altman, 1429, 1513–14, 1543; CX 1072C, 1904) [***] [**41**] from Nalco to Du Pont prior to shipment from Du Pont to Union. (Charles, 2529–30, 2593; *see also* Charles, 2560–62; Tunis, 503–05) Nalco's service manager, a sales representative for Nalco since 1963, testified that he had never offered sixty-day credit terms to anyone. (CX 1956Z58)

PPG gained part of Goodhope's lead antiknock requirements by selling to Goodhope Refining Co. on 30–day terms when that refinery was in bankruptcy proceedings and was buying on cash terms from other lead antiknock suppliers. Ethyl lost business due to its initial failure to offer such credit terms. (REX 216A, 219, 324; RPX 36, 37A-C) Coastal States has received price protection from PPG on a fixed number of cars of antiknock compound for a 90–day period. (Fremd, 1705, 1766–67) [***]

E. *Provision of Services*

1. Direct Provision by Respondents

90. Respondents, since the 1950's, have supplied services at no additional charge in conjunction with antiknock compound sales. (Lockerbie, 684; J. M. Robinson, 1076; Park, 1834–35; Shouse, 2874–75; Koehnle, 4591–92) The services fall into three general categories: (1) services related to safe handling of antiknock compounds; (2) product-related services to help refiners make more efficient use of antiknocks; and (3) business services related generally to more economic or safe operation of customers' refineries without any direct relationship to antiknock compounds. (Tunis, 72–74; J. M. Robinson, 1068–72; Altman, 1293–96; Park, 1835–38; Wilson, 3231–32; Koehnle, 4584; CX 960Z1–Z2, 1952Z71–Z72; REX 230A-Z182) All respondents routinely have performed various safety-related services for customers, such as assisting in cleaning customers' weigh tanks, helping customers clean-up when they spill lead antiknock fluid, and instructing customers' employees in the safe handling and use of lead antiknocks. (Lockerbie, 954; Altman, 1293–94; Charles, 2550; Steen, 3395; Fetter, 4468–69; J. A. Robinson, 5353–54; REX 229) An Ethyl official testified that safety services were part of the antiknock product package. (Lockerbie, 774). A PPG Vice President testified that PPG could not duplicate Ethyl's and Du Pont's in-house services; according to this official Ethyl and Du Pont literally buried customers with their ser-

vices. (J. M. Robinson, 999) An Ethyl official testified that six or seven very large **[42]** refiners used relatively small amounts of services in relation to sales dollars; nine or ten large refiners took full use of technical services; and about one hundred small refiners took very broad use of services. (Lockerbie, 723–24; *see also* Tunis, 317)

(a) *Ethyl*

91. Most of Ethyl's services were provided by "in-house" expertise. (Koehnle, 4584–4607) Because of the explosive and toxic nature of lead antiknock compounds (F. 13), Ethyl has taken an active role in designing, building, and monitoring "lead plants"—customers' facilities for the storing and blending of lead antiknocks into gasoline. (Koehnle, 4585–86, 4588) Ethyl employs safety specialists who supervise cleanup and decontamination whenever a customers' refinery has a fire or explosion. (Wilson, 3273, Koehnle, 4589–90; RPX 1501) Ethyl's safety specialists also investigate the causes of customers' refinery accidents and help with prevention programs. (*Id.*)

Ethyl performs an "RT–70" blend study for its customers that determines what lead antiknock compound will be most cost-effective for each customer to use at each of its refineries. (Charles, 2609–11; REX 10B, 230Z9–Z14) Ethyl also conducts surveys measuring the concentration of lead in gasoline and overall gasoline quality which it makes available to customers without charge. (Lockerbie, 844–45; Rowe, 2351–52; Werling, 3610–11; Koehnle, 4593–94; REX 11A-B) Ethyl provides some customers with weigh tanks (in which lead antiknock fluid is stored), knock engines (used for testing gasoline quality), and various valves and fittings used in customers' lead plants. (Koehnle, 4598–99, 4599–600; REX 1D, 186, 262, 274, 276, 277, 278, 281, 283, 288)

(b) *Du Pont*

92. Most of Du Pont's services were provided by "in-house" personnel. (Tunis, 73–75; Park, 1835–38; CX 960Z1–Z2) Services include training customer personnel in safe handling procedures and monitoring such procedures (CX 960Z5); assistance in gasoline blending and the application of computer technology to optimize gasoline production (CX 960Z3; Park, 1837–38); engineering services, such as pump seal maintenance and infrared thermography, as well as service generally involved with the operation of the refinery, such as assistance in meeting federal environmental and noise regulations. (CX 960Z2–Z3) The cost to Du Pont of these services was very slight, and were of significant value to refiners. (Tunis, 244) Some of Du Pont's "in-house" services could have been purchased by its customers from outside consultants, such as computer systems that could be

purchased from Bonner and Moore, or Profimatics. (Park, 1837; Bonner, 5924–25, 5933) A Du Pont executive testified that Du Pont had the most expert technology on safety **[43]** matters in any industry. (Tunis, 474) Du Pont sold some of the technical services that it gave to antiknock customers. (Tunis, 74, 78)

Du Pont also assists its customers in determining the best lead antiknock compound to use in its monitoring of overall gasoline quality. (Tunis, 454–55; Park, 1864) Du Pont has provided free equipment to certain customers (REX 250, 251, 252, 263, 267, 273), and has purchased and installed weigh tanks and knock engines for customers. (RPX 57, 306)

93. Ethyl and Du Pont offer their customers other free services not directly related to customers' use of lead antiknocks, including: (1) various refinery inspections, including inspections for possible heat loss in the refining processing unit and surveys to detect and correct any possible Occupational Safety and Health Act violations at a customer's refinery (Charles, 2548; Dana, 4468; Fetter, 4509–10; Koehnle, 4588); (2) the constant analysis of a customer's refined product in order to correct for color variation (Fetter, 4507–08); (3) the training of customers' employees to repair various pieces of refinery equipment; and (4) computer programming models for use in refinery operations. (Charles, 2250; J. A. Robinson, 5359–61)

94. A Du Pont executive testified that doing away with services and operating a "commodity-type" operation was not in Du Pont's best interests; it would not generate the profits Du Pont desired. It was a more profitable operation to use free services as a competitive weapon than to operate without the services. (Tunis, 65–66, 71, 77, 116)

(c) *PPG*

95. At some refineries, PPG regularly inspected storage tanks and unloading facilities and, from time to time, supervised unloading procedures. Storage tanks are X-rayed to detect weak spots so that they can be replaced before leaks occur. Normal practice in the refinery industry is that refiner personnel will not open a lead line, (*i.e.*, pipes), without a representative of a lead supplier being present to supervise the undertaking. PPG supervises the cleaning of refinery tanks used to store lead antiknocks. PPG supervises handling of any lead-contaminated materials, and where tankcars are destroyed by train wreck or explosions, PPG identifies, collects and transports to its Beaumont plant all remaining parts of equipment contaminated by contact with lead antiknocks. PPG provides all of these services free-of-charge to its refiner customers and believes that its competitors do also. (White, 5947–48, 5958, 5966–72, 5977)

PPG has provided free equipment to its customers (REX 250–263), including valuable knock engines to some small refiners, in addition to providing training courses to the employees of large refiners. (Mallet, 5852–55; RPX 335, 336) **[44]** [***] PPG has upgraded and extended computer systems to customers and has purchased for its customers some computer models. (Bonner, 5916, 5918–19; RPX 1513A-D, 1514A-C) PPG will help its customers set-up and operate the laboratories necessary to monitor the use of lead antiknock fluid in gasoline. (Fremd, 1696–97) In addition, PPG has given oil import tickets valued from 10¢ a barrel to $1.50 a barrel free-of-charge to customers such as Crown Oil, Amoco and Gulf. (McCormick, 2791–92, 2811; J. A. Robinson, 5362; RPX 1447, 1502–03, 1504–05, 1506, 1507A-B, 1508A-M, 1509, 1510)

PPG uses selected outside consultants to provide services to its customers (J. M. Robinson, 999–1000), such as Bonner & Moore Associates, Inc. (Bonner, 5875 *et. seq.*); and Management and Training Services (Warren, 5714 *et. seq.*). PPG does not disclose to the customer the cost to PPG of the consultant's services; and neither do the consultants. (J. M. Robinson, 1152; Fremd, 1628; Bonner, 5896–98, 5940–41; RPX 70–74, 91–93, 174–75, 177; CX 1661B) PPG does not provide any services to some of its larger customers. (J. M. Robinson, 1176–78; Fremd, 1633). PPG attempts to limit its payment for consultant services to 3 percent of sales to a customer. (Fremd, 1771)

(d) *Nalco*

96. Nalco's in-house service organization is dedicated only to the safe handling of antiknocks. (Altman, 1405) In 1976, Nalco started a catalyst-oriented packaging arrangement ("COP") which was made available to refiners. (Altman, 1428) The program involves a procedure for a refiner to use in loading a catalyst into a particular vessel. Nalco has a sub-license agreement with Arco which requires Nalco to pay royalties to Arco when Nalco authorizes a refiner to use the program. (Altman, 1294–95, 1303–05, 1428–29, 6623) For the COP program and for services furnished through outside consultants or contractors, Nalco generally would get a commitment for a certain amount of antiknock business. (Altman, 1406; *but see* RNX 1593C) About 1978, Nalco commenced using outside firms to supply services to refiners, primarily small refiners. (Altman, 1406, 1409, 1485) **[45]**

Nalco attempted to limit payment for the COP program and for outside services to 5% of the customer's purchases—"there was nothing firm about 5 percent. It was a negotiated thing if you will." (Altman, 1508; RNX 1593A-Z18) [***] A Du Pont official testified that he did not view the Nalco COP program as a discount to refiners. (Tunis, 511) During the period 1974 through 1979, Nalco paid almost $300,000 for customer services furnished to Crown Petroleum. (RNX 1593–O)

2. Payment of Refiners' Bills

97. In some instances refiners contract for third-party services for which one of the respondents subsequently agrees to pay. (Tunis, 132–34; McCormick, 2783; Altman, 1484, 1508–09; 6330–31; CX 1829B) In some instances the refiner would have paid for the outside service had one of the respondents not volunteered to do so. (Shouse, 2876; J. A. Robinson, 5361; REX 240) Lead antiknock customers save money by allowing respondents to pay bills for services provided by third parties. (Fremd, 1695–96; Dana, 4468) Refiners sometimes find that third-party services subsidized by the respondents are worth more to the refiners than it costs respondents to provide them. (J. M. Robinson, 1073–74; McCormick, 2721; RDX 310A-H) Payment of customers' bills is equivalent to a cash discount. (Tunis, 133–34; McCormick, 2775–77, 2781, 2788; Wilson, 3280, 3343–44, 3352; Hay, 3827, 4137–38, 4140, 4143–44, 4152, 4155–58, 4167, 4325–27)

(a) *PPG*

98. PPG has paid bills for its antiknock customers equal to 3% of the amount that the individual customers pay to PPG for antiknock compounds. (Fremd, 1770–71; J. A. Robinson, 5355–56) Generally under these arrangements PPG will pay outside consultants directly for work that they do for PPG's antiknock customers. (Fremd, 1628; J. M. Robinson, 1073; CX 1173I, 1279B, 1280B; RPX 337A-J)

For example, PPG for many years has purchased computer time for American Petrofina's use. (J. M. Robinson, 1975; Shouse, 2876) PPG has paid a subsidiary of Sun (Suntech) to perform services for Sun. (McCormick, 2769–70; REX 944) PPG subsidized an energy conservation program for Sohio and Vickers Petroleum, saving those refiners substantial sums of money. (J. M. Robinson, 1073–74) PPG has subsidized various personnel training programs for several of its customers, often after customers have expressed interest in obtaining the program at their own expense. (Warren, 5714–15, 5734) PPG has paid an independent computer consulting firm to supply various linear **[46]** programming models to lead antiknock customers, sometimes after the customers themselves have agreed to acquire such services. (Bonner, 5887–88, 5905; RPX 1513A-D, 1514A-C)

PPG utilized service programs with more than 50% of its total sales volume. (CX 1280B) PPG attributed a 35% increase in sales to 10 important customers, amounting to almost 8 million pounds of additional sales, to such programs in 1975. (CX 1173I)

(b) *Nalco*

99. Nalco has subsidized some of its customers' consultant and other

bills up to a limit of 5% of the total amount that each such customer pays to Nalco for lead antiknock compounds. (Altman, 1297–98, 1416, 1508–09, 6630–31) Nalco's payment of customers' bills takes a variety of forms, including:

(1) An arrangement with Advance Management Technology, a computer firm, under which Nalco pays the firm to supply technical analyses and equipment to certain lead antiknock customers (Altman, 1295);

(2) An arrangement with Brown & Root, an engineering firm, under which Nalco pays the firm to supply engineering services to certain lead antiknock customers (Altman, Tr. 1295, 1406, 1429, 6626–27); and

(3) An arrangement with certain of its lead antiknock customers under which the customer can contract for any service supplied by any third party and Nalco will pay the bills. (Altman, Tr. 1295–96, 1511, 1406, 1429, 6630–31, 6633–34) Under these arrangements, Nalco has paid for architectural plans for several buildings, including a cafeteria for Crown Central. (Altman, 1510–11, 6636; REX 398)

Typically Nalco's customer deals directly with the third party rendering the services, and Nalco reimburses the customer. (Altman, 6630)

(c) *Du Pont and Ethyl*

100. Du Pont and Ethyl have also offered to pay certain customers' bills, although to a lesser extent than PPG or Nalco. On one occasion, Du Pont agreed to pay a bill that Amoco had already incurred for an outside consultant's work, and Du Pont received a substantial amount of business in return. (Tunis, 132–36; *see also* Tunis, 74–75) Ethyl has retained outside consultants to aid particular customers with respect to [47] OSHA difficulties (Fetter, 4510), has paid customers' bills for various engineering services in connection with building lead plants, and has paid for contractors' inspection of lead-holding plants. (Koehnle, 4603–06, 4662–63; REX 10A-D) For example, both Du Pont and Ethyl recently have undertaken to provide and pay for substantial services for Texaco in exchange for Texaco's commitment to purchase specified amounts of lead antiknock fluid from each respondent. (Wilson, 3352, 3362–64) Ethyl received additional business from CRA after agreeing to pay for outside engineering services needed by CRA. (Koehnle, 4605–06)

3. Value to Refiners

101. Most of the services which respondents provided were of value to the refiners. (Tunis, 244; J. M. Robinson, 1077; Park, 1855; Charles,

2551; McCormick, 2720; Shouse, 2874; Solomon, 2820–21, 2849; Wilson, 3242, 3247; Dana, 4467, 4470, 4491; Fetter, 4511–14; Pittinger, 4551–53; Koehnle, 4589; J. A. Robinson, 5355; REX 238, 241; CX 619) Customers regularly calculate the dollar value to them of respondents' technical services and free equipment and compare these dollar sums to the amounts they pay for lead antiknocks. (McCormick, 2720–23, 2775–76; Wilson, 3244, 3280; Fetter, 4513–14, 4531; Pittinger, 4551–52; J. A. Robinson, 5355–56; REX 231A-C, 232, 233, 235, 236, 237, 932, 933, 934, 935; RDX 280, 310G, 324; CX 319, 1019, 1027, 1901) Sun Oil valued each of the services in terms of a cents-per-pound of antiknock or a dollar value based on the cost of the services. (McCormick, 2721–24, 2775–78, 2781–84, 2788; RDX 310A-H; REX 932B-C)

Texaco has placed a dollar value on Du Pont's and Ethyl's services. (Wilson, 3280, 3342, 3362–64) At least some antiknock customers regard respondents' services as discounts off of the list price for lead antiknock compounds. (McCormick, 2721–22; Dana, 4489; J. A. Robinson, 5356; RDX 310H)

102. Some lead antiknock compound customers prefer respondents' technical services to direct cash discounts, either because similar services are unavailable for purchase on the open market (Pittinger, 4552–53; Dana, 4470), or because they know that they could not obtain a substantial enough discount to make up for such services. (Fetter, 4514, 4531; J. A. Robinson, 5356–58) For example, Crown has rejected a direct cash discount offered by a lead antiknock compound supplier because Crown believed that its services arrangements with other suppliers were more to its advantage than would be a direct cash discount. (J. A. Robinson, 5357–58) Some refiners relied on the value of proposed or ongoing services in deciding on the annual commitment of antiknock business to suppliers. (McCormick, 2699; Wilson, 3234–35; 3279–80; Dana, 4465; Fetter, 4506; CX 1202, 1485A-E; RPX 279–281)

An official of Oklahoma Refining Company, called as a witness by Ethyl, testified that some services offered by [48] respondents are available from commercial laboratories and some are not. The services provided by respondents in testing the blending of a new product is "very important." He could get a test report back from a respondent's laboratory in a very few days, whereas a commercial laboratory might take weeks—"Speed, timing is very important to me." (Pittinger, 4552) He further testified: "They are like their supplying systems, they are reliable, we trust them explicitly. I attach a great value to them. It would take an extremely detailed economic study for me to consider a price cut versus the cost or the value of services." (Pittinger, 4553)

103. Some of the services provided by respondents is the equivalent

of cash, for instance, paying bills for computer services previously rendered. (Shouse, 2876–77; Hay, 4140; Markham, 6794–95), or providing oil import tickets which have a definite cash value. (Hay, 4167, 4169–71; RPX 1502–05, 1510) Testimony by the economic experts acknowledged that the supplying of some of the services is the equivalent of a direct reduction from list price. (Hay, 3827, 4137–38, 4167, 4180–83, 4193–95, 4200–01)

An official of Texas City Refining Company testified that he would not have purchased all of the services he obtained from respondents if he had to purchase them out-of-pocket on the open market. (Fetter, 4543) Both large and small refiners frequently indicated a preference for price competition over competition on the basis of "free" services, or at least requested the option of comparing antiknock compound quotations without services to those including existing service programs. (Lockerbie, 849; Altman, 1300–01; McNally, 2130–32; Park, 1838–50; Miller, 1973, 1981–82; Koehnle, 4651–52; Charles, 2534, 2581–82; McCormick, 2723, 2810; Solomon, 2816–22, 2853; Wilson, 3195–96, 3229–30; Steen, 3405–06; Payne, 3509–10; Fetter, 4538, 4541–43; CX 894, 1201; *see also* F. 152–156)

F. *Import and Export Market*

1. Imports

104. In times of shortages, both Ethyl and Du Pont have imported antiknocks from their respective plants in Canada. Other than such limited instances, there was no importation of lead-based antiknock compounds into the United States. (CX 395, 1793A, 1952Z137–Z40, 1955Z29)

The major foreign antiknock compound marketer is Associated Octel Corporation ("Octel"), which is owned by five oil companies; Mobil, Texaco, British Petroleum, Shell and Standard Oil of California. (Tunis, 218; Fremd, 1790) Octel does not sell in the United States antiknock compound market. Several important barriers have prevented its entry, such as the lack of a distribution system and terminal facilities in this country (Tunis, 107, 210–19; CX 1952Z136–Z137); the **[49]** existence of tariffs which made entry unattractive (Tunis, 219–20; CX 1653G); government regulations limiting the future use of antiknock compounds in the United States (Day, 549–50); and, Octel's lack of any excess capacity that it could use for production for the United States market. (Day, 549–50; McNally, 2217) Associated Octel bought some of its antiknock requirements from Du Pont, and in 1980 PPG made sales to Octel. (CX 922L, 923F; Tunis, 218; Fremd, 1618)

2. Export Market

105. In its internal management reports Du Pont estimated the following shares of the export market (excluding Canada and Mexico):

	1975	1976	1977 (est.)	1981 (est.)
Octel	59%	59%	58%	54%
Ethyl	24	24	21	23
Du Pont	3	3	7	10
Houston (PPG)	1	1	1	1
E. Bloc [Eastern Block]	13	13	13	12

(CX 923H, 923M, 926P)

Nalco has not engaged in export sales of antiknocks. (Altman, 6604) The world export market, except for Europe and Japan, was not affected by U.S. lead regulations. (CX 922L) Exports were predicted to increase between 1975 and 1981 for which Du Pont, Ethyl and PPG would compete. (CX 923L)

3. Export Sales By Respondents

106. Ethyl's prices and margins for domestic sales were higher than for export sales during substantial portions of the 1972–78 period. (Tr. 3768 [Stipulation]; CX 489A, 2084) At least one customer complained to Ethyl about being offered antiknock compounds in the export market at prices substantially less than were quoted for domestic use. (Wilson, 3360–61; CX 569A, 571) Texaco complained to Ethyl about a "11¢ spread in Ethyl's domestic versus Ethyl's F.O.B. AS port prices." (CX 569A)

In several instances, Du Pont customers were offered antiknock compounds in the export market at lower prices (net of transportation) than were available in the domestic market. (Tunis, 211–18; McNally, 2142–44, 2155; CX 1840B) For substantial portions of the period, 1974–1979 Du Pont's average domestic price and gross profit margins, net of transportation **[50]** costs, were substantially higher than for export product, as shown by Appendix G.

PPG's average domestic price net of transportation charges exceeded export prices net of transportation charges for at least substantial portions of the 1975–1979 period. (J. M. Robinson, 1030) This is shown by Appendix H. On several occasions, PPG's domestic customers complained about being offered antiknock compounds in the export market at prices substantially less than were quoted for domestic use. (CX 1950, 1951)

VI. CHALLENGED PRACTICES

A. *Advance Notice of Price Changes*

1. Use Generally

107. All four respondents follow the practice of giving advance notice of price increases. (Tunis, 155–56; Altman, 1432–33; Fremd, 1706; Gill, 4697) Advance notice of price increases is a practice commonly used by chemical companies. (Day, 630; Gill, 4697–98; Gorman, 5003–05; RPX 1524A-C)

2. Respondents' Advance Price Notification Practices

(a) *Ethyl*

108. Ethyl's standard form sales contracts provide that:

> ETHYL may, at any time or times, change any of the prices stipulated herein upon thirty (30) days' written notice to BUYER to that effect, and thereupon such revised price shall be paid by BUYER for all compounds to which it applies and which is shipped hereunder after the expiration of such thirty (30) days period. . . .

(REX 6C, 6J)

Other contracts which Ethyl had with its customers also provided at least a 30–day advance notice of a price increase. (CX 1952Z29–Z32, 1953Z15–Z16, Z18, Z22, Z53–Z54, 376C; *see* Lockerbie, 952). The same advance notice of a price increase was also given noncontract customers. (Lockerbie, 692–93) At least since 1974, Ethyl has mailed its price increase notices to customers between 33 and 38 days before each price increase effective date. (CX 1970A-C, 1952Z31–33, 1953Z23; F. 53) The specific number of days varies because Ethyl preferred not to have price increases take effect on or immediately before weekends. (CX 1952Z33, 1953Z18–Z20, Z53–Z54) **[51]** Ethyl's sales personnel notified customers directly, either in person or by telephone, of price changes, with formal written notice sent by letter at the same time. (Lockerbie, 690–91; CX 1953Z25) Ethyl makes price decreases effective on the date of announcement. (Gill, 4706–07; CX 1953Z43)

(b) *Du Pont*

109. Du Pont's standard form sales contract provides:

> The price . . . may be increased by SELLER at any time by giving BUYER at least 30 days prior written notice.

(CX 918A; *see* Tunis, 136–37). Du Pont also extended the same advance notice to noncontract purchasers. (Tunis, 358–59; McNally, 2116; CX

907A) Du Pont generally gave between 34 and 39 days notice when initiating a price increase and at least 30 days notice when following the price increase by another producer. (CX 49; F. 53) Du Pont advised customers of price changes by Mailgram, telegram or letter, followed by printed price bulletins sent by mail. (Tunis, 182, 403; Park, 1825; Diggs, 2419–20, 2425; CX 701) Du Pont also encouraged customer notification by telephone. (Diggs, 2420)

(c) *PPG*

110. PPG's standard sales agreement provides in part, that:

> The price . . . may be increased by SELLER at any time by giving BUYER at least 30 days' prior written notice.

(CX 1267B; *see* J. M. Robinson, 1021–22). PPG generally gave 31 to 35 days notice to customers when increasing the price of its antiknock compounds. (F. 53) The same advance notice of an increase in antiknock compound prices was also given by PPG to noncontract buyers. (J. M. Robinson, 1022) PPG utilized Mailgrams to inform its customers of antiknock compound price changes. (Robinson, 1938–39; CX 1122) PPG's Vice President, John Robinson, testified about the 30–day advance notice:

> Q. I am wondering if you can tell the Judge what is the specific benefit to PPG in giving 30 or more days advance notice of a price change.
>
> A. Really none to the supplier. In fact, you know, it is a nuisance. We would like to eliminate it—speaking personally for my company. (J. M. Robinson, 1046) **[52]**

(d) *Nalco*

111. Nalco's typical sales agreement provides in part:

> The price of NALKYL herein stipulated is subject to revision by NALCO on thirty (30) days prior written notice to BUYER. . . .

(CX 1841L; *see* Altman, 1269, 1433). Some contracts between Nalco and its lead antiknock customers contained the 30–day advance notice clause while others did not. Four of Nalco's lead antiknock contracts do not contain any provisions relating to advance notice of price changes (CX 1842A-Q, 1851A-O; RNX 1A-S, 3A-O, 329A-S) However, contract and noncontract purchasers were given the same 30–day advance notice of price increases by Nalco. (Altman, 1269) Nalco informed its customers of an antiknock compound price change and its effective date by telegram or Mailgram. (Altman, 1269)

3. Customer Testimony About Advance Price Notification

112. Refinery witnesses who testified in this proceeding generally favored the antiknock suppliers' practice of giving advance notice of price changes. (McCormick, 2705; Solomon, 2842; Wilson, 3326; Dana, 4487; Fetter, 4525; REX 2A–Z65) Advance notice allowed purchasers to buy ahead at the old price a reasonable supply of antiknocks. (McCormick, 2663–64, 2704–06; RDX 311; *see also* F. 80)

According to Texaco, the practice of advance notice saves money for a refiner. (Wilson, 3324–25, 3367) Exxon concluded that it had achieved "some savings" by advance notice through forward ordering. (Steen, 3455–56) Smaller refiners believe advance notice is beneficial because it permits forward ordering. (Dana, 4471; Fetter, 4516, 4524–25; J. A. Robinson, 5348) The amount of forward ordering is limited, however, by the refiners storage capacity and the cost of money tied-up in building an inventory, in addition to limitations on advance buying which respondents established. (McCormick, 2664–65; *see also* F. 80–81) Advance notice of price increases offers purchasers some assistance in their financial and other planning. (Tunis, 391; McCormick, 2663–64; Solomon, 2842; Pittinger, 4555; J. A. Robinson, 5386–87; CX 1952Z38) It also presents an opportunity for refiners to reconsider their contracts with the antiknock suppliers. (Wilson, 3367; Steen, 3456)

B. *Press Communications*

1. Practices of Individual Respondents

113. At the time advance notice of price increases were given to customers, all respondents also issued press releases to the trade and general press. (CX 1465, 1471, 1952–Z5; Lockerbie, 707; Tunis, 152, 182; J. M. Robinson, 1041, 1043–45; Altman, 1364) **[53]**

Ethyl had a standard, detailed procedure for disseminating price change information in press releases. Press releases were prepared and issued by its Corporate Communications Department in Richmond, Virginia. (CX 1953–Z33; Lockerbie, 706–07; Rowe, 2315–16; Gill, 4702–03) Releases were issued by telephone calls, teletype by leased-based lines, and newswire services and mailings. (Rowe, 2315) Among others, telephone calls were placed to *The Wall Street Journal* (which includes the Dow Jones Ticker), Reuters, *The New York Times, Journal Of Commerce,* and *The Oil Daily,* usually within minutes after the price change was cleared by executive management. (CX 518–23, 523–33; Rowe, 2321–23)

Du Pont's press releases were prepared by its Public Affairs Department at the time of a price increase notice. (Tunis, 156–57; Diggs, 2414–15) The releases were disseminated to a number of publications, including *The Wall Street Journal, The Oil Daily,* the *Journal Of Commerce, The New York Times* and Reuters. (CX 646, 772, 773)

PPG's Public Relations Department had a list of approximately 30 to 40 publications to whom the press releases could be issued, including *The Wall Street Journal* and *The Oil Daily.* (J. M. Robinson, 1044)

Nalco's press releases were issued through its Public Relations Department to such publications as *The Wall Street Journal,* Reuters, AP, UPI, and *The Oil Daily.* (CX 1465, 1471; Altman, 1364–66) Nalco's Vice President and General Manager of its antiknock division, on one occasion, telephoned a reporter from *The Oil Daily* to inform the trade publication that Nalco was meeting a price increase previously announced by Ethyl and Du Pont. (CX 1487)

114. All four respondents stopped issuing press releases in 1977, on the advice of legal counsel. (Tunis, 180–81; J. M. Robinson, 1041; Altman, 1365; Rowe, 2331–33; Diggs, 2413–14; CX 424D, 1163F, 1527F) However, Ethyl, Du Pont and PPG continued to respond to media inquiries about price increases. (Tunis, 180–81; J. M. Robinson, 1041; Diggs, 2413–14; Rowe, 2331–33; CX 424D, 909A, 1163F) Du Pont adopted the policy of having a standby statement ready for press inquiries with respect to price changes. (Tunis, 181; McNally, 2190–92; Diggs, 2414)

In July 1978, PPG did issue a press release in connection with a decrease in TEL prices that it initiated. (CX 1239) A PPG official testified that PPG felt that there was no other good alternative to get this special information to PPG customers. (J. M. Robinson, 1112) **[54]**

2. Stated Purposes of Press Notices of Price Increases

115. The lead antiknock suppliers testified that they used press announcements to keep their names before former and potential customers. (Altman, 1435; J. M. Robinson, 1040). Publication of pricing and other information amounted to a form of free advertising that enhanced corporate images. (Tunis, 394; Rowe, 2361, 2380; Glassman, 6144–45) Publication of price change information also served to assure actual and potential investors that the suppliers were passing on cost increases. (Rowe, 2361) Lead antiknock suppliers also provided price information to the press in order to provide their customers with information as to what was taking place relative to the pricing of antiknock compounds in the marketplace. (Tunis, 361–62; *see also* 362, 365, 393–94; Diggs, 2414; Steen, 3386–87)

C. *Most Favored Nation Clause*

116. A most favored nation clause in a sales contract is a promise by a seller to charge that customer no higher prices than those charged to any other customer. (Hay, 3811; Markham, 6896)

1. Each Respondent's Clause

(a) *Ethyl*

117. Ethyl's most favored nation clauses provide:

> If *Ethyl* sells a compound of equal quantity and quality at price lower than that provided for herein to any oil company in the United States, BUYER shall pay such lower price on all shipments of such compound made hereunder while such lower price is in effect.

(CX 376, 1749B; *see also* Lockerbie, 953)
Ethyl gave the provision several interpretations. The interpretation commonly communicated to customers was that Ethyl was legally required to extend any discount granted to one customer to all others. (Lockerbie, 764–67; CX 1587A, 1713A) A second interpretation was included in a major analysis of market strategies in which the clause was interpreted by Ethyl to require that "legally, a discount offered to one [of Ethyl's four largest customers] would have to be offered to all [four]." (CX 213L) Lastly, an Ethyl executive testified that the provision was construed to require that any discount be extended to all customers purchasing as much or more as the refiner receiving the discount. (Lockerbie, 763–65; CX 73B, 220Q-P; *see* F. 192) In the fall of 1980, Ethyl announced to its customers that it was deleting the most favored nation clause from its sales contracts, effective January 1, 1981. (Dana, 4502; Koehnle, 4615–16, 4679–80) [55]

(b) *Du Pont*

118. Du Pont's most favored nation clause provides:

> If the SELLER should, during the term of this contract, offer or sell goods of equal quality and quantity to any consumer in the United States for use in motor fuels, other than the United States Government or any department or agency thereof, at a price lower than that provided for herein, the BUYER shall receive the benefit of such lower price on all shipments made hereunder while such lower price is effective.

(CX 195B)
Du Pont's representations to customers and internal interpretation have been that its most favored nation clauses require that a discount to any customer be extended to all others. (McNally, 2117, 2248; Payne, 3522, 3584; CX 1077, 1079A-C, 1081) Approximately 50% of Du Pont's antiknock transactions were made pursuant to contracts containing a most favored nation clause. (Tunis, 357–58)

(c) *PPG*

119. PPG had most favored nation clauses in two of its contracts for

a limited period of time between 1974 and 1979. (Fremd, 1700–01; CX 1267A-F) Its standard contract form does not contain a most favored nation clause. (J. M. Robinson, 1027, 1189) None of its current antiknock contracts contain such a clause. (J. M. Robinson, 1131) PPG is not charged in the complaint herein with using most favored nation clauses. (Complaint ¶ 12(b))

(d) *Nalco*

120. Prior to 1978, Nalco had written contracts with 9 of its approximately 40 customers. Contracts made between 1967 and 1971 with three customers, Mobil, Arco, and Amoco, contained most favored nation clauses providing that the customer would pay as low a price as any other customer to whom Nalco sold or offered "an equal quality and like quantity" of lead antiknocks. (RNX 1F, 3E; CX 1842D-E) Nalco's contracts made between 1967 and 1974 with four other customers, Cities Service, Crown Central, Sun and Exxon, contained most favored nation clauses providing that the customers would pay as low a price as any other customer to whom Nalco sold or offered "an equal quality and like quantity" of lead antiknock compounds on "spot or one year contract sales basis." (RNX 5-O, 331D; CX 1549D, 1841K-L) Nalco's contract with Ashland Oil made in 1977 contained a most favored nation clause providing that the **[56]** customer would pay the lowest price at which Nalco offered or sold TEL alone. (CX 1851E)

Nalco desired to remove the most favored nation clause from its contracts (Altman, 1394; Carlton, 7213–14), and did remove the clause from contracts with Sun, Cities Service and Mobil. (Altman, 1282; McCormick, 2659–61; CX 1547–1548) Other customers objected to eliminating the most favored nation clause in their contracts with Nalco, and three customers still have such contracts. (Altman, 1394–95, 1430) Although Texaco desired such a clause in its lead antiknock contract with Nalco, Nalco refused to include the clause. (Wilson, 3260–62, 3355–56; RPX 1499B)

2. Stated Purposes Of Most Favored Nation Clause

121. The most favored nation clause provides some assurance to refiners that they are not receiving discriminatory prices. (McNally, 2251–52; McCormick, 2732–35; Markham, 6821–22) Small refiners believe that a most favored nation clause puts them on an equal competitive basis with the major oil companies (Tunis, 392; Fetter, 4517–18; Pittinger, 4568–70; Gill, 4713–14; J. A. Robinson, 5349–50, 5370–71; CX 1952Z-85) Refiners were advised by account representatives that the most favored nation clause assured the same price for

antiknock compounds for all customers. (Lockerbie, 767–68; Solomon, 2827; Payne 3522, 3584; Dana, 4497; Fetter, 4518)

122. Ethyl and Du Pont believed their most favored nation clauses, *inter alia,* prevented meeting a competitor's lower price to an individual customer and thus restricted their pricing flexibility. (CX 73I, 220L, 1079A; Day, 603–04; F. 197) Du Pont's Director of Marketing wrote to one of his account representatives: "[I]t is important that our customers not be confused" about the differences between the effects of the most favored nation clauses and the Robinson-Patman Act. (CX 1979A) Respondents frequently cited the clause as the reason for refusals to deviate from a list price quotation. (McNally, 2117; McCormick, 2762; Solomon, 2827; Payne 3522, 3584; CX 1041A, 1587A; F. 194) The record does not reflect that any refiner has asked a lead antiknock supplier to remove a most favored nation clause from its contract. (Tunis, 392; Lockerbie, 837–38; McNally, 2118–22, 2249; Charles, 2575; McCormick, 2719)

D. *Uniform Delivered Pricing*

1. Use by Respondents

123. All four respondents sell antiknock compounds to domestic customers on a uniform delivered price basis, without a separate charge for transportation. (Tunis, 137–38; [57] Lockerbie, 775; J. M. Robinson, 1021; Altman, 1285; McNally, 2123) Respondents' standard antiknock compound contracts provide for delivery at the seller's expense and noncontract customers receive identical delivered price terms. (Tunis, 137, 358; Lockerbie, 775; J. M. Robinson, 1019–21; Altman, 1284–85; CX 376C, 915A, 1267B, 1841; Du Pont Answer ¶ 12) Respondents are generally aware of and believe it is the practice of their rivals to sell antiknock compounds on a uniform delivered price basis. (Tunis, 138, 360; Altman, 1431; Fremd, 1642; Koehnle, 4687; CX 1956Z75)

124. Ethyl initiated the practice of quoting lead antiknock prices on a delivered price basis in 1937 when it was the only seller of antiknocks. (Lockerbie, 761; Koehnle, 4616–17; Glassman, 6016–17). This was done to induce its customers to switch from purchasing antiknock fluid in drums to purchasing fluid by tankcars. (Gill, 4728; Glassman, 6158–59; CX 2002Z60, Z70–Z73, Z98) Ethyl apparently continued the use of uniform delivered pricing because it was an historical practice. (Gill, 4727) Although Ethyl at times referred to its pricing system in the 1930s as "freight allowed" or "freight absorbed," Ethyl officials used these two terms interchangeably, and both referred to a delivered pricing basis. (CX 2002Z60, Z70–Z73, Z98) As each of the other respondents entered the lead antiknock market, each quoted deliv-

ered prices to its customers, so that now all four respondents sell to refiners on a delivered price basis. (F. 123)

125. Lead antiknock compound normally is shipped by rail common carrier in tank cars and is subject to freight tariffs fixed and published by federal and state agencies. (Krippahne, 5053–54; Baker, 5786; Altman, 6697) The transportation equipment necessary to ship antiknocks is owned or leased by respondents, although buyers could lease tankcars from tankcar leasing companies. (Tunis, 389–90; Altman, 1293; Koehnle, 4638; Krippahne, 5148)

126. Uniform delivered pricing increases the price some customers must pay for antiknocks. For instance, by purchasing from the nearest supplier and paying actual rail transportation charges in 1979, Exxon could have saved as much as $630,000 over the industry average freight charge of each refiner purchasing from the nearest supplier. (CX 551B, 555)[16] Consequently, [58] large refiners with locations near respondents' plants requested F.O.B. pricing. (F. 152, 154, 155; RDX 333E, P) An Ethyl salesman wrote his regional manager in late 1976, "F.O.B. pricing . . . continues to be of interest to large refiners." (CX 1622) Uniform delivered pricing benefits refiners located far from respondents' production plants because they would pay more for antiknock compounds under an F.O.B. system than under a uniform delivered pricing system. (Tunis, 297; Charles, 2539–41; Dana, 4471–72; Fetter, 4518–19, 4524, 4532–33; Pittinger, 4554–55) Small refiners receive an advantage from uniform delivered pricing because many of them are located farther from respondents' production points than are their larger competitors. (Glassman, 6165)

Uniform delivered pricing possibly does eliminate some costs customers would incur under an F.O.B. system. Some antiknock customers find uniform delivered pricing economical because it obviates the need for them to pay transportation and inventory taxes and to comply with state freight statutes which require freight bills to be paid within a short time frame. (Tunis, 295–96; Wilson, 3318–21) Uniform delivered pricing also simplifies purchasing decisions, enabling customers to evaluate and compare respondents' prices quickly, and to avoid the hiring of additional employees to check freight rates. (Tunis, 261; J. M. Robinson, 1049; Wilson, 3319–20; Krippahne, 5071) In case of losses in transit, respondents are responsible for dealing with the carriers instead of the refiners. (Wilson, 3318)

127. The average actual delivery cost varied among refiners by at least 5 cents per pound. (RDX 333Q) Individual refiners' minimum average delivery cost ranged from .2 cents per pound to 8.1 cents per

[16] This can be calculated by subtracting Exxon's actual average freight costs of .50 cents per pound when purchasing from the nearest supplier (RDX 333E), from the industry average of 1.53 cents per pound when all refiners purchase from the nearest supplier (RDX 33P), and multiplying the difference by Exxon's total expected purchases for 1979 (RDX 333E).

pound. (RDX 333J, F) Freight charges incurred by respondents in delivering antiknock compounds are small in relation to sales price. (Glassman, 6110–12; Markham, 6813–15; Carlton, 7171, 7188–89, 7193 –94) For example, freight charges represent approximately 2.6% of the sales price for Ethyl (REX 8B), and about 2% of Nalco's sales price. (Altman, 1379)

2. Stated Purposes of Uniform Delivered Pricing

128. Since each respondent has a single list price for each antiknock compound regardless of customer location, the delivered price format ensures that list prices are quoted on a uniform delivered basis throughout the United States. (Tunis, [59] 138; Lockerbie, 775; Gill, 4727; Markham, 6811–12; CX 600–17, 1646–47) Customers that purchase antiknock compounds under arrangements other than at list price also receive a delivered price. (J. M. Robinson, Tr. 1020–21; RNX 1C, 3C, 5B, 328B) Because of the toxicity of lead antiknocks, customers have preferred that the terms of their agreements with respondents specify that their purchases be on a delivered price basis in order to assure that respondents bear full responsibility, including any liability, for the product until it has been delivered. (Tunis, 390; Lockerbie, 841–42; J. M. Robinson, 1181; Altman, 1286; Fremd, 1702–03; Solomon, 2838; Wilson, 3318–19, 3367; Payne, 3515; Fetter, 4518–19, 4532 –33; Gorman, 5001; J. A. Robinson, 5350–51, 5373, 5386, 5388–89) Of course, primary responsibility for safe delivery of the product rests with the common carrier. (J. M. Robinson, 1054)

VII. INFORMATION FLOW

A. List Price Changes

129. List price information was circulated to several individuals or offices within a number of the refiners. (Charles, 2521, 2537; McCormick, 2717, 2808; Steen, 3387–88) For example, Du Pont sent 300 Mailgrams to individual employees of its approximately 100 customers. (Diggs, 2420–21) Four or five employees of Oklahoma Refining Company received advance notice of price changes for lead antiknock compounds. (Pittinger, 4571)

All respondents made efforts to learn of their competitors' price changes. (J. M. Robinson, 1106–07; Fremd, 1745; CX 1195) Respondents learned of list price changes from a number of sources. One such source was their customers. (Tunis, 131–32, 148–50, 168–73; J. M. Robinson, 1033, 1129–30, 1106–07; Altman, 1359–60, 1451, 1492–94; Fremd, 1738; Diggs, 2427, 2429–30, 2459, 2469, 2741–74; Rowe, 2383–84; Werling, 3641–42; Dana, 4476–80; Fetter, 4521; Koehnle, 4618–22, 4690–91; Gill, 4706, 4788; White, 5982; Carlton, 6969; CX 47, 68A, 176, 329, 340, 466, 911, 923H, 930, 932, 935, 939A, 944A, 945, 948, 951, 952A, 1039, 1040, 1045, 1047, 1048A-B, 1056A, 1058, 1059A, 1060A, 1061, 1062A, 1065, 1066A, 1068A, 1195, 1202, 1289, 1300, 1301, 1303, 1304, 1319, 1375A, 1377A-B, 1381, 1612, 1953Z101–Z102; REX 299, 301, 302, 303, 304B, 305, 321B, 374; RDX 61, 62, 187, 194, 200, 201, 238A, 287A, 288A, 289A, 290, 291A, 294; RNX 9, 798, 892A, 1014A, 1101, 1102, 1118) The exchange of information between respondents and their customers sometimes took place from within minutes to hours after customers first received notice of price changes. (Tunis, 148, 168–73, 405–06; Diggs, 2459–60, 2469–70; Koehnle, 4618–20; Gill, 4702, 4707, 4710–13; Altman, 6604–05; RDX 201; CX 1047) For example, on the morning of January 3, 1979, Crown Central received an Ethyl notice of a price increase and reported the substance of the **[60]** increases to Du Pont by telephone at about 10 a.m. the same morning. (Diggs, 2469–70; CX 1047)

130. Several reasons were advanced as to why lead antiknock customers disclose one supplier's list price change to other suppliers: it assures a constant competitive price to small refiners (Dana, 4479–80); customers wish to preserve good relationships with their suppliers (Gill, 4707–08; Dana, 4480); and customers believe that such disclosure may help to persuade the other suppliers to minimize or postpone a price increase. (Diggs, 2455–57; Wilson 3252–53; RDX 187, 210) The cessation of press announcements by respondents had no apparent effect on the information about competitive price changes which respondents received from customers. (CX 1059A, 1061A, 1300, 1303–04, 1319; Fremd, 1738, 1740–41)

131. Lead antiknock suppliers also learned of or confirmed their competitors' list price actions through news and press accounts. (Tunis, 170, 191; CX 929A, 939A; F. 132–135, 175–182) Information regarding rivals' pricing actions was gathered by telephone conversations, through information retrieval service, such as the Dow Jones ticker, and newspaper and journal articles. (Tunis, 169–73; Rowe, 2323–25; CX 423) Newspaper and journal articles were routinely gathered and filed by at least two of the respondents. (Diggs, 2416; CX 1953 Z8, Z62) At times respondents learned of list price actions from each other. PPG and Nalco routinely sent price change notifications to each other. (Altman, 1356, 1359; Fremd, 1607–08; CX 1456–58, 1461, 1462, 1490A-B, 1508A-C) Ethyl never sent price change notification to other antiknock producers. (CX 1453, 1454, 1455, 1456) On two occasions in 1979, Nalco sent Ethyl such a notice and Ethyl warned Nalco not to do it again. (CX 1453–56)

(a) *Du Pont*

132. It was the general practice of Du Pont's Public Affairs Department to inform Dr. Diggs, Marketing Manager of antiknock compounds, of any information obtained from contacts with the press. (Diggs, 2418) Dr. Diggs acknowledged that Du Pont did, at times, obtain its first indication of a "competitive move" from the press. (Diggs, 2430)

Dr. Diggs was responsible for preparation of Du Pont's "price change schedule"—the documentation for management approval of antiknock compound price changes. (Tunis, 150) The price change schedule indicated whether Du Pont was reacting to a competitor's move and the source of the information regarding the action to which Du Pont was reacting. (Diggs, 2417) Since at least early 1975, Du Pont received information from the press about every price change initiated by a rival prior to the time in 1977 when the practice of issuing press releases stopped. The press was sometimes the initial source of the information, **[61]** sometimes the press confirmed information received from customers and, occasionally, information from the press was received simultaneously with information from customers. The press was the primary or sole source of information in at least seven of Du Pont's price changes. (CX 928A, 936A, 940A, 950A, 953A)

In December 1975, Du Pont learned from the press and a customer about a price increase:

> December 11, 1975 we were informed by [a customer] and by telephone calls from the magazine "American Metal Market" and *The Wall Street Journal* that Ethyl corporation had just announced a price increase of 4.6%.

(CX 935A).

On the next price increase, Du Pont learned from the press about Ethyl's action:

> We learned from *The Oil Daily* on March 12, 1976, and it was confirmed in *The Wall Street Journal* of March 15, 1976 that Ethyl Corp. was increasing prices of antiknock compounds in the domestic market 0.8 cents per pound effective on April 16, 1976.

(CX 936A).

In January 1977, Du Pont learned of a price increase from the press:

> On January 21, 1977 we learned from *The Oil Daily* and it was subsequently confirmed by [a customer] that Ethyl Corp. was increasing prices of domestic antiknock compounds by 0.8 cents per pound effective on February 24, 1977.

(CX 952A).

In March 1977, Du Pont learned of the price increase first from a customer:

[O]n March 1, 1977 we were informed by [a customer] that it had been advised by Ethyl Corporation that Ethyl was increasing the price of domestic antiknock compounds by 0.8 cents per pound effective . . . April 4, 1977. This was confirmed by publication in *The Wall Street Journal, The Oil Daily,* and *The New York Times,* all of March 2, 1977.

(CX 939A). **[62]**

(b) *Ethyl*

133. Ethyl's public relations office obtained information about other antiknock compound producers' actions from trade press contacts as well as from the Dow Jones ticker and other news retrieval services. (Rowe, 2324–25, 2336) Such information was given to the Petroleum Chemicals Division, usually to its head, John Koehnle, who also received similar information from Ethyl's customers. (Rowe, 2325)

Ethyl's employees routinely collected and filed newspaper articles about rivals' pricing actions. (CX 1953Z8) However, those articles may not have been physically clipped and filed until at least one day later. (CX 1953Z61–Z62)

(c) *PPG*

134. PPG did, at times, initially learn of its rivals' price moves from the press. (J. M. Robinson, 1034) In addition, PPG found that the "newspapers were usually a confirmation of what we had heard or what we would gather." (J. M. Robinson, 1034; *see also* F. 179, 182)

(d) *Nalco*

135. Nalco learned at times of its competitors' pricing actions through contacts with the press as well as from newspaper and journal articles. (CX 1389, 1390D, 1487, 1489, Altman, 1359–60; F. 175) For example, W. L. Altman learned on March 7, 1977:

called Jim Brumm [Oil Daily] at 3:35 p.m. [and] told him contents of release—he said Houston moved tu. [sic] also, so that makes all four.

(CX 1487).
On April 17, 1977:

He [Jim Brumm of *The Oil Daily*] said Ethyl announced an increase of 1.8 cents per pound effective 5–26–77.

I called Bud Altman; he had not heard of Ethyl plans, and asked if they cited any reason. He said to tell *Oil Daily* that we are studying the situation. **[63]**

I called Jim Brumm and relayed the message also asked for Ethyl's reasons. He said they cited (1) non-lead material costs, (2) higher transportation, (3) higher labor. I relayed these to Bud Altman via his secretary.

(CX 1390D)

B. *Most Favored Nation Clauses*

136. Ethyl and Du Pont understood that each others' antiknock compound sales contracts contained a most favored nation clause. (Tunis, 360–61; Lockerbie, 755; McNally, 2291; CX 73B, I, 213K-L, 220Q-P, 394Z5, 1952Z90–Z91; F. 197–199) Nalco perceived that the other respondents might utilize most favored nation clauses in conjunction with the sale of antiknock compounds. However, this was not confirmed until 1979 when Nalco was attempting to eliminate its clause from its contracts. (Altman, 1280–81, 1450–51) PPG believed its rivals made use of most favored nation clauses, but this was not confirmed until it read the complaint in this proceeding. (J. M. Robinson, 1025; Fremd, 1643, 1765–66)

Ethyl, Du Pont and PPG had no knowledge of Nalco's use of most favored nation clauses. (Tunis, 146–47; Lockerbie, 754; J. M. Robinson, 1025; McNally, 2287; Koehnle, 4686; CX 731, 213K) Ethyl believed that PPG did not have a most favored nation clause in any of its sales agreements. (Lockerbie, 755; Koehnle, 4687–88; Gill, 4717; CX 73B, I, 1952Z90–Z91)

C. *Uniform Delivered Price*

137. Respondents were generally aware of and believed it the practice of their rivals to sell antiknock compounds on only a delivered price basis. (Tunis, 138, 360; Fremd, 1642; Koehnle, 4687, 4691; CX 1956Z75; F. 184) Ethyl was unsure whether Nalco was using a uniform delivered price with all of its customers and thought that Nalco might be selling to some customers on an F.O.B. basis (Koehnle, 4689–90; Lockerbie, 936, 950)

D. *Competitive Practices*

138. Where respondents had off-list pricing arrangements with customers, strenuous efforts were undertaken to keep the transaction prices confidential. (J. M. Robinson, 1001, 1095, 1144–45; Altman, 1424; Fremd, 1654–56, 1681–82; McCormick, 2672–73) [***] **[64]** [***]

The type of competitive information which is of concern in the marketplace involves a competitor's actual transaction prices and competitive activities. (Tunis, 483–84; Lockerbie, 950–51; J. M. Robinson, 1146; Carlton, 6984–88, 6994–97; CX 1952–Z159 In an oligopoly the granting of secret price concessions is a way to compete. (Glassman, 6033–39; Markham, 6786, 6790–91; Carlton 6992, 7086–87; *see also* Scherer, *Industrial Market Structure and Economic Performance* 222–24 (2d ed. 1980)) Transaction prices generally are communicated by refiners only to the extent they may be the same as list. (Glassman, 6032–39; Carlton, 7086–89, 7216–19) Customers know a price is "at list" because of its appearance on a price list or other circular. (Carlton, 7093–96; CX 1647) Therefore, if list prices are not published refiners would not readily know whether a quoted price is a list price or a special transaction price. (Carlton, 7095; Koehnle, 4687, 4691; CX 1956Z75; F. 184)

139. Ethyl and Du Pont made certain predictions about their rivals pricing actions. Generally, Ethyl and Du Pont believed they would act similarly and be less likely to discount while Nalco and PPG would be more likely to sell below list price. (Lockerbie, 750; McNally, 2263; CX 922N, 923H-I, 926S, 960W, 969 O; REX 17E) [***] **[65]** [***]

140. Respondents were generally aware of other pricing concessions given by their rivals. PPG knew that all of its competitors allowed advance buying at the time of price increases. (J.M. Robinson, 1098–99) PPG also was aware that Ethyl and Du Pont granted customers extended credit terms and provided paid outside consultants from time to time. (Robinson, 1076, 1090–99)

The lead antiknock suppliers sometimes learned of their rivals' discounts and other pricing concessions because customers disclosed them. [***] **[66]** [***]

141. The lead antiknock compound suppliers also sometimes learned of their rivals' other concessions such as special advance buy offers and credit arrangements, from their customers. (Tunis, 195–96; Lockerbie, 944; Park, 1895–96; Miller, 2010–13; McNally, 2281–82; Koehnle, 4612, 4630–31, 4535–36; RDX 11) In 1977, Ethyl was able to determine that Du Pont picked up invoices for outside consultants, offered new weigh tanks at no cost, and shipped fluid at the old price beyond the effective date of price increases. (CX 43V; *see also* REX 195B) Ethyl was informed of PPG's program of spending up to 5% of sales dollars for a customer on services purchased from outside consultants. (CX 220R)

142. In other instances, some of the respondents, particularly Ethyl and Du Pont, were sometimes able to discern rivals' pricing concessions because their sales representatives could monitor the buying patterns of customers and observe shifts in them. (Lockerbie, 835–36, 878; Gill, 4754) For example, in April 1979, Nalco was able to observe that PPG's TML inventories for its Amoco account were higher than usual. (REX 34A) In some instances, Ethyl and Du Pont account representatives were permitted to enter the area where a refiner blends lead antiknock compounds with gasoline and to look at the refiner's receipt book, which shows what cars were obtained from what lead antiknock supplier. (Tunis, 476–77; Lockerbie, 835–36, 878; Gill, 4754) Ethyl and Du Pont are able to measure their shares of each customer's business by having their account representatives count

the rail tank cars of the different lead antiknock compound suppliers on each customer's premises. (Tunis, 424, 476–77; Lockerbie, 835; McCormick, 2700–01; CX 577A-B; RNX 1424, 1429) Ethyl and Du Pont sometimes found it more difficult to monitor the sales of Nalco and PPG because they made sales to each other through their multileg transactions. (Tunis, 479–80; Gill, 4753; REX 9; RNX 1203, 1217)

VIII. PERFORMANCE OF THE MARKET

A. *Pricing Characteristics*

143. Price competition is the promotion of sales on the basis of product price. It exists whenever a price is offered which is lower than someone else's price in the marketplace. Non-price competition in the lead antiknock market is the promotion of sales by furnishing services (whether or not related to the product) provided without separate charge, credit terms, or other terms or conditions of sale. (Hay, 3773, 3853; Mann, 5625) **[67]**

The main structural characteristics of the lead-based antiknock compound industry which have determined price include the number of firms, the barriers to entry, the homogeneity of the product, and the inelasticity of demand. (Hay, 3779–80, 3784; Mann, 5453; Markham, 6772–75, 6778, 6780–83; Carlton, 6959–60) The lead antiknock industry is highly concentrated, the barriers to entry are high, the product is homogeneous, and the demand is inelastic. (F. 8, 42, 45, 104; Hay, 3779–84; Mann, 5431–32, 5453; Markham, 6776–77, 6779–81, 6783–84, 6790–91; Carlton, 6959–60)

144. Lead antiknocks were sold at less than a monopoly price between 1974 and 1979. (Hay, 3922–23, 3941; Markham, 6805–07; Mann, 5421–22) Antiknock products also had a value-in-use in excess of the selling price of the product. (Tunis, 33–36, 370; Day, 553–54; Cantwell, 5199–204; RDX 332G) Prices also were above marginal cost between 1974 and 1979. (Hay, 3793–96; Markham, 6829; Carlton, 7971) Each additional sale of antiknock compound yielded substantial incremental profits for respondents. (Miller, 1968–70; Hay, 3794; Mann, 5630–31; CX 199G, 492H, 629A-B, 1281B, 1709B) In general, firms in oligopoly markets will charge prices above their marginal costs. (Hay, 3826, 4388; Mann, 5420–21; Markham, 6773–75, 6904–06; Carlton, 7051–53, 7056–57; Scheffman, 7802–03)

145. The lead antiknock compound market had frequent list price changes. There were thirty such changes between 1974 and May 1979. (Hay, 3804; Glassman, 6075–78; Carlton, 7110–12; RPX 1520 A-C; RPX 1523A-C; F. 53) Six of the changes in list price were decreases, three of which occurred in the middle of 1978 when TEL and TML prices were equalized. (F. 52, 54) On two occasions Ethyl undercut Du

Pont's announced price increase. (F. 56) This undercutting had some effect on how refiners awarded their business. For instance, in January, 1978, Du Pont lost one million pounds of business at the Exxon account (eight tank cars) because Ethyl undercut Du Pont's announced price increases in December 1977 even though the prices of all four suppliers ended up at the same level. (Miller, 2014–16; Steen, 3447–49, 3480–81; RDX 278B)

146. In a series of list price reductions in May - July 1978, respondents lowered their list prices for TML from 76.14¢/lb. to 71.10¢/lb., or about 6.6%. (CX 410 O-P, 478, 1066A; RDX 238; *see* F. 52) Respondents at the same time lowered their list price for TEL from 73.62¢/lb to 71.10¢/lb., or about 3.4%. (CX 1261) Ethyl initiated the first list price reduction on May 26, 1978, reducing its list price for TML 2.52¢/lb. (Lockerbie, 808–10; Fremd, 1737–38; McNally, 2232–34; CX 410L, O-P, 478, 1952Z102–04, Z157) [***] Du Pont, PPG, and Nalco **[68]** matched Ethyl's TML price reduction. (Fremd, 1740; CX 1066A-B, 1247, 1516A; F. 52)

On June 30, 1978, Du Pont initiated a TML list price reduction of 2.52¢/lb. (Lockerbie, 812; Fremd, 1740–41; McNally, 2232–34; RDX 238A-B) [***] Ethyl, PPG, and Nalco matched Du Pont's 2.52¢/lb. price reduction. (Fremd, 1741; CX 393, 1248) For the first time TML was priced below TEL. (F. 52)

PPG initiated yet another list price reduction on July 6, 1978, when it lowered its list price for TEL 2.52¢/lb., thereby equalizing TEL and TML prices. (Lockerbie, 812; J. M. Robinson, 1032–33; Fremd, 1592, 1742; McNally, 2238; CX 1261) PPG's action was its competitive reaction to the earlier list price competition, which had reduced the list price for TML below that for TEL for the first time in history. (CX 410N; *see* F. 52–53)

TML sales constituted about 25% of the total antiknock market. (REX 127P) Nalco's sales were essentially all TML, and constituted about 46% of that market in 1978. (CX 1776A) Thus, the price reductions that occurred, as listed above, would have more of an adverse impact on Nalco's profitability than on any other respondent. (Altman, 1417)

147. Changes in the list price of antiknock compounds most often were correlated with changes in the price of pig lead. (Glassman, 6051; Scheffman, 7795–98; RDX 401; RPX 1519, 1528; F. 57) However, when prices increased more than the cost of lead, large refiners complained about escalating price levels. (CX 566, 568, 577B, 1540, 1542, 1544, 1550, 1552, 1557–60, 1565, 1572–76, 1581–82, 1585B, 1714, 1728, 1731; McCormick, 2674–82) Respondents were constantly pressured by the large refiners to keep prices at reasonable levels. (Tunis, 68–69, 158, 161, 253, 257, 398–99, 435–36, 528; Lockerbie, 724–25, 801–03, 827–28;

see also Glassman, 6100–01; Carlton, 7085–86) Refiners were able to accurately calculate lead antiknock compound manufacturing costs. (CX 394Z5; F. 37)

148. The respondents confronted different market and demand factors. They had different production costs (F. 32–36), and different transportation costs. (F. 127; RDX 333A-Q) Du Pont was the only supplier with a plant on the East Coast (Deepwater, New Jersey) and the West Coast (Antioch, California). (F. 1–4) If consumers and suppliers are located at significantly different distances from each other, transportation costs (and therefore total costs of the delivered product) will vary depending on the identity of either the supplier or customer. (F. 126–127; Hay, 3804, 3892–98; Mann, **[69]** 5462–63) Differences in delivery costs constitute both general cost differences that complicate pricing decisions and, in addition, create a relatively large number of separate delivered costs. Numerous separate delivered costs to different customers make the matching of rivals' price more difficult. (Hay, 3804) Generally, differences between oligopolists in either the absolute level of manufacturing costs or the rate of change in costs make it more difficult for noncompetitive performance to occur. (Hay, 3804–05, 4352–54; Mann, 5457–58; Carlton, 7073, 7068)

149. There was list price uniformity in the lead antiknock industry. Economists testifying in this proceeding recognized that under the prevailing structure of the industry, including a homogeneous product, list prices would tend to be uniform (Carlton, 6992, 7096–98); especially where there was a lot of contact between buyers and sellers. (Hay 3793, 4123, 4323; Markham, 6780–81, 6785; Carlton, 7237–38) As a result of this list price uniformity, the Manager of Chemical Purchases of Sun Oil wrote: "[t]here has never been any price competition in the lead alkyl market." (CX 1585B) He also testified in this proceeding: "we perhaps would have saved more money in the end if there had been price competition of the type that exists in other chemical purchasing areas." (McCormick, 2646–47) A conversation between an Ethyl salesman and a buyer is described in a 1975 internal Ethyl memorandum:

> [The buyer] rejected completely my arguments as regards our demonstrations in the past year of price leadership. He stated on several occasions during the discussion that (I am again quoting) "There is and never has been price competition in antiknocks. This business of either you or du Pont raising the price; the other coming up with a different price which the first company then meets is all a smoke screen. I think it's the biggest wonder in the world that both of you haven't been in trouble with the FTC before now".

(CX 577B)

150. [***] **[70]**

151. The furnishing of services played a significant role in the

competitive rivalry between the antiknock suppliers. Services varied from safety services routinely furnished with the sale of the product, to payment of bills incurred by refiners for consultant services, building a railroad spur, providing oil import credits, and paying architectural fees for a cafeteria. Different values were placed on the services by different refiners, and some refiners sought prices without services. Some major refiners who received discounts did not receive services. It is clear that services were taken into account by refiners when awarding business. (F. 90–103)

B. *Responses to Refiners' Bid Requests*

(1) Exxon

152. Exxon used bid requests on several occasions in an attempt to gain a lower price. Exxon suggested several innovative pricing proposals in the bid requests, such as an F.O.B. manufacturing site pricing option, a volume-related discount option, an option to evaluate services separately, a weight adjustment on tankcar loads, and a long term contract arrangement with or without price escalators. (Robinson, 1059; Steen, 3396–97, 3401–07, 3423–36, 3480; Payne, 3509–18, 3522–28, 3539–40; CX 620, 631, 914, 1222A, 1313, 1323, 1746, 1757, 1914, 1932A, 1949) A significant quantity of business was available to a supplier who responded favorably to any of Exxon's bid requests. (Altman, 1370; Miller, 1592–94, 1967–73, 1975; Steen, 3401; Payne 3525–27; CX 629A, 620A, 1030, 1031A-B, 1051B-C, 1271A, 1322B-C, 1373, 1418A-B, 1956Z89–Z90)

Exxon solicited bids in 1975 for its 1976 antiknock compound business. (Steen, 3379–80, 3401–07) Each respondent was notified of the cancellation of existing contracts and the request for innovative pricing. (Altman, 1369–71; CX 914, 1094A-C, 1102, 1413, 1745, 1949) An Exxon purchasing official testified that "my primary objective [in soliciting bids] was to try to create a competitive atmosphere" similar to that existing in the markets for other chemical products that Exxon purchased. (Steen, 3392, 3403) Follow-up meetings were held with the suppliers to discuss Exxon's 1975 bid request. (Steen, 3404–05) Nalco responded with its list prices. (Altman, 1369–71; Steen, 3418) PPG responded with list prices and did not follow-up with any contact by its sales representatives, as was usual for a bid for such a substantial quantity of business. (Steen, 3419–20) Exxon eliminated PPG as a supplier for its 1976 business (REX 324M), attributable, in part, to PPG's apparent disinterest in gaining Exxon's business. Thereafter, PPG did come forward with "desperate proposal[s]" that Exxon [71] found unsatisfactory. (J. M. Robinson, 1153–55; Steen, 3419–23; CX 1949; REX 785) PPG was advised that if it were interested in Exxon's business it should respond the following year with an "innovative bid", including the possibility of a better price. (Steen, 3422; CX 1932) Ethyl responded with list prices. [***] Du Pont responded to the bid request for 1976 business with an offer of list prices and standard terms and conditions. (CX 634, 635A-B). [***]

In the spring of 1976, Du Pont sales personnel met with Exxon's Chemical Contract Buyer, W. C. Steen, who reportedly "reiterated" Exxon's belief that "as one of the largest purchasers of [antiknock compounds] and because of [its] refinery locations, [Exxon] should be seriously considered for either volumetric pricing or special consideration for reduced price via reduced freight costs." (CX 914) At the same meeting, Exxon's Manager-Contract Purchasing is reported to have expressed Exxon's concern "about supporting an inordinately expensive price designed to equalize freight, for which they [Exxon] receive little or no benefit." (*Id.*)

In the fall of 1976, Exxon again requested bids for its 1977 antiknock compound business. (Steen, 3423–27; CX 631A-B, 632, 1103, 1222A-B, 1373, 1750, 1751, 1956Z87) In response to this request, Du Pont approached Exxon "to explore . . . how we [Du Pont] might make our proposal attractive in lieu of a price concession" and was immediately informed of "Exxon's interest in obtaining a proposal which would provide for delivery F.O.B. manufacturing plant." (CX 631A-B, 632) Du Pont noted at the time that the "proximity of the Baytown [refinery] to Houston Chemical [PPG] and/or Nalco makes it tempting for either supplier to respond to Exxon's open invitation to supply on an F.O.B. manufacturing site basis." (Miller, 1962–63; CX 631A) Du Pont was apprehensive that 5 to 10 million pounds per year of business might be "endangered" by a PPG or Nalco F.O.B. manufacturing site offer, but anticipated the prospect of an additional 5 million pounds per year of added business for four years if Du Pont quoted prices on other than a delivered basis. (Miller, 1963–64; CX 631A-B) Du Pont elected to bid its list prices and standard terms and conditions. (Miller, 1959–60; **[72]** CX 630) PPG's proposal offered nothing new or innovative and Exxon again rejected the bid and did not offer PPG any business. (Steen, 3424–28; CX 1222; REX 324M; RPX 1517C) Nalco and Ethyl also responded with list prices. (Altman, 1373; Steen, 3396, 3495)

Exxon solicited bids again in late 1977 for 1978 business. (Steen, 3428; CX 628, 1321, 1754, 1956Z95) In considering its response, Du Pont noted that in the case of other additives, Ethyl had obtained 100% of Exxon's business in response to bid requests. Du Pont's sales personnal estimated that 55% to 60% of the Exxon business was potentially available to Du Pont by comparison with the 48% anticipated on the basis of business as usual. (CX 629A; Miller, 1967,

1969) Exxon expressed an interest in and discussed with Du Pont the prospect of 90–day price protection. Du Pont calculated that the increased business resulting from such a contract would provide Du Pont with "an added $2.25 million of sales which on an incremental pound basis could mean $1.12 million of added profit." (CX 629A-B; Miller, 1967–69) Du Pont responded to the 1977 Exxon bid request with a quotation of list prices, as did the other producers. (Altman, 1373; Steen, 3427, 3431; CX 1320A-C, 1755)

In early 1978, following the solicitation for 1978 business, Exxon sent its antiknock compound suppliers a set of guidelines in which Exxon spelled out in detail the innovative types of bids it expected. (Steen, 3429–36; CX 1051A-C, 1322B-C, 1323A-B, 1415, 1416A) The guidelines were to be used in discussions for 1979 business since Exxon found it had not achieved any progress with bid responses in the previous years. (Steen, 3431) The guidelines noted:

Evaluations will emphasize cost saving—price reduction factors including the following which will be included in the bid forms.

• Firm Price Period	• Weight Adjustment Credit
• Price Delivered	• Preordering Allowance
• Price F.O.B.	• Payment Terms
• Quantity Discount	• Consideration for Long Term Agreements

(CX 1051B).

Follow-up meetings were held with the respondents to discuss the guidelines in detail. (Steen, 3434; Payne, 3511–18) Du Pont noted its options included: (a) complying with Exxon's "strongly encouraged" request for an F.O.B. manufacturing site price "could get us over 50% of the business for a period of three to five years. . . .;" (b) a conditional bid at "market price less $0.01/lb. and no comparator service with specified volume," warrants consideration; and (c) Du Pont "could gain 5–[73]10 million pounds of additional business with a 2 cents per lb. volume discount." (Miller, 1982–83; CX 1053Z27–30) PPG's sales representative noted after meeting with Exxon officials that up to 10 million pounds were available in 1979 to PPG for an offer with suitable savings such as an average freight allowance or firm price commitment. (CX 1332B-C) He recommended that consideration be given to offering Exxon a "long term contract," "F.O.B. plant price," and a "firm price guarantee." (CX 1298)

In September 1978, Exxon solicited bids for its 1979 business. (Payne, 3523) The solicitation requested quotations for either Exxon's entire needs or simply its needs at the Baytown refinery, with "no meet competition provision" for a "firm one year price." The Baytown refinery had been singled out by Exxon for individual bids because of its size (the world's largest) and its proximity to facilities of each of the four respondents. (Payne, 3522–27, 3530; Bonner, 5880) Each respondent uniformly responded by quoting list prices for their antiknock compounds with no separate quotation for Baytown. (Payne, 3528, 3530, 3531, 3538; CX 395A-C, 396A-B, 492H, 1081A-E, 1271A-G, 1418A-B)

(2) Texaco

153. Texaco's Manager of Purchasing, George Wilson, continuously pressed for pricing innovations from the antiknock suppliers. (Wilson, 3204–06; J. M. Robinson, 1059–60; CX 903, 1199, 1312) Mr. Wilson testified that he often met with respondents' sales representatives to discuss their price quotations. He testified that ". . . anytime I saw them I made a request [for a volume-related price]". (Wilson, 3204) Sales representatives would ask for more business and Mr. Wilson's "stock reply" was—"If you'll give us a discount, you can get more business." (Wilson, 3205)

In 1975, Texaco requested bids for its business from each of the respondents. In requesting these quotations, Texaco stated:

> Antiknock compounds have historically been priced identically by all of Texaco's suppliers. We are most concerned that there has been in effect, a fixed price which we assume is paid by all customers, without the normal volume discounts which exist in most markets. With these fixed prices, the only difference we see in our suppliers is the various services rendered by each. We would like to see these purchases handled on a more business-like competitive market basis, and plan, therefore, to place our future antiknock compound business basis [sic] the best volume discount and "service value" offered by suppliers. **[74]**

(CX 878A-C, 879, 1287A-C; REX 948; *see also* Wilson, 3196–203, 3229–32). The Texaco request asked for the options of a volume discount and a price exclusive of all services or, in the alternative, services unrelated to health and safety (Wilson, 3192–98, 3327–30, 3245; CX 896, 898, 1194, 1713C-D) Texaco was prepared to offer a sizable portion of its purchases to any vendor that offered a price discount. (Wilson, 3200–01) Ethyl estimated that 30 million pounds of potential new business was available and that the "incremental fluid" had "an additional 7–8 cents per pound gross profit over average gross profit figures for our entire volume." (CX 1709B) Ethyl concluded that the situation with the additional sales to Texaco with "all AK's dropped 5 percent in sales price" was a more profitable strategy by approximately $5–1/2 million over a three year period. (*Id.*) In fact, a plan was prepared to implement the volume-related discount which had "been effective with selected oil companies in antioxidant sales over the years and should work with antiknocks." (CX 1710) Nevertheless, Ethyl ultimately responded to Texaco with a list price quotation, as did each of the other antiknock compound suppliers. (Tunis, 426–29; Lockerbie, 765–66, 773–75, 778, 851; CX 903A-B, 1287A-C, 1713A-D)

(3) Shell

154. Shell asked both Ethyl and Du Pont for various forms of pricing and contract term concessions. These included requests for low prices based on long-term contracts, volume discounts, and tolling arrangements. In addition, Shell periodically requested a price F.O.B. manufacturing site and sought pricing without service. (Tunis, 227–39; Park, 1844–47; Koehnle, 4654–62; CX 550A-B, 551A-C, 555; 874A-B, 1036, 1037, 1053Z38–39) Shell was unable to obtain any of these concessions from Ethyl or Du Pont. (Tunis, 229–236; Lockerbie, 786–87, 853; Koehnle, 4662) Ethyl's "unyielding position" with regard to these requests resulted in a significant reduction in its antiknock compound business with Shell. (CX 551A; REX 324Z6) Du Pont's Shell business also suffered dramatically. (REX 324Z6)

(4) Sun

155. Sun devised a three-part strategy to secure pricing concessions: request bids; attempt to negotiate better credit terms in the form of deferred billing; and in the absence of alternatives, maximize receipt of services. (McCormick, 2638, 2640–46; CX 1585A-C, 1586) In 1973 and 1975, Sun requested bids for its antiknock requirements from each of the antiknock suppliers. Sun solicited volume discounts, F.O.B. manufacturing-site pricing, and pricing exclusive of services. (McCormick, 2648–54, 2723, 2810; CX 882A-B, 899, 1227, 1383, 1384, 1584, **[75]** 1588, 1741, 1742A-B) Each of the respondents responded to the Sun requests by quoting list prices. (Tunis, 256–69; Lockerbie, 781, 851; McCormick, 2651–52, 2653, 2656–58; CX 1228A-B, 1385, 1577, 1578, 1584A-B, 1587A-B, 1588, 1691A-B, 1692, 1733)

(5) Other Refiners

156. Besides Exxon, Texaco, Sun and Shell, other refiners requested the option of comparing antiknock compound quotations without services to those including existing service programs. (Lockerbie, 849; Altman, 1300–01; Park, 1838–50; Miller, 1973, 1981–82; Charles, 2534, 2581–82; Fetter, 4538, 4541–43; Koehnle, 4651–52; CX 894, 1201, 1622) Refiners which sought price quotations exclusive of services, but were unsuccessful, include:

Chevron (Altman, 1300; Park, 1847–48, 1871–73; CX 893, 1372, 1952Z67–Z69);
Kerr-McGee (Altman, 1300–01; CX 1370);

Union (Park, 1873; Charles, 2534; CX 894, 1043A-B);
Arco (Park, 1841–43, 1860–62; CX 890B, 892, 1075C, 1201);
Mobil (Park, 1848–49; CX 1078; RDX 115);
Southwestern Oil and Refining (CX 1936);
National Cooperative Refinery (CX 901);
La Gloria Oil & Gas (CX 891, 1194);
Plateau (Solomon, 2821–22; Koehnle, 4595); and
Good Hope Refining (CX 1902B).

One exception to this pattern was Crown Central. Crown rejected a price discount in lieu of services. (J. A. Robinson, 5357–58, 5365)

Du Pont and Ethyl were reluctant to grant discounts; they concluded that they could not gain any significant amount of business by offering a discount, or lose any significant amount by quoting list prices. (Tunis, 383; Lockerbie, 765–66, 774–75; McNally, 2258–60; CX 213I-L, 396A-B, 1713A-B, 1952Z121–Z123) **[76]**

C. *Other Pricing Proposals By Respondents*

(1) PPG

157. In 1976, PPG offered Exxon a special antiknock mix with only one scavenger. (Fremd, 1692; Miller, 1995–96; Steen, 3473–74, 3421–22, 3487–88; REX 785A; CX 1320A, 1322B; *see also* CX 631A, 906B) PPG made the offer after it learned it would receive no Exxon business for 1976. (CX 631A, 1320A; F. 152) This product would have involved a major specification change for Exxon, and would have required some adjustments by Exxon for the special mix to be a satisfactory substitute. A Du Pont representative testified he was told that Exxon's research did not believe the special mix should be used in Exxon's gasoline from a quality standpoint. (Miller, 1978–79, 1995–97; Steen, 3421–22; CX 906B) PPG's Vice President testified: "This was a kind of desperate proposal." (J. M. Robinson, 1155) In 1976, PPG offered Exxon transportation by barge. The savings to Exxon were never specified in a formal proposal. It would have involved an investment and high inventory costs for Exxon. (J. M. Robinson, 1153–55, 1160; Fremd, 1690–91, 1769, 1801; Steen, 3397–99, 3421, 3473, 3482–83; REX 785A) This delivery arrangement would not have saved Exxon money (Steen, 3397), and Exxon rejected the proposal. (Fremd, 1892) [***]

(2) Du Pont

158. [***]

(3) Nalco

159. [***] [77] [***]

D. *Profits*

(1) Generally

160. Economists believe that profits will be higher in noncompetitive markets than in competitive markets. (Glassman, 6039; Hay, 3796–97; Mann, 5631–32) If, over a period of time and in the face of changes in demand and supply, profits persistently exceed the risk-adjusted opportunity cost of capital, a conclusion may be made that the industry is not competitive. (Glassman, 6039–40)

161. Ethyl characterized its antiknock compound business in early 1975 as a "golden goose". (CX 212Q; Lockerbie, 713–19) In April 1977, the company had substantially improved its profits; it had been able to "recover costs, compensate for inflation, and in addition . . . [gain] approximately 2 cents per pound of fluid gross profit in real 1973 dollars." (CX 73C; *see also* CX 2107A)

Du Pont's antiknock compound business was characterized as "somewhat better than the company average." (Merkle, 5281) In fact, the profitability of the antiknock compound business varied from 70% greater than the Du Pont average in 1979 to 600% greater in 1975, as shown by the following table:

	1974	1975	1976	1977	1978	1979
Du Pont's Antiknock Compound Business (%)	11.4	15.2	16.8	12.5	[***]	[***]
Corporate-wide average (%)	4.2	2.5	3.9	4.3	[***]	[***]

These figures have been taken from RDX 336 and the corporate-wide average from data for the company's return on total assets before deduction of accumulated depreciation in CX 2116C (1974 and 1975), CX 2118B (1976 and 1977), CX 2119C (1978), and CX 2120B (1979). These figures are calculated on comparable [78] bases. (Merkle, 5281–82; Pidano, 7393) A Du Pont intracorporate document shows Du Pont's antiknock pretax return on investment to be 32% in 1976 and 25% in 1977. (CX 926L) Du Pont had a marketing objective of 20% pre-tax return on sales. [***] PPG recognized both in 1978 and 1979 that its antiknock compound business had "historically high returns." (CX 1278B, 1279A; Fremd, 1573–74, 1608–09) PPG stated that "Pricing has been stable." "Competition will have a depressing effect." (CX 1279A)

PPG's intracorporate records show the following pre-tax return on investment for its antiknock business based on gross assets:

Year	Percent
1974	26.4
1975	48.3
1976	39.5
1977	30.8

(CX 1279D)
[***]

Nalco's net profit before taxes on its antiknock sales for the years 1974-1979 were as follows:

Year	% of Sales
1974	27.96
1975	18.4
1976	20.1
1977	22.3
1978	[***]
1979	[***]

(RNX 333A-Z185, 1582A-P)
[***]

162. Ethyl, Du Pont and Nalco had rising gross domestic profit margins—profit per pound of antiknock compound sold—through 1977, as shown on Appendix I. The record contains no profit margin data exclusive of export sales for PPG. (J. M. Robinson, 1028–29) **[79]**

2. Benchmark Profit Comparisons

163. Industry or company profits expressed in terms of return on investment are supracompetitive if they are substantially greater than an appropriate benchmark. (Mann, 5595–98; Carlton, 7158–59) Appropriate benchmarks consist of returns on investment calculated from major industrial groupings applicable to the market being examined. Major industrial groupings include sectors such as "All Manufacturing", or "Chemicals and Allied Products." The average rate of return of broad industrial groupings may be higher than the theoretically competitive level because some of the firms may possess some monopoly power, and thus these figures constitute a somewhat conservative benchmark. As a result, comparing individual corporate returns on investment with 150% of the average for a broad industrial grouping to determine whether prices and profits are supracompetitive is a conservative standard, and compensates for many factors such as the risk premiums generated by uncertainty and for the imprecision of accounting data. (Mann, 5596–05; Pidano, 7382)

Return on total net assets is a reasonable measure of return on investment for a corporate division. (Mann, 5591–92, 5676; Pidano, 7376–77) Return on total net assets is calculated by dividing net income plus interest expense less taxes (the numerator) by total assets less accumulated depreciation (the denominator). (Pidano, 7604–05) Using an asset base net of accumulated depreciation is generally more appropriate than use of gross or book value of assets without deduction or allowance for depreciation accumulated over the assets' lifetime. (Mann, 5611–12; Pidano, 7394–95)

Returns on investment for major industrial groupings for use as benchmarks can be calculated from data in the Federal Trade Commission's Quarterly Financial Reports ("QFR"). QFR data reflect income and asset values on a historical cost basis. Reasonable major industrial groupings for use as benchmarks in analyzing respondents' profitability include the QFR's data for "All Manufacturing," "Chemical and Allied Products," and "Industrial Chemicals and Synthetics." (Mann, 5597–98, 5609; Pidano, 7382, 7457–58; CX 3002R-T, Z50, Z59–60)

The following average returns on net assets are proper calculations of the respective benchmarks:

	1974	1975	1976	1977	1979	1979
All Manufacturing (%)	10.6	8.6	9.8	9.9	10.5	11.2
Chemicals & Allied Products (%)	13.0	11.2	11.3	10.8	11.3	12.2 **[80]**
Industrial Chemicals & Synthetics (%)	11.7	9.7	10.1	9.4	10.4	11.1

(CX 2100A-F; Pidano, 7366)

The benchmark used for comparison purposes should be averaged over several years. (Mann, 5616–17) Unweighted averages of the benchmarks for 1974–1979 and 150% of these unweighted averages are:

Category	Average Return on Investment	150% of Average Return on Investment
All Manufacturing (%)	10.1	15.1
Chemicals & Allied Products (%)	11.6	17.4
Industrial Chemicals & Synthetics (%)	10.4	15.6

The respondents' returns on investment from their antiknock compound business between 1974 and 1979 calculated on a basis to yield percentages comparable to the benchmarks referenced above, are shown on Appendix J.

A comparison of each respondent's returns on investment with the averages of the benchmarks shows that:

(i) Ethyl's returns on investment substantially exceeded the 150% benchmarks in every year during the 1974–1979 period. [***]

(ii) Du Pont's returns on investment exceeded the 150% benchmarks in every year during the 1974–1979 period, [***]

(iii) PPG's returns on investment exceeded the 150% benchmark in four of the five years during the period for which data is available, [***] the exception being 1977. [***] **[81]** [***]

(iv) Nalco's returns on investment exceeded the 150% benchmarks in all four years during the period for which data is available, except for the "Chemicals and Allied Products" benchmark in 1975, [***]

PPG's and Nalco's calculations were prepared on a gross asset basis without deduction for accumulated depreciation. If accumulated depreciation had been deducted, as it was in the benchmark calculations, the returns for Nalco and PPG would have been significantly higher. (Pidano, 7404, 7413) In particular, PPG's accumulated depreciation in its antiknock compound business was at least 33% of the gross book value of total investment during the 1974–1979 period and, as a result, deduction for accumulated depreciation would have increased PPG's returns on investment at least 50%. (RPX 1529B; Pidano, 7405) Comparison of individual returns on a net asset basis to a major industrial grouping is proper for determining the profit level (and economic performance) of respondents and of the antiknock compound industry, even though most of the respondents' assets have been heavily depreciated. (Mann, 5995–96; Carlton, 7158, 7162)

164. The data used in computing Du Pont's return on investment information, done on an average cost inventory valuation basis, "are a proper reflection of the earnings attributable to . . . operations." (Merkel, 5250–51) For internal purposes, Du Pont uses only average cost accounting. LIFO is employed by Du Pont for external purposes, principally because of corporate income tax considerations, and generally only on a corporate-wide basis. (Gloyer, 7833–34, 7837, 7844) Conversion of Du Pont's profit data to a LIFO basis could be reasonable only if the benchmark is shown to be calculated on a similar LIFO basis. Companies whose data are included in the QFR data base are taken from Internal Revenue Service reporting categories and they probably report to the QFR on the same basis as for tax purposes. (Gloyer, 7833, 7895, 7898–99; 1978 Federal Trade Commission Quarterly Financial Reports at 7) The 1975 Survey of Corporate Tax Returns assembled and published by the Internal Revenue Service, the last available at the time of Mr. Gloyer's testimony, indicates that 3.5% of all manufacturing companies, reporting 47.7% of all income,

use a LIFO inventory valuation basis for tax purposes. For "Chemicals and Allied Products," the percentages are 6.2% and 59% respectively. The [82] 1974 Survey shows similar percentages. (I.R.S., Publication 16; Statistics of Income, table 9 at 86 and 88; 1974 Statistics of Income, table 8 at 79 and 80)

Du Pont contends that its return on investments should be calculated on a LIFO basis and in this manner compared with an industry benchmark. Du Pont's antiknock return on investment after LIFO adjustment is as follows:

Year	Du Pont Antiknock Return on Investment as Shown on RDX 501 (After LIFO Adjustment)
1974	15.9%
1975	31.5%
1976	35.4%
1977	22.8%
1978	[***]
1979	[***]

A comparison on the above return on investment with the unweighted averages of the QFR benchmarks for 1974–1979 reveals that Du Pont's Return on Investment exceeded the benchmarks in each year. In 1976, Du Pont's Return on Investment exceeded the average return on investment benchmarks by more than 300 percent.

165. The preferred method for looking at profitability is net income after taxes divided by total assets minus accumulated depreciation. (Pidano, 7604–05) Any variations from this methodology in the calculations of respondents' returns and benchmarks have been done in a conservative fashion. Both interest expense rather than only after tax interest expense, and "other non-operating expenses" have been included in the figure for net income. The effect of this is to enlarge the numerator and bias the benchmark return upward. (Pidano, 7378–80)

Ethyl's returns are biased downward relative to the benchmark calculations, since Ethyl's numerator includes only the after tax portion of interest expense, and possibly no interest expense at all. The effect of this is to reduce the numerator and bias Ethyl's return downward. (Pidano, 7416–17)

Du Pont's profits are biased downward by inclusion of export sales which were generally less profitable than domestic sales during this period. (Merkle, 5276–77) These profit figures may also be biased downward by Du Pont's removal of interest income which was not added back into the numerator. If included, this would increase the numerator and therefore Du Pont's return on investment for the years in question. (Pidano, 7384–85) [83]

PPG's returns are biased downward by inclusion of only the after tax portion of interest expense, thereby reducing the numerator, and, by use of gross assets without deduction for accumulated depreciation, thereby enlarging the denominator. (Pidano, 7409–10, 7412–13; RPX 1529B)

Nalco's returns are also biased downward by including in its income only the after tax portion of interest expense, and possibly no interest expense at all, thereby reducing the numerator. Nalco's profit data also is based upon gross assets without deduction for accumulated depreciation, thereby enlarging the denominator. Correction for each of these factors would have increased Nalco's returns on investment. (Pidano, 7396–7402, 7404)

These benchmark calculations are in accord with internal documents of all respondents which show, at least through 1979, that their antiknock operations were highly profitable. (CX 212Q, 73, 2107A, 1815D, 926L, 1278B, 1279A, D)

(3) Respondents' Profitability Studies

166. Ethyl presented a study prepared for this proceeding which indicated that its return on the cost of replacing its lead antiknock assets with new assets ranged from between 4.29% and 6.45% between 1974 and 1979. (REX 322A-U) Complaint counsel pointed out that several significant factors were not considered in the Ethyl study, and complaint counsel's expert accountant, Mr. Pidano, recalculated Ethyl's replacement cost study, and arrived at a significantly higher rate of return; *i.e.,* 15.5%. (CX 2104A-F) Replacement cost analyses are generally considered by the accounting profession and the Securities and Exchange Commission to be inappropriate for determining an income figure. (Pidano, 7443, 7592–93; CX 2108B)

Du Pont presented a "grass roots" study of the profitability of investment in a new antiknock facility. This study shows a net return on investment of a "grass roots" plant to range from a low of 2.2% in 1974 to a high of 6.0% in 1977. (RDX 335) It is questionable whether such a study is an appropriate benchmark for comparing profitability of an ongoing industry. (Markham, 6804–05) In addition, this study has several questionable assumptions that serve as a basis for the study. First, when Du Pont determines whether to go into a new product line or to expand an existing facility, the corporation compares the project's net returns for first, third and fifth years and cash flow over a ten-year period. (Merkle, 5311–12) RDX 335 shows only the net return for the first year of such a hypothetical plant. (Merkle, 5314–15) Second, the calculations underlying RDX 335 were based on

Du Pont's batch manufacturing technology, rather than the more efficient continuous process technology that Du Pont has had for over 20 years. (Tunis, 85; [84] Merkle, 5285–86, 5293–94; Glassman, 6576; RDX 135H; CX 923I) Thus, the data used in the study probably overstates the costs of construction and operation and, therefore, understates the hypothetical return on investment.

(4) Other Profitability Indicia

167. [***] In addition, Nalco produces only TML, which costs more to manufacture than TEL. (Fremd, 1748–40) Ethyl sells substantially more TEL than TML (based on the fact TML constitutes only 25% of the total antiknock compound market, and Nalco had the largest share of the TML market [about 46%—REX 324Z27; CX 1776A]. (REX 127P; RDX 132 Z10; CX 198A, D, 968B, 1269A, 1305) Some indication of Ethyl's profitability can be gained by comparing Nalco's average gross selling price with that of Ethyl. This is calculated by taking gross lead antiknock revenues for each year, 1974 through 1979, and dividing by the volume of lead antiknocks sold:

AVERAGE GROSS SELLING PRICE (¢/lb.)

YEAR	ETHYL	NALCO
1974	46.476	44.529
1975	57.092	54.883
1976	61.841	59.660
1977	70.072	66.991
1978	[***]	[***]
1979	[***]	[***]

(REX 8A-B; RNX 333A-Z185; RNX 1582A-P)
Nalco was profitable with higher production costs and lower selling prices. It can be inferred that Ethyl, with lower production costs and higher selling prices, was highly profitable.

168. Economists testifying in this proceeding stated that given the structure of the industry, they would expect prices to be above marginal cost. (Hay, 4387–88; Mann, 5420–21; Markham, 6829, 6855–56, 6904; Sheffman, 7802–03) Dr. Dennis Carlton, Nalco's expert economic witness, testified as the final witness in this proceeding, and after all profit data and benchmark exhibits had been received in evidence, he concluded that the antiknock industry was not a competitive industry:

Q. Now, I'd like to direct your attention to paragraph - the last paragraph of interrogatory 15. I'd like to read into the record: "While these profit figures are neither proof of anticompetitive conduct, nor necessary for such a finding, such profit [85] performance does suggest that the lead-based antiknock compound industry is not a competitive one."

Is this the sum and substance of your testimony thus far?

A. Yes, it is. I mean, I can't vouch for the accuracy of these profit figures, but certainly, this is what I've been testifying to this morning.

Namely, that if you see high profit, at most, it could tell you that price is above marginal cost. That's the same to an economist as saying the industry is not a competitive one. Moreover, once you've seen high profits, you can't, from that alone, determine that it was the practices or some other feature accounting for price being in excess of marginal cost.

You really have to—it is just the first step, once you establish that price is in excess of marginal cost. You have to go on and analyze the features of the industry, structural features, as well as the practices, in detail to see how far that interacts in the industry and how that affects price setting behavior.

(Carlton, Tr. 7976–77)
Dr. Carlton testified that facilitating practices could have effect in some industries (Carlton, 7055–56); however, he was of the opinion that ". . . the structure of the industry explains quite well the subsequent industry behavior." (Carlton, 7043, 7045–46, 7065–66, 7307)

Dr. Hay stated that once you determine price is above marginal cost, and that a pattern of prices reflecting a lack of vigorous price competition and an oligopoly structure conducive to the effectiveness of facilitating practices exists, an inquiry is made to determine how this lack of competition came about. (Hay, 3969–71, 3974, 3990–91) According to Dr. Hay, the facilitating practices interacting with the market structure, reduced the vigor of price competition in the lead-based antiknock compound industry. (Hay, 3785, 3811–14, 3847, 3908, 3929, 3990–93, 4068) **[86]**

IX. EFFECTS OF THE PRACTICES

1. Advance Notice of List Price Changes

169. The antiknock market in the period 1974–1979 was faced with excess capacity and a declining demand. ". . . [T]he price structure certainly had a potential for declining." (Tunis, 112) An Ethyl official testified:

We want to maintain a stable and profitable market, and my understanding of a stable and profitable market was the opposite of a chaotic market, one where we had a good share of the business, one where we made a good, decent profit on the product, and hopefully we could count on the next year as being roughly the same kind of business. (Lockerbie, 716–717; *see also* CX 270D)

During the hearings, the following testimony was elicited from a PPG official:

Judge Barnes:

. . . But I would like to ask, on this price stability, stability of the market, Mr. Robinson, in your belief did the publishing of identical list prices contribute to market stability?

The Witness:

I believe so, your Honor. (J. M. Robinson, 1002)

Du Pont's Director of Marketing stated that the period after a price increase announcement was "[e]xciting" and "very, very nerve-wracking, tense" (McNally, 2170, 2129), and that "the major tension is being number one [to announce a price increase]." (McNally, 2174) "Everytime you put out a price that is higher than what competition establishes as the second entity in that marketplace, I guarantee you you will take abuse." (Tunis, 415) Learning about price moves was important to respondents because ". . . the second person in the market is the one who really sets the price." (Tunis, 155–56)

170. There was some uncertainty in the lead antiknock market about whether price increases would stick. (Tunis, 112, 396, 398–99, 449–50; McNally, 2129, 2174; Hay, 3816) According to an Ethyl official, if competition followed a price increase "then it should stick." (Day, 556) Refiners were unwilling to purchase from one supplier with list prices higher than those offered by a competitor. (Tunis, 398, 407–10; Park, 1829; Diggs, 2427–29; Wilson, 3291–92, 3295–96; Werling, 3651) The respondents recognized that no producer could survive in the [87] market with a list price higher than its competitors because of the homogeneity of the product. (Tunis 396) The testimony and documentary evidence with respect to pricing of special mixes indicates that refiners were unwilling to purchase from one supplier at a list price even .01¢/lb. higher than that offered by another supplier, and instead notified the high-priced supplier of that fact and amount of the price difference. (Tunis, 407–09; Park, 1829; Diggs, 2428–29; Werling, 3651–53, 3659, 3664; CX 930, 932, 948, 951, 1953Z254, Z257, 1608) Refiners were willing to shift purchases in favor of the lead antiknock producer with a lower price. (Tunis, 155, 240; Solomon, 2832; McNally, 2165–66; Wilson, 3197–3202, 3205; Miller, 1992–94; McCormick, 2648–54; CX 1584B, 1588B)

[P]rice shading of 1–2 cents per pound has been shown to move large volumes of fluid from one supplier to another, and greatly increase profits of the price shader. (CX 204A; *see also* Lockerbie, Tr. 743; CX 629A-B, 1709B)

Ethyl was told by Texaco's General Manager of Purchasing Department that:

Savings of 1¢ per pound could shift a considerable portion of their business since lead AK represents over two times the value of any other chemical used. (CX 569B)

171. Advance notice of list price changes gave competitors time to respond to price changes or to "meet the competition." (McNally, 2129) For instance, Du Pont scheduled announcements of higher prices to provide "an interval which gave our competitors a chance to respond, without having to change the effective date." (McNally, 2129) Ethyl planned price increases by calculating the date by which "competition must reply." (CX 91, 115, 1609, 1953Z86, Z298) As contemporaneously stated in connection with one of its planned increases:

This timing gives 37 days notice and allows one week for competition to respond, including a weekend. (CX 93A)

If "competition" did not "respond," Ethyl would then have to follow contingency plans such as "to roll back our prices." (CX 1953Z298) PPG's management acknowledged that both the timing and amount of its antiknock price changes were determined by the pricing actions of Ethyl and Du Pont, which it endeavored to match. (J. M. Robinson, 1033; Fremd, 1592–93; CX 1285A, 1286)

Advance notice reduced the risk of increasing the list price of lead antiknocks. (McNally, 2165–66; Hay, 3818–19) Advance notice of a price increase assures that the initiator [88] will not be alone in the market with a price higher than its competitors and it prevents a possible shift of short-term business to the lower-priced competitors. (McNally, 2165–66; Solomon, 2831–32; Hay, 3818–19) The advance publishing of list price changes contributed to market stability by transmitting pricing information among rivals regarding the facts and details of a price change and by providing a means of assuring that the list prices of respondents will go into effect at the same time and in the same amount. (F. 53; J. M. Robinson, 1002; Hay, 3811–12, 3878; Glassman, 6560; Carlton, 7237) There were twenty-four (24) price increases in the period 1974 through April, 1979, and in twenty instances respondents had an identical list price that was effective on the same date. In the other four instances, there was an identical list price and an effective date difference of only a day or two. (*See* F. 53)

172. Ethyl, Du Pont and PPG sold special, or non-standard, antiknock compounds. (F. 10) Special mix prices were not included in releases to the trade press (Diggs, 2426; Werling, 3649–51; CX 1660A-H), and were not included in general customer price disseminations, letters and price lists. (Lockerbie, 698–99, 701; Fremd, 1599; McNally, 2186–87, 2192–93) While respondents' published TEL and TML list prices were identical on the various standard mixes at the time price

changes were made, discrepancies in respondents' special mix prices occurred on at least 18 occasions out of 30 price changes between 1974 and 1979 and ranged in amount from .01 cents/lb. to .33 cents/lb., with an average difference of .097 cents/lb. (Fremd, 1592–93; Park, 1824–22; Diggs, 2427–30; CX 1953Z261–Z63) Higher prices were rolled back to match rivals' lower prices when discrepancies were discovered. (Fremd, 1672; Park, 1828–29; Diggs, 2427–29; CX 930, 944, 948, 951, 1061, 1608) These discrepancies are noted on Appendix K.

Ethyl attempted to determine how Du Pont computed its special mix prices because Ethyl "would prefer not to be high on those two mixes again and have to roll back." (CX 337, 1953Z262) Mr. Werling, Ethyl's Manager of Marketing Research and Analysis, testified about this attempt to ascertain Du Pont's pricing formula:

> Apparently I asked the Pricing Coordinator if, based on this difference for this product, he could determine how he thought the competition or how Du Pont was calculating this nonstandard mix.

(CX 1953Z61)
The Pricing Coordinator, Mr. Werling noted, "came back and said that he could not determine or ascertain any pricing formula that Du Pont may be using." (CX 1953Z62)

Similarly, in May 1976, Ethyl discovered that its price for TELMEL –10, then sold to only one customer (CX 2C; Lockerbie, **[89]** 698–99), was .02 cents per pound higher than Du Pont's price for the third time in successive price moves. (CX 117) Ethyl concluded that "[t]here is not a mistake in calculation on our part. Cannot figure out how competition calculates their price." (CX 117) Other Ethyl management concurred:

> [w]e just don't understand why Du Pont can't get the right price for the mix—it isn't that hard to calculate.

(CX 1617, 1698)
Apparently frustrated by the experience, Ethyl determined to "get them [the refiner] off TELMEL–10," which would have obviated any future price matching problems on its special mix. (CX 1697A-B; Werling, 3696)

2. Press Releases and Standby Press Statements

173. Prior to the cessation of press releases in 1977 articles concerning price changes occurred in the press generally within one to three days of the price change announcement. The following chart shows the first press publication of a price change announcement and the number of days between the price announcement and the first press publication:

Date of Press Release	Company	First Publication of Announcement	Days Difference Btwn. Release and Publication
N/A	E*	2/4/74 Wall Street Journal [WSJ] (CX 354)	N/A
2/5/74 (CX 973)	D*	2/7/74 WSJ (CX 353)	2
3/28/74 (CX 1106)	D	3/29/74 Oil Daily [OD] (CX 1591)	1
6/11/74 (CX 311)	E	6/12/74 WSJ (CX 1595)	1
6/24/74 (CX 975)	D/E	6/25/74 WSJ (316)	1
8/21/74 (CX 976)	D	8/21/74 WSJ (CX 310)	0
3/13/75 (CX 284)	E	3/14/75 WSJ (CX 295)	1 **[90]**
5/14/75 (CX 277; 640C)	D/E	5/15/75	1
6/2/75 (CX 267)	E	6/3/75 New York Times (CX 690)	1
8/14/75 (CX 972)	D	8/15/75 WSJ (CX 264)	1
12/11/75 (CX 702; 228)	D/E	12/12/75 WSJ (CX 711)	1
3/12/76 (CX 188)	E	3/15/76 WSJ (CX 734)	3
N/A[17]	D	4/16/76 OD - (CX 184)	1
7/9/76 (CX 1108)	D	7/12/76 WSJ (CX 170)	3
10/11/76 (CX 153)	E	10/12/76 OD (CS 781)	1
1/21/77 (CX 34)	E	1/24/77 OD (CX 797)	3
2/9/77 (CX 800)	D	2/10/77 WSJ (CX 136)	1
3/1/77 (CX 33; 821)	E/D	3/2/77 WSJ (CX 122)	1
3/4/77 (CX 1113Z 69)	D	3/7/77 WSJ (CX 120)	3
4/19/77 (CX 90)	E	4/20/77 OD (CX 845)	1
8/17/77 (CX 111)	D	8/17/77 OD (CX 66)	0
8/19/77 (CX 101)	E	8/22/77 WSJ (CX 858) **[91]**	3

* "E" stands for Ethyl Corp. and "D" stands for Du Pont.

[17] Price change notification to customers was 4/15/76. (CX 742)

There is substantial evidence in the record that press announcements either provided respondents with the first information of a price increase or confirmed information about a price increase which had been received from customers. (Tunis, 148, 150, 170–71; J. M. Robinson, 1034, 1213; Altman, 1359–60; Hay, 3811–12; Glassman, 6560; CX 821, 831, 894, 938, 935–36, 938, 939, 940, 944, 950, 952, 953, 955, 1389, 1390D, 1487, 1489; F. 131–135)

174. Du Pont stopped issuing press releases announcing price changes in April 1977. (CX 909A-B; Tunis, 180–81, 362–65; Diggs, 2413–14) The other three respondents discontinued the practice in the fall of 1977 with the exception of one PPG announcement to the press of a TEL price decrease in July 1978. (CX 424D, 1239, 1527F, 1953Z5–Z7; Lockerbie, 705–06; Rowe, 2331–32, 2360, 2363–64; Gill, 4703–04; J. M. Robinson, 1041–42; Altman, 1364–65) Relatively few newspaper articles about antiknock compound prices appeared after December 1977. (J. M. Robinson, 1034; Gill, 4704–05; CX 1953Z67) Information on price changes which has appeared in the press since 1977, has sometimes been obtained from "field reports" by customers of the lead antiknock compound producers. (CX 66, 427, 1404, 1602, 1977B) The antiknock compound producers continue to confirm these reports on calls from the press. (CX 420, 1600, 1602, 1977B)

175. The record indicates that press reports were of substantial significance to respondents when price increases were announced, as shown by the following sequences: On March 1, 1977, Ethyl and Du Pont simultaneously announced price increases of differing amounts. The announcements were, at least in part, in response to increases in the list price of lead used to make antiknock compounds. (CX 50, 938) Ethyl's March 1, 1977 announcement was an increase in TEL and TML prices of .8 cents per pound, effective April 4, 1977. (CX 13) Ethyl issued a press release, which was widely disseminated to newspapers and newswires. (CX 33, 518) Ethyl's announcement was timed to permit responses by competitors. According to an internal memorandum dated Monday, February 28, 1977: "4–4–77 [the effective date of the change] is 34 day notification if given today—competition must reply by Friday [March 4, 1977]" in order to match Ethyl's price change. (CX 114) The Du Pont price increase, also announced to customers and to the press on March 1, 1977 (CX 813, 819A-F, 821), was for 2.0 cents per pound, with an effective date of April 7, 1977, thirty-seven days later.

News of the differing Ethyl and Du Pont price actions was carried in the March 2 editions of *The Wall Street Journal* and *The New York Times,* and the March 3 edition of the *Journal of Commerce.* At least

Du Pont (CX 832–34), Ethyl **[92]** (CX 122) and Nalco (CX 1884) received these reports. A further report was carried in *The Oil Daily* on March 3:

> Both Du Pont Co. and Ethyl Corp. told *The Oil Daily* they are "studying" the situation following announcements of different sized increases on Tuesday, with Ethyl adding that it has 'no immediate plans for further adjustment' of its prices.

(CX 121, 831).

Ethyl's Public Relations department was the source of the statement that Ethyl had no plans for further change of its prices. (Rowe, 2329–30) On March 3, Du Pont's Dr. Diggs noted in an internal memo that "[i]t is not expected that Ethyl will raise their price further, so we will have to lower ours." (CX 955) Dr. Diggs contemporaneously read the March 3 article in *The Oil Daily.* (CX 939A, 955; Diggs, 2431) That article continued:

> The other two domestic producers—PPG Industries' Houston Chemical unit and Nalco Chemical Co.'s Petroleum and Process Chemical division—have not reacted to this latest price increase. But a source close to one noted that they probably wouldn't move until the two major producers had settled on one price.

(CX 121, 831)

The next day, March 4, formal authorization was obtained by Du Pont's marketing personnel to match Ethyl's lower price. (CX 939; Diggs, 2431) The Du Pont price change was announced to customers and to the press on Friday, March 4. (CX 817, 1113Z69) The following Monday, March 7, Du Pont's price announcement appeared in *The Wall Street Journal,* and on March 8 in *The Oil Daily.* (CX 119–20) Each of these articles was found in Ethyl's files. (*Id.*) The Du Pont price announcement also appeared in the *Journal of Commerce* on March 8. (CX 829)

On Monday, March 7, PPG and Nalco followed with announcements and press releases of .8 cents per pound price increases effective April 7, identical in amount to Ethyl's announcement and Du Pont's second announcement and with the same effective date as that initially announced by Du Pont. (CX 1122, 1344, 1484, 1660G) Nalco, for example, received word of at least one of its rivals' actions through the press:

> 3–7–77 - Called Jim Brumm [*Oil Daily*] at 3:35 p.m. and told him contents of release - he said Houston moved tu. [sic] also, so that makes all four.

(CX 1487). **[93]**

The March 9 editions of *The Wall Street Journal, The Oil Daily,* and *Journal of Commerce* carried news of the PPG and Nalco moves, which were collected by Du Pont (CX 824, 826, 827) and Ethyl (CX 117, 118). Finally, on March 18, 1977, Ethyl rolled back its effective date from April 4 to April 7 at which point each respondent had an identical TEL and TML price increase, effective on the same date. (CX 12)

176. Ethyl could anticipate from Du Pont's initial attempt to raise prices more than .8 cents per pound in the previous price round that Du Pont would probably be amenable to another price increase. Less than one week after the April 7 effective date of the .8 cents per pound increase, Ethyl began planning another price increase. On April 13, 1977, Ethyl's Ralph Werling wrote to his Senior Vice President, J. M. Gill, to propose that the next price increase be announced on Monday, April 18, 1977 to be effective May 25, 1977:

> This timing gives 37 days notice and allows one week for competition to respond, including a weekend.

(CX 93A).

Mr. Gill moved the announcement and effective date by one day, and on April 19, 1977 Ethyl announced an 1.8 cents per pound increase to its customers and to the press. (CX 16, 90) Mr. Werling noted the price change in his records with the following comment:

> PRICE CHANGE EFFECTIVE 5–26–77
>
> * * *
>
> Price Change Announced: 4–19–77
> Day's Notice: 37
>
> Competition must reply by 4–26–77

(CX 91, 1953Z82–83). That same day, April 19, 1977, Du Pont and Nalco learned of the amount and effective date of the Ethyl price move in separate telephone calls from *The Oil Daily.* (CX 940, 1390D-E)

On April 20, 1977 (36 days before the effective date) news of the Ethyl increase appeared (as indicated in Du Pont's files) in *The Oil Daily, The Wall Street Journal,* and *Journal of Commerce.* (CX 845–47) Du Pont and PPG announced on April 20 and April 21, respectively, identical TEL and TML price changes to customers. (CX 836, 1121) PPG also issued a press release. (CX 1660H) Two days later, on April 22, confirmation of the Du Pont price change appeared in *The Wall Street Journal* and *The Oil Daily.* (CX 842, 844) Ethyl **[94]** collected *The Wall Street Journal* notice. (CX 96) On April 25, notices of the Du

Pont and PPG price changes (each identical to Ethyl's) were printed in *The Oil Daily* and collected by Ethyl, Du Pont, and Nalco. (CX 94, 842, 1351) Nalco also published price changes on April 25 identical to those of the other respondents. (CX 1348, 1390) The Nalco announcement was carried in *The Wall Street Journal* on April 27, which was collected by Ethyl. (CX 96) Thus, by April 26, 1977, the date for which Mr. Werling had noted that "competition must reply," each respondent had announced identical TEL and TML price moves, effective on the same date. In little more than two months each respondents' list price had increased 2.6 cents per pound, or almost four percent in two price increases.

177. The above price increase actions are more fully documented in the record than are other pricing actions. However, this sequence of events does not appear unusual. Ethyl's Ralph Werling, for example, testified that he generally arranged his price change records in the manner described above, to allow time for competition to respond. (Werling, 3627–30) Further, some detail is available with respect to several other price actions. In early October 1976, the major pig lead producers increased lead prices one cent a pound. (CX 162–63) On October 8, 1976, Ethyl's management sought approval from its Executive Committee for a 3.1 cents per pound increase in antiknock compound prices to be announced October 11, effective November 18. (CX 154). J. M. Gill wrote:

About one cent of this increase will capture increased raw material costs including the latest lead metal increase of one cent per pound. The remainder is to cover costs in other areas including increased distribution costs and the general impact of the current inflation rate.

(*Id.*).

Clearance was given for the increase at 12:25 p.m. on October 11, 1976. (CX 522A) *The Wall Street Journal* was notified at 12:30 p.m. that same day (including the Dow Jones ticker which also moved at 12:30 p.m.), Jim Brumm of *The Oil Daily* at 12:40 p.m., and a variety of other press contacts were made in the next half hour. (*Id.*) All the trade press contacts were completed, and the information carried, at least on the Dow Jones ticker, before notice of the price increase cleared Ethyl's internal teletype circuits. (CX 522A-C) On October 13, 1976, Du Pont's Marketing Manager-Antiknocks wrote to G. C. Tunis, Director of Marketing, seeking authorization to increase antiknock compound prices 3.1 cents per pound effective November 18, 1976:

We learned on October 11, 1976 from telephone calls to the Public Affairs Department by the *Oil Daily* and *The Wall Street Journal,* and it was [95] confirmed in *The Wall*

Street Journal and *Oil Daily* issues of October 12, 1976 that Ethyl is increasing prices . . . 3.1 cents per pound . . . effective . . . November 18, 1976.

(CX 950A).

The October 12 articles in *The Oil Daily* and *The Wall Street Journal* were collected by Du Pont and Nalco. (CX 781, 782, 1354–55). On October 13, Du Pont sent a Mailgram to customers (CX 770) and issued a press release to *The Wall Street Journal, Journal of Commerce, The Oil Daily, Chemical Week, Chemical Marketing Reporter, Oil & Gas Journal, Reuters, The New York Times* and *The News Journal.* (CX 772–73) Reports of the Du Pont action in the October 14 editions of *The Oil Daily* and *The Wall Street Journal* were collected by Ethyl and Nalco. (CX 159–60, 1353) Du Pont and Ethyl, having uniformly increased prices 3.1 cents per pound, were then joined by PPG on October 14 (CX 1129), and by Nalco on October 15. (CX 1492) News articles of October 18 reporting the PPG and Nalco increases were collected by Ethyl and Du Pont. (CX 157–58, 776–77)

178. On May 14, 1975, Ethyl announced a decrease in the price of antiknock compounds. Clearance for the announcement was obtained at 5:30 p.m. and *The Wall Street Journal,* among others, was immediately notified. (CX 277, 529) The next day, May 15, Du Pont sought authorization to match Ethyl's price move citing "[a]n article in the May 15, 1975 edition of *The Wall Street Journal*" as its source of information. (CX 928A)

On March 12, 1976, Ethyl announced an increase in the price of lead-based antiknock compounds. (CX 188, 189) Du Pont initially learned of the increase that same day from *The Oil Daily.* (CX 936A) That information was confirmed three days later in *The Wall Street Journal* of March 15, 1976. (*Id.*) Du Pont then, on March 15, instituted a price change to match the new price level set by Ethyl. (*Id.;* CX 725, 1107)

179. The importance attached to information received through the press is illustrated by the fact that PPG followed inaccurate information in the trade press in preference to what proved to be accurate information available from customers. On January 21, 1977, Ethyl announced to customers and the press an increase of 0.8 cents per pound, effective February 24, 1977. (CX 8, 34) PPG learned of Ethyl's pricing action, and on January 24 announced to customers and the press that it would also be increasing its price by 0.8 cents per pound, effective February 24, 1977. (CX 1128, 1660E) Du Pont, also on January 24, advised its customers and issued a press release that it would increase prices by the same amount and effective the same day as Ethyl. (CX 786, 952A, 1109) Although Du Pont's customers were correctly informed of the February 24 effective **[96]** date, *The Wall Street*

Journal of January 25 incorrectly reported that Du Pont's effective date would be March 1, rather than February 24. (CX 149) PPG then moved to meet the later date of March 1. (CX 1185) Since inaccurate information was available only from the trade press, and Du Pont's customers had all been informed of the correct date, it can be inferred that PPG either ignored or else did not receive information from customers and relied instead on information received from the media.

180. The importance of giving advance notice of price increases so that "competition" had time "to respond" (McNally, 2129) is illustrated by Du Pont's August, 1977 price move, in which less, but still substantial, advance notice was given. On August 15, 1977, Du Pont initiated a price increase. Du Pont's price increase was effective only 31 days from the date of announcement, on advice of counsel concerned about antitrust liability. (Tunis, 155; Diggs, 2410–11; CX 850, 111) On August 19th, Du Pont was informed by a telephone call from *The Wall Street Journal,* as well as a customer, that Ethyl had instituted an increase of a lesser amount. (CX 944A) Du Pont found that "[b]y the time they [Ethyl] learned of what we were doing they could not match the same effective date and give 30 days' notice." (Diggs, 2413) Ethyl's smaller increase was effective on a later date with 34 days notice. (CX 19, 101) *The Wall Street Journal* of August 22nd confirmed Ethyl's price increase, and Du Pont on that same day asked to roll back its price increase to match the Ethyl price (CX 853, 944), and then matched the timing and amount of Ethyl's increase. (CX 853) This was the first that any list price increase was intentionally undercut (F. 54–55), and Ethyl's inability to match the effective date of Du Pont's price increase may have provided the incentive to undercut Du Pont's price. As a result of this experience Du Pont "lengthened the period somewhat . . . to provide time to test what the competitive reaction would be." (Diggs, 2413)

181. The increased certainty and confidence provided by releases to the trade press is further demonstrated by the events surrounding the short-lived price war in the Spring and Summer of 1978 when TML prices were decreased in two separate pricing actions. (F. 52, 142) Ethyl, for example, found itself "a little gun-shy" in the face of this "real competition" and "scared to death of what was going to happen to us in the marketplace." (Lockerbie, 813) Neither of these first two decreases, led by Ethyl and Du Pont respectively, were accompanied by press releases. (McNally, 2192–94) PPG feared it was the target of the two TML decreases, since it had traditionally produced only TEL, which was now priced higher than TML. (J. M. Robinson, 1109–11) PPG therefore initiated a third industry-wide decrease on July 5, this time involving only TEL, so that the prices of TEL and TML would be equalized. PPG accompanied its price decrease with a press release,

even though the previous Fall it had decided to discontinue issuing releases. (CX 1163F, 1239) [97]

Dr. Dennis Carlton, Nalco's economic expert economist, explained about price decreases in an oligopoly:

> [Y]ou want to make sure . . . that your rival who has very similar interests to you does not misinterpret your price decrease as a secret price cut or as price competition breaking out. It is . . . important that prices be the same and your rival know what you are doing when prices decrease.
>
> . . . [I]t is well recognized that what creates confusion in an oligopoly is any time there is a price change and if a decrease is interpreted as all-out price competition breaking out or discounts breaking out, that could erode the price structure. . . .

(Carlton, 7236–37).

Dr. Hay offered a similar assessment of the publication of price decreases, finding no other "immediately apparent" rationale. (Hay, 3837–40) PPG's rivals could have quickly learned the details of PPG's decrease from the trade press, for at least one wire service carried PPG's story on July 5 (CX 423), the date the decrease was announced, and thereby avoided confusion which could result from scattered reports coming in from customers.[18]

182. After the May-July 1978 price actions ended with list prices for TEL and TML at identical, but lower levels, Ethyl initiated its next price increases in August and September 1978. Ethyl announced on August 7, 1978, a price increase effective on September 9. (CX 464) No press release was issued (CX 424D; Rowe, 2331), and some information PPG obtained regarding the price move was "partially false." (CX 1285A) PPG's Director of Sales, Osborne Fremd, wrote his senior, John Robinson, about the difficulty of getting information: "[W]e [almost] . . . missed our 30 day notification clause. . . ." (CX 1285A). Mr. Fremd continued, "If something as important as a price change can't be picked up immediately, . . . we have some real, real problems." (CX 1285B) These problems continued on the next price increase which Ethyl announced on September 13, [98] 1978, effective October 16. Again no press release was issued. (CX 424D, 458) As before, PPG had difficulty in obtaining information about its rivals' actions, in this case learning "if Du Pont had been competitive [sic]" in following the Ethyl increase. (CX 1299) Because of the lack of accurate information, PPG had to wait until the last day to "send out a reply" to competitors "on our price increase." (CX 1286)

In the August and September price increases, PPG anticipated antiknock compound pricing actions by Ethyl and Du Pont because of

[18] PPG's press release (CX 1239) is undated. However, the July 5 report of PPG's price decrease was carried on the Chemweek Newswire, which Ethyl received (CX 423), although not by teletype but through the mail service which could have been received daily. (Rowe, 2325–26)

the recent pig lead price increases. In both instances, PPG had problems obtaining accurate information about pricing actions. (CX 1286, 1286, 1299) Having learned that Ethyl had passed through only the lead list price increase, PPG did not react until it had determined whether Du Pont had gone along with the "exact" price change. (CX 1285A) PPG was ultimately able to determine both Ethyl's and Du Pont's pricing actions and "send out a reply" (CX 1286); however, PPG was conscious that its increase nearly "missed our 30 day notification clause to contract customers." (CX 1285A)

183. Respondents continued to learn about their rivals' price changes after cessation of press notices, usually within a short period of time. Ethyl after 1977 continued to learn of rivals' price changes from its customers. (CX 47, 68A, 466, 1953, 1612) The same was generally true for Du Pont, PPG, and Nalco. (CX 944A, 945, 1039, 1040, 1045 1047, 1048A, 1056A, 1059, 1058, 1059A, 1060A, 1061, 1062, 1063A, 1065, 1300, 1301, 1303, 1304, 1309; RNX 892A, 1014A, 1101, 1102, 1118; RDX 61, 62, 194, 238A, 287A, 288A, 289A, 290, 291A, 294)

On August 15, 1977, Du Pont notified its customers of a price increase. (CX 850) Ethyl learned of the price change from two customers the same day. (CX 68A) *The Oil Daily* promptly learned of the price increase from "field reports" and on August 17 published an article on the increase. (CX 66) On September 13, 1978, Ethyl notified its customers of a price increase (CX 458); on September 14 Du Pont notified its customers of a matching increase, as did PPG and Nalco on September 15. (CX 417, 1113Z49, 1250, 1513) On October 13, 1978, Ethyl notified its customers of a price increase. (CX 452) Du Pont learned of Ethyl's announcement from one of its customers—Union Oil—the same day. (CX 1059A) On October 16, Du Pont and PPG notified customers of matching increases. (CX 1059A, 1113Z51, 1260) It was not until October 17 that *The Oil Daily* published an article on the price increase. (CX 415) On January 2, 1979, Ethyl notified its customers of a price increase. (CX 441) Du Pont notified its customers of a matching increase on January 4, (CX 1113Z53); on January 5, PPG notified its customers of a matching increase (CX 1252), and Nalco announced a delay in the effective date. (CX 1508) *The Oil Daily* published an article on the price increase on January 5. (CX 447) On February 1, 1979, Du Pont **[99]** notified its customers of a price increase. (CX 1113Z57) PPG notified its customers of a matching increase on February 2. (CX 1242) On March 13, 1979, Du Pont notified its customers of a price increase. (CX 1113Z61) Ethyl notified its customers of a matching increase on March 14. (CX 392) *The Oil Daily* published an article on the price increase on March 15. (CX 1602)

Information received from customers was sometimes inaccurate (CX 1285A) and did not always communicate the effective date of a price change. (J. M. Robinson, 1033) The record is also clear that customers usually provide price information only if it is a public list price. (J. M. Robinson, 1037; *see* F. 138) Respondents and customers take extreme measures to insure that off-list pricing information is kept strictly confidential. (J. M. Robinson, 1090, 1095; Altman, 1424, 1494, 1529–32; F. 138)

3. Uniform Delivered Pricing

184. Each respondent sells lead-based antiknock compounds only on the basis of a delivered price inclusive of transportation and quotes list prices on a uniform delivered basis. All sales at list price are therefore identical throughout the United States. Respondents generally were aware that each other utilized uniform delivered pricing—"it was the competitive framework which we interfaced with." (Tunis, 138; *see also* Tunis, 265, 338; Lockerbie, 775–76; J. M. Robinson, 1020–21, 1024; Altman, 1285, 1375; Fremd, 1638, 1640–42; McNally, 2123; F. 123) This system of pricing enables respondents to easily determine the list price to any customer in the United States. One economic expert witness testified that "delivered pricing systems of the type we are talking about in this case" are a means by which identical prices can be arrived at by formula. (Glassman, 6521)

185. All lead antiknock fluid is shipped by common carrier and is subject to freight tariffs fixed and published by federal and state agencies. (Krippahne, 5053–54; Baker, 5785; Altman, 6697) Respondents have access to these tariffs. (Gill, 4730–31; Krippahne, 5062–65, 5107–08; Altman, 6697) There are certain variables in determining freight costs; for instance, the shipping point of origin (*i.e.*, respondents' plants), the method of transportation selected, the size of tank car or truck used, and the carrier route chosen. (Krippahne, 5087–88, 5116, 5133, 5154) Whether "trans-loading"—shipping a product for a portion of the journey in jumbo tankcars to a terminal where the product is transferred into smaller rail cars or tank trucks for final destination—is used is another variable. Both Du Pont and Nalco have such facilities. (Tunis, 262; Krippahne, 5084, 5086–87; Altman, 1251, 1293, 6678–81) **[100]**

Shippers may also qualify for reduced rates on the basis of volumes in numerous shipments over a period of time. (Tunis, 387–80) Such savings would not be known until the end of the time/volume period. (Krippahne, 5141–42) If refiners are permitted to take delivery at the respondents' manufacturing sites or transloading terminals, they could qualify for such time/volume discounts. (Krippahne, 5141–43)

Uncertainty in calculating freight variables may increase as the result of the Staggers Rail Act of 1980, Pub. L. No. 96–448, 94 Stat. 1895 (1980) (to be codified at 49 U.S.C. 10101). (Krippahne, 5128–29)

The new statute permits carriers to have more flexibility in adjusting their rates. (Krippahne, 5129)

186. These variables in freight rates and freight costs make ". . . determining individual suppliers' freight costs with any degree of accuracy a difficult, if not impossible, task". (CX 213Z61; *see also* CX 213Z60–Z62; Tunis, 388–90) An official of one respondent described the difficulties inherent in matching prices on an F.O.B. plant basis, plus freight:

> Q. If both PPG and Du Pont were to sell on a manufacturing-point basis plus freight, would you consider it mind-boggling to try to match the price of Du Pont at Getty?
>
> A. Getty and possibly 70 other customers. Yes, it would be a difficult, complex structure to develop to remain competitive under that situation. It would probably take considerable effort to do so—not just for one customer, Getty alone, but as I say, we have 73 customers all at given geographic locations. So the whole problem would be quite complex, in my thinking.

(J. M. Robinson, 1050–51)

187. There is greater uncertainty about delivered cost to refiners when prices are quoted F.O.B. manufacturing plant. (J. M. Robinson, 1050–51; Carlton, 7182–83; CX 213Z61) Delivered pricing does away with these freight rate variables and simplifies price matching by quoting the same price regardless of the distance shipped. (F. 128, 184; Fremd, 1704) In the absence of uniform delivered pricing, respondents could use public tariff information to determine freight rates between certain points. (Tunis, 388–90; Krippahne, 5057, 5072–74; Baker, 5784–85; RDX 333A-Q; 339) However, there would be uncertainty in calculating some of the variables. In one case, Du Pont attempted to determine minimum freight costs to every domestic refinery from the closest antiknock compound plant. That effort produced approximately 30 errors in connection with 102 purchasers, apparently the result of mistakes by Du Pont's marketing department. (Krippahne, 5108–12; RDX 333A-P) **[101]**

188. There have been some few instances of a variation, or offer of a variation, on delivered pricing. Co-producer sales are quoted F.O.B. manufacturing plant. (J. M. Robinson, 1021; Altman, 1285) Since at least the early 1960's, Ethyl has supplied antiknock compounds to Exxon's Baton Rouge refinery by a short pipeline. (CX 1953Z203; Werling, 3724) [***]

189. Some refiners were interested in F.O.B. shipping point prices. (CX 1622; J. M. Robinson, 1051; F. 152–155) Sun requested respondents to quote an F.O.B. price in 1975 to compare it with its delivered prices. (McCormick, 2654; F. 155) On several occasions Exxon requested respondents to quote F.O.B. prices to determine whether such prices would be lower than delivered prices. (Steen, 3455; Payne 3567;

CX 631A-B, 914, 1051B) In fact, PPG offered Exxon an F.O.B. price for lead antiknock fluid in 1976 by way of barge delivery to one Exxon refinery, but Exxon declined the offer. (J. M. Robinson, 1154–55; Fremd, 1699–92, 1769, 1801; Steen, 3398–3400, 3421, 3473–74, 3482–83, 3478–88; CX 1322B; F. 157) Shell periodically requested a price F.O.B. manufacturing site. (CX 550–555, 1036–37, 1622; Koehnle, 4661–62; F. 154).

Du Pont and Ethyl did not wish to quote on an F.O.B. manufacturing-site basis to customers even if it would have led to substantially increased business or the retention of threatened business. (Tunis, 439–40; Koehnle, 4661–62; CX 631) Du Pont's Director of Marketing explained that F.O.B. manufacturing-site pricing to a large customer might cause "all kinds of problems", including ". . . a general deterioration in the overall pricing of antiknock compounds." (Tunis, 441)

190. Average freight costs in the lead antiknock compound industry are small in relation to the total market price. (Glassman, 6110–12; Markham, 6813–15; Carlton, 7171, 7188–89, 7193–94; RDX 333A-Q) Freight costs for the industry are between 1.5% and 2.75%. (Glassman, 6163; F. 127) For all manufacturing the average freight costs as a percentage of total value is 4.5%. (Glassman, 6163; RPX 1525A-F) Freight costs in the lead antiknock market are below that of the average for manufacturing in general. (Glassman, 6164)

191. Between 1974 and 1979, the average actual delivery cost varied among refiners by at least 5 cents per pound. (RDX 333Q) Minimum average delivery costs to individual refiners ranged from .2 cents per pound to 8.1 cents per pound. (RDX 333J, F) **[102]**

4. Most Favored Nation Clauses

192. Ethyl gave its most favored nation clause different interpretations. The most common interpretation communicated to customers was that Ethyl was required to extend any discount granted to one customer to all others, irrespective of the volumes purchased. (CX 1587, 1713; Lockerbie, 764–67) In major company analysis of market strategies the clause was interpreted to require that "legally, a discount offered to one [of Ethyl's four largest customers] would have to be offered to all [four]." (CX 213L) These four customers represented about 25 percent of Ethyl's domestic antiknock compound sales. (*Id.*) Lastly, Ethyl executives testified in this proceeding that the provision required that any discount be extended to all customers purchasing as much or more as the refiner receiving the discount. (Lockerbie, 763–65; Koehnle, 4615–16; Gill, 4713–14, 4716–26; CX 73B, 220P-Q; *see* F. 117) In the Fall of 1980, Ethyl announced to its customers that it was deleting the most favored nation clause from its sales contracts,

effective January 1, 1981. This FTC proceeding was given as the reason for the change. (Dana, 4502; Koehnle, 4615–16, 4679–80)

193. Du Pont's interpretation of its most favored nation clause was that it required a discount to any customer be extended to all others. (McNally, 2117, 2248; Payne, 3522, 3584; CX 1077, 1079A, 1081)

194. Respondents Ethyl, Du Pont and Nalco often cited the most favored nation clause to customers as the reason for refusing to deviate from list price. (McNally, 2117, 2248; McCormick, 2762; Solomon, 2827; Payne, 3522, 3584; CX 1041A, 1587A) Refiners were advised by account representatives that the most favored nation clause assured the same price for antiknock compounds for all customers. (Lockerbie, 767–68; Solomon, 2827; Payne, 3522, 3584; Dana, 4497; Fetter, 4518)

In 1975, Ethyl received bid requests from both Texaco and Sun. Ethyl responded to each with a virtually identical letter indicating that the most favored nation clause guaranteed identical prices to all refiners:

> As you may know, 'Ethyl' antiknock compounds are priced identically to all U.S. refineries for comparable methods of shipment regardless of volume. Our contract . . . provides this guarantee. Legally we cannot give you a special discount on 'Ethyl' antiknocks without breaching all sales agreements now in force.

(CX 1587A, 1713A; *see also* Lockerbie, 765–67)
Texaco's Manager of Purchasing testified that an Ethyl official reiterated this legal reason in a conversation. (Wilson, 3205, 3215–17; *see also* Koehnle, 4666–67) **[103]**

Du Pont responded in similar fashion to an Exxon bid request in 1978, with citation to its most favored nation clauses:

> Presumably, you know that if we offer Exxon a lower price on antiknock compounds we are required to do the same to other customers. From our point of view, any such offer to Exxon will only result in a general decline in prices and an overall loss to Du Pont.

(CX 1081A)

The following year, 1979, Du Pont again emphasized to Exxon the pricing problem created by the most favored nation clause, in refusing to grant Exxon a fixed price for a four-month period:

> [w]e cannot prudently guarantee a fixed price. Our contractual arrangements are such that we would be required to do this on an industry-wide basis, and this would force a business whose profit margins are already shrinking to an untenable position.

(CX 1077)

195. In August 1978, Du Pont's Director of Marketing wrote to a Du

Pont sales representative about a proposal to offer a special price to Mobil:

Your trade report indicates that Mobil might have the opinion that we could legally meet a competitive price if we had confirmation of the price offered. Our "favored nation" clause (Article 7 "Price Protection") in our contract prevents us from doing that unless we make the same price available to the industry as a whole. It is important that our customers not be confused on this point.

(CX 1079A)

Between 1975 and 1980, Ethyl failed to quote Exxon any price lower than list for lead-based antiknock compounds in response to numerous bid requests. (CX 395–96, 1747, 1749, 1755; Steen, 3412, 3495; Payne, 3530, 3554–55; F. 152) In 1980, with total market demand declining (Koehnle, 4627–29), Ethyl and Exxon discussed a possible discount, but Ethyl's ultimate offer involved only a special "premix" of lead-based antiknock compounds and MMT, which would not be governed by most favored nation clauses. (Payne, 3557; Koehnle, 4682–83; CX 73B, I, 220S) Exxon rejected Ethyl's "premix" proposal and unsuccessfully sought further negotiations. (Koehnle, 4682–83) Ethyl decided to wait until the beginning of 1981 to negotiate further with Exxon (Koehnle, 4683), when Ethyl's new contracts **[104]** would not contain a most favored nation provision. (Koehnle, 4679–80)

196. Prior to 1978, all Nalco antiknock contracts had most favored nation clauses. (Altman, 1276–77) In 1978, Nalco refused to include a most favored nation clause in a contract with Texaco. (F. 120) [***]

197. Both Ethyl and Du Pont recognized that the most favored nation clause restricted their own and each other's pricing flexibility and ability to grant discounts. (Day, 599–600, 604, 614–15, 619; CX 73B, I; 220P-Q; 222B, 394Z5) Ethyl's Petroleum Chemicals Division "made a point . . . that the [most] favored nations [clause] restricted their ability to take actions." (Day, 615) J. F. Koehnle, who was in charge of the Petroleum Chemicals Division (Koehnle, 4581), and J. M. Gill, the company's Senior Vice President (Gill, 4694–95), told Ethyl's Executive Committee that use of the most favored nation clauses placed restrictions on the division's pricing flexibility. (Day, 603–04) An Ethyl management review document, written in November 1975, stated:

Du Pont like PCD [Ethyl] has evergreen contracts with many refiners. These contracts guarantee favored-nations treatment on pricing for "equal quantity - equal quality." Houston Chemical and Nalco are less encumbered by contracts. (CX 394Z5)

In 1975, B. C. Gottwald, Ethyl's President, asked Mr. Gill in a memorandum what Ethyl should do with respect to most favored nation clauses "if the price collapses." (CX 505D) Two years later, in 1977, the Chairman of Ethyl's Board of Directors, F. D. Gottwald, Jr., raised the most favored nation clause issue again, asking about Ethyl's marketing strategy in a possible "free-for-all" if "Du Pont abandoned their most favored nations provision with the next set of contracts." (CX 222B) Brian Day, Ethyl's Director of Corporate Planning and one of the draftsmen of F. D. Gottwald's 1977 memorandum, testified about this question posed in the 1975 memorandum:

> Petroleum Chemicals made a point . . . that the favored nations restricted their ability to [105] take actions. So he [B. C. Gottwald, President of Ethyl] said, Okay, suppose Du Pont did it [removed the most favored nation clause] and you didn't do it? Now what would you do? Here you may have to take an action.

(Day, 614–15)
Mr. Gill responded by indicating that to "meet competition" we have to give the same lower price to any customers who buy as much or more fluid from us as the account in question." (CX 73B, I)

198. Ethyl expressly recognized that abandoning most favored nation clauses could precipitate the feared "chaotic" market. Ethyl observed in a March 1977 management planning document that under its contracts:

> . . . we would have to extend the same reduced price to any . . . customer who buys more from us . . . With a new contract that eliminated the favored-nations clause, we could meet competition at a selection account without having to extend the discount. . . . The only advantage of a new contract is that it allows us to meet competition selectively. However, the fact that [Ethyl] was cancelling old contracts and eliminating the favored-nations clause would be known to competition almost immediately. *It would signal to them a basic change in our sales strategy. . . .*

(CX 220P-Q; *emphasis supplied*)

Du Pont similarly believed that it could not eliminate most favored nation clauses without creating "wild speculation as to why." (Tunis, 393) Du Pont's Director of Marketing testified that he (and others) would have reacted to the change in marketing policy:

> I would have said 'What are you doing? Who's got the deal? How much of the deal can I get? What's going on?'
>
> And even if there was no deal, it was just one of those things that by default would have been impossible. (Tunis,. 393)

199. In responding to an Exxon request for a quotation F.O.B. manufacturing site, Mr. Miller, Du Pont's representative for the Exxon account, reported to Du Pont that failure to respond favorably to the request could possibly result in the loss of five to ten million

pounds of business annually, while a positive response offered the prospect of a gain of 20 million [106] pounds of additional business over four years with added profits. (CX 629A-B; 631A-B) In trying to determine how Du Pont's competitors would respond to the bid, the representative was concerned that either PPG or Nalco could respond on an F.O.B. manufacturing-site basis, but "excluded Ethyl from the temptation to respond to an F.O.B. invitation, for much the same reason that I believe Du Pont would not respond to this invitation." (CX 631A) Mr. Miller testified that Ethyl's use of most favored nation clauses reduced his uncertainty about Ethyl's expected action:

> Q. Was that [Ethyl's most favored nation clause] a factor in your belief that Ethyl would resist this temptation to give a special consideration to Exxon?
>
> A. It probably was, yes.

(Miller, 2000).

200. Economic experts who testified in this proceeding were of the opinion that most favored nation clauses reduce the incentive of any one firm to discount to one customer to the extent that it must be extended to other customers. Widening the discount diminishes profitability and increases the likelihood that competitors will discern and match it, thereby limiting the amount of additional business it can generate. (Hay, 3811–13; Glassman, 6512–13; Markham, 6897; Carlton, 7207–09) Mr. Michael Glassman, an economist called by PPG, observed that "[T]he absence of a most favored nation clause in PPG's business helps them compete because they don't feel at all constrained in terms of giving special deals and discounts." (Glassman, 6514–15)

201. The record does not reflect that any refiner has asked a lead antiknock supplier to remove a most favored nation clause from its contract. (Tunis, 392; Lockerbie, 837–38; McNally, 2118–22, 2249; Charles, 2575; McCormick, 2719) Numerous refiners include a clause in their purchase orders which specify that they be accorded most favored nation treatment in their purchases of antiknock compounds. (REX 3A-Z24; *see also* REX 464, 657B, 661, 921, 923, 926) Sun routinely inserts such clauses in its purchase orders. (McCormick, 2763–65; REX 657B, 936B) Smaller refiners value the clause because they believe it puts them on an equal competitive basis with the major oil companies. (Tunis, 392; Dana, 4497; Fetter, 4517–18; Pittinger, 4568–70; Gill, 4713–14; J. A. Robinson, 5349–50, 5370–71; CX 220P-Q) Texaco desired a most favored nation clause in its lead antiknock contract with Nalco, but Nalco declined to include the clause. (Wilson, 3260–61, 3355–56; RNX 648C, 649D, 651A-B; RPX 1499B; F. 120, 196) Two

other customers objected to removing the most favored nation clauses in their contracts with Nalco. (Altman, 1394–95, 1455) **[107]**

202. Ethyl's officials testified that at least since the 1930's Ethyl has followed a policy of treating all customers equally on price, and that Ethyl's own self-interest would be best served by this long-standing policy and its "ethical spirit of doing business." (Lockerbie, 692–93, 714, 756, 761, 764–65, 767, 798, 811, 833–34; Koehnle, 4614, 18, 4679–80; Gill, 4713–14, 4716, 4721–22, 4726) Ethyl's officials testified that Ethyl did not believe that its clause was "an impediment to effective action on [its] part when it was necessary . . ." to discount. (Lockerbie, 762; *see also* Gill, 4716, 4721–22, 4726–27; CX 1952Z84) Ethyl officials also testified that the Robinson-Patman Act "doesn't play an active role" in Ethyl's arrangements with its customers; it "restates our policy" of charging an equal price, "fair treatment." (Koehnle, 4670–71) Ethyl officials also expressed doubt that it could gain business by discounting because it believed its rivals probably would discover any discount and match it or offer discounts to other customers to recoup lost business elsewhere, so that Ethyl ultimately would be selling the same quantity of product at an overall lower price. (Lockerbie, 809–11; Gill, 4715; CX 73B, 213L, 1952Z69)

203. Du Pont officials testified that Du Pont decided from a business viewpoint to treat all of its customers alike, regardless of their size and whether or not they had a contract with Du Pont. (Tunis, 358; McNally 2229–30) According to Du Pont officials, Du Pont believed that if it gave a selective discount to one or more customers, this fact would become known and it would become necessary to discount "the entire market by that amount," which was inconsistent with Du Pont's profit objective. (Tunis, 129) The most favored nation clause was "never a consideration" with respect to meeting a competitor's low price and did not constrain Du Pont from "meeting a competitive situation." (Tunis, 128–29) Du Pont's Director of Marketing testified:

> It [the most favored nation clause] didn't play a very significant role at all. We knew how to discount with a 'favored nations' clause. All we had to do was get somebody who'd take a barge or somebody who would give us a five-year contract or something that changed the terms of that basic clause which talks about equal quality and equal amounts. So we could have come up with schemes that we could have presented to Customer A and then went around and presented to other customers who could meet those strictures, but we never felt that we would help ourselves. We felt that we would lose in the negotiation and that we would lose more in return on sales than we would get on volume. And that was the big parameter.

(McNally, 2247). **[108]**

Du Pont officials also testified that Du Pont believed that selective discounts might cause problems under the Robinson-Patman Act and that the most favored nation clause was merely a restatement of what the law required. (Tunis, 128; McNally, 2246–47)

X. EXPERT OPINION TESTIMONY

A. *Dr. George A. Hay*

204. Dr. George A. Hay was called as an economic expert by complaint counsel. Since September 1979, Dr. Hay has been a professor of law and economics at Cornell Law School. (Hay, 3770) From 1972 until 1979, Dr. Hay was an employee of the Department of Justice and from July 1973 to June 1979 he served as the Director of the Economic Policy Office of the Antitrust Division. (Hay, 3771) His primary areas of interest are industrial organization, law and economics, and the economics of antitrust. (Hay, 3771)

205. Dr. Hay stated that the lead-based antiknock compound market is highly concentrated (Hay, 3783); the threat of new entry is low (Hay, 3784); that antiknock compounds are homogeneous; and that demand is inelastic. (Hay, 3779–80) Dr. Hay testified that prices in the antiknock compound industry were above marginal cost (Hay, 3793–97), but that he knew of no tight oligopolies in which price was routinely at the level of long-run marginal cost. (Hay, 4388) The fact that prices were above marginal costs is the key to Dr. Hay's opinion as to the effect of the challenged practices. (Hay, 3958–59, 3969) According to Dr. Hay, where price is above marginal cost and there are few deviations from list price, one must look at reasons for this conduct. (Hay, 3969–71, 3974, 3990–91)

206. In terms of price competition, Dr. Hay separated the time frame covered by the complaint into two periods. The period prior to the end of 1977 was described by Dr. Hay as one of "extremely limited" price competition. (Hay, 3790) In reaching this conclusion Dr. Hay relied on certain characteristics of the market: that "list prices moved virtually in lock step throughout the period" (Hay, 3790); and that "with some significant exceptions there were no deviations from those list prices." (Hay, 3791) He testified that "there are indications that price performance improved significantly after the end of 1977", but he further stated that there was still "some indication that price competition had not reached what I have described as full flower even during that period." (Hay, 3799)

207. Dr. Hay noted that the pricing behavior could have an alternative explanation—that it was "the result of intense price competition in an industry characterized by a homogenous product," but he did not believe this was the proper explanation for the price identity. (Hay, 3791–93) According to Dr. Hay, **[109]** the structural characteristics of the market in conjunction with the industrywide use of the

challenged practices, interacting together, have had an impact on competition in the antiknock compound industry. (Hay, 3785, 3908, 3929, 3993, 4068) Absent an oligopoly structure, the facilitating practices would be ineffective. (Hay, 3990–91) He concluded that the four challenged practices operated to reduce uncertainty about a competitor's actions and reactions and that the overall result was likely to reduce the vigor of price competition in the marketplace during the relevant time period. He stated that he was not testifying as to the effect of these practices after mid–1979. (Hay, 3874) He testified further:

> It's my opinion, summing up, all of the defects that I described, that these practices did operate to reduce uncertainty about rivals' actions and reactions. That reduced uncertainty diminished the risk to one firm of initiating a price increase or maintaining an otherwise high price and the overall result was likely to reduce the vigor of price competition in this marketplace during the period we have described. (Hay, 3847)

208. Dr. Hay defined facilitating practices as "... certain practices, employed by producers, which have the effect of facilitating on the one hand the matching of list prices and on the other hand increase the disincentives to provide discounts off list." (Hay, 3810) They are practices that are avoidable. (Hay, 4293–94) He described the facilitating practices in the lead antiknock industry and how they operated:

> Q. Can you explain how the—strike that. Do you understand the practices challenged in this case as being potentially facilitating practices?
>
> A. Yes, I do.
>
> Q. Could you explain how they could operate in this market?
>
> A. Well, briefly, the way I would explain it would be the following: the announcement —let's talk in terms of the communication to the press would be one way of either informing rivals of the fact and the amount of a list price change or if not being the first source of information, confirming what your rivals might have learned from other sources.
>
> I think here the really two critical aspects are the certainty with which you can make an inference from what you learn from customers and the timing. How quickly are you sure what has happened? [110]
>
> The advance announcement that seems to me makes it possible for all of those list price changes to go into effect on the same—at the same time. That is to say, no one producer is out there in the marketplace with a higher price in effect than his rivals.
>
> The uniform delivered price quoting in terms of uniform delivered price has, I think, generally the effect of simplifying the whole communication mechanism. That is to say, instead of communicating perhaps 150 different prices for 150 different customers' locations, there is one price that has to be communicated.
>
> In addition, it is at least possible that the uniform delivered price relates to the incentives of discounting. I think it is possible that when a firm is considering a discount it might be concerned, first, obviously that its rival will learn about the terms of that transaction. But secondly, will react differently depending upon whether it is unequivocally clear that that is a discount off the list price or simply some perhaps error in calculating the appropriate list price.

Now, it seems to me the fact that prices are quoted on a uniform delivered price basis seems to remove any doubt that if you learn about the fact of a transaction, you learn that the transaction was at so many cents, it is pretty unequivocal that that was in fact a discount and not simply an error perhaps in calculating transportation costs.

Finally, the most favored nations clause I perceive acts roughly in three—three different ways. First of all, it reduces the incentive of any one firm to provide a discount, really for two reasons: one is to the extent a discount given to one firm has to be spread to other customers, perhaps some of those customers you could or would have sold at the list price, that would reduce the profitability of a particular price discount.

Secondly, to the extent that extending that discount makes it more likely that the fact of the discount will be noticed by your competitors, that again reduces the attractiveness of engaging in a discount off list.

The second possibility is that to the extent that each firm is aware that the other one has such a [111] clause, it might take some assurance—it might take some additional assurance that that firm is not going to be giving a lot of discounts. It might behave differently. It might have more confidence in initiating price increases or adhering to otherwise high prices.

Finally, the third point that struck me in perusing the record, that these most favored nations clauses seemed to be used on occasion to suppress customer reaction to high prices and say well, we can't give you a discount. We have this most favored nations clause. We have to give it to everybody else.

So it seems to me that generally speaking, these facilitating practices can have the effect of making it easier to—making it easier to match list prices and increasing the disincentive to deviate from list prices.

(Hay, 3811–14)

209. Dr. Hay stated that even without the use of these practices there would not be "perfect competition" in an industry with the structure of the antiknock compound industry, but he believed that "a difference" would be made. (Hay, 3826) He stated:

The point I was making, I don't mean to suggest that there were no discounts during the period that I studied, simply my belief that the overall level of performance was likely to have been changed as a result of eliminating the facilitating practices. How much of it changed? I think that is the—as Mr. Gribbon suggested earlier, that is a significantly more difficult problem.

I think it is virtually impossible to measure as an economist the amount by which—I mean I can describe how the processes would have changed. I can describe why the incentives would have changed, and why those changed incentives are likely to lead to different behavior. I think it's virtually impossible for an economist to measure the amount by which price performance would have improved.

I can offer simply an opinion. I don't think it would have brought this industry to the textbook model of perfect competition. Not by a long shot. That is, even take away the facilitating practices, you are not going to produce perfect competition in an industry of this structure. Would it have made any difference? I think the answer is yes. It likely would have made a difference.

But I feel that I am unable to measure, with any degree of claim to precision, how much of a difference it [112] would have made. How much of the distance you would have covered from the price performance I discussed to the level of what might be characterized as intense price competition.

(Hay, 3825–26)

210. Dr. Hay testified about the services furnished by respondents to refiners:

Q. You talked a little bit about some price competition in this market. Dr. Hay, do you have an opinion as to whether the Respondent firms did compete for additional business?

A. Yes. There seems to be a strong suggestion in the record that firms were interested in picking up additional business. And did use various methods of competition to obtain additional business.

Now I would generally—aside from the cash discounts I mentioned earlier, I would generally characterize those as nonprice methods of competition, recognizing that those nonprice methods really fall along a spectrum. When you get to one end of the spectrum, there may be a degree of arbitrariness and whether you describe it as price or nonprice—let me see if I can illustrate it.

Suppose that I say if you buy from me 1000—just keep the numbers simple, $1000 worth of antiknock compound. I will give you a voucher for $500 and you can use that voucher to buy something that you had already ordered, perhaps totally unrelated to the antiknock business.

Q. Slow down.

A. Perhaps some computer time sharing service that you had already decided to order and hadn't placed. I will simply give you a voucher which you can use to pay that bill. It seems to me, whatever label one puts on that, that is virtually indistinguishable from a direct reduction in list price.

However, as we get further along the spectrum, I think it's increasingly distortive to characterize the concessions as a form of price competition. As I think we get increasing along the spectrum, the concessions take the form that in order to benefit from the concession, you have to do something that you might not otherwise have done. **[113]**

Now consuming a certain service, a buying of some services from an approved list of consultants or something of that order.

Now I don't deny and the record seems clear, that refiners place a value—I mean they don't regard most of those offers of concession as valueless. It simply seems to me to be a confusion in terms to describe that as price competition.

Simply the fact that a customer may place a—may have a value to a concession, it seems to me does not say that is price competition. I use the analogy of restaurants where all of the restaurants in the city of Washington—maybe I am a little out of date—all of the restaurants in the city of Washington agree to fix a price of a meal at $25 but they compete on how big a portion they give you. Well, I wouldn't deny the fact that large portion may be of some value to the consumer. I simply regard it as a confusion in terms to describe that as price competition.

So it's my impression that there are a variety of forms of ways for competing for business, some of them appear to be quite close to what you might describe as a direct cash reduction, others I think are much more appropriately characterized as nonprice competition. (Dr. Hay, 3826–28)

* * * * * * *

JUDGE BARNES: Are the use of services in this industry an indicia of a lack of price competition?

THE WITNESS: Well, certainly one wants to put that in context. It's certainly not at all surprising that when list prices are uniform, and to the extent that there are no cash discounts off list, firms compete on the basis of services. And so it's certainly the fact of services, and the providing of services is certainly not inconsistent with the fact that price competition has been diminished.

One often expects to find service competition in an industry in which price competition has been eliminated. A classic example is the airlines. When the CAB fixed the rates, they competed by offering more flights or bigger martinis or Frank Sinatra, Junior, playing in the lounge of the 747.

I don't think it's at all inconsistent except from that some services, what generally seem to be [114] described as the really narrow safety services, seem almost an inevitable part of the product. And even in a competitive environment, those narrow class of services probably would have been offered anyway as part of the product.

But these other kind of services I think, in a truly competitive environment, you would have expected to see them not offered as a part of the product, perhaps offered by the same companies at a price, or offered by independent companies to those who wanted to buy it.

(Hay, 4374–75)

211. Dr. Hay was also of the opinion that PPG's and Nalco's use of the facilitating practices had an impact on price competition in the antiknock market. PPG's and Nalco's participation in price announcements and uniform delivered pricing contributed to the maintenance of a price structure which was less competitive than it would have been. If PPG and Nalco had not followed Ethyl's and Du Pont's price increases, had not responded or made no announcement whatsoever, the price increase would have had to be rolled back. Nalco and PPG benefited from the price increases because their prices were keyed to the list prices of the industry. (Hay, 3832–34, 4220, 4223–24)

212. Finally, Dr. Hay was of the opinion that eliminating the practices would "increase the vigor of competition":

I believe that absent these facilitating practices, it is likely that there would have been an improvement in the competitive performance. Because of that conclusion, I infer the likelihood that eliminating those practices today may increase the vigor of competition or the speed with which vigorous competition is achieved.

(Hay, 3837)

* * * * * * *

JUDGE BARNES: In other words, is the impact—in your opinion, has the impact been substantial here on prices?

THE WITNESS: I think the way I have testified, and let me elaborate just a bit on that, I think it is impossible to measure with any claim to precision, how much better it would have been absent the facilitating practices. [115]

I think there are something like two poles. I have no reason to believe you would have been at either of those poles. One pole is you would have gone all the way to perfect competition. That I don't think would have happened, given the structure of this industry, notwithstanding some testimony to the effect that this industry has aspects of instability if price competition breaks out. I don't think you will get anything like the textbook ideal.

By the same token, I had no evidence to lead me to conclude that there would have been no change whatsoever. There would have been a noticeable change, a significant change.

But how large a change, whether you would have gone 75 percent of the way or 60 percent of the way, I can't claim to make those kinds of predictions. I think it would have been noticeable and predictable, but I can't tell you how far it would have gone to improve price competition.

(Hay, 4372–73)

B. *Dr. Jesse W. Markham*

213. Dr. Jesse W. Markham was called as an economic expert by respondent Ethyl. He is a professor of business administration in the Graduate School of Business at Harvard University (Markham, 6759; REX 326), and a former Director of the FTC's Bureau of Economics. (Markham, 6763) Dr. Markham's primary field of specialization is industrial organization. (Markham, 6760)

214. Dr. Markham testified that it is possible to predict from certain structural characteristics the amount of competition that can be expected in an industry, and that the amount of competition he understood to exist in the antiknock compound industry was actually somewhat greater than what his structural analysis predicted. (Markham, 6808–09, 6858, 6907, 6923) The competitive performance in the antiknock industry can be explained by the structure of the industry and the nature of the product. (Markham, 6824–25) Consequently, he concluded that the facilitating practices could have had no effect on the market. (Markham, 6808–09, 6824, 6830, 6857–58, 6861, 6894) Dr. Markham testified that his belief that the practices have had no anticompetitive effect is buttressed by his understanding that "the history of their appearance would suggest that they were given in response to what buyers perceived to be some value . . . rather than having been designed somehow or another to facilitate oligopolists communicating with each other." (Markham, 6821)

215. Dr. Markham examined market shares, market share changes and rank changes in the antiknock compound industry for [116] the 1948–79 period and concluded that there was "enough turbulence in those shares to at least consider them as strong corroborative evidence that these four firms were competing with each other," since stable market shares are an indication of a poorly performing market. (Markham, 6801–02, 6874) Dr. Markham testified that profits are an

important measure of the degree of competition (Markham, 6828, 6924–25); however, the only profit data available to him were the replacement cost accounting or new investment studies by Ethyl and Du Pont. (Markham, 6803–04, 6878; Skylar, 4805; Merkel, 5256–57; REX 321A-Q, 322A-U; RDX 335) Mr. Markham concluded that he was unable to obtain what he considered to be reliable, comparable benchmark profit figures, and thus he gave little weight to the replacement cost studies in his analysis. (Markham, 6804–05, 6879–80, 6924–25) He did consider the profit data submitted by Ethyl and Du Pont, not by comparison to a benchmark, but rather by comparison to what he loosely described as the "cost of capital," which he admitted was less satisfactory than profit comparisons. (Markham, 6803–04, 6925)

216. Dr. Markham relied on his understanding of the extent to which the respondents used various price and nonprice avenues of competition as indicia of performance equal to or better than he would expect from the industry's structure. These elements included discounting, advance buying, credit terms, undercutting on price increases, and competition in the provision of "free" services. (Markham, 6791–99) Dr. Markham testified that the degree to which these methods of competition compensated for the admitted lack of what he called "list price competition" could not be accurately measured, and he therefore had no way to compare the extent of competition he observed with what he should have expected. (Markham, 6791, 6863–67) He did note, however, that "you don't have one firm 85% discounting on an agreement to stick by list price." (Markham, 6920) Dr. Markham testified that he would not expect "list price" competition in the antiknock industry, but would expect competition to occur in forms less readily detectable. (Markham, 6790–91, 6809) He believed that price differentials among refiners or between respondents could not be kept secret. He stated, however, that if a discount were selective, it would be more difficult to detect than a price change which is extended to a larger group generally. (Markham, 6786, 6897)

217. Dr. Markham concluded that delivered pricing does not reduce uncertainty about rivals' prices because freight costs are too small to be significant. (Markham, 6813, 6809) Dr. Markham believed that elimination of a uniform delivered price system would have no effect because rivals' freight costs would be easy to calculate and matching would occur. (Markham, 6814–15, 6894) Dr. Markham testified that the most favored nation clause was merely a "shadow effect" of industry practice and corporate policy which would be followed regardless of whether the contracts expressly set out such a clause. (Markham, 6819, 6896) **[117]**

218. Dr. Markham did not criticize the theory of the complaint, and he could "conceive circumstances" where the practices, or the types

of practices, challenged in the complaint could have the effect of reducing uncertainty or limiting competition in an industry. (Markham, 6916) His disagreement was with application of the theory to the lead antiknock compound market. (*Id.*)

C. *H. Michael Mann*

219. Dr. H. Michael Mann is an economic expert called by respondent Du Pont. He is a professor of economics at Boston College, and a former Director of the FTC's Bureau of Economics. (Mann, 5392; RDX 342)

220. Dr. Mann stated that the structure of an industry is the most important influence on pricing behavior. (Mann, 5409–08, 5410) He listed four structural characteristics which he felt should always enter into a market analysis; the number of firms, or concentration, the nature of the product, [homogeneous or heterogeneous], barriers to entry, and elasticity of demand. (Mann, 5429) While the basic structural facts are necessary for a prediction of pricing behavior, they alone are not sufficient. (Mann, 5456) There are additional "environmental" characteristics which could alter pricing behavior and result in an outcome different from that predicted from structure alone and must be taken into account. (Mann, 5455–56, 5566)

Dr. Mann stated that the complaint charges that the challenged practices have reduced uncertainty and ultimately the level of price competition. He acknowledged that the effect uncertainty has on the level of price competition in an industry requires an examination of the particular factual context in which such an allegation is made. (Mann, 5401–04)

221. In Dr. Mann's analysis of industry structure, elasticity of demand plays a critical role. Dr. Mann testified on direct examination that the demand for lead-based antiknock compounds exhibited a "considerable amount of inelasticity." (Mann, 5429) This inelasticity was one of the structural characteristics which led him to expect that prices in the antiknock market would be "fairly close to a monopoly price," such that the challenged practices could be expected to have little effect on observed economic performance. (*Id.*) In Dr. Mann's opinion, the industry structure, homogeneous product, no serious possibility of entry, and inelasticity of demand all created a favorable environment which would have permitted price behavior fairly close to a monopoly price. (Mann, 5429–31) However, based on Dr. Cantwell's value-in-use charts and tables (RDX 332A-I), Dr. Mann concluded that "the actual price of antiknock is considerably below what a monopoly would charge under profit maximizing assumptions." (Mann, 5421–[118]26) He also concluded that not only were the practices challenged in this proceeding unlikely to have any competitive

effect, but that the market was performing better than he would have expected. (Mann, 5429, 5431–32, 5638) He found no evidence that the challenged practices have reduced price competition in the antiknock compound industry. (Mann, 5410)

Dr. Mann testified that prices in the antiknock compound industry were above the competitive level for the period 1974 to 1977. (Mann, 5440–41, 5583) He added that prices have fallen after 1977, and "if prices aren't at a 100–firm easy-entry level, they are clearly tumbling in that direction, and probably I would suspect by now, may be hovering there." (Mann, 5434) Regarding the situation in mid–1980, he found that "the degree of price competition seems to be very vigorous." (Mann, 5436) Dr. Mann's opinion with respect to this industry was predicated on the belief that after 1977, *all* of the manufacturers discounted, and that such discounting was "inevitable." (Mann, 5674–75; 5683–84)

222. Dr. Mann acknowledged that respondents' practices with respect to announcing price changes convey information (Mann, 5643), and on cross-examination he stated that an increase in information, the speed of conveyance, and the advance nature of the information all can reduce uncertainty about rivals' actions and might inhibit price differences resulting from differing views of what price to charge. (Mann, 5644–46) He argued, however, that prohibiting the practices would have little effect, since the producers would be able to find "another way to skin the cat." (Mann, 5648) Dr. Mann based his opinion that elimination of the advance notice to customers would not have any beneficial impact on competition, in part, on testimony of refiners that they liked advance notice. (Mann, 5639–41)

Dr. Mann testified that the use of most favored nation clauses had no impact on the antiknock compound market. He stated that he could find nothing in the record to indicate that use of most favored nation clauses had any impact on the respondents' resistance to pricing deviations. As he stated, "there wasn't really any place I would turn to do my own examination as to whether I thought the record was supportive." (Mann, 5659) He did indicate the type of documentary evidence that could change his belief. That evidence would include recognition by a respondent that most favored nation clauses play a role in maintaining a symmetric viewpoint among the respondents and the respondents' use of such contractual clauses in rejecting requests for price discounts. (Mann, 5664–65) Dr. Mann testified that even if the practices were found to have an anticompetitive impact, enjoining them would have no effect because other practices would take their place. He gave as an example the use of most favored nation clauses, testifying that in their absence, Du Pont's and Ethyl's substantial price [119] uniformity would probably continue unabated because of "the presence of the Robinson-Patman Act." (Mann, 5437)

Dr. Mann concluded that the use of delivered pricing had no effect in the antiknock compound market. He testified that if all the manufacturers practiced and adhered to a uniform delivered pricing system, it would contribute to reduced uncertainty, but, he added that "I have not seen any evidence that persuades me that that's the case." (Mann, 5671–72)

Dr. Mann did not examine alternative pricing systems to determine whether they would communicate as much information as the present uniform delivered price system, or whether the quality of information would be lower and, consequently uncertainty greater, if the present system were prohibited. (Mann, 5677–78)

223. Dr. Mann concluded that elimination of the challenged practices would not have any impact on the level of price competition and would not increase such competition because "conduct relief" will not alter the structural conditions in the industry which are the factors that determine price competition. (Mann, 5436–37) He also testified that the elimination of delivered pricing would not have any substantive effect on competition in the industry and would remove an efficient price scheme which would be replaced by an alternative that would cost more to administer. (Mann, 5437–38) Dr. Mann concluded that the vigor of price competition has increased since May 1979, even though the challenged practices were being utilized, because of the decline in demand for antiknock compounds. (Mann, 5414–16, 5634) In Dr. Mann's opinion, the decline in demand post–1977 is the factor most affecting price after 1977; prior to 1977 sophisticated buyers kept prices in line. (Mann, 5432–34)

224. Dr. Mann also testified that the most common measure used to determine whether a market price is above the competitive level is return on investment. (Mann, 5591) He would use the average return on investment in a general industry grouping in which the business is engaged, multiply that average by one and one-half, and that would be a benchmark. (Mann, 5596, 5598–99, 5601) He would use a five-year average to get some idea of long-run tendency. (Mann, 5602) Dr. Mann would use the FTC's Quarterly Financial Report to calculate an industry benchmark. (Mann, 5609)

D. *Michael L. Glassman*

225. Michael L. Glassman testified as an economic expert for respondent PPG. He is vice-president of Glassman-Oliver Economic Consultants, Inc., a Washington, D.C. economic consulting firm (Glassman, 5994; RPX 1518), and a former Assistant Director of the FTC's Bureau of Economics. (Glassman, 5997) [120]

226. Mr. Glassman testified that there is price competition in the antiknock industry based on direct discounts, across-the-board price cuts, the extension of credit, and the provision of services. He concluded that the industry has performed competitively; that there was a mix of price and service competition—sellers being responsive to buyer needs, which suggests the market is behaving competitively. (Glassman, 6014, 6064–69, 6075) He testified that the challenged practices have had no effect on competition in the antiknock industry:

It is my conclusion, and I think Professor Hay agrees with this, that since the industry was competitive, one shouldn't worry about the effects of the practices. But even if one were to argue that the industry was not performing in a competitive fashion, and viewed those practices independently, one would have to conclude that those practices have not facilitated a lessening of competition.

(Glassman, 6013)

Mr. Glassman testified that PPG and Nalco ". . . have been, since their entry in the early '60s, substantial and significant pro-competitive forces in the antiknock compound industry." (Glassman, 6012) As new market entrants they acted independently and injected competition into the industry. The market behaved competitively and prices were lower because of the new entrants. (Glassman, 6030–31)

227. Mr. Glassman testified that public announcements of price changes do not facilitate maintenance of noncompetitive prices. This conclusion was based, *inter alia,* on (a) the fact that respondents receive information about competitors' price moves from customers; (b) a study he performed, from which he concluded that articles about price changes did not appear immediately in the trade press and, indeed, that the lag between announcement and publication was as long at 13 days; and (c) his belief that competition became no more intense after public announcements were discontinued in 1977. (Glassman, 6138–43; RPX 1523A-B) However, on cross-examination, Mr. Glassman stated:

[I]f you read it in the newspaper, and especially a trade publication, it will improve your confidence somewhat that that is actually what is happening in the world. [121]

It's another source of information, and like any other source of information, the more you know about a subject, the more confident you are about your conclusions.

(Glassman, 6560)

228. Mr. Glassman concluded that the respondents' practice of giving advance notice of price increases is a procompetitive practice and an important method by which rivals compete. He believed that the practice diminishes certainty rather than increases it; that there was no industrial organization literature suggesting the practice has any

anticompetitive aspect. A study, presented through RPX 1524A-G, confirmed his beliefs. This study showed that advance notice of price increases is very common in the chemical industries, and that there is no apparent correlation between the amount of advance notice given and industry concentration. (Glassman, 6151) Mr. Glassman also relied upon Ethyl's adoption of the practice of giving advance notice when it was still a patent monopolist. (Glassman, 6146–55) He did not make a determination as to the relationship between advance notice and the frequency of price change attempts. (Glassman, 6565)

229. On the practice of uniform delivered pricing, Mr. Glassman testified that he had conducted a study to compare freight costs to total charges in this market, and in a number of other industries. (Glassman, 6159–64; RPX 1525A-F) He found that the .5% to 2.75% proportion of freight cost to total delivered antiknock compound costs was well below the average for all manufacturing, and he concluded that there was no resource misallocation (a result of poor performance) caused by delivered pricing in this industry. (Glassman, 6159–64) However, he did state that uniform delivered pricing could facilitate competitors' arrival at identical list prices (Glassman 6521), and could facilitate competitors' matching of transaction prices. (Glassman, 6524–25)

230. With respect to the use of most favored nation clauses, Mr. Glassman testified that he could not recall any evidence that this challenged practice had an adverse competitive impact, but that had he concluded differently "I would have perhaps said that to a very limited extent, the existence of a most-favored nations clause could have added just a tiny bit to the possibility that there would be no price discounts." (Glassman, 5607–08) He testified, however, that most favored nation clauses gave Ethyl and Du Pont "an excuse, for not having their price structure broken down", and that "[t]he absence [sic] of a most favored nations clause in PPG's business helps them compete because they don't feel at all [122] constrained in terms of giving special deals and discounts." (Glassman, 6512–13, 6514–15) Mr. Glassman further added:

> No doubt, if you have a clause in your contract, and you can create a cause of action and have someone sue you for doing something you promised not to do, then that is going to be a deterrent to doing something . . . [S]o in that sense it would be easier to compete without the most favored nations clause.

(Glassman, 6515)

231. Mr. Glassman concluded that the challenged practices have not facilitated a lessening of competition in the antiknock industry. (Glassman, 6013, 6132) In reaching this conclusion he relied on several factors: (1) the respondents have different goals and pursue differ-

ent strategies to achieve them (Glassman, 6026–30; 6211–12); (2) special price discounts are kept secret (Glassman, 6032–39); (3) price changes are frequent (RPX 1520A-C; Glassman, 6075–78); (4) there is an absence of any cartel-like institutions to act "as a stabilizing influence on industry pricing in order to maintain noncompetitive levels of pricing" (Glassman, 6086, *see also* 6085–89); and (5) there are "sophisticated, knowledgeable buyers. . . . [whose] activities have imposed a competitive discipline on this market." (Glassman, 6100–02)

232. Mr. Glassman did not regard the Robinson-Patman Act as an "inhibiting force" in the industry. (Glassman, 6138) He stated that elimination of public press announcements and most favored nation clauses would have no effect on competition. (Glassman, 6013) The elimination of advance notice of price changes would cause a reduction in competition. (Glassman, 6013) He testified that one effect of elimination of uniform delivered pricing could be ". . . to create a little bit of local monopoly power" around the plants of particular antiknock sellers. But generally, the major effect would be to "reduce somewhat the efficiency in selling antiknock products." (Glassman, 6014) He also stated that the regulatory nature of relief would cause "rising costs" and deprive the industry of "efficiencies." (Glassman, 6014) **[123]**

E. *Dr. Dennis W. Carlton*

233. Dr. Dennis W. Carlton was called as an economic expert by respondent Nalco. He is a professor of economics at the University of Chicago Law School and a vice president of Lexecon, Inc., an economic consulting firm. (Carlton, 6944; RNX 1594)

234. Dr. Carlton listed certain structural factors that he believed explained performance of the antiknock compound market: the industry is concentrated—there are only four producers—two of the producers are large and have similar production processes; the product is homogenous; there is free and rapid flow of information from refiners to producers; demand is inelastic and government regulations will create declining demand; and there are large and sophisticated buyers. (Carlton, 6959–60) He also believed that Ethyl and Du Pont had similar costs of production. (Carlton, 6959, 7067–71) He did note, however, that the greater the differences in their production costs, the more difficult it would be for the antiknock compound industry to achieve a noncompetitive price. (Carlton, 7068–69)

235. Dr. Carlton stated that the benefits of a price discount to get more business versus the potential loss that would be imposed by an across-the-board price cut tend to create an incentive for firms with large market shares to avoid price discounting and to behave in a parallel fashion with little discounting. Small firms' benefit from a

price cut may be large relative to potential losses from an across-the-board price cut. Expansion of business may be more important to small firms. Thus, you expect limited price discounting and parallel behavior from large firms and greater discounting from small firms. (Carlton, 6962–63) Dr. Carlton stated that market performance is reflected by "anything that measures how well markets are responding to consumers." (Carlton, 7136)

236. Dr. Carlton identified the relationship between price and the marginal cost of manufacturing and selling antiknock compounds as an indication of the industry's performance. (Carlton, 7136) However, he was unable to determine marginal cost in this case. (Carlton, 7141–43) He did state that the difference between Nalco's price and its average cost is diminishing "very rapidly" and is "certainly trending toward whatever your concept of marginal cost . . . is" based on extrapolation of Nalco's decline in gross profits between 1978 and 1979. (Carlton, 7143) On redirect examination, Dr. Carlton made it clear that "I didn't mean to place any undue reliance on it [the extrapolation]. I just mentioned it." (Carlton, 7292–93) Dr. Carlton later testified when recalled as a witness and after certain profit data was presented, that he could infer that prices were above marginal **[124]** cost. (Carlton, 7971) He testified further, when recalled, that once you determine price is above marginal cost "[Y]ou have to go on and analyze the features of the industry, structural features, as well as the practices, in detail to see how far that interacts in the industry and how that affects price-setting behavior. (Carlton, 7977; *see also* F. 168)

237. Industry profitability was also identified as an indication of performance to the extent that it showed whether there were incentives for further expansion or contraction. (Carlton, 7136–37) Dr. Carlton's impression was that ". . . this isn't a terribly profitable line of business from Nalco's point of view, . . .", and that profits were ". . . well below the average rate of return to manufacturers," (Carlton, 7156), although he did not do a specific study of profits for each year. (Carlton, 7161)

238. Dr. Carlton testified that the challenged practices "don't have the effects that have been alleged in the complaint;" that the challenged practices have had no effect on the level of competition. (Carlton, 6965, 7054–55) He believed that there was no link shown in this industry between the challenged practices and any reduction in price competition and, instead, that "the structure of this industry explains quite well the subsequent industry behavior." (Carlton, Tr. 7043, 7045–46, 7065–66, 7307) He stated, however, that the greater the flow of information in an oligopoly, the greater the likelihood that price will be above the competition level. (Carlton, 7054–55) He acknowledged that the practices in some other industry could have the effect of

increasing the flow of information and thus reducing the level of competition. (Carlton, 7055–56) He also testified that anything that makes it more difficult to learn a rival's transaction price will make it more difficult to have parallel behavior. (Carlton, 7107)

239. In Dr. Carlton's opinion, advance notice of price increases to customers and the issuance of press releases have not transmitted information in a way that reduces uncertainty about rivals' actions or competition. He relied on the belief that customers were the primary source of price information to the antiknock compound suppliers. (Carlton, 6965–66, 6969) Dr. Carlton also relied on the fact that the 30-day advance notice clause only applied to increases and not to decreases, while observing no greater difficulty in the matching of list prices when there was a price decrease. (Carlton, 6966–67) He testified that refiners could have different incentives to reveal a decrease:

> Obviously, there necessarily might be a difference in incentives from the explanation I just gave you. I am not saying there couldn't be. And I'm also stressing I haven't spoken with the refiners.

(Carlton, 7229) **[125]**
Dr. Carlton also noted that valid empirical work about the impact of advance notice was not available, since it would require comparison of one period with, and one without, advance notice. (Carlton, 7231–32)

240. Dr. Carlton testified that press releases about price increases had no market impact since there was no change in the uniformity of list prices after the end of 1977, when press announcements were stopped. (Carlton, 6968–69)

241. Dr. Carlton believed that the practice of quoting prices on a uniform delivered basis had no adverse competitive impact because of two basic reasons: rail freight charges are easy to calculate, and freight is a small component of total price. (Carlton, 6969–71, 7171–72, 7188–89, 7193–94) Dr. Carlton acknowledged that a uniform delivered pricing system transmitted information to rivals:

> To the extent that you believe that everybody is being charged a uniform delivered price, then if you know the price that one customer is paying, you know the price that other customers are paying . . . (Carlton, 7178–79)

Dr. Carlton believed that calculating rivals' freight costs is easy and, as a result, use of an F.O.B. manufacturing-site system would not increase uncertainty. (Carlton, 7171–72) Dr. Carlton testified that if a delivered price is replaced by an F.O.B. price plus freight, and the freight is very easy to determine, then there is no reason why the transmission of information under an F.O.B. price system would be any different from that under a delivered price system. In this industry, since the freight cost is so simple to compute because it is by rail, no greater uncertainty would result from the adoption of an F.O.B. manufacturing-plant plus freight system. (Carlton, 6970–71)

242. Dr. Carlton opined that use of most favored nation clauses by Ethyl and Du Pont could not have had any competitive impact since Ethyl was not constrained from granting a discount. (Carlton, 6971–72) He also felt that neither Ethyl nor Du Pont obtained any comfort from the other's use of this contractual provision. (Carlton, 7222–23) He did agree, however, that Ethyl and Du Pont had a substantial need to have accurate information about each other's actions. (Carlton, 7221)

243. Dr. Carlton emphasized what he terms the "special facts" as to Nalco which prevent Nalco's use of the challenged practices from having any adverse effect on competition. He also stressed the opinion "that Nalco has been a very procompetitive force in the industry" and to the extent the **[126]** relief will pose a hardship on Nalco, competitive harm would be done to the industry. (Carlton, 6958–59) Dr. Carlton explained that he considered Nalco a "very competitive force" because of its entry, expansion, and particular pricing policies. (Carlton, 7254–55)

XI. CONCLUSIONS

A. *Allegations of the Complaint*

The complaint in this proceeding challenges four marketing practices used by respondents between 1974 and 1979:[1] thirty-day advance notice of list price changes to customers; issuance of releases on these price changes to the press; sales made on a uniform delivered price basis; and use of most favored nation clauses in contracts. The use of these practices is alleged to have the effect of reducing uncertainty in the lead-based antiknock compound market thereby facilitating price uniformity.

Specifically, advance notice of list price increases before their effective date is alleged to promote price uniformity by giving a price increase initiator time to "test" the market to see whether the price change will stick and whether rivals will follow the price move. As a result, list price changes go into effect at the same time and in the same amount and price competition is reduced or eliminated.

The issuance of releases to the press concerning pricing moves is alleged to contribute to market stability by providing increased infor-

[1] The complaint issued May 30, 1979; the investigation which preceded issuance of the complaint was announced January, 1978.

mation exchange on list price changes, and on competitors' reactions, thereby reducing uncertainty in relation to price changes.

The use of uniform delivered pricing is asserted to facilitate uniform pricing in the lead antiknock compound market by removing variables in freight rate calculations. As a result, competitors are better able to predict their rivals' prices and to match them.

Finally, because most favored nation clauses require that a lower price given to one customer must be given to any customer with such a clause in its contract, it tends to discourage discounting off of list price. To the extent that [127] one company knows that another company uses the clause it can estimate the extent of discounting from the published list prices and engage in price matching.

There is no allegation in the complaint that respondents have agreed or combined among themselves to engage in the use of these practices. (*See* Complaint Counsel's Response to Interrogatories of Ethyl Corporation, filed February 11, 1980, at 33.) Indeed, PPG is not charged with the use of the most favored nation clause in its contracts. Nor is there any allegation in the complaint that the challenged practices were adopted with the intent to reduce or suppress competition. It also is not alleged that these marketing practices are in themselves illegal or *per se* unreasonable. (Complaint Counsel's Brief at 6, [Vol. II]) The essence of the complaint is that through the use of these marketing practices, not in themselves unlawful,[2] respondents were able to reduce uncertainty in the lead antiknock compound market and maintain price uniformity and stability. As a result, competition was lessened contrary to the strictures of Section 5 of the Federal Trade Commission Act, 15 U.S.C. 45.

B. *Economic Concepts and Oligopoly Structure*

Industrial organization economists recognize that structure plays a significant role in the behavior and performance of a particular industry and the economic experts testifying in this proceeding were in general agreement with this concept. (Mann, 5407–08, 5410; Markham, 6767; Carlton, 6964; Hay, 3803–05; F. Scherer, *Industrial Market Structure and Economic Performance* 9–12 (1980))

Markets lie along a continuum. At one extreme is the perfectly competitive industry where there are a large number of small sellers and their price and production decisions do not influence market performance, and there is total independence. (Mann, 5418; Scherer, at 11, 13; Chamberlain, *The Theory of Monopolistic Competition* 7 (1965)) Where there is competition, the price of a product tends to be bid down by the sellers to its cost. (Posner, *Natural Monopoly and Its*

[2] The practices challenged in this proceeding have been utilized in the lead-based antiknock compound industry over many years, and are prevalent in other industries.

Regulation, 21 Stan. L. Rev. 548, 550 (1969)). At the other extreme is monopoly where one firm accounts for the total output and sales of a product in the market and it unilaterally determines price at a level to maximize profits. (Markham, 6771–72; Scherer, at 11, 16) **[128]**

Between these two extremes is oligopoly where there are few sellers who account for all or nearly all of the product output in a given market. (Scherer, at 11; J. Bain, *Price Theory* 80 (1966)) Oligopoly is characterized by interdependence among sellers. Each realizes that a price cut by it will affect sales of the others and evoke prompt matching responses. The result is lower profits for all. (Posner, at 550) Production variations and market actions by one will have repercussions on prices and the sales of all. (2 Areeda & Turner, *Antitrust Law* Section 404a, at 272–73 (1978); Bain, at 70; Chamberlain, at 47) Bain notes two conflicting goals of oligopolists: (1) the desire by all for joint profit maximization; and (2) the desire by each to increase its market share. These disparate goals create uncertainty as to the competition's reaction to any pricing decisions. (Bain, at 278–79) This uncertainty creates a downward pressure on prices. (Areeda & Turner, at 231)

As a result, oligopolists have an incentive to increase interdependence and maintain prices at a profitable level. Recognition of this interdependence depends on a number of factors: the number of sellers in the market and the threat of new entry; homogeneity of the product; similarity of product cost and distribution systems; equality of market shares; the extent to which price concessions are made and kept secret; elasticity of demand; and frequency of sales transactions. (Scherer, at 199–225) Disruptive influences complicate the oligopolists' ability to maximize profits and include such factors as product complexity; secret price concessions and infrequent or "lumpy" transactions; differences in market share, costs or capacity utilization; and declining demand. (Mann, 5457; 2 Areeda & Turner Section 404b2, at 274–76) As interdependence increases, sellers must make assumptions about rivals' behavior and there is more incentive to cease rivalry and to coordinate activity to maximize profits. (Chamberlain, at 46–51; Areeda & Turner Section 404, at 273)

Certain devices aid oligopolistic coordination—overt and covert agreements; communications systems; price leadership; and pricing through use of formulas or "rules of thumb". (Scherer, at 169–197) Coordination is less difficult when oligopolists can communicate freely and openly. (Scherer, at 190) Such exchanges of price information have two economic effects: (1) they can improve economic efficiency; and (2) they can create further interdependence among sellers and facilitate price coordination. Note, *Antitrust Liability For and*

Exchange of Price Information - What Happened to Container Corporation?, 63 Va. L. Rev. 639, 640 (1977).

C. *Legal Standard*

The four marketing practices of the respondents are alleged to facilitate price uniformity and stability within the **[129]** lead antiknock compound market and are therefore unfair methods of competition within the meaning of Section 5 of the FTC Act. Respondents argue that Section 5 is not appropriate to attack non-conspiratorial oligopolistic performance and therefore the complaint fails to state a cause of action.

Section 5 has been construed to reach a variety of market activity. First, actions which violate the letter of the antitrust laws may also be condemned under Section 5 ". . . since nominally that section registers violations of the Clayton and Sherman Acts." *Times-Picayune Publishing Co.* v. *United States,* 345 U.S. 594, 609 (1953); *see also FTC* v. *Cement Institute,* 333 U.S. 683, 690–94 (1948); *Fashion Originators Guild* v. *FTC,* 312 U.S. 457, 463 (1941). Section 5 also reaches activities which threaten incipient violations of the Sherman and Clayton Acts, or activities which could ripen into conspiracy, monopolization or attempted monopolization if full blown. *See FTC* v. *Motion Picture Adv. Service Co.,* 344 U.S. 392, 394–95 (1953).

Section 5 has also been construed to extend to cases where the "spirit" of the Sherman Act is violated even though the activity is not illegal at common law, or condemned by the Sherman Act specifically. *See, e.g., FTC* v. *Texaco, Inc.,* 393 U.S. 223, 225–26 (1968); *Atlantic Refining Co.* v. *FTC,* 381 U.S. 357, 369 (1965); *Grand Union Co.* v. *FTC,* 300 F.2d 92, 98–99 (2nd Cir. 1962).

Finally, the Supreme Court in *FTC* v. *Sperry & Hutchinson Co.,* 405 U.S. 233, 244–45 n. 5 (1972), held that the Commission has authority under Section 5 to "consider public values beyond simply those enshrined in the letter or encompassed in the spirit of the antitrust laws."

Because neither conspiracy, monopolization nor attempted monopolization has been alleged in this complaint, this is not a case where Section 5 is the appropriate legal standard because of a violation of the letter of the Sherman Act. Application of Section 5 to the marketing activities of the respondents is likewise not justified on the basis of an incipient violation because there is no threat that these practices will mature into a conspiracy or monopoly. As one commentator has observed: "the concern of the government is not that the alleged unfair competitive methods, if left unchecked, may one day blossom into a full-fledged restraint; the concern is that the rose is already in bloom." Robinson, *Recent Antitrust Developments - 1979,* 80 Col. L. Rev. 1, 36 (1980)

If justification for the application of Section 5 is to be found, it must be that the activities violate the spirit of the Sherman Act, in particular Section 1's prohibition against conspiracies, contracts or combinations in restraint of trade. Complaint counsel argues analogy to Section 1 cases on the basis that the conduct herein alleged is akin to horizontal price **[130]** fixing. Respondents argue that the failure to allege or prove collusion or agreement is thus fatal to this case. Respondents' argument must be rejected.

The spirit of Section 1 has been noted as a "dread of enhancement of prices." *Standard Oil Co. of New Jersey* v. *United States,* 221 U.S. 1, 58 (1911). Thus, if the spirit of the Sherman Act is to prevent activities in the marketplace which unreasonably restrict or foreclose competition, that spirit may be violated whether such effect on competition results from concerted or individual behavior. *See Atlantic Refining Co.* v. *FTC,* 381 U.S. at 369–70; *see also* Averitt, *The Meaning of "Unfair Methods of Competition" in Section 5 of the Federal Trade Commission Act,* 21 Bos. Coll. L. Rev. 227, 253 (1980).

In *United States* v. *United States Gypsum Co.,* 438 U.S. 422, 435 (1978), the Supreme Court found that an effect on price alone will not support a criminal conviction under the Sherman Act. This analysis, however, focused solely on the elements of a criminal offense under the antitrust laws and the necessary role of intent. It ". . . leaves unchanged the general rule that a civil violation can be established by proof of either an unlawful purpose or an anticompetitive effect." *Id.* at 436 n. 13.

Moreover, Section 5 is not limited by the constraints of the Sherman Act. In *Cement Institute,* respondents were charged with acting in concert to restrain competition through the use of a basing point delivered pricing system which resulted in the quotation of identical prices. Although liability was based on a finding of concerted action, the court also pointed out that this "does not mean that existence of a 'combination' is an indispensable ingredient of an 'unfair method of competition' under the Federal Trade Commission Act. *See Federal Trade Comm'n* v. *Beech-Nut Packing Co.,* 257 U.S. 441, 455." 333 U.S. at 721 n. 19.

The court in *Triangle Conduit & Cable Co.* v. *FTC,* 168 F.2d 175 (7th Cir. 1948), *aff'd by equally divided court sub nom. Clayton Mark & Co.* v. *FTC,* 336 U.S. 956 (1949), reached the same conclusion. Although collusion had previously been established, the court found, in an alternate holding, that the individual use of a basing point method of pricing could constitute an unfair method of competition in the sale of rigid steel conduit. The use of the basing point formula enabled sellers to quote identical delivered prices "down to the fourth decimal point." *Id.* at 180. As a result, purchasers were deprived of a choice among sellers based on price, and competition was restricted.

It is important to note that business practices, otherwise legal, do not constitute an antitrust violation [131] because they are done jointly. Courts have refused to uphold challenges to parallel market activity by competitors where such activity is the result of independent business decision-making. *See, e.g., Theatre Enterprises, Inc.* v. *Paramount Film Distributing Corp.*, 346 U.S. 537 (1954); *Morton Salt Co.* v. *United States,* 235 F.2d 573 (10th Cir. 1956); *FTC* v. *Lukens Steel Co.,* 454 F. Supp. 1182 (D.D.C. 1978). *But see Bogosian* v. *Gulf Oil Corp.,* 561 F.2d 434 (3rd Cir. 1977), *cert. denied,* 434 U.S. 1086 (1978).

More recently, the Ninth Circuit has considered the requirements necessary for a finding of Section 5 liability. In *Boise Cascade Corp.* v. *FTC,* 637 F.2d 573 (9th Cir. 1980), five manufacturers of plywood were charged with violating Section 5 by adopting and maintaining a system of delivered pricing which, *inter alia,* had the effect of stabilizing market prices. Although there was no alleged Sherman Act violation on which to premise a Section 5 violation, the Commission had found that each respondent individually violated Section 5 because it had adopted the same artificial system of delivered pricing. Addressing the legal status of the industrywide use of an artificial freight factor in setting prices, the court found no evidence of collusion. In the absence of collusion, the court held, there must be a demonstration that the challenged activity has had an actual effect on competition. "Without such effect, a mere showing of parallel action will not establish a Section 5 violation." *Id.* at 577. The court refused to enforce the order, since it concluded there was no substantial evidence of effect in the record.

Finding a violation of the Sherman or Clayton Acts, or Section 5 of the FTC Act, based on the *effect* of the challenged activity on competition is not a novel theory; it is the fountainhead of antitrust law. *Per se* violations of the antitrust laws ". . . are certain agreements or practices which because of their pernicious effect on competition and lack of any redeeming virtue are conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use." *Northern Pac. R. Co.* v. *United States,* 356 U.S. 1, 5 (1958). Practices not presumed to be unreasonable have been tested under the "rule of reason" as the standard of analysis ever since the Supreme Court's decision in *Standard Oil Co.* v. *United States,* 221 U.S. 1 (1911). Under the rule of reason, the factfinder weighs all of the circumstances of a case in deciding whether a practice should be prohibited as imposing an unreasonable restraint on competition. As the Commission stated recently in *American Medical Assoc.,* 94 F.T.C. 701, 1003–04, *enforced,* 638 F.2d 443 (2nd Cir. 1980) *cert. granted,* 49 U.S.L.W. 3946 (June 23, 1981):

> The test of legality is "whether the restraint imposed is such as merely [132] regulates and perhaps thereby promotes competition or whether it is such as may suppress or even destroy competition." *Chicago Board of Trade* v. *United States,* 246 U.S. 231, 238 (1918); *Professional Engineers, supra,* 435 U.S. at 691. To assess the legality of the restrictions under a rule of reason analysis, we must examine their nature, purpose and effect on competition, including any possible procompetitive impact.

The court in *Boise Cascade* did not hold that the Commission's complaint failed to state a cause of action; it held that there was ". . . not substantial evidence in the record to support the Commission's finding of competitive effect . . ." *Boise Cascade Corp.,* 637 F.2d at 582. Contrary to respondents contentions, the *Boise Cascade* decision supports the authority of the Commission to declare practices which have a substantial anticompetitive effect unlawful under Section 5.[3]

The courts have made clear that Congress fully intended the Commission to use Section 5 to supplement and bolster the antitrust laws by addressing competitive problems in areas or under circumstances in which the Sherman and Clayton Acts might not fully implement congressional antitrust policy objectives. The Supreme Court has set forth the broad congressional delegation of power to the Commission:

> Section 5 of the Federal Trade Commission Act declares "[u]nfair methods of competition in commerce, and unfair *** acts or practices in commerce *** unlawful." In a broad delegation of power it empowers the Commission, in the first instance, to determine whether a method of competition or the act or practice complained of is unfair. The Congress intentionally left development of the term "unfair" to the Commission rather than attempting to define "the many and variable unfair practices which prevail in commerce ***." S. Rep. No. 592, 63d Cong., 2d Sess., 13. As the conference report stated, unfair competition [133] could best be prevented "through the action of an administrative body of practical men *** who will be able to apply the rule enacted by Congress to particular business situations, so as to eradicate evils with the least risk of interfering with legitimate business operations." H.R. Conf. Rep. No. 1142, 63d Cong., 2d Sess., 19. In thus diving that there is no limit to business ingenuity and legal gymnastics the Congress displayed much foresight. *See Federal Trade Comm'n* v. *Cement Institute,* 333 U.S. 683, 693 (1948). Where the Congress has provided that an administrative agency initially apply a broad statutory term to a particular situation, our function is limited to determining whether the Commission's decision "has 'warrant in the record' and a reasonable basis in law." *Labor Board* v. *Hearst [368] Publications, Inc.,* 322 U.S. 111, 131 (1944). While the final word is left to the courts, necessarily "we give great weight to the Commission's conclusion ***." *Federal Trade Comm'n* v. *Cement Institute, supra,* at 720.

[3] "We thus hold that in the absence of evidence of overt agreement to utilize a pricing system to avoid price competition, the Commission must demonstrate that the challenged pricing system has actually had the effect of fixing or stabilizing prices." *Boise Cascade Corp.,* 637 F.2d at 577.

Atlantic Refining Co. v. *FTC,* 381 U.S. at 367–68

The flexibility of Section 5 and the authority of the Commission to define the term "unfair" in relation to the changing nature of business has also been explicitly recognized by the Supreme Court:

> The point where a method of competition becomes "unfair" within the meaning of the Act will often turn on the exigencies of a particular situation, trade practices, or the practical requirements of the business in question.

FTC v. *Motion Picture Adv. Service Co.,* 344 U.S. at 396

Under the broad congressional mandate, the Commission has declared as "unfair", business practices that were not unfair in and of themselves, but unfair only because of their effect on competition. For example, consignment sales arrangements with gasoline dealers were declared unfair, and thus prohibited, in *Atlantic Refining Co.* v. *FTC,* 344 F.2d 599 (6th Cir. 1965), *cert. denied,* 382 U.S. 939 (1965). In another proceeding against this same respondent, the Commission found unfair a "sales-commission plan" of selling tires. *Atlantic Refining Co.* v. *FTC,* 381 U.S. 357 (1965). In a very recent case, the Commission held unfair the refusal by a monopolist to **[134]** list certain connecting flight information, and to group the listings of all carriers together, in an official airline guide. *Reuben H. Donnelly Corp.,* 95 F.T.C. 1 (1980). The Commission's decision was overturned on appeal, but on the grounds that the monopolist had no purpose to restrain competition in the field of business in which it was engaged, or to enhance or expand its monopoly. There was no indication whatsoever that the Commission's complaint failed to state a cause of action. *Official Airline Guides, Inc.* v. *FTC,* 630 F.2d 920 (2d Cir. 1980), *cert. denied,* 49 U.S.L.W. 3617 (February 23, 1981).

Further, no case has been cited by the parties hereto where the Commission or the courts have held that the Commission has no authority to declare a business practice unlawful because the practice is a customary business practice that is not by its nature or purpose restrictive, or has not been challenged previously under the antitrust laws. The cases all turn on effect on competition.

In accordance with the authorities cited above, it is concluded that the complaint states a cause of action for which relief can be granted.

D. *Competitive Performance of the Industry*

Structure of an industry is relevant in determining whether an activity is unfair. *See FTC* v. *Texaco, Inc.,* 393 U.S. 223, 226 (1968); *United States* v. *United States Gypsum Co.,* 438 U.S. 422, 441 n. 16; (1978) *Wall Product Co.* v. *National Gypsum Co.,* 326 F. Supp. 295 (N.D. Ca. 1971); *United States* v. *FMC Corp.,* 306 F. Supp. 1106, 1139

(E.D. Pa. 1969). Structure alone, however, has not to date supported a finding of liability. Section 5's "unfair methods" connotes behavior rather than the mere possession of power. 2 Areeda & Turner, Section 306, at 20. Another commentator has further elaborated that the Commission "must show harm from a particular practice, and cannot assume that every activity of a firm in a concentrated industry is unfair." (footnote omitted) Kruse, *Deconcentration and the FTC Act,* 46 Geo. Wash. L. Rev. 200, 223 (1978) Economic witnesses in this proceeding acknowledged that structure and conduct interact to produce performance. (Hay, 3989–91; Mann, 5486; Markham, 6851–52; Glassman, 6022; Carlton, 7976–77)

Under the guidance of these standards and with heed to the warning that "the difficulties in understanding the relationships between structure and conduct in oligopolistic markets are immense" (Sullivan, *Antitrust,* ¶ 117, at 337), a determination of the effect of the respondents' use of the challenged practices on the performance of the lead antiknock compound market will be made. **[135]**

The facts relating to the use of the challenged practices by the respondents are not controverted. All respondents use 30-day advance notice of price increases; until mid-1977, all respondents issued press notices of price changes; all respondents utilize *delivered* pricing, and *uniform* delivered pricing with respect to all list price transactions. Respondents Ethyl and DuPont utilize most favored nation clauses in their contracts with customers (these respondents did not have contracts with all customers); and Nalco had most favored nation clauses in all its contracts until 1978, and with a few contracts thereafter (this respondent also did not have contracts with all its customers). Use of the practices having been established, it remains to determine the effect of the practices on competition.

The theory of the complaint is that the challenged practices communicate information to competitors, the information thus communicated reduces uncertainty in the marketplace, and the reduced uncertainty facilitates pricing stability, thereby impeding price competition. As Michael Glassman, an expert economist who testified for Respondent PPG, stated, this necessitates a finding that the industry is not competitive, and that the practices contributed to the noncompetitive result. (Glassman, 6197) Thus, the threshold question—is the industry performing competitively? If it is not performing competitively, what impact did the facilitating practices have on that performance.[4] **[136]**

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[4] Dr. Dennis Carlton, Nalco's economic expert, testified:

> You really have to—it is just the first step, once you establish that price is in excess of marginal cost. You have to go on and analyze the features of the industry, structural features, as well as the practices, in detail to see how far that interacts in the industry and how that affects price setting behavior. (Carlton, 7977)

(footnote cont'd)

Respondents' economic experts were unanimous in their opinion that the structure of the industry was the determining factor on the competitive performance of the industry; and that the industry was performing as competitively as would be expected based on the structure. Dr. Hay, complaint counsel's expert, testified that the structural characteristics in conjunction with the challenged practices had reduced the vigor of competition, and that in the absence of the practices, competition would have been more vigorous.

The lead antiknock compound market meets the oligopoly definition advanced by economists: there are four sellers which account for the total domestic sales of the product. The relevant structural characteristics of this market include: a concentrated market with two large firms having dominant market shares and two smaller firms with less significant market shares; a homogenous product; high barriers to entry; declining and inelastic demand; and similarity of production and distribution systems. These structural characteristics are generally not in dispute. (F. 12, 32–34, 42–44, 46, 143, 205, 221, 234)

Other factors are important in analyzing the effects of the challenged practices on industry performance. Complaint counsel argues that price in the lead antiknock compound industry was greater than marginal cost. All economists testifying in this proceeding agreed that this was the case. (F. 144) There was disagreement, however, over what this means. Economists generally recognize that price is equal to marginal cost only in perfectly competitive markets. (Scheffman, 7802–03; Mann, 5420–21; Markham, 6829, 6855–56, 6904; Carlton, 7971) Therefore, this goal is never reached in an oligopoly.

Respondents had above normal profits. It can be concluded that profits during the period 1974 through at least 1977 were at supracompetitive levels and were increasing during that period. (F. 160–168) Excess capacity was available during that period had respondents chosen to utilize it. (F. 38–41) The industry was referred to by one respondent as a "golden goose". (CX 212Q) While profits declined from the high levels reached in 1977, profits remained high, and well-above economic benchmarks, for the entire period 1974–1979 until after the complaint herein issued.

In its decision in *Boise Cascade,* 91 F.T.C. at 109, the Commission noted the uncertainties associated with the use of profit data, stating that "it is obvious that supra-normal profitability can readily result from factors other than anticompetitive conduct." However, to the

Dr. George Hay, complaint counsel's economic expert, also testified:

> . . . I think structure and conduct interact. Let me put it another way. Were there 100 firms in the antiknock industry, I doubt very seriously that the facilitating practices would have had any competitive impact. So absent a structure which is generally conducive to the effectiveness of facilitating practices, absent an oligopoly structure, you don't even get to first base. (Hay, 3990–91)

extent that profits are high in an oligopoly, prices also must be at a noncompetitive level and there is an incentive to maintain [137] profits and prices through increased interdependence.[5] This is especially true where the market is unstable, and there was instability and uncertainty associated with pricing moves in the lead antiknock compound industry. (F. 169–170)

High profits, while not demonstrating the effects of the challenged practices (Complaint counsel's answers to interrogatories—RNX 1595Z–18), are relevant to show: (1) competition in the market was less than vigorous—certainly above marginal costs, and (2) the identity of list prices in the industry was not the result of intense competition. It is concluded that profits were high in the antiknock industry, and that prices were at noncompetitive levels.[6] [138]

Respondents argue that there was substantial competition in the industry by virtue of direct discounts off list price, credit terms, tolling arrangements, forward ordering or advance buy, and the furnishing of services. Their economic witnesses were of the opinion that these practices were evidence of vigorous competition (*see, e.g.,* Glassman, 6064–69). It is clear from the record that there was some competition between respondents. Approximately 15 to 20 percent of industry sales during the period 1974–1979 were at a discount off list price. These discounts were confined primarily to two respondents and to select customers.[7] These discounts were related to list prices in such a way that transaction prices moved in direct relation to changes in list prices. The discounts and the amount of the discounts were generally known to and accepted by the respondents, since there was little or no effort to meet the discounts, at least prior to mid-1978. Further, the discounts were kept secret from other customers thus preventing pricing deterioration. One significant feature of these discounts was their controlled environment and their lack of effect on the stability of prices and market equilibrium. Two respondents were

[5] The difficulty of maintaining high prices in an oligopoly was expressed by one economic witness as follows:

> Either you are going to collude and you are going to get to the joint maximization level or if you don't collude, your interests will be divergent and there will be a natural irresistable tendency for price to collapse toward cost. (Glassman, 6221)

The court in *Boise Cascade* stated:

> Where market forces are not artificially harnessed by an elaborate pricing formula, the normal assumption is that prices will tend to be driven to competitive levels. 637 F.2d at 579.

[6] Other factors support the conclusion that competition was less than vigorous (*see* Markham 6924; Carlton, 7976–77): *i.e.,* export prices were below domestic prices; the high cost producer was the most active price competitor (*see* Mann, 5630–31); the two market leaders with over 70 percent of the market sales, were able to avoid any price discounting; co-producer sales were at a substantial discount; respondents' fear that competition would erode prices; a refusal by respondents to quote F.O.B. prices, or prices without services; no pattern of geographical pricing although production facilities and substantial users nearby production facilities would call for such pricing in a competitive market; and failure of respondents to respond to competitive bids and other situations where large volumes over extended periods were available that would have produced substantial incremental profits (*see, e.g.,* CX 629A-B, 1709B and F. 152–156).

[7] [***]

able to retain approximately 70 percent of the market without discounting.

The Supreme Court has noted that "[t]he continuation of some price competition is not fatal to the Government's case." *United States* v. *Container Corp.,* 393 U.S. 333, 337 (1969). In *Plymouth Dealers' Ass'n* v. *United States,* 279 F.2d 128 (9th Cir. 1960), an agreement in violation of Sherman Act Section 1 was found even though the illegal activity concerned the fixing of list prices and transaction prices were discounted below list price. The Court of Appeals observed:

> The competition between the Plymouth dealers and the fact that the dealers used the fixed uniform list price in most instances only as a starting point, is of no consequence. . . . The fact that there existed competition of other kinds between the various Plymouth dealers, or that they cut prices in bidding against each other, is irrelevant.

Id. at 132. It was important only that, as the Court of Appeals held, list prices had been tampered with—"[i]t was an agreed starting point . . . and had its effect upon . . . price." (*Id.*) (Emphasis deleted) Similarly, during the turbine generator **[139]** electrical equipment price-fixing conspiracy, each sale was at a discount off book or list price. *Ohio Valley Elec. Corp.* v. *General Electric Co.,* 244 F. Supp. 914, 935–36 (S.D.N.Y. 1965). Thus, the existence of discounts off list price in the antiknock industry is evidence of some competition, not conclusive that competition was vigorous.

Advance buying by refiners at the time of a price increase is also stressed by respondents as evidence of vigorous price competition and uncertainty in the marketplace. Refiners, having received at least 30-days advance notice of a price increase, were desirous of purchasing additional amounts of antiknock compound prior to the price increase. Respondents were interested in limiting the amount of these purchases because each such purchase delayed the realization of the higher price which was to be effective. The amount of such purchases was also limited by available production inventory, production capacity, available tank cars, storage capacity at the refineries, the amount of money refiners desired to tie up in product, etc. The amount of discounted product actually sold and delivered would be that amount sold at the old price which exceeded a normal 30-day ordering pattern, and which was invoiced subsequent to the effective date of the increased price. This would require a major accounting project to determine with any degree of accuracy, the amount of product sold at a discount, and it cannot be accomplished on this record.

There was some discounting and some degree of rivalry between respondents with respect to advance buying. However, the amount of these sales at a discount were controlled and limited by respondents, occurred only periodically, created customer goodwill and an atmosphere of competition, possibly made the approaching price increase more palatable, and did not upset the market price structure.

The furnishing of services also represented an area of rivalry between respondents. Services were furnished without charge and included product-related services, safety services, refinery efficiency services, and product equipment and inspection services. Respondents also paid outside consultants to provide services to refiners. One respondent paid substantial royalties for some refiners who used a patented process sponsored by the respondent. Another respondent provided oil import tickets having a cash value at no charge to refiners. Other services provided by respondents included installing lead weigh tanks for refiners, paying architectural fees incurred by a refiner in building an employee cafeteria, building a railroad spur to facilitate antiknock compound delivery, and providing knock engines to refiners. (F. 90–103) Some of these services were the equivalent of a cash discount; others were not (*see* Hay, 4135, 4137–39, 4144–49, 4156–69). **[140]**

The record is clear that refiners valued the services furnished by respondents, and much antiknock business volume was awarded based on services. The small refiners utilized and valued services more than the large refiners. Not being able to obtain a competitive price, it is logical for refiners to turn to other avenues of competition. The Manager of Purchasing of Sun Oil testified in this proceeding that having failed to get price competition, he decided to maximize services. (McCormick, 2644) There are numerous instances in the record where refiners requested prices without services, or prices with services quoted separately. (F. 152–156) Respondents refused to quote on this basis. There are also instances in the record where refiners who received discounts did not receive any services. (J. M. Robinson, 1176–78)

Dr. Jesse W. Markham, the economic expert witness for Ethyl, called services a near discount, or quasi-discount. He stated that services were not surprising in the antiknock industry; that services were characterized by a high degree of uncertainty, which made transaction prices in the industry different. (Markham, 6795–99, 6886–87) George Tunis, Du Pont's Director of Marketing, testified that the use of services enabled Du Pont to avoid a "commodity-type" operation and gain the profitability desired by Du Pont. It was more profitable for Du Pont to furnish services with sales of antiknock compound than to sell antiknock compound without services. (Tunis, 71, 77–78)

Dr. George Hay, complaint counsel's economic expert witness, testified that the furnishing of services was not inconsistent with diminished competition; that one often expects to find services competition where price competition has been eliminated. In a truly competitive environment, he would not expect to see product-unrelated services provided by suppliers. Dr. Hay gave as examples of where price competition has been eliminated but competition is based on services, a situation where restaurants in a city fix the price of dinners at $25, but perhaps compete on the basis of bigger portions. He also pointed out the airlines where rates are fixed, but airlines compete on the basis of more flights, or dry martinis, or Frank Sinatra, Jr., playing the piano in the lounge of the Boeing 747. (Hay, 4374). He found it unusual for a supplier to pay an architectural fee for a refiner's cafeteria.

The use of services, while of value to refiners and valued by refiners, was distinct from price competition. The use of services did not upset the market price structure. As DuPont's Director of Marketing testified, services represented the competitive method best calculated to enable Du Pont to reach its profit objective. Dr. Hay recognized that respondents utilized service competition to prevent the price structure from deteriorating. (Hay, 4158, 4162–63) The record is silent as to specific instances where a respondent offered lower prices specifically to meet service competition. Thus, the **[141]** competition represented by respondents' use of services had a mixed result; it enabled respondents to engage in one type of competition while suppressing competition in another area. As the court observed in *In Re Yarn Processing Patent Validity Litigation,* 541 F.2d 1127, 1137 (1976):

> There is no requirement under §1 of the Sherman Act that all avenues of competition be eliminated, or that the price fixing effectuate its purpose.

It is concluded that the furnishing of services represented competition between and among respondents, but that these activities had little or no effect on the vigor of price competition.

Respondents' arguments respecting the competition which existed in credit terms does not warrant weighty consideration.[8] Emphasis on the few instances of extended credit terms in the record only serves to point up the lack of overall competition in price. It is price competition that is the "central nervous system of our economy," *United States* v. *Socony Vacuum Oil Co.,* 310 U.S. 150, 226 n. 59 (1940). "Price is too critical, too sensitive a control to allow it to be used even in an informal manner to restrain competition." *United States* v. *Container Corp.* 393 U.S. at 338. In *National Society of Professional Engineers* v. *United States,* 435 U.S. 679, 693–96 (1978), the Court, after a com-

[8] Some of the refiners granted extended credit terms were in serious financial straits, and respondents were lending a helping hand, not competing. One instance of extended payment terms involved all respondents participating on a pro rata basis, not competing on price. Another instance of extended credit terms only made allowance for the delay in shipping product to another respondent for reacting by the latter respondent before shipping to the customer. (F. 88–89)

prehensive review of the rule of reason, concluded that nonprice competition among architects, for example on the basis of background and reputation, was irrelevant when competition on price was affected by a ban on competitive bidding.

The record reveals instances where refiners vociferously complained about the lack of competition in the lead antiknock compound industry. The Manager of Chemical Purchases of Sun Oil wrote: "[t]here has never been any price competition in the lead alkyl market." (CX 1585B) He also testified in this proceeding: ". . . [Sun Oil] perhaps would have saved more money in the end if there had been price competition [142] of the type that exists in other chemical purchasing areas." (McCormick, 2646–47) Texaco's Manager of Purchasing pressed for a volume-related price any time he saw a sales representative of an antiknock compound supplier. (Wilson, 3204) A conversation between an Ethyl salesman and a buyer is described in a 1975 internal Ethyl memorandum:

> [The buyer] rejected completely my arguments as regards our demonstrations in the past year of price leadership. He stated on several occasions during the discussion that (I am again quoting) "There is and never has been price competition in antiknocks. This business of either you or duPont raising the price; the other coming up with a different price which the first company then meets is all a smoke screen. I think its the biggest wonder in the world that both of you haven't been in trouble with the FTC before now."

(CX 577B)

Purchasing officials of the larger refiners were constantly seeking to inject competition in the industry. Thus, the record evidence supports a conclusion that the lead-based antiknock compound industry was not a competitive industry; the overall level of the industry's competitive performance was poor.[9] Prices were in excess of marginal cost, returns on investment were substantially in excess of conservative benchmarks, lock-step pricing existed in the marketplace, discounting off list price was limited and controlled, the two major sellers were able to avoid discounting, profit margins were rising during a substantial period of time—1974–1977, and overall market shares were stable.

[9] A conclusion that industry performance was poor is not surprising in view of the background of the industry. At one time Du Pont was the sole manufacturer of lead antiknock compounds, and Ethyl the sole marketer. Later, Du Pont began marketing antiknock compounds and Ethyl also became a producer. (F. 16–17) The two remaining respondents, PPG and Nalco, were encouraged and assisted in entering the market by large refiners, probably because of a lack of competition in the industry. (F. 50) The industry's genesis was certainly not conducive to vigorous competition. (*See* Glassman, 6018)

E. *Effects of the Challenged Practices*

(1) Advance Notice of Price Increases

[143] All respondents gave notice to their customers of price increases at least thirty days in advance of the effective date of the increase. The contracts between respondents and their customers provided for this advance notice. Complaint counsel contends that the effect of advance notice was to increase certainty about rivals' actions and reduce respondents' risk in initiating price increases, thereby facilitating greater price uniformity and higher industry price levels.

Advance notice of price increases gives rivals an opportunity to respond in a way that reduces uncertainty about the industry price levels before the initiator's new price goes into effect. Advance announcements have made it possible for list price changes to go into effect at the same time and by the same amount. It also has provided the initiator of a price increase an opportunity to determine its competitors' reactions before the higher price goes into effect, thereby permitting modification or roll-back of the anticipated increase prior to its effective date. Insuring that the initiator will not be alone in the market with a higher effective price prevents a possible shift of short-term business to lower-priced competitors and, as a result, reduces risk associated with the price increase move. This increased certainty permitting all respondents to match prices also minimizes the risk of loss of customer goodwill associated with initiating a price increase, or having a price in the market which is higher than rivals' prices.

The antiknock compound market was potentially unstable. A Du Pont Executive testified that there was a "fear that it [the price structure] would tumble" and it "certainly had a potential for declining." (Tunis, 112) Ethyl similarly was concerned about "maintaining a stable market for antiknocks." (CX 207D) There was considerable uncertainty about whether a price increase, once initiated, could be maintained, and in any event whether there would be customer retaliation. As Du Pont's Director of Marketing observed about his company's attempts to raise list prices, "the major tension is being number one [the leader]," and the period after initiation of a price increase was "[e]xciting" and "very, very nerve-wracking, tense." (McNally, 2174, 2170, 2129) Competition's response to price increases was very important since "the second person in the market is the one who sets the price." (Tunis, 155–56) Advance notice of price increases eliminates uncertainties, tensions and risks in connection with price increases and tends to facilitate pricing stability.

The role of advance announcement in the marketplace was well-recognized by respondents' marketing executives. The price leaders in the industry were Ethyl and Du Pont. Du Pont scheduled announcements of price increases to provide "an interval which gave our competitors a chance to respond, without [144] having to change the effective date". (McNally, 2129) Ethyl followed a similar procedure. As contemporaneously stated in connection with one of its planned price increases:

This timing gives 37 days notice and allows one week for competition to respond, including a weekend. (CX 93A)

And if "competition" did not "respond," Ethyl would then have to follow contingency plans such as "to roll back our prices." (CX 1953Z298)

PPG executives acknowledged that the timing and amount of its price changes were determined by the actions of Ethyl and Du Pont, and PPG was aware of the significance of sending out a reply to their price increase announcements. (J. M. Robinson, 1033; Fremd, 1592–93; CX 1285, 1286; F. 182)

The record shows that during the period 1974 through May 1979 there were twenty-four price increases. In twenty instances respondents had an identical list price that was effective on the same date. In the other four instances there was an identical list price and an effective date difference of only a day or two. (F. 53–57) The success of advance notice in communicating information of price increases and facilitating the establishment of price identity thus cannot be denied. Respondents not only gave the thirty-day notice of price increases which was provided for in their contracts with customers, but knowing that each respondent had similar price notification clauses in contracts, they purposely gave an additional several days notice in order that competition would have time to respond and comply with each price notification requirement, thus insuring price identity and stability. Respondents' advance price notification practices clearly communicated information facilitating list price identity and price stability.[10]

List prices may have been identical in the oligopolistic lead antiknock compound market absent advance price notice because the product is homogenous. However, this is something that is not known and would involve sheer speculation as to what *might* have happened. Even if list prices had been identical absent advance notice, it is not known at what level prices would have been established, or what disruptive influences might have arisen at the time of price [145] moves without the practice of advance notice.[11] What this record

[10] Where information about price changes was limited, as with price increases on respondents' special mixes, there was substantial difficulty in matching list prices. (F. 172)

[11] Instead of cheating on price increases by the "advance buy" practices which occurred, respondents may have *delayed* matching price increases causing unknown and highly risky complications, and a lower level of prices.

clearly establishes is that advance notice facilitated price matching, and that price matching affected the vigor of competition.

Ethyl undercut Du Pont's price increase notices on two occasions. This first occurred in August, 1977, and may have been brought about because Ethyl was unable to meet Du Pont's effective date of the price increase within Ethyl's 30-day notification period. Ethyl announced a lower price and a different effective date. Du Pont lowered its price increase and changed its effective date to match the Ethyl price increase and effective date. In December 1977, Ethyl again undercut Du Pont's announced price increase. Ethyl gained additional volume as a result of this pricing action, although list prices of all respondents were identical, because refiners rewarded Ethyl for its pricing constraint. Had Ethyl not followed Du Pont's price increase with a 30-day notice of its own increase, Du Pont could have had a higher price out in the market for several days, and its loss of business could have been much greater and the market stability could have been endangered. This would have made Du Pont much more timid about price increases in the future. These two examples of list price competition demonstrate the effectiveness of advance notice in preventing price competition from enveloping the lead-based antiknock compound market. (*See* F. 56, 145.)

During mid-1978, Du Pont and Ethyl announced decreases in the price of TML, lowering TML below the price of TEL for the first time. (F. 52) This price competition was apparently directed at disciplining Nalco whose principal product was TML. (F. 52, 146) One significance of the above list price actions by respondents is to demonstrate the potential instability of the industry, and they in no way disprove the conclusion that the market was noncompetitive during the 1974–1979 period.

While the courts have recognized that advance price announcements are lawful in some circumstances (*see Catalano, Inc.* v. *Target Sales Co.,* 446 U.S. 643, 647 (1980) (per curiam)), there also has been recognition of the **[146]** anticompetitive potential of such practices. *See, e.g., Maple Flooring Manufacturing Association* v. *United States,* 268 U.S. 563, 582 (1925); *Sugar Institute, Inc.* v. *United States,* 297 U.S. 553, 598, 598–99 (1936). In *United States* v. *Container Corp.,* 393 U.S. 333 (1969), where there was an exchange of current price information to specific customers, the court inferred an agreement to stabilize prices—"The exchange of price data tends toward price uniformity." The court also stated:

> The inferences are irresistible that the exchange of price information has had an anticompetitive effect in the industry, chilling the vigor of price competition. 393 U.S. at 337.

PPG's Vice President and General Manager of the lead antiknock antiknock compound operation testified as follows:

Judge Barnes: . . . But I would like to ask, on this price stability, stability of the market, Mr. Robinson, in your belief did the publishing of identical list prices contribute to market stability?

I believe so, your Honor. (J. M. Robinson, 1002)

The inferences are irresistible that advance notice of price increases reduced uncertainty about rivals' actions and reactions to price moves and had an anticompetitive effect in stabilizing prices thereby chilling the vigor of price competition.[12]

(2) Press Notices

Until about mid-1977, all respondents issued press notices concerning price increases. While the record establishes that respondents were astute at gathering much information about list price changes from customers, and customers voluntarily, and sometimes promptly, provided list price change information to respondents, the record is also clear that respondents utilized press articles to learn about or confirm information about price changes. (F. 131–137, 175–182) While buyers were an important link in the information network **[147]** in this industry, there is evidence that these notifications by customers were sometimes inaccurate or unreliable. (F. 179) The fact that information may be unreliable creates further uncertainty as to rivals' pricing actions. Press releases helped ease this uncertainty by providing confirmation of price moves. PPG's expert, Michael Glassman, testified as to the effect of press announcements:

I think in general if you were to say the following thing, I would agree. That if you read it in the newspaper, and especially a trade publication, it will improve your confidence somewhat that is actually what is happening in the world.

It's another source of information and like any other source of information, the more you know about a subject, the more confident you are about your conclusions. (Glassman, 6560)

While press releases may have valid purposes, such as providing company name recognition to potential purchasers, they also provided price verification and eased the risk associated with a price move. As a result, they contributed to market stability and prevented erosion of the price structure.

Extensive evidence from respondents own records demonstrates that respondents relied on press articles to gain information, or verify

[12] "Uncertainty about rivals' behavior may force each oligopolist to act more like a perfect competitor." P. Areeda, Antitrust Analysis 231 (1974).

information about price increases. Particularly significant is the record evidence of the price increase announced on March 1, 1977 by both Ethyl and Du Pont, in differing amounts and different effective dates. The price increases were, at least in part, in response to increases in the price of lead used in making lead antiknock compounds. Du Pont's price increase was 2.0 cents per pound effective April 7, 1977, and Ethyl's price increase was .8 cents per pound effective April 4, 1977. Press accounts of these price increases also carried information that Ethyl had "no immediate plans for further adjustment" of its prices. (CX 121, 831) Du Pont's officials, having read this press story, rolled back its price to match Ethyl's price increase, and shortly thereafter all respondents announced similar price increases to match Ethyl's price increase and Du Pont's effective date. Press information played a significant role in reducing uncertainty and facilitating price matching (*see* F. 175).

The price increase of November 16, 1976, by Ethyl was authorized by Ethyl at 12:25 p.m. October 11, 1976, and was released to the press at 12:30 p.m. Du Pont received information of this Ethyl price increase from telephone calls from the press that very same day, and the information was confirmed by press reports one day later on October 12, 1976. (F. 176) **[148]**

PPG followed incorrect information about one price increase which appeared in the press. (F. 179) On January 21, 1977, Ethyl announced to customers and the press an increase of 0.8 cents per pound, effective February 24, 1977. (CX 8, 34) PPG learned of Ethyl's pricing action, and on January 24 announced to customers and the press that it would also be increasing its price by 0.8 cents per pound, effective February 24, 1977. (CX 1128, 1660E) Du Pont, also on January 24, advised its customers and issued a press release that it would increase prices by the same amount and be effective the same day as the Ethyl increase. (CX 786, 952A, 1109) Although Du Pont's customers were correctly informed of the February 24 effective date, *The Wall Street Journal* of January 25 incorrectly reported that Du Pont's effective date would be March 1, rather than February 24. (CX 149) PPG then moved to meet the later date of March 1. (CX 1185) Since the inaccurate information about the March 1st date was available only from the trade press, and DuPont's customers had all been informed of the correct date, it can be inferred that PPG either ignored or else did not receive information from customers and relied on information it had received from the media.

List prices continued to be identical after respondents stopped issuing press releases. The record does not permit a determination as to the speed or the certainty with which respondents learned of price increases after the practice of issuing press releases ceased in mid-

1977. There are indications that PPG had difficulty meeting the 30-day notification period in a September 1978 price increase (F. 182), and when PPG, in an unusual (and significant for PPG) price move, reduced TEL prices in July 1978, it issued a press release.[13] (F. 114) Dr. Dennis Carlton, Nalco's economic expert witness, testified about the significance of rivals obtaining accurate information about price decreases:

> [Y]ou want to make sure . . . that your rival who has very similar interests to you does not misinterpret your price decrease as a secret price cut or as price competition breaking out. It is . . . important that prices be the same and your rival know what you are doing when prices decrease. **[149]**
>
> . . . [I]t is well recognized that what creates confusion in an oligopoly is any time there is a price change and if a decrease is interpreted as all-out price competition breaking out or discounts breaking out, that could erode the price structure. . . .

(Carlton, 7236–37)

The record establishes unequivocally that respondents relied on press reports of pricing actions of rivals. If this information received from the press was not always the first information available to a respondent, it was obviously confirmatory. Thus, in conjunction with the advance notice practices of respondents, press notices increased certainty about rivals' pricing moves and facilitated price matching. That other sources of information were available to respondents,[14] and also utilized by respondents, does not negate the fact that respondents used press reports in their pricing moves and that the use of press reports conveyed information that facilitated price matching and price stability.

(3) Uniform Delivered Pricing

All respondents have quoted lead antiknock compound prices on a uniform delivered list price basis, and other transaction prices are also quoted on a delivered price basis. (F. 184) The respondents transact all business on a delivered price basis despite repeated and unsuccessful attempts by refiners to obtain quotations for prices F.O.B. respondents' manufacturing facilities, and despite exceptional locational advantages of some customers' refineries. This system of pricing insures that in approximately 80% or more of all sales the cost of the delivered product quoted to the purchasing refinery is the same no matter where the antiknock compound is **[150]** produced, where

[13] PPG's rivals could have quickly learned the details of PPG's decrease from the trade press, for at least one wire service carried PPG's story on July 5 (CX 423), the date the decrease was announced.

[14] In *Container*, 393 U.S. at 335, the Supreme Court noted:

> There was to be sure an infrequency and irregularity of price exchanges between the defendants; and often the data was available from the records of the defendants or from the customers themselves.

the purchasing refinery is located, or how far or by what mode the product is transported.[15]

A delivered pricing formula removes transportation and other cost variables from the pricing structure, thus simplifying each producer's price format. An antiknock compound producer seeking to match a competitor's price under this system need not deal with complications engendered by freight tariffs or speculate on its competitors' transportation cost variables. A delivered pricing formula eliminates much of the speculation about the existence of discounts potentially hidden in varying degrees of freight absorption. Abandonment of the industry practice of delivered pricing could well have led to a general deterioration in the overall pricing of antiknock compounds. Professor Scherer has commented on the role that delivered pricing plays in facilitating and maintaining uniform prices:

> If each producer independently and unsystematically quoted prices to the thousands of destinations it might serve, it would almost surely undercut rivals on some orders, touching off retaliatory price cuts. But common adherence to basing point formulas in effect eliminates discretion and uncertainty, and if each firm plays the game and sticks to the formulas, price competition is avoided. Identical prices are quoted to a given customer by every producer, leaving the division of orders to chance or nonprice variables (such as delivery times, special service, the dryness of martinis provided by salesmen at business luncheons, etc.—bases on which oligopolists often prefer to compete).

F. Scherer, *Industrial Market Structure and Economic Policy* 329 (1980). Another commentator has noted that such systems are often adopted "primarily to eliminate a kind of uncertainty that is a potent force disrupting stable noncompetitive oligopoly pricing." Turner, *The Definition of Agreement under the Sherman Act: Conscious Parallelism and Refusals to Deal.* 75 Harv. L. Rev. 655, 674 (1962).

The courts have recognized for years that delivered pricing systems, or basing point systems, are methods by which competitors avoid the rigors of price competition. *See,* **[151]** *e.g., FTC* v. *Cement Institute,* 333 U.S. 683, 713 (1948); *Triangle Conduit & Cable Co.* v. *FTC,* 168 F.2d 175, 181 (1948), *aff'd by an equally divided court sub nom. Clayton Mark & Co.* v. *FTC,* 336 U.S. 956 (1949).[16] In *Boise Cascade,* the Ninth Circuit commented on delivered pricing systems as follows:

> When combined with the standardization of delivery methods, service extras, and discounts, any delivered pricing system can become a potent tool for assuring that competitors are able to match prices and avoid the rigors of price competition.

[15] [***]

[16] The following cases also hold that industrywide use of the same basing point system results in the quoting of uniform prices and in price matching: *Allied Paper Mills* v. *FTC,* 168 F.2d 600 (7th Cir. 1948), *cert. denied,* 336 U.S. 918 (1949); *Fort Howard Paper Co.* v. *FTC,* 156 F.2d 899 (7th Cir. 1946), *cert. denied,* 329 U.S. 795 (1946); *National Lead Co.,* 49 F.T.C. 791 (1953), *enforced,* 352 U.S. 419 (1957); *Chain Institute,* 49 F.T.C. 1041 (1953), *enforced,* 246 F.2d 231 (8th Cir.), *cert. denied,* 355 U.S. 895 (1957).

* * * * * * *

As we have seen, anticompetitive delivered pricing systems generally have developed as a means of resisting market pressures for price cuts that might lead to feared price wars; they tend to reinforce rather than cause anticompetitive market. Where market forces are not artificially harnessed by an elaborate pricing formula, the normal assumption is that prices will tend to be driven to competitive levels.

637 F.2d at 575, 579

Respondents are not charged with a conspiracy; the charge in the complaint is that this practice of industrywide uniform delivered pricing communicated information to respondents thereby facilitating price matching and price uniformity resulting in a lessening of competition. The capacity of uniform delivered pricing for communicating pricing information between respondents is so well-recognized that further elaboration is unnecessary. Respondents each knew the others were utilizing delivered pricing. Indeed, respondents argue that customers desired, even demanded, delivered pricing (although the record is clear some customers requested F.O.B. **[152]** pricing). Thus, with knowledge that each knew the other was using delivered pricing, the communicative value and effect of the practice is manifest; the practice enabled respondents to match prices and avoid the rigors of competition.

(4) Most Favored Nation Clauses

A most favored nation clause in a sales contract is a promise by a seller to offer its purchaser the benefit of any lower price the seller gives another customer. Use of a most favored nation clause requires that some or all of the seller's other customers receive the same discount. Ethyl and Du Pont were the primary users of most favored nation clauses during the complaint period, although each of the other respondents did employ them in various ways. Most favored nation clauses discourage deviations from list price by making such deviations expensive and by increasing the likelihood that the deviation will be discovered and result in matching. Cutting prices to a large number of customers, or "across-the-board" to all customers, would be unlikely to generate the large increment of additional business to justify the loss in profits by cutting margin.

Most favored nation clauses not only create disincentives to discount; they also reduce uncertainty about rivals' prices and pricing actions in significant ways. Since such contractual provisions discourage discounting, a firm's knowledge that its rivals employ them provides assurance that the latters' discounting will be constrained. As a result of this reduction in uncertainty about rivals' transaction prices, most favored nation clauses facilitate price increases by improving confidence that information regarding a competitor's prices, gathered from only one or two sources, is applicable to all customers. Further, since most favored nation clauses discourage discounting and promote price uniformity, rivals have increased confidence that the higher announced list prices reflect higher transaction prices as well.

Knowledge of rivals' use of most favored nation clauses also enhances the anticompetive impact of delivered pricing by adding an assurance that delivered price quotations are uniform. Conversely, uniform delivered price quotations, when knowingly used in conjunction with most favored nation clauses, reduce uncertainty about whether a rival is hiding a price discount, for example, through freight absorption or other manipulation of the freight component of price.

The use of most favored nation clauses by Ethyl and Du Pont was well-known to each other. The use of such clauses by PPG and Nalco was less certain among respondents, and thus of little or no communicative value. However, the use of the [153] clauses by Ethyl and DuPont in their contracts is unquestioned and the substantial facilitating effect of the practice is clear in the record.[17]

Respondents Ethyl and Du Pont advised their customers that the most favored nation clauses assured equal treatment to all customers. The clause was used by both respondents as an ethical and legal reason for refusing to deviate from list price in quoting prices and responding to bid requests. (F. 194) While respondents attempted in this proceeding to equate the most favored nation clauses with the Robinson-Patman Acts' prohibitions on price discrimination, it is obvious from the text of the clause and the statute that the clause is far more restrictive than the Robinson-Patman Act. It also is obvious from intracompany documents that respondents relied upon the most favored nation clause, not the Robinson-Patman Act, as a device to avoid price competition.[18] [154]

[17] Ethyl has announced to its customers that it was deleting its most favored nation clauses from its contracts effective January 1, 1981. (F. 117)

[18] Ethyl wrote to Texaco and Sun in response to bid requests seeking lower prices:

> Legally we cannot give you a special discount on 'Ethyl' antiknocks without breaching all sales agreements in force. (CX 1587A, 1713A)

Du Pont wrote to Exxon in 1978 and 1979 making similar statements. The 1979 letter stated:

> [W]e cannot prudently guarantee a fixed price. Our contractual arrangements are such that we would be required to do this on an industrywide basis, and this would force a business whose profit margins are already shrinking to an untenable position. (CX 1077)

(footnote cont'd)

Ethyl and Du Pont each recognized that the most favored nation clause restricted their own and each other's flexibility and ability to grant discounts. (F. 197) An Ethyl management document written in November 1975 reveals clearly that the clauses communicated information to Ethyl about rivals' use of the clauses:

DuPont (like PCD [Ethyl]) has evergreen contracts with many refiners. These contracts guarantee favored-nations treatment on pricing for 'equal quantity - equal quality'. Houston Chemical and Nalco are less encumbered by contracts. (CX 394Z-5)

Ethyl's Chairman of the Board of Directors inquired in 1977 about Ethyl's marketing strategy in a possible "free-for all" ". . . if Du Pont abandoned their most favored nations provision with the next set of contracts?" (CX 222B; *see also* Day, 614-15). Ethyl expressly recognized that its use of most favored nation clauses communicated information to its rivals. In a management business review document, Ethyl noted that ". . . cancelling old contracts and eliminating the favored-nations clause would be known to competition immediately. It would signal to them a change in our sales strategy. . . ." (CX 220P-Q)

Du Pont's Director of Marketing testified that Du Pont could not eliminate most favored nation clauses from its contracts without creating "wild speculation as to why." (Tunis, 393) A Du Pont sales representative wrote his superiors that he did not believe Ethyl would respond to an Exxon bid request for an F.O.B. price ". . . for much the same reason that I believe Du Pont would not respond to this invitation." (CX 631A) He testified that Ethyl's use of the most favored nation clause was a factor in his belief about Ethyl's possible pricing action:

It probably was, yes. (Miller, 2000)

The record reflects that refiners desired most favored nation clauses, and that some refiners routinely placed such clauses in purchase orders. (F. 121-122, 201) The record also reflects that PPG made little use of such clauses, that [155] Nalco refused to include such clauses in contracts, and that Ethyl apparently has cancelled most favored nation clauses from its contracts. Thus, the use of the most favored nation clause in contracts was not a business necessity. The record strongly supports a conclusion that its use by Du Pont or Ethyl,

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In August 1978, Du Pont's Director of Marketing wrote to a Du Pont sales representative about a pricing proposal to Mobil:

> Your trade report indicates that Mobil might have the opinion that we could legally meet a competitive price if we had confirmation of the price offered. Our 'favored nation clause (Article 7 - 'Price Protection)' in our contract prevents us from doing that unless we made the price available to the industry as a whole. It is important that our customers not be confused on this point. (CX 1079A)

with 70 percent of the market, clearly communicated information to each other, thereby facilitating price uniformity and stability.[19]

(5) Summary

PPG and Nalco made a substantial portion of their sales [***] They also injected new areas of competition into the market, such as [***] the hiring of outside consultants as a form of service competition. PPG and Nalco did not utilize most favored nation clauses to the extent that Ethyl and Du Pont did. The communicative effect of their most favored nation clauses has not been shown. However, each has given notification of price changes to the trade press and received and acted upon information about rivals' price changes from that source. Each has also generally given 30-day advance notice of price increases. Both were greatly concerned about getting their price change notices out on time, making list prices uniform. PPG and Nalco benefitted each time there was a price increase as [***] Both companies' use of delivered pricing reduced uncertainty about their list prices and facilitated list price increases and matching of prices to individual customers. Had PPG and Nalco not followed these practices, uncertainty about rivals' prices would have been greater. Ethyl and Du Pont would not have been able to maintain the market stability without the solidarity made possible by the actions of PPG and Nalco.

A conclusion that the challenged practices communicated information to respondents facilitating price stability does not deny that other sources of information aided respondents in their business decisions. Respondents used all available sources of information and were very knowledgeable about the antiknock compound market and their rivals' actions. A high degree of interdepence was practiced. The complaint charges that the challenged practices facilitated pricing objectives, not that they compelled such action, or that the practices were **[156]** the sole basis of respondents' actions. Further, respondents may have had, and did have, some legitimate business reasons for raising prices, or using a delivered pricing system, or including a most favored nation clause in customer contracts, or treating all customers equally on price.[20] The profitmaking goal of business is well-recognized, and profit maximization is not charged as being unlawful. Nor is there any charge in the complaint that respondents are required to compete, or that they must reduce prices, or that they must meet all

[19] Courts have recognized that most favored nation clauses can have the effect of keeping prices uniform. *See United States* v. *Eli Lilly and Co.*, [1959] Trade Cases ¶ 69,536 at 76,153 (D.N.J. 1959); *see also Connoll Co.* v. *Plumbers & Steamfitters*, 421 U.S. 616, 623–24 (1975).

[20] An intracorporate business policy to treat all customers fairly—equal as to prices—must be communicated to rivals and to customers. An effective way to do this would be by use of a most favored nation clause and a uniform delivered pricing system. Obviously, the use of these practices would facilitate communication of a business policy, and offer some assurance the business policy was being followed.

customers' demands for lower prices, or that they must be forbidden from considering a rival's anticipated reaction to their pricing move.

The complaint charges that the use of the challenged practices facilitated the maintenance of substantially uniform price levels and the reduction of competition in the lead-based antiknock compound industry. There can be no question but that these practices communicated information to respondents that facilitated price matching. Contemporaneous intracorporate documents clearly demonstrate the use of the practices by respondents, and that the practices facilitated price uniformity.

As with any practice which creates a trade restraint, the remaining determination to be made is the substantiality of the effect of the practices. All business practices communicate information. The practices challenged herein were not alleged to have been adopted through conspiracy, nor with the intent to restrain competition. Further, the practices are not novel to the lead-based antiknock market, but are widely used in other industries. Thus, to be declared unlawful and prohibited, it must be shown that the practices had a substantial effect on competition. In measuring market impact, the practices may be viewed both singly and collectively. Since the practices interacted by communicating pricing information, their effect was synergistic.

The Supreme Court has stated that price competition is the "central nervous system of our economy." *United States* v. *Socony-Vacuum Co.,* 310 U.S. 150, 226 n. 59 (1940). The underlying premise is that the buying public is entitled to an **[157]** opportunity to bargain with regard to purchase price. *Chain Institute, Inc.* v. *FTC,* 246 F.2d 231, 237 (8th Cir. 1957), *cert. denied,* 355 U.S. 895 (1957); *see also National Society of Professional Engineers* v. *United States,* 435 U.S. 679 (1978). Stabilizing prices as well as raising prices is a *per se* violation of the Sherman Act if accomplished through conspiracy. *United States* v. *Socony-Vacuum Co.,* 310 U.S. at 223. Conduct that *facilitates* price stability has been held to have a substantial effect on competition and thus within the ban of the Sherman Act.[21]

In this proceeding, "[T]he inferences are irresistible that the exchange of price information has had an anticompetitive effect in the industry, chilling the vigor of price competition." *United States* v. *Container Corp.,* 393 U.S. at 337. In addition to logical inferences, there is substantial evidence of actual effect on competition. Ethyl and Du Pont were able to cite to their most favored nation clause as (1) assurance that all customers were treated equally, and (2) as a legal reason for not granting discounts. Each knew the other had such clauses in their contracts and were thereby restricted in their ability

[21] In *Socony Vacuum,* a buying program for distress gasoline was the conduct which had an effect of stabilizing prices. *United States* v. *Socony Vacuum Co.,* 310 U.S. at 220.

to discount. Ethyl's highest official, the Chairman of the Board of Directors, was concerned with a possible "free-for-all" if Du Pont abandoned its most favored nation provision with the next set of contracts. (CX 222B) In a management business review document, Ethyl noted that "... cancelling old contracts and eliminating favored nations clause would be known to competition immediately. It would signal to them a change in our sales strategy . . ." (CX 220P–Q) In making announcements of price increases, Ethyl and Du Pont, the price leaders in the industry, not only gave the 30-day notice of price increases, which their contracts required, they gave several additional days notice so that competition could respond:

This timing gives 37 days notice and allows one week for competition to respond, including a weekend. (CX 93A)

It must be concluded, therefore, that because Ethyl and Du Pont shared 70% of the sales in this market, the challenged practices facilitated the price stability in that portion of the market and enhanced prices. The practices also impacted on sales by PPG and Nalco, since their prices were tied directly to list prices. Although other avenues of interfirm rivalry **[158]** existed, the effect of the challenged practices on the vigor of competition was substantial.

Complaint counsel's economic expert, Dr. Hay, testified that without the facilitating practices, the "overall level of performance was likely to have been changed", there would have been "different behavior", it "would have made a difference" "[T]here would have been a noticeable change, a significant change." (Hay, 3825–26, 4372–73) The measurement of impact of the practices on price, of course, cannot be precisely made.[22] The record evidence clearly supports a conclusion that the practices facilitated the stabilization of prices in a substantial industry over a substantial period of time. This is a sufficient effect to make the practices unfair. Thus, the use of the practice by respondents violates Section 5 of the Federal Trade Commission Act as unfair methods of competition.

The possible procompetitive effects of the challenged practices are not of sufficient consequence to overcome the substantial impact which the practices have had on price. The stated desire of some refiners to purchase antiknock compounds pursuant to one or more of the challenged practices does not necessarily alter any conclusion about their adverse impact on competition or their asserted procompetitive benefits. An individual customer may rationally wish to have

[22] The Commission recognized in *Boise Cascade* that measurement of impact of a practice on price is "not susceptible of definitive proof." The Commission also stated this decisional deficiency does not mean "the inquiry cannot be attempted, and that schemes alleged to stabilize prices are immune from scrutiny." *Boise Cascade*. 91 F.T.C. at 91, n.5.

advance notice of price increases, uniform delivered pricing, or most favored nation clauses available in connection with the purchase of antiknock compounds. However, individual purchasers are often unable to perceive or to measure the overall effect of all sellers pursuing the same practices with many buyers, and do not understand or appreciate the benefit of prohibiting the practices to improve the competitive environment. For example, a buyer would always want advance notice of a price increase if prices are going to be uniformly increased and if given the option to "stock up" at the old price. Similarly, a refiner far away from the respondents' antiknock compound manufacturing plants may believe its transportation costs are being subsidized by refiners with nearby production centers, but if delivered pricing has facilitated achieving and maintaining noncompetitive levels to all purchasers, then the system has harmed all purchasers. And lastly, a most favored nation clause is perceived by individual buyers to guarantee low prices; whereas widespread use of the clauses has the opposite effect of keeping **[159]** prices high and uniform. In short, marketing practices that are preferred by both sellers and buyers may still have an anticompetitive effect.

The Supreme Court has expressly held that methods of competition are "unfair" and in violation of Section 5 if they are unfair to the public in reducing competition, even if all parties to the practices desire them. As the court stated in *FTC* v. *Motion Picture Adv. Service Co.,* 344 U.S. 392 (1953), in enforcing the Commission's order:

> These and other business requirements are the basis of the argument that exclusive contracts of a duration in excess of a year are necessary for the conduct of the business of the distributors. The Commission considered this argument and concluded that although the exclusive contracts were beneficial to the distributors and preferred by the theatre owners, their use should be restricted in the public interest.

Id. at 395–96. Accord *Mandeville Island Farms, Inc.* v. *American Crystal Sugar Co.,* 334 U.S. 219, 242–43 (1948).

There was no meaningful commercial benefit derived from respondents' announcement price changes to the trade press prior to the end of 1977. The record shows that respondents can easily communicate with their customers by telephone, Mailgram, and other means. The primary commercial benefits of advance notice are to permit buyers to switch to another, lower-cost supplier and to stock up on lower-cost product. During the 1974–79 period, there was never a significant, publicly-known difference in respondents' effective dates for price increases and, as a result, buyers did not have the opportunity to switch to a lower-cost supplier. The value of purchasing extra antiknock compounds during the notice period was limited by the cost of financing the extra inventory and by refiners' limited storage capacities. Each respondent, moreover, had express policies to limit this advance buying. The limited benefits to refiners of the advance buy cannot be said to equal or offset the benefits to be gained by vigorous competition. One refusal by a respondent to match a list price increase would more than compensate for the advance buy practices. Advance buy existed because of the lack of price competition in the industry.

There is little increased efficiency or savings from the uniform delivered price system. Under the present system, respondents have the burden and expense of auditing freight charges. Shifting this burden to the refiners is merely a reallocation of resources, not a cost savings. Neither does delivered pricing confer any real benefit on refiners with **[160]** respect to product toxicity. Numerous toxic chemicals, such as sulphuric acid, chlorine and hydrofluoric acid are safely sold on some sort of F.O.B. manufacturing-site basis. Uniform delivered pricing also carries no benefits to the buyer by insuring that the risk of loss remains with the seller until delivery of the product at the buyer's refinery, since these matters are easily negotiated.[23] Additionally, the carrier is responsible for the safe intransit delivery of the product. Under the present system, refiners close to production centers effectively subsidize refiners more distant from production centers. A more economical and efficient allocation of resources would be to sell F.O.B. manufacturing plant plus actual freight. Certainly, a more flexible pricing system would tend to increase uncertainty and thereby enhance the competitive process.

There has been no record showing of how most favored nation clauses benefit refiners, or competition generally. The clause might provide some comfort to a buyer, or to a buyer's purchasing agent, but the record is silent on any refiner that actually received a lower price because of the most favored nation clause. On the contrary, the record in this proceeding establishes beyond cavil that the most favored nation clause has been used as an excuse for not giving a refiner a lower price. As used in the lead antiknock compound industry, most favored nation clauses have been an impediment to competition.

Any procompetitive benefits of the challenged practices are clearly outweighed by their anticompetitive attributes. Accordingly, it is concluded that the use of the challenged practices constitute a violation of Section 5 of the Federal Trade Commission Act.

[23] In the 49 states that have adopted Article 2 of the Uniform Commercial Code, the risk of loss of goods in transit passes when the buyer takes delivery at the refinery, irrespective of whether delivered pricing is used, U.C.C. Section 2–509(1)(b). In addition, the law in all states, including Louisiana, is clear that contracting parties may always negotiate when risk of loss passes. U.C.C. Section 2–509(4); La. Civ. Code Ann. arts. 2468, 2484; *C.W. Greenson Co.* v. *Harnischfeger Corp.*, 231 La. 934, 93 So.2d 221 (1957).

XII. REMEDY

The use of the challenged practices has had the effect of reducing uncertainty and promoting price uniformity in the lead-based antiknock compound market. A cease and desist order is therefore appropriate as a remedy for the violation of Section 5. **[161]**

Respondents have raised the argument that no relief at all is justified because the market has changed since the issuance of the complaint and that injunctions are to be framed according to facts in existence at the time of an order. It is true that an order may not be justified where the challenged practice has been long discontinued, (*see New Standard Publishing Co., Inc.* v. *FTC,* 194 F.2d 181, 183 (4th Cir. 1952); or where there have been structural changes in the industry which would make a remedy unnecessary (*see Columbia Broadcasting Systems, Inc.* v. *FTC,* 414 F.2d 974, 981–82 (7th Cir. 1969)).

That is not the situation here. Although demand for antiknock compounds has been declining and may continue to decline because of government-imposed regulations, this is not surprising news to the respondents. Decline in demand has been anticipated at least since the implementation of the EPA regulations relating to lead content in gasoline. Moreover, there have been no other structural changes in the market such as a change in the nature of the product, or the entrance of new competitors stimulating competition. *Cf. Id.* at 981–82.

Further, although there is some evidence of an increase in the number of discounts and services provided to refiners after this proceeding was initiated in May, 1979, and a sharp decline in profits since that date, there is no overall showing that the level of price competition has increased or is likely to increase to the point where relief is unnecessary. On the contrary, the decline in demand may create an increased need for pricing interdependence. In other words, increased interdependence is as likely a result of decreased demand as is a more competitive environment. "[O]nce the Government has successfully borne the considerable burden of establishing a violation of law, all doubts as to the remedy are to be resolved in its favor." *United States* v. *E. I. du Pont de Nemours & Co.,* 366 U.S. 316, 334 (1961)[24] **[162]**

"[T]he standard against which the order must be judged is whether the relief represents a reasonable method of eliminating the consequences of the illegal conduct." *National Society of Professional Engineers* v. *United States,* 433 U.S. 679, 698 (1978). It is well-established

[24] PPG and Nalco contend they have been procompetitive forces in the industry since their entry into the market in the 1960's. Admittedly this is true; these two respondents have been responsible for much of the interfirm rivalry which has existed. It has been concluded, however, that interfirm rivalry was strictly limited, and that PPG's and Nalco's use of the challenged practices contributed to this overall lessening of competition. Although the effect of PPG's and Nalco's use of the practices may have had a lesser impact on the vigor of competition, they were not innocent bystanders.

that "the Commission has wide discretion in its choice of a remedy deemed adequate to cope with unlawful practices," and that so long as the remedy selected has a "reasonable relation to the unlawful practices found to exist," the courts will not interfere. *Jacob Seigel Co.* v. *FTC,* 327 U.S. 608, 611, 613 (1946) *See also FTC* v. *Cement Institute,* 333 U.S. 683, 726 (1948); *FTC* v. *Colgate-Palmolive Co.,* 380 U.S. 374, 392 (1965); and *L. G. Balfour Co.* v. *FTC,* 442 F.2d 1, 23 (7th Cir. 1971). Having established a violation of law, the Commission must "be allowed effectively to close all roads to the prohibited goal, so that the order may not be by-passed with impunity." *FTC* v. *Ruberoid Co.,* 343 U.S. 470, 473 (1952)

The remedy entered herein is reasonably related to the practices which were found to inhibit competition. Only reasonable "fencing-in" provisions have been included, and certain order provisions sought by complaint counsel have been rejected. The remedy is in no way punitive, and leaves considerable marketing discretion in respondents' hands. Since the conduct found unlawful was not alleged to be criminal in nature, or *per se* unlawful, or to have been carried on with an intent to injury competition, the remedy should be tailored accordingly. The prohibitions and affirmative duties imposed under this Order are justified because they are needed to remedy the continuing effects of these unfair methods of competition. *See FTC* v. *Mandel Bros., Inc.,* 339 U.S. 385 (1959); *American Medical Association* v. *FTC,* 638 F.2d 443, 451 (2nd Cir. 1980); and *Grand Union Co.* v. *FTC,* 300 F.2d 92, 100 (2nd Cir. 1962).

The use of advance notice of list price changes has allowed a move to increase prices to be communicated to competitors before it is effective. As a result, list prices have gone into effect in the same amount and at the same time, and there has been no list price competition in the lead antiknock compound market. Respondents, accordingly, will not be permitted to announce to customers in advance of their effective date any list price changes. This will increase the risk associated with price moves.

Respondents argue that an order affecting advance notice interferes with their First Amendment free speech right. This argument is without merit, but because of its implications deserves discussion.

Publication of list prices is a form of speech and thus entitled to constitutional protection. However, it must be **[163]** characterized as commercial speech; that is, expression related to the economic interests of the speaker and its audience and which proposed a commercial transaction. *Virginia State Bd. of Pharmacy* v. *Virginia Consumer Council,* 425 U.S. 748, 762 (1967). The importance of commercial speech in economic decision-making is that it "serves to inform the public of the availability, nature, and prices of products and services, and thus performs an indispensable role in the allocation of resources in a free enterprise system." *Bates* v. *State Bar of Arizona,* 433 U.S. 350, 364 (1977)

Commercial speech, however, is entitled to less constitutional protection than other speech forms. *Ohralik* v. *Ohio State Bar Association,* 436 U.S. 477, 456 (1978) For example, most commercial speech has been regulated because it is either deceptive or misleading, or because it has been unduly restrictive. *See, e.g., Virginia State Board of Pharmacy* v. *Virginia Consumer Council,* 425 U.S. at 770–773; *Official Airline Guides, Inc.* v. *FTC,* 630 F. 2d 920 (2nd Cir. 1980), *cert. denied,* 49 U.S.L.W. 3617 (1981)

More recently, the Supreme Court has further articulated the standard by which commercial speech may be regulated. Commercial speech is entitled to protection unless it is misleading, or related to an unlawful activity. *Central Hudson Gas & Electric Corp.* v. *Public Service Commission of New York,* 447 U.S. 557, 566 (1980)

The publication of list prices by respondents has been neither misleading nor restrictive of the flow of information. However, it has been found to be an unfair method of competition within the meaning of Section 5 of the FTC Act because it has helped facilitate uniform prices and limit aggressive price competition in the lead-based antiknock compound market. Violation of the antitrust laws is a substantial government interest justifying regulation of speech. *Professional Engineers,* 435 U.S. at 696–98

The prohibition on advance notice of list price changes will eliminate the consequences of the unlawful conduct. Nothing in the Order will prohibit the communication of price information to actual or potential customers. The focus is on the timing of such communications. Arguably, the interest of consumers in the "free flow" of commercial speech is impeded by any restriction. *Virginia State Board of Pharmacy,* 425 U.S. at 765. However, limitations are justified if they serve a significant government interest and "that in doing so they leave open ample alternative channels for communication of information." *Id.* at 772

The content of information received by antiknock customers will in no way be altered by a prohibition on advance notice, and, indeed, may provide a customer benefit. Lead [**164**] antiknock compound customers are easily reached by telephone, mail, telegram, and personal contact. Discontinuance of advance notice will not interfere with the business routines of respondents because customer access to such information is already well-established. In addition, there has been no difficulty in permitting list price decreases to go into effect immediately upon announcement. Under this reasoning, the First Amendment presents no obstacle to an order prohibiting advance notification of price changes to remedy the antitrust violation.

Advance notification is currently provided to some customers pursuant to 30-day notification clauses in their contracts with the antiknock producers. This also presents no impediment to an order requiring deletion of contractual provisions, even though no customer is a formal party to this litigation. *United States* v. *International Boxing Club of New York, Inc.,* 171 F. Supp. 841, 842 (S.D.N.Y. 1957), *aff'd.* 358 U.S. 242, 247 (1959); *L. G. Balfour Co.* v. *FTC,* 42 F.2d 1, 23 (1971); *Coca-Cola Co.,* 80 F.T.C. 1023 (1972), *vacated on other grounds and remanded,* [1980–81] Trade Cas. (CCH) ¶ 63,777 (D.C. Cir. 1981) [642 F.2d 1387]; *PepsiCo., Inc.* v. *FTC,* 472 F.2d 179, 189 (2nd Cir. 1972), *cert. denied,* 414 U.S. 876 (1973); *see also Seven-Up Co.* v. *FTC,* 478 F.2d 755 (8th Cir. 1973), *cert. denied,* 414 U.S. 1013 (1973); *Coca-Cola Co.* v. *FTC,* 475 F.2d 299, 304 (5th Cir. 1973), *cert. denied,* 414 U.S. 877 (1973)

A provision has been included in the Order which prohibits retroactive price changes. Prohibiting retroactive price changes or price modifications prevents a seller, which has put a price increase into effect, from rescinding the increase retroactively and accomplishing the same result as advance notification. This provision is warranted to assure that the prohibition on advance notice of price increases will be effective and not bypassed with impunity.

Complaint counsel has sought a ban on interproducer sales because they communicate information among respondents. There appears to be little market benefit in banning such sales, and further, it could have anticompetitive results, especially in relation to Nalco and PPG. Nalco has been PPG's second largest customer. PPG has bought TML primarily from Nalco. The advantage to PPG of the flexibility and lower cost has been an important element in its ability to compete. Moreover, PPG has not produced TML since 1977 and has no present capacity to do so. At a time of declining demand, requiring investment to modify manufacturing processes is not economically feasible nor justified by the record in this case. The reasoning applied to PPG also is applicable to Nalco. While Ethyl and Du Pont are self-sufficient in all kinds of antiknock compound production, Nalco and PPG clearly are not. Competition will be fostered by making certain that this proceeding does nothing to push any respondent out of the market. Accordingly, **[165]** there will be no ban on interproducer sales. However, communication between respondents respecting prices has been limited to what is minimally necessary to effect a purchase or sale of antiknock compound. *See Martin Marietta Corp.,* 88 F.T.C. 989, 994 (1976)

Respondents also have been prohibited for a period of thirty (30) days from communicating with the media any information respecting a price change or price modification. Respondents argue that any remedy relating to the issuance of press releases is moot because they abandoned the practice prior to learning of this antitrust action.

All respondents discontinued the issuance of press releases at different periods during 1977. While the sole function of relief is to prevent future violations (*United States* v. *Oregon State Medical Society,* 343 U.S. 326, 333 (1952)), the fact of discontinuance alone does not make a cease and desist order invalid. *Official Airline Guides, Inc.* v. *FTC,* 630 F.2d 920, 928 (2nd Cir. 1980), *cert. denied,* 49 U.S.L.W. 3617 (1981)

Although respondents did discontinue press notices of price changes in 1977, there is evidence that standby statements later were used to respond to press inquiries about pricing actions. Also, PPG, in 1978, issued a press release when announcing what PPG determined to be a significant price move. Press notices could be commenced again on short notice, and standby statements could become significant if other avenues of information about prices are foreclosed. Since there is a possibility that press notices or standby statements can be used, and as a matter of "fencing-in", a prohibition against media contact has been included in the order. Constitutional objections to this provision are also rejected (*see* constitutional argument, *supra.*).

Because it simplifies the pricing formula by charging the same freight to all customers regardless of geographic location, the use of uniform delivered pricing has facilitated matching of actual transaction prices. The Order will be directly to the use of *uniform* delivered pricing systems which eliminate variables which complicate freight rates. Numerous separate delivered costs to different customers makes matching of prices more difficult.

The use of delivered pricing has not been found to be unlawful and will not be prohibited because it appears to offer certain advantages to antiknock customers. Therefore, respondents may continue to independently make the decision to absorb all or part of the freight charges in order to meet a distant competitor's price. However, any use of a delivered price must be offered as an alternative to an F.O.B. mill price plus freight. *See, e.g., Boise Cascade Corp.,* 91 F.T.C. at **[166]** 109–10; *Martin Marietta Corp.,* 88 F.T.C. 989, 993–94 (1976) (consent order)

Refiners who feel that delivered pricing offers them an advantage because the risk of loss remains on the seller will continue to have that option available. Those who feel that F.O.B. pricing provides a more reasonable means of transportation because of proximity to the production site will have that option available. What is prohibited is systematic price matching or price equalization which charges the same delivered price to all customers not similarly situated.

Most favored nation clauses have been used by Ethyl and Du Pont as a reason not to discount from list price. These two companies engaged in virtually no discounting from list between 1974 and 1979. Their transaction prices have approximated their list prices and were readily identifiable. Du Pont and Ethyl each knew of and relied on the other's use of the clause to prevent price deterioration of antiknock compounds. As a result, the use of the clause operated to reduce uncertainty in at least 70% of the market. These two companies will therefore be prohibited from the use of these clauses or any agreement having similar effect, in the sale of lead-based antiknock compounds. PPG and Nalco have made limited use of most favored nation clauses, and the impact of their practices on the market was not demonstrated. However, these two companies may have difficulty competing if they are unable unilaterally to remove any remaining most favored nation clauses from their contracts. A prohibition requiring their removal will leave PPG and Nalco in a stronger competitive position, since Ethyl and Du Pont will no longer have such clauses in their contracts. Although Ethyl has taken steps to remove the clause from its contracts, this issue is not mooted. Unlike press releases, the discontinuance of most favored nation clauses by Ethyl was instituted only after the complaint was filed and the practice challenged as an unfair method of competition. Further, there has been no assurance that Ethyl will, or has been, successful in removing the clause, or that the use of the most favored nation clause will not be resumed.

It is believed that the Order entered hereinafter is reasonably related to the violations of law found to exist, is no more restrictive than necessary, and that it will have a noticeable impact on the vigor of competition.

XIII. CONCLUSIONS OF LAW

1. The Federal Trade Commission has jurisdiction over the subject matter of this proceeding and over the respondents.

2. The acts, practices, and methods of competition charged in the complaint took place in or affecting commerce within the meaning of the Federal Trade Commission Act. [167]

3. While engaged in the sale and distribution of lead-based antiknock compounds, respondents individually engaged in the use of advance price notification, the issuance of press releases prior to 1978, most favored nation clauses in their customer contracts (except PPG), and uniform delivered pricing.

4. The use of these practices individually and collectively by respondents has had the effect of:

a. reducing uncertainty about prices of lead-based antiknock compounds;
b. creating list price uniformity in the sale of lead-based antiknock compounds;
c. facilitating uniformity of transaction prices of lead-based antiknock compounds; and
d. contributing to maintenance of substantially uniform price levels and the reduction of price competition in the lead-based antiknock compound market.

5. The acts, practices and methods of competition of respondents, individually and collectively, constitute unfair methods of competition and unfair acts and practices in commerce in violation of Section 5 of the Federal Trade Commission Act, 15 U.S.C. 45, as amended.

6. The Order entered hereinafter is appropriate and necessary to remedy the violations of law which have been found to exist.

Order

I

Definitions

For the purpose of this Order, the following definitions shall apply: **[168]**

A. *Lead-based antiknock compound* means additives to gasoline which increase its octane rating and which contain tetraethyl or tetramethyl lead.

B. *Delivered price* means a single, undivided or unitary price inclusive of product and transportation charges.

C. *Customer* means any purchaser of a lead-based antiknock compound.

D. *Most favored nation agreement* means any contractual provision or understanding that requires, or potentially requires, a price paid by one purchaser of lead-based antiknock compound be offered to one or more other purchasers of the seller.

II

It is ordered, That respondents Ethyl Corporation, E. I. Du Pont de Nemours and Company, PPG Industries, Inc., and Nalco Chemical Company, their successors and assigns, and their officers, agents, representatives and employees, directly or indirectly, through any corporation, subsidiary, division or other device, individually, in connection with the sale or distribution of lead-based antiknock compound in the United States, shall forthwith cease and desist from:

A. Publishing, distributing or communicating in any manner:

(1) notice to any actual or potential customer concerning any change or modification in the price of lead-based antiknock compound in advance of its actual effective date;

(2) information to any respondent concerning prices, discounts and other terms and conditions pertinent to the sale of lead-based antiknock compound, **[169]** except in connection with a bonafide sale to, or purchase from any respondent, or in connection with negotiations related thereto;

(3) for a period of thirty (30) days after any change or modification in the price of lead-based antiknock compound, any information in respect to, about, or concerning said price change or modification to any newspaper, trade journal, magazine, radio or television facility, or any other media, or to any representative thereof.

Provided, That nothing in subparagraph A above, shall be construed to prohibit any respondent from (1) conveying to an actual or potential customer the information necessary to respond in good faith to request to bid on or engage in negotiations regarding the purchase of any lead-based antiknock compound; (2) contracting to sell any lead-based antiknock compound at a price determined pursuant to such bid or negotiation which is effective on a specified future date subject to neither contingency nor condition; or (3) conveying information in compliance with any order, or in connection with participation in any proceeding, of a court, legislative body, or administrative agency.

B. Making any price change or modification in the price of lead-based antiknock compound applicable to purchase orders received prior to the effective date of such price change or modification.

C. Entering into any contract with any customer for the purchase or sale of lead-based antiknock compound which requires that advance notice of any price change or modification be given. **[170]**

D. Quoting or providing transportation on lead-based antiknock compound at a uniform charge to customers not similarly situated.

E. Quoting or selling lead-based antiknock compound to an actual or potential customer pursuant to a formula or method of pricing which systematically;

(1) matches the cost of such lead-based antiknock compound from any other producer thereof; or

(2) equalizes the cost of such lead-based antiknock compound to actual or potential customers.

Provided, That nothing in subparagraphs D and E above, shall be construed to prohibit a respondent from attempting in good faith in an individual transaction to meet the lower product price, transportation or other charge of a competitor; or stating to the customer its general willingness to meet such price or charges of a competitor.

F. Entering into a contract for the sale or delivery of lead-based antiknock compound with any customer containing a most favored nation agreement; or maintaining or complying with a most favored nation agreement in any contract for the sale or delivery of lead-based antiknock compound.

III

It is further ordered, That whenever a respondent offers a delivered price to a customer for the purchase of lead-based antiknock compound, said respondent shall offer the customer the option of a point of origin price at the respondent's **[171]** production facility from which shipment is to be made, and at the option of any actual or potential customer:

A. Allow any customer to arrange or furnish transportation for any purchased lead-based antiknock compound from the respondent's production facilities; or

B. Offer a separately-stated price for transportation furnished or arranged by the respondent.

IV

It is further ordered, That each respondent, individually, shall forthwith make its lead-based antiknock compound sales contracts and other agreements consistent with this Order, including but not limited to deleting from each:

A. Any provision or understanding whereby advance notice of a price change or modification in price of a lead-based antiknock compound is provided to a purchaser.

B. Any most favored nation agreement.

V

It is further ordered, That nothing contained in this Order shall be interpreted as prohibiting a respondent when acting individually, (1) from exercising its right to establish the price at which and to select the customers to which it shall sell; or (2) from selling at a point of origin or delivered price established in good faith to meet the equally low price of **[172]** a competitor. No pricing practice engaged in by a respondent shall be deemed immune or exempt from the antitrust laws by reason of anything contained in this Order.

VI

It is further ordered, That each respondent shall forthwith deliver a copy of this Order to all present and (for a period of ten years from the entry of this Order) future personnel, agents and representatives of respondents having sales, distribution or policy responsibilities regarding lead-based antiknock compound, and each respondent shall forward a copy of this Order to each of its purchasers during the past twelve months of any lead-based antiknock compound in the United States.

VII

It is further ordered, That each respondent notify the Commission at last thirty (30) days prior to any proposed change in the corporate respondent such as dissolution, assignment or sale resulting in the emergency of a successor corporation, the creation or dissolution of subsidiaries, or any other change in the corporation which may affect compliance obligations arising out of this Order. [173]

VIII

It is further ordered, That each respondent shall, within sixty (60) days after service upon it of this Order, file with the Commission a report, in writing, setting forth in detail the manner and form in which it has complied with this Order and such additional reports thereafter as the Commission may require.

APPENDIX A

Respondents' Standard Antiknock Compounds

Type of Mix	Ethyl[1]	Du Pont[2]	PPG[3]	Nalco[4]
Straight Fluids	TEL Motor Mix	TEL Motor Antiknock	TEF Motor Mix	Nalkyl E-1
	TML Motor Mix	TML Motor Antiknock	TMF Motor Mix	Nalkyl M-1
	Aviation Mix	TEL Aviation Antiknock		
	Aviation Mix Dyed			
Reacted Mixes[5]	MLA 250 Mix	Tetramix 25 Antiknock	MAF Motor Mix 25R	Nalkyl ME 25
	MLA 500 Mix	Tetramix 50 Antiknock	MAF Motor Mix 50R	Nalkyl ME 50
	MLA 750 Mix	Tetramix 75 Antiknock	MAF Motor Mix 75R	Nalkyl ME 75
Physical Mixes[5]	TELMEL 10[6]	PM-10	MAF Motor Mix 10P	----------------
	TELMEL 25	PM-25	MAF Motor Mix 25P	----------------
	TELMEL 50	PM-50	MAF Motor Mix 50P	----------------
	TELMEL 75	PM-75	MAF Motor Mix 75P	----------------

[1] CX 2A; Lockerbie, Tr. 698-99; Werling, Tr. 3619-21; CX 1953Z30-31.
[2] CX 597B; Tunis, Tr. 37-38.
[3] CX 1115A; CX 1163E; J. M. Robinson, Tr. 978-79.
[4] CX 1329A-B; Altman, Tr. 1244-45.
[5] For each company, the numerals in the name of the mix show what proportion of the antiknock compound in the fluid is TML. Thus, MLA 250 is one quarter TML and three-quarters TEL and PM-10 is 10 percent TML and 90 percent TEL. (*See*, Werling, Tr. 3619-20; Tunis, Tr. 38; CX 1163E; Altman, Tr. 1244).
[6] Ethyl's TELMEL 10 is identical in composition to Du Pont's PM-10 and PPG's MAF Motor Mix 10P. (*See*, Diggs, Tr. 2435; Werling, Tr. 3688). Ethyl's TELMEL 10 prices were not generally disseminated and that respondent (unlike Du Pont) did not consider TELMEL 10 to be standard mix. (Lockerbie, Tr. 698-99; Werling, Tr. 3649-50; CX 2C).

APPENDIX B

Respondents' Special or Non-Standard Antiknock Compounds

Type of Mix	Ethyl [1]	Du Pont [2]	PPG [3]	Nalco [4]
Straight Fluid	TEL Motor Special #1	TEL Motor Special Antiknock S-1	TEL Motor Mix C +	-------
	TEL Motor Special #1 Yellow [5]			
Reacted Mixes	MLA 500 Special #1	Tetramix 25 S-1 Tetramix 50 S-1	MAF Motor Mix 50R-C +	
Physical Mixes	TELMEL 10 [6]	PM-10	MAF Motor Mix 10P	

[1] Lockerbie, Tr. 698-99; Werling, Tr. 3619-22; CX 2A-C.

[2] CX 597B; Tunis, Tr. 39-40.

[3] Fremd, Tr. 1593-94.

[4] Nalco sold no special mixes during the period 1974-1979. (Altman, Tr. 6606)

[5] TEL Motor Special #1, yellow, is TEL Motor Special #1 with an orange dye added. (Werling, Tr. 3624; CX 1953Z262).

[6] Unlike Ethyl, Du Pont generally disseminated information about this mix (e.g., CX 1113Z24-33), as did PPG (e.g. CX 1140; 1135; 1164; 1129; 1124). For a short period of time, however, PPG removed MAF Motor Mix 10P from customer notices and press releases (CX 1131-32; 1660C). Only one customer purchased TELMEL from Ethyl. (Lockerbie, Tr. 820).

APPENDIX C

Respondents' Sales and Market Shares

Total sales of antiknock fluid to refiners in pounds and market shares of that market in each year 1974 through 1979 and the six-month period ending June 30, 1980 were as follows:

	Du Pont	Ethyl	Nalco	PPG	Total
			(in 000s)		
1974	393,067	343,015	121,035	165,541	1,022,658
	(38.4%)	(33.5%)	(11.8%)	(16.2%)	(100%)
1975	354,915	304,601	110,617	163,617	933,750
	(38.0%)	(32.6%)	(11.8%)	(17.5%)	(100%)
1976	373,868	325,821	125,932	174,059	999,680
	(37.4%)	(32.6%)	(12.6%)	(17.4%)	(100%)
1977	321,683	316,565	122,703	152,659	913,610
	(35.2%)	(34.6%)	(13.4%)	(16.7%)	(100%)
[***]	[***]	[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]	[***]	[***]
[***]	[***]	[***]	[***]	[***]	[***]

(REX 324 Z27)

APPENDIX D(i)

TEL AND TML LIST PRICE CHANGES
2-1-74 through 5-30-79

	Company	Customer Notification	Press Communication or Release	Date Published*	Days Notice	Date Change Effective	New TEL cents/lb.	% Change	New TML cents/lb.	% Change	Notes	
1	DuPont**	2/1/74[1]	2/5/74[2]	2/7/74(WSJ)[3]	38	3/11/74	41.00	+7.0***	43.00	+7.0***	1 CX 342; CX 1970A	6 CX 1621
	Ethyl**	2/1/74[4]	N/A	2/4/74(WSJ)[5]	38	3/11/74	41.58	+8.4	43.62	+8.4	2 CX 973	7 CX 1237
	Ethyl	2/6/74[6]	N/A	N/A	33	3/11/74	41.00	+7.0	43.00	+7.0	3 CX 353	8 CX 351
	PPG	N/A	2/8/74[7]	2/11/74(WSJ)[8]	—	3/11/74	41.00	+7.0	43.00	+7.0	4 CX 349	9 CX 1339
	Nalco	2/13/74[9]	N/A	N/A	26	3/11/74	41.00	+7.0	43.00	+7.0	5 CX 354	
2	DuPont****	3/28/74[1]	3/28/74[2]	3/29/74(OD)[3]	39	5/6/74	43.96	+7.2	46.10	+7.2	1 CX 60; CX 1970A	6 CX 1683; CX 1361
	Ethyl	3/29/74[4]	N/A	4/1/74(WSJ)[5]	38	5/6/74	43.96	+7.2	46.10	+7.2	2 CX 1106	7 CX 1161
	Nalco	4/2/74[6]	N/A	N/A	34	5/6/74	43.96	+7.2	46.10	+7.2	3 CX 1591	8 CX 1658;
	PPG	4/4/74[7]	4/5/74[8]	4/8/74(WSJ)[9]	32	5/6/74	43.96	+7.2	46.10	+7.2	4 CX 341	9 CX 1594
											5 CX 1592	
3	Ethyl	6/11/74[1]	6/11/74[2]	6/12/74(WSJ)[3]	37	7/18/74	47.40	+7.9	49.72	+7.9	1 CX 326	5 CX 329
	DuPont	6/13/74[4]	N/A	6/14/74(WSJ)[5]	—	7/18/74	47.40	+7.9	49.72	+7.9	2 CX 311	6 CX 1160
	PPG	6/14/74[6]	N/A	N/A	34	7/18/74	47.40	+7.9	49.72	+7.9	3 CX 1595	7 CX 1362
	Nalco	6/15/74[7]	N/A	N/A	33	7/18/74	47.40	+7.9	49.72	+7.9	4 CX 974	

* Abbreviations for publications:

"WSJ" — Wall Street Journal
"OD" — The Oil Daily
"J/C" — The Journal of Commerce
"CW" — Chemical Week
"NYT" — New York Times

** The Ethyl and Du Pont announcements were effectively simultaneous. Ethyl learned that Du Pont had made its apparently previous announcement only after Ethyl had communicated with its customers. (CX 342). Also verified by CX 1970 which contains the dates that Mr. Werling understood rivals to have made their announcement. (Werling, Tr. 3639-40). Du Pont customer notification is unavailable. The date of customer notification is derived from Ethyl documents which indicate February 1, 1974 as the latest date Du Pont could have notified its customers. (Id). In 1974 and early 1975, Du Pont's customers received price change notifications by telex or mailgram in a form similar to the latter portion of the core period. (Diggs, Tr. 2419-20).

*** Percentage change for this round is taken from CX 1970A.

**** Du Pont customer notification is unavailable. The date of customer notification is derived from Ethyl documents which indicate March 28, 1974 as the lastest date Du Pont could have notified its customers. (CX 60; 1510A).

APPENDIX D(ii)

	Company	Customer Notification	Press Communication or Release	Date Published	Days Notice	Date Change Effective	New TEL cents/ lb.	% Change	New TML cents/ lb.	% Change	Notes
4	DuPont*	6/24/74[1]	6/24/74[2]	6/25/74(WSJ)[3]	37	7/31/74	48.60	+2.5	50.92	+2.4	1 CX 58; CX 1970A 2 CX 975 3 CX 316 4 CX 313 5 CX 312 6 CX 315 7 CX 1159 8 CX 1359 9 CX 1396
	Ethyl	6/26/74[4]	6/26/74[5]	6/28/74(WSJ)[6]	35	7/31/74	48.60	+2.5	50.92	+2.4	
	PPG	6/28/74[7]	N/A	N/A	33	7/31/74	48.60	+2.5	50.92	+2.4	
	Nalco	undated[8]	7/5/74[9]	N/A	—	7/31/74	48.60	+2.5	50.92	+2.4	
5	DuPont**	8/21/74[1]	8/21/74[2]	8/21/74(WSJ)[3]	37	9/27/74	54.44	+12.0	58.04	+14.0	1 CX 1970A 2 CX 976 3 CX 310 4 CX 300 5 CX 299 6 CX 309 7 CX 1151 8 CX 307 9 CX 1358 10 CX 1363
	Ethyl	8/26/74[4]	8/26/74[5]	8/27/74(WSJ)[6]	32	9/27/74	54.44	+12.0	58.04	+14.0	
	PPG	8/27/74[7]	N/A	8/30/74(WSJ)[8]	31	9/27/74	54.44	+12.0	58.04	+14.0	
	Nalco	8/27/74[9]	8/27/74[10]	N/A	31	9/27/74	54.44	+12.0	58.04	+14.0	
6	Ethyl	3/13/75[1]	3/13/75[2]	3/14/75(WSJ)[3]	35	4/17/75	57.51	+5.6	61.23	+5.5	1 CX 62 2 CX 284 3 CX 295 4 CX 977 5 CX 292 6 CX 1150 7 CX 1457
	DuPont	N/A	3/17/75[4]	3/18/75(WSJ)[5]	—	4/17/75	57.51	+5.6	61.23	+5.5	
	PPG	3/17/75[6]	N/A	N/A	31	4/17/75	57.51	+5.6	61.23	+5.5	
	Nalco	3/17/75[7]	N/A	N/A	31	4/17/75	57.51	+5.6	61.23	+5.5	
7	Ethyl	5/14/75[1]	5/14/75[2]	5/15/75(WSJ)[3]		5/15/75	56.81	-1.2	60.53	-1.1	1 CX 278 2 CX 277 3 CX 282 4 CX 640A-B 5 CX 640C 6 CX 282 7 CX 644 8 CX 645 9 CX 281 10 CX 1147 11 CX 1659 12 CX 1596 13 CX 1357 14 CX 1393 15 CX 280
	DuPont***	5/14/75[4]	5/14/75[5]	5/15/75(WSJ)[6]		5/15/75	57.21	-0.5	60.93	-0.5	
	DuPont	5/15/75[7]	5/15/75[8]	5/19/75(OD)[9]		5/15/75	56.81	-1.2	60.53	-1.1	
	PPG	5/16/75[10]	5/19/75[11]	5/20/75(WSJ)[12]		5/15/75	56.81	-1.2	60.53	-1.1	
	Nalco	5/16/75[13]	5/16/75[14]	5/20/75(OD)[15]		5/15/75	56.81	-1.2	60.53	-1.1	

* Du Pont customer notification is unavailable. The date of customer notification is derived from Ethyl documents which indicate June 24, 1974 as the latest date Du Pont could have notified its customers. (CX 58; 1970A).

** Du Pont customer notification is unavailable. The date of customer notification is derived from Ethyl documents which indicate August 21, 1974 as the latest date Du Pont could have notified its customers. (CX 1970A).

*** Documents indicate that decisions of Ethyl and Du Pont were made simultaneously without knowledge of the other's action. (CX 927; 595).

APPENDIX D(iii)

	Company	Customer Notifi-cation	Press Communica-tion or Release	Date Published	Days Notice	Date Change Effective	New TEL cents/lb.	% Change	New TML cents/lb.	% Change	Notes	
8	Ethyl	6/2/75[1]	6/2/75[2]	6/3/75(NYT)[3]		6/3/75	55.81	-1.8	59.53	-1.7	1 CX 266	7 CX 1336
	DuPont	6/3/75[4]	6/3/75[5]	6/4/75(WSJ)[6]		6/3/75	55.81	-1.8	59.53	-1.7	2 CX 267	8 CX 1501
	Nalco	6/3/75[7]	6/3/75[8]	6/4/75(WSJ)[9]		6/3/75	55.81	-1.8	59.53	-1.7	3 CX 690	9 CX 274
	PPG	6/3/75[10]	6/3/75[11]	6/4/75(WSJ)[12]		6/3/75	55.81	-1.8	59.53	-1.7	4 CX 669	10 CX 1145
											5 CX 978	11 CX 1144
											6 CX 274	12 CX 274
9	DuPont	8/14/75[1]	8/14/75[2]	8/15/75(WSJ)[3]	36	9/19/75	56.31	+0.9	60.03	+0.8	1 CX 692	7 CX 1140
	Ethyl	8/15/75[4]	8/15/75[5]	8/18/75(WSJ)[6]	35	9/19/75	56.31	+0.9	60.03	+0.8	2 CX 979	8 CX 1238
	PPG	8/18/75[7]	8/18/75[8]	8/19/75(J/C)[9]	32	9/19/75	56.31	+0.9	60.03	+0.8	3 CX 264	9 CX 693
	Nalco	8/18/75[10]	N/A	8/19/75(J/C)[11]	32	9/19/75	56.31	+0.9	60.03	+0.8	4 CX 256	10 CX 1337
											5 CX 260	11 CX 693
											6 CX 696	
10	DuPont	12/10/75[1]	12/11/75[2]	12/12/75(WSJ)[3]	37	1/16/76	59.52	+5.7	63.45	+5.7	1 CX 700	9 CX 722
	Ethyl*	12/11/75[4]	12/11/75[5]	12/12/75(WSJ)[6]	36	1/16/76	58.90	+4.6	62.78	+4.6	2 CX 702	10 CX 1338
	DuPont	12/15/75[7]	12/15/75[8]	12/16/75(WSJ)[9]	32	1/16/76	58.90	+4.6	62.78	+4.6	3 CX 711	11 CX 1465
	Nalco	12/16/75[10]	12/16/75[11]	12/18/75(OD)[12]	31	1/16/76	58.90	+4.6	62.78	+4.6	4 CX 231	12 CX 716
	PPG	12/16/75[13]	12/17/75[14]	12/18/75(WSJ)[15]	31	1/16/76	58.90	+4.6	62.78	+4.6	5 CX 228	13 CX 1135
											6 CX 255	14 CX 1660A
											7 CX 713	15 CX 718
											8 CX 980	
11	Ethyl	3/12/76[1]	3/12/76[2]	3/15/76(WSJ)[3]	35	4/16/76	59.70	+1.4	63.58	+1.3	1 CX 189	7 CX 1164
	DuPont	3/15/76[4]	3/15/76[5]	3/16/76(WSJ)[6]	32	4/16/76	59.70	+1.4	63.58	+1.3	2 CX 188	8 CX 1660B
	PPG	3/16/76[7]	3/16/76[8]	3/17/76(WSJ)[9]	31	4/16/76	59.70	+1.4	63.58	+1.3	3 CX 734	9 CX 732
	Nalco	3/18/76**[10]	N/A	3/22/76(OD)[11]	—	4/16/76	59.70	+1.4	63.58	+1.3	4 CX 725A	10 CX 1334
											5 CX 1107	11 CX 192
											6 CX 194	

* Ethyl's announcement was made independent of any knowledge of Du Pont's previous move. (CX 55; 1970A).

** Date cited is date customer notice was received in Nalco's Freeport, Texas, plant. Nalco customarily gave company officials notice simultaneous with that to customers (e.g., CX 1510A-C; 1511; 1513A-C; 1508; 1516; 1346; 1476). Therefore "customer notification" would not have occurred after this date.

APPENDIX D(iv)

	Company	Customer Notifi- cation	Press Communica- tion or Release	Date Published	Days Notice	Date Change Effective	New TEL cents/ lb.	% Change	New TML cents/ lb.	% Change	Notes	
12	DuPont	4/15/76[1]	N/A	4/16/76(OD)[2]	39	5/24/76	60.50	+1.3	64.38	+1.3	1 CX 742	6 CX 1134
	Ethyl	4/19/76[3]	4/19/76[4]	4/20/76(WSJ)[5]	35	5/24/76	60.50	+1.3	64.38	+1.3	2 CX 184	7 CX 1660C
	PPG	4/22/76[6]	4/22/76[7]	4/23/76(WSJ)[8]	32	5/24/76	60.50	+1.3	64.38	+1.3	3 CX 2A	8 CX 182
	Nalco	N/A	4/26/76[9]	4/27/76(OD)[10]	—	5/24/76	60.50	+1.3	64.38	+1.3	4 CX 172	9 CX 1463
											5 CX 748	10 CX 180
13	DuPont	7/9/76[1]	7/9/76[2]	7/12/76(WSJ)[3]	35	8/13/76	62.30	+3.0	65.38	+1.6	1 CX 754	7 CX 1132
	Ethyl	7/13/76[4]	7/13/76[5]	7/14/76(WSJ)[6]	31	8/13/76	62.30	+3.0	65.38	+1.6	2 CX 1108	8 CX 1131
	PPG	7/13/76[7]	7/15/76[8]	7/14/76(OD)[9]	31	8/13/76	62.30	+3.0	65.38	+1.6	3 CX 170	9 CX 764
	Nalco	7/14/76[10]	7/19/76[11]	7/22/76(J/C)[12]	30	8/13/76	62.30	+3.0	65.38	+1.6	4 CX 3A	10 CX 1496
											5 CX 35	11 CX 1497
											6 CX 763	12 CX 758
14	Ethyl	10/11/76[1]	10/11/76[2]	10/12/76(OD)[3]	38	11/18/76	65.40	+5.0	68.48	+4.7	1 CX 4	7 CX 1129
	DuPont	10/13/76[4]	10/13/76[5]	10/14/76(OD)[6]	36	11/18/76	65.40	+5.0	68.48	+4.7	2 CX 153	8 CX 1660D
	PPG	10/14/76[7]	10/15/76[8]	10/18/76(OD)[9]	35	11/18/76	65.40	+5.0	68.48	+4.7	3 CX 781	9 CX 157
	Nalco	10/14/76[10]	10/18/76[11]	10/18/76(OD)[12]	35	11/18/76	65.40	+5.0	68.48	+4.7	4 CX 771	10 CX 1490
											5 CX 772	11 CX 1493
											6 CX 160	12 CX 157
15	Ethyl	1/21/77[1]	1/21/77[2]	1/24/77(OD)[3]	34	2/24/77	66.20	+1.2	69.28	+1.2	1 CX 8	7 CX 1128
	DuPont*	1/24/77[4]	1/24/77[5]	1/25/77(WSJ)[6]	31	2/24/77	66.20	+1.2	69.28	+1.2	2 CX 34	8 CX 1660E
	PPG	1/24/77[7]	1/26/77[8]	1/27/77(WSJ)[9]	31	2/24/77	66.20	+1.2	69.28	+1.2	3 CX 797	9 CX 792
	PPG**	1/27/77[10]	N/A	N/A	—	3/1/77	66.20	+1.2	69.28	+1.2	4 CX 786	10 CX 1210
	Nalco	1/27/77***[11]	1/27/77[12]	N/A	—	3/1/77	66.20	+1.2	69.28	+1.2	5 CX 1109	11 CX 1349
											6 CX 149; CX 148	12 CX 1471

* Du Pont's initial announcement to customers and the press indicated an effective date of February 24, 1977. (CX 786, 1109). Apparently as the result of an error, the effective date was published as March 1, 1977. (CX 149). This error was subsequently corrected and published in the Wall St. Journal on January 26 and on January 27 in the Oil Daily. (CX 147-48).

** PPG changed only the effective date; new prices remained as previously announced. (CX 1210).

*** Date cited is date customer notice was received in Nalco's Freeport, Texas, plant. Nalco customarily gave company officials notice with that to customers (e.g., CX 1510A-C; 1511; 1513A-C; 1508; 1516; 1346; 1476). Therefore "customer notification" would not have occurred after this date.

APPENDIX D(v)

	Company	Customer Notifi-cation	Press Communica-tion or Release	Date Published	Days Notice	Date Change Effective	New TEL cents/ lb.	% Change	New TML cents/ lb.	% Change	Notes	
16	DuPont	2/9/77[1]	2/9/77[2]	2/10/77(WSJ)[3]	35	3/16/77	66.60	+0.6	69.68	+0.6	1 CX 802 2 CX 800 3 CX 136 4 CX 9 5 CX 125 6 CX 807	7 CX 1124 8 CX 1660F 9 CX 130 10 CX 1347 11 CX 1468; CX 1469; CX 1475 12 CX 132
	Ethyl	2/11/77[4]	2/11/77[5]	2/14/77(WSJ)[6]	33	3/16/77	66.60	+0.6	69.68	+0.6		
	PPG	2/14/77[7]	undated[8]	2/22/77(WSJ)[9]	30	3/16/77	66.60	+0.6	69.68	+0.6		
	Nalco	2/15/76[10]	2/16/76[11]	2/17/77(WSJ)[12]	31	3/16/77	66.60	+0.6	69.68	+0.6		
17	Ethyl	3/1/77[1]	3/1/77[2]	3/2/77(WSJ)[3]	34	4/4/77	67.40	+1.2	70.48	+1.1	1 CX 13 2 CX 33 3 CX 833 4 CX 814 5 CX 821 6 CX 122 7 CX 818. 8 CX-1113Z69	9 CX 120 10 CX 1122 11 CX 1660G 12 CX 118 13 CX 1344 14 CX 1484 15 CX 117 16 CX 12
	DuPont*	3/1/77[4]	3/1/77[5]	3/2/77(WSJ)[6]	37	4/7/77	68.60	+3.0	71.68	+2.9		
	DuPont**	3/4/77[7]	3/4/77[8]	3/7/77(WSJ)[9]	—	4/7/77	67.40	+1.2	70.48	+1.1		
	PPG	3/7/77[10]	undated[11]	3/9/77(WSJ)[12]	31	4/7/77	67.40	+1.2	70.48	+1.1		
	Nalco	3/7/77[13]	3/9/77[14]	3/9/77(OD)[15]	31	4/7/77	67.40	+1.2	70.48	+1.1		
	Ethyl***	3/18/77[16]	N/A	N/A	—	4/7/77	67.40	+1.2	70.48	+1.1		
18	Ethyl	4/19/77[1]	4/19/77[2]	4/20/77(WSJ)[3]	37	5/26/77	69.20	+2.7	72.28	+2.6	1 CX 16 2 CX 90 3 CX 845 4 CX 837 5 CX 909A-B; CX 96	6 CX 96 7 CX 1121 8 CX 1660H 9 CX 840 10 CX 1390A 11 CX 1390B 12 CX 95
	DuPont	4/20/77[4]	4/21/77[5]	4/22/77(WSJ)[6]	36	5/26/77	69.20	+2.7	72.28	+2.6		
	PPG	4/21/77[7]	undated[8]	4/26/77(WSJ)[9]	35	5/26/77	69.20	+2.7	72.28	+2.6		
	Nalco	4/25/77[10]	4/26/77[11]	4/27/77(WSJ)[12]	31	5/26/77	69.20	+2.7	72.28	+2.6		

* Ethyl and Du Pont made simultaneous announcements without prior knowledge of the other's actions. (CX 50; 938A; 1970B).

** Changed prices only; effective date remained as previously announced. (CX 818).

*** Changed effective date only; new prices remained as previously announced. (CX 12).

APPENDIX D(vi)

	Company	Customer Notification	Press Communication or Release	Date Published	Days Notice	Date Change Effective	New TEL cents/lb.	% Change	New TML cents/lb.	% Change	Notes	
19	DuPont	8/15/77[1]	8/17/77[2]	8/17/77(OD)[3]	31	9/15/77	74.90	+8.2	77.98	+7.9	1 CX 850	7 CX 853
	Ethyl	8/19/77[4]	8/19/77[5]	8/22/77(WSJ)[6]	34	9/22/77	73.62	+6.4	76.14	+5.3	2 CX 1111;	8 CX 370
	DuPont	8/22/77[7]	N/A	8/23/77(OD)[8]	31	9/22/77	73.62	+6.4	76.14	+5.3	CX 66	9 CX 1120
	PPG	8/22/77[9]	N/A	N/A	31	9/22/77	73.62	+6.4	76.14	+5.3	3 CX 66	10 CX 1346;
	Nalco	8/23/77[10]	8/24/77[11]	8/25/77(WSJ)[12]	30	9/22/77	73.62	+6.4	76.14	+5.3	4 CX 19	CX 1476
											5 CX 101	11 CX 1478
											6 CX 858	12 CX 108
20	DuPont	12/15/77[1]	12/19/77[2]	12/19/77(OD)[3]	35	1/19/78	75.82	+3.0	78.34	+2.9	1 CX 863	6 CX 1404
	Ethyl	12/20/77[4]	12/21/77[5]	12/23/77(OD)[6]	34	1/23/78	74.42	+1.1	76.94	+1.1	2 CX 1113Z72;	7 CX 1113Z36
	DuPont	12/21/77[7]	N/A	12/23/77(OD)[8]	33	1/23/78	74.42	+1.1	76.94	+1.1	CX 868	8 CX 1404
	PPG*	12/22/77[9]	N/A	12/28/77(OD)[10]	32	1/23/78	74.42	+1.1	76.94	+1.1	3 CX 81	9 CX 1119
	Nalco	12/27/77**[11]	N/A	N/A	—	1/23/78	74.42	+1.1	76.94	+1.1	4 CX 80_	10 CX 1403
											5 CX 535	11 CX 1345
21	Ethyl	5/5/78[1]	5/9/78[2]	5/10/78(OD)[3]		5/5/78	73.62	-1.1	76.14	-1.0	1 CX 482	6 CX 420
	DuPont	5/5/78[4]	5/9/78[5]	5/10/78(OD)[6]		5/5/78	73.62	-1.1	76.14	-1.0	2 CX 420	7 CX 1245
	PPG***	5/5/78[7]	5/9/78[8]	5/10/78(OD)[9]		5/5/78	73.62	-1.1	76.14	-1.0	3 CX 420	8 CX 420
	Nalco	5/9/78[10]	N/A	N/A		5/5/78	73.62	-1.1	76.14	-1.0	4 CX 1113Z38	9 CX 420
											5 CX 1113Z74;	10 CX 1401-02
											CX 420	
22	Ethyl	5/26/78[1]	N/A	N/A		5/26/78	73.62		73.62	-3.3	1 CX 478	
	DuPont	5/26/78[2]		N/A		5/26/78	73.62		73.62	-3.3	2 CX 1113Z40	
	PPG	5/30/78[3]	N/A	N/A		5/26/78	73.62		73.62	-3.3	3 CX 1247	
	Nalco	undated[4]	N/A	N/A		5/26/78	73.62		73.62	-3.3	4 CX 1516	

* PPG first notified customers of the change on December 22, 1977. (CX 1119). The notice sent contained an error made by Western Union. This was corrected by notice sent on December 27, 1977. (CX 1116-18).

** Date cited is date customer notice was received in Nalco's Freeport, Texas, plant. Nalco customarily notified company officials simultaneous with notification to customers (e.g., CX 1510A-C; 1511; 1513A-C; 1508; 1516; 1346; 1476). Therefore "customer notification" would not have occurred after this date.

*** PPG first notified customers of the change on May 5, 1978. (CX 1245; CX 1388). Western Union again erred on this mailgram. This was corrected by notice sent on May 8, 1978. (CX 1246).

APPENDIX D(vii)

	Company	Customer Notification	Press Communication or Release	Date Published	Days Notice	Date Change Effective	New TEL cents/lb.	% Change	New TML cents/lb.	% Change	Notes	
23	DuPont	6/30/78[1]	6/30/78[2]	7/3/78(OD)[3]		6/30/78	73.62		71.10	-3.4	1 CX 1113Z42	4 CX 393
	Ethyl	6/30/78[4]	N/A	7/6/78(OD)[5]		6/30/78	73.62		71.10	-3.4	2 CX 1113Z75;	5 CX 419
	PPG	6/30/78[6]	N/A	7/7/78(OD)[7]		6/30/78	73.62		71.10	-3.4	CX 422;	6 CX 1248
	Nalco	7/5/78[8]	N/A	N/A		6/30/78	73.62		71.10	-3.4	McNally,	7 CX 422
											Tr. 2192-94	8 CX 1406;
											3 CX 422	CX 1407
24	PPG	7/5/78[1]	7/6/78*[2]	7/7/78(OD)[3]		7/6/78	71.10	-3.4	71.10		1 CX 1461	5 CX 1113Z44
	Nalco	7/5/78[4]	N/A	N/A		7/6/78	71.10	-3.4	71.10		2 CX 1239;	6 CX 467
	DuPont	7/6/78[5]	N/A**	N/A		7/6/78	71.10	-3.4	71.10		CX 422	
	Ethyl	7/6/78[6]	N/A	N/A		7/6/78	71.10	-3.4	71.10		3 CX 422	
											4 CX 1406;	
											CX 1407	
25	Ethyl	8/7/78[1]	N/A	N/A	33	9/9/78	71.90	+1.1	71.90	+1.1	1 CX 464	
	DuPont	8/9/78[2]	N/A***	N/A	31	9/9/78	71.90	+1.1	71.90	+1.1	2 CX 1113Z47	
	PPG	8/10/78[3]	N/A	N/A	30	9/9/78	71.90	+1.1	71.90	+1.1	3 CX 1244	
	Nalco	8/10/78[4]	N/A	N/A	30	9/9/78	71.90	+1.1	71.90	+1.1	4 CX 1408	
26	Ethyl	9/13/78[1]	N/A	9/18/78(OD)[2]	33	10/16/78	72.70	+1.1	72.70	+1.1	1 CX 458	5 CX 1250
	DuPont	9/14/78[3]	N/A****	9/18/78(OD)[4]	32	10/16/78	72.70	+1.1	72.70	+1.1	2 CX 417	6 CX 417
	PPG	9/15/78[5]	N/A	9/18/78(OD)[6]	31	10/16/78	72.70	+1.1	72.70	+1.1	3 CX 1113Z49	7 CX 1513
	Nalco	9/15/78[7]	N/A	N/A	31	10/16/78	72.70	+1.1	72.70	+1.1	4 CX 417	

* PPG's press release (CX 1239) is undated, although it was carried on the Chemweek Newswire on July 5, 1978. (CX 423). It was communicated to the Oil Daily on July 6 where it appeared the following day. (CX 422).

** Standby statement was prepared but there is no indication it was carried in the press. (CX 1113Z76).

*** Standby statement was prepared but there is no indication it was read to press. (CX 1113Z77).

**** Mailgrams to customers were used as standby statements by Du Pont. (CX 1113Z64). There is no indication that this was read to the press.

APPENDIX D(viii)

	Company	Customer Notification	Press Communication or Release	Date Published	Days Notice	Date Change Effective	New TEL cents/lb.	% Change	New TML cents/lb.	% Change	Notes	
27	Ethyl	10/13/78[1]	N/A	10/17/78(OD)[2]	34	11/16/78	73.50	+1.1	73.50	+1.1	1 CX 452	5 CX 414
	DuPont	10/17/78[3]	10/17/74[4]	10/17/78(OD)[5]	31	11/16/78	73.50	+1.1	73.50	+1.1	2 CX 415	6 CX 1260
	PPG	10/16/78[6]	N/A	10/20/78(OD)[7]	31	11/16/78	73.50	+1.1	73.50	+1.1	3 CX 1113Z51	7 CX 416
	Nalco	10/18/78[8]	N/A	10/20/78(OD)[9]	30	11/17/78	73.50	+1.1	73.50	+1.1	4 CX 1113Z51	8 CX 1510
											CX 414	9 CX 416
28	Ethyl	1/2/79[1]	1/3/79[2]	1/5/79(OD)[3]	34	2/5/79	77.80	+5.9	77.80	+5.9	1 CX 441	7 CX 1252
	DuPont	1/4/79[4]	1/5/79**[5]	1/5/79(OD)[6]	32	2/5/79	77.80	+5.9	77.80	+5.9	2 CX 425A-B	8 CX 443
	PPG	1/5/79[7]	N/A	1/8/79(OD)[8]	31	2/5/79	77.80	+5.9	77.80	+5.9	3 CX 447	9 CX 1508
	Nalco	1/5/79[9]	N/A	N/A	38	2/12/79	77.80	+5.9	77.80	+5.9	4 CX 1113Z53	10 CX 442
	Ethyl*	1/16/79[10]	N/A	N/A	—	2/12/79	77.80	+5.9	77.80	+5.9	5 CX 1113Z53;	11 CX 1113Z55
	DuPont*	1/18/79[11]	N/A	N/A	—	2/12/79	77.80	+5.9	77.80	+5.9	CX 447	12 CX 1243
	PPG*	1/18/79[12]	N/A	N/A	—	2/12/79	77.80	+5.9	77.80	+5.9	6 CX 447	
29	DuPont	2/1/79[1]	2/6/79**[2]	2/6/79(OD)[3]	33	3/6/79	78.60	+1.0	78.60	+1.0	1 CX 1113Z57	6 CX 1600
	PPG	2/2/79[4]	2/6/79**[5]	2/6/79(OD)[6]	32	3/6/79	78.60	+1.0	78.60	+1.0	2 CX 1113Z57;	7 CX 436
	Ethyl	2/8/79[7]	N/A	2/9/79(OD)[8]	34	3/14/79	79.40	+2.1	79.40	+2.1	CX 1600	8 CX 1601
	DuPont	2/9/79[9]	N/A	N/A	33	3/14/79	79.40	+2.1	79.40	+2.1	3 CX 1600	9 CX 1113Z59
	PPG	2/12/79[10]	N/A	N/A	30	3/14/79	79.40	+2.1	79.40	+2.1	4 CX 1242	10 CX 1256
	Nalco	2/13/79[11]	N/A	N/A	29	3/14/79	79.40	+2.1	79.40	+2.1	5 CX 1600	11 CX 1504
30	DuPont	3/13/79[1]	3/14/79[2]	3/15/79(OD)[3]	34	4/16/79	81.00	+2.0	81.00	+2.0	1 CX 1113Z61	
	Ethyl	3/14/79[4]	3/16/79[5]	N/A	33	4/16/79	81.00	+2.0	81.00	+2.0	2 CX 1113Z61; CX 1602	
	PPG	3/16/79[6]	N/A	N/A	31	4/16/79	81.00	+2.0	81.00	+2.0	3 CX 1602	
	Nalco	3/19/79[7]	N/A	N/A	30	4/18/79	81.00	+2.0	81.00	+2.0	4 CX 392	
	Ethyl*	4/12/79[8]	N/A	N/A	—	4/18/79	81.00	+2.0	81.00	+2.0	5 CX 427A-B	
	DuPont*	unknown[9]	N/A	N/A	—	4/18/79	81.00	+2.0	81.00	+2.0	6 CX 1241	
											7 CX 1397	
											8 CX 421	
											9 CX 1080B; McNally, Tr. 2242	

* Changed only the effective date, price remained as previously announced.

** The date of actual press contact is unavailable. Date cited is date of publication since actual communication could have occured no later than this date.

APPENDIX E

[***]

APPENDIX F

[***]

APPENDIX G

Comparison of Du Pont's Domestic and Export Sales Price and Margins

	1974	1975	1976	1977	1978	1979 (5 months)
Net Average Domestic Price* (cents per pound)	44.08	54.95	59.57	67.68	[***]	[***]
Net Average Export Price** (cents per pound)	36.39	51.23	49.85	54.28	[***]	[***]
Domestic Unit Margins*** (cents per pound)	14.69	18.72	22.07	22.87	[***]	[***]
Export Unit Margins**** (cents per pound)	7.44	18.25	13.75	12.97	[***]	[***]

Source: CX 1963Z27; 1964Z32; 1965Z26; 1966Z30; 1967Z15; 1968R; Merkle, Tr. 5327-29.

* [***]
** [***]
*** Gross dollar domestic profits divided by pounds of product sold.
**** Gross foreign profits divided by pounds of product sold.

APPENDIX H

Comparison of PPG's Domestic and Export Sales Prices

	1975	1976	1977	1978	1979 (5 months)
Net Average Domestic Price* (cents per pound)	51.45	53.48	59.41	[***]	[***]
Net Average Export Price** (cents per pound)	32.63	43.43	43.00	[***]	[***]

* [***]
** [***]

APPENDIX I

Gross Profit Comparisons - Ethyl, Du Pont, and Nalco

		ETHYL		DU PONT		NALCO	
		Gross Profit Per Unit Current Dollars*	1974 Constant Dollars	Standard Gross Margins Per Unit Current Dollars**	1974 Constant Dollars	Gross Earnings Per Unit Current Dollars***	1974 Constant Dollars
1974 -	Annual	16.8	16.8	14.7	14.7	13.8	13.8
1975 -	Annual	20.8	19.0	18.7	17.1	11.8	10.8
1976 -	Annual	24.3	21.1	22.1	19.2	13.5	11.7
1977 -	First Qtr.	25.8	21.6	21.7	18.2	15.6	13.1
	Second Qtr.	26.0	21.4	22.8	18.8	14.2	11.7
	Third Qtr.	27.0	22.0	22.4	18.2	17.2	14.0
	Fourth Qtr.	27.8	22.3	26.4	21.1	18.8	15.1
	[***]	[***]	[***]	[***]	[***]	[***]	[***]

NOTE: Constant 1974 dollar volume are based on the gross national product price deflator. (Hay, Tr. 3847-49).

* Source: CX 493A.

** Source: CS 1963Z27; 1964Z32; 1965Z26; 1966L, Y, Z15, Z30; 1967J, W, Z15; 1968J, V, Z9, Z18. Standard gross margins per unit are calculated by dividing standard gross margin by the number of units for the period in question.

*** Source: CX 1775C; 1776G, M, S; 1777A, G, M, S; 1778A; 1779A; 1780A, I, O, S. Gross earnings per unit are calculated by dividing gross earnings by total net sales.

**** Du Pont data for September 1978 is not available; consequently, neither third nor fourth quarter figures are calculated.

APPENDIX J

Respondent's Profits Calculated For Benchmark Comparisons

	1974	1975	1976	1977	1978	1979
Ethyl (%) (CX 2097A-B; Pidano, Tr. 7413-16)	33.2	36.1	49.9	42.4	[***]	[***]
Du Pont (%) (CX 2101; Pidano, Tr. 7383-85).	20.6	27.5	32.2	23.7	[***]	[***]
PPG (%) (CX 2105; Pidano, Tr. 7408-13)	17.7	26.7	23.4	13.1	[***]	[***]
Nalco (%) (CX 2103; Pidano, Tr. 7396).	19.5	16.6	18.7	24.4	[***]	[***]

* Data not available. PPG profit information is sufficient to perform the necessary calculations only for 1974-1978. (CX 1280D-E; Pidano, Tr. 7408. PPG's data for 1979 was calculated in a different fashion from that reflected in CX 2105. (RPX 1529B)

** Data not available. Nalco profit information is sufficient to perform the necessary calculations only for 1974-1977. (CX 1332A-B; Pidano, Tr. 7396)

APPENDIX K(i)

Price Changes Special Antiknock Compounds

Company	Mix	Approximate Date of Price Change	Initial (Differing) Prices	Roll Back Price	Difference in cents/pound	Notes
Du Pont*	Tetramix 50 S-1	May 1974	47.42[1]	47.42[3]	.28	1 CX 339
Ethyl	MLA 500 Special #1	May 1974	47.70[2]			2 CX 339
						3 CX 339
						4 CX 340
Du Pont*	TEL Special	May 1974	45.51[4]	45.51[6]	.27	5 CX 340
Ethyl	TEL Motor Special	May 1974	45.78[5]			6 CX 340
Du Pont	Tetramix 50 S-1	July 1974	52.55[1]	52.55[2]	unknown	1 CX 320
Ethyl	MLA 500 Special #1	July 1974	unknown**			2 CX 319
Du Pont	TEL Special	July 1974	50.57[3]	50.57[4]	unknown	3 CX 321, 322
	TEL Motor Mix	July 1974	unknown**			4 CX 319
Ethyl	MLA 500 Special #1	June 1975	60.85[1]	60.85[3]	.03	1 CX 269
Du Pont	Tetramix 50 S-1	June 1975	60.88[2]			2 CX 674-78
						3 CX 930
Ethyl	MLA 500 Special #1	Sept. 1975	61.38[1]	61.38[3]	.03	1 CX 257C
Du Pont	Tetramix 50 S-1	Sept. 1975	61.41[2]			2 CX 692D-I
						3 CX 699A-F

* Du Pont price information has been taken from the files of Ethyl, which lowered these special mix prices to match Du Pont. (CX 338; 340).

** Documentation of Du Pont's special mix prices is unavailable. Du Pont's prices are taken from Ethyl documents and testimony which indicate that Ethyl rolled back on both special mixes to match Du Pont. Documentation showing the initial Ethyl price or the amount of the roll back is also unavailable. (CX 319-22; Werling, Tr. 3651-53).

APPENDIX K(ii)

Company	Mix	Approximate Date of Price Change	Initial (Differing) Prices	Roll Back Price	Difference in cents/pound	Notes
Du Pont*	PM-10	January 1976	59.27[1]			1 CX 714
PPG	MAF 10-P	January 1976	59.29[2]			2 CX 1135
Ethyl	TELMEL 10	January 1976	59.29[3]	59.27[4]	.02	3 CX 236
						4 CX 1608
Du Pont	PM-10	April 1976	60.07[1]			1 CX 725
PPG	MAF 10-P	April 1976	60.09[2]			2 CX 1164
Ethyl	TELMEL 10	April 1976	60.09[3]	60.07[4]	.02	3 CX 190
						4 CX 176
Du Pont	Tetramix 50 S-1	April 1976	64.87[5]			5 CX 726A-G; CX 728A-G
Ethyl	MLA 500 Special #1	April 1976	65.05[6]	64.87[7]	.18	6 CX 190
						7 CX 186

* Ethyl and Du Pont simultaneously announced differing prices. (CX 935A-B, 55). Du Pont rolled back its prices across the board to match Ethyl's (CX 935A-B), but the new price for PM-10 (CX 714) still differed from the initial Ethyl price on TELMEL 10 (CX 236). Du Pont widely disseminated PM-10 mix prices and, therefore, considered it a standard mix. (E.g., CX 714). Ethyl did not widely disseminate its TELMEL 10 prices and as a result considered it to be a special mix. (E.g., CX 231; Werling, Tr. 3650-51).

APPENDIX K(iii)

Company	Mix	Approximate Date of Price Change	Initial (Differing) Prices	Roll Back Price	Difference in cents/pound	Notes
Du Pont	PM-10	May 1976	60.87[1]			1 CX 741
PPG	MAF 10-P	May 1976	60.87[2]	*		2 CX 1696; CX 175
Ethyl	TELMEL 10	May 1976	60.89[3]	60.87[4]	.02	3 CX 2C 4 CX 177
Ethyl	MLA 500 Special #1	May 1976	65.72[5]			5 CX 2B
Du Pont	Tetramix 50 S-1	May 1976	65.73[6]	65.72[7]	.01	6 CX 744A-E; CX 743 7 CX 740A-F; CX 948
Ethyl	MLA 500 Special #1	Feb. 1977	71.20[1]			1 CX 7
Du Pont	Tetramix 50 S-1	Feb. 1977	71.22[2]	71.20[3]	.02	2 CX 788A-F 3 CX 787A-F
Du Pont	Tetramix 50 S-1	March 1977	71.62[1]		.01	1 CX 804A-F
Ethyl	MLA 500 Special #1	March 1977	71.63[2]	**		2 CX 11
Du Pont***	Tetramix 50 S-1	April 1977	72.46[1]		.02	1 CX 820A-F
Ethyl	MLA 500 Special #1	April 1977	72.48[2]	**		2 CX 15

* PPG removed MAF 10-P from general customer announcements (CX 1133) and press releases (CX 1660C). Ethyl documents, however, indicate that PPG matched the Du Pont price. (CX 1696; 175).

** There is no documented evidence of a roll back, although according to record evidence it was Ethyl's practice to match rivals' prices. (CX 1953Z86; 177).

*** Ethyl and Du Pont simultaneously announced different prices. (CX 955; 815A-F). Du Pont rolled back its prices across the board to match Ethyl but its new price for Tetramix 50 S-1 (CX 820A-F) still differed from the initial Ethyl price on MLA 500 Special. (CX 15).

APPENDIX K(iv)

Company	Mix	Approximate Date of Price Change	Initial (Differing) Prices	Roll Back Price	Difference in cents/pound	Notes
Du Pont	Tetramix 50 S-1	May 1977	74.26[1]	*	.02	1 CX 838A-F; CX 839A-B
Ethyl	MLA 500 Special #1	May 1977	74.28[2]			2 CX 18
Ethyl	MLA 500 Special #1	May 1978	77.45[1]	**	.11	1 CX 480
Du Pont	Tetramix 50 S-1	May 1978	77.56[2]			2 CX 1113Z41
Ethyl	MLA 500 Special #1	June 1978	76.08[1]	**	.22	1 CX 475
Du Pont	Tetramix 50 S-1	June 1978	76.30[2]			2 CX 1113Z43
Ethyl	MLA 500 Special #1	July 1978	74.71[1]	74.71[3]	.33	1 CX 469
Du Pont	Tetramix 50 S-1	July 1978	75.04[2]			2 CX 1113Z45 3 CX 1113Z46
Ethyl	MLA 500 Special #1	Sept. 1978	75.56[1]	75.56[3]	.02	1 CX 462
Du Pont	Tetramix 50 S-1	Sept. 1978	75.58[2]			2 CX 1062A-B 3 CX 1113Z48
Du Pont	Tetramix 50 S-1	Feb. 1979	81.56[1]	*	.08	1 CX 1113Z54
Ethyl*	MLA 500 Special #1	Feb. 1979	81.64[2]			2 CX 389

* There is no documented evidence of an Ethyl roll back although according to record evidence it was their practice to match rivals' prices. (CX 1953Z86; 177).

** There is no documented evidence of a roll back although according to Du Pont witnesses it was their practice to match rivals' prices. (Park, Tr. 1828-29).

APPENDIX K(v)

Company	Mix	Approximate Date of Price Change	Initial (Differing) Prices	Roll Back Price	Difference in cents/pound	Notes
Du Pont*	Tetramix 50 S-1	March 1979	83.27[1]	No evidence	.08	1 CX 1113Z60
Ethyl	MLA 500 Special #1	March 1979	83.35[2]			2 CX 433
Du Pont	Tetramix 50 S-1	April 1979	85.00[1]	No evidence	.06	1 CX 1113Z62
Ethyl	MLA 500 Special #1	April 1979	85.06[2]			2 CX 390

* Ethyl priced above the initial Du Pont announcement because of an intervening pig lead increase. Du Pont rescinded its earlier announcement (CX 1113Z58) and moved to match the higher Ethyl price on all but the special mix.

the face of falling demand.[48]

An examination of these factors may shed much light on whether the market structure is a reliable indicator of the degree to which pricing coordination could be affected by certain facilitating practices. If, after an examination of market structure factors and the actual performance of the market, the [27] available evidence indicates that the market is unlikely to be affected by such practices, then the inquiry can be ended. If, however, evidence of market structure and performance indicates the practices could promote price uniformity, we must examine evidence of the actual effect of these practices on market performance.[49] This examination should include evaluating any reliable evidence of how the practices promoted price uniformity and whether price changes could be explained on the basis of other considerations. Any evidence of market behavior without such practices would be relevant, as well as the history of the practices. In addition, evidence of the purpose for adopting such practices would be relevant, primarily because evidence of purpose can be helpful in explaining likely effects.

Finally, in addition to examining the effect of the challenged practices on price uniformity or other indicators of market performance, the Commission should examine any possible procompetitive effects of the practices. As is argued in this matter, the practices may be justified on the grounds that they lead to more competitive market performance, *e.g.*, by promoting [28] price comparisons or by greatly reducing the complexity of calculating prices. In this regard, the Commission should examine the history of the practices, the reasons for their adoption, and buyer testimony about the value of the practices.

1.3 *Summary of the Legal Standard for Facilitating Practices which are Unfair Methods of Competition*

Section 5 prohibits practices by individual firms which can be shown to have a significant adverse effect on competition by promoting price uniformity at supracompetitive levels, although this result

[48] We do not discuss at length the basis for identifying these factors as associated with poor market performance because they are more generally recognized in Commission and court cases. The Justice Guidelines also discuss indicators of poor market performance, including stable market shares, declining combined market shares of the leading firms in recent years, and profits of the leading firms exceeding comparable firms. Justice Guidelines at 38–39. Both the Commission statement, at 80, and the Justice Guidelines, at 37, mention prior collusion as suggesting future collusion is more likely. *See also* J. Bain, "Workable Competition in Oligopoly: Theoretical Considerations and Some Empirical Evidence," 40 Am. Econ. Rev. 35, 37–38 (1950), citing high profits, scale of firms outside the optimum range, considerable excess capacity, excessive selling costs, and lags in technical change.

[49] It can be argued, as respondents do in this case, that a market can be so poorly structured, from a competitive standpoint, that the likely effect of practices which might promote price coordination is negligible. Such an argument depends upon the assumption that firms in extremely concentrated markets, *e.g.*, a duopoly dominated by a single firm, are likely to engage in pricing behavior that, though certainly not competitive in the traditional sense, is a result of structure alone. We are as reluctant to assume that this scenario represents the norm as we are to assume without further inquiry that practices such as those examined here usually contribute to or facilitate anticompetitive behavior. Rather, this issue should be explored in the context of examining evidence of actual effects of the challenged practices.

is accomplished without evidence of an explicit agreement. However, unilateral practices which affect price uniformity are suspect only when they occur in a market which is conducive to price coordination, where the effects on competition are clearly discernible and where no mitigating circumstances exist sufficient to offset the harmful effects of the practices. Therefore, evidence of such practices will necessarily be analyzed using a rule of reason approach.

Structural factors which suggest a market conducive to price coordination include high concentration, a small number of dominant firms, inelastic demand, homogeneous products and significant barriers to entry. (*See* discussion *supra* at pp. 22–26.) However, actual market performance must also be examined to determine whether historical evidence will corroborate or undercut tentative conclusions reached by examination of the market's structural factors. (*See* discussion *supra* at pp. 27–28.) Finally, evidence of the actual effect of the facilitating practices is a necessary element prior to any finding of liability. It is in this context that any **[29]** procompetitive business factors, offered in the way of a defense or justification of the challenge practices, are particularly relevant. (*See* discussion *supra* at 28–29.) Therefore, facilitating practices by individual firms will be found to violate Section 5 as unfair methods of competition only if the weight of the evidence shows that competition has been substantially lessened.

The Commission recognizes that application of Section 5 to practices that are not conspiratorial or monopolistic in nature will necessarily involve close questions of fact. This situation requires that we exercise our authority judiciously and find liability only where the conduct in question is clearly harmful to competition, so we do not chill or unnecessarily intrude into routine decisionmaking by business. It is for this reason that we must carefully articulate the market conditions conducive to anticompetitive conduct, examine actual market performance and establish a clear nexus between the challenged conduct and adverse competitive effects before invoking our authority in this regard.

1.4 *Unfair Practices*

As noted above, the complaint alleges that the practices of respondents were "unfair acts or practices" within the meaning of Section 5 as well as unfair methods of competition. The Commission has recently articulated its interpretation of its unfairness authority and the way in which the authority has been **[30]** exercised by the Commission and interpreted by the Courts.[50] In its December 1980 Statement the Commission indicated the criteria which had been applied in prior

[50] *See* Commission Statement of Policy on the Scope of the Consumer Unfairness Jurisdiction, December 1980.

cases and the standards it would follow in subsequent analyses of practices alleged to be unfair.

In brief, the Statement indicated that consumer injury that was substantial, not reasonably avoidable, and not outweighed by offsetting benefits to competition or consumers would constitute the primary criterion for a finding of unfairness. In addition to an analysis of consumer injury, we stated that the Commission would also rely where possible upon established public policy in determining which practices were unfair and in helping to establish the presence of criteria necessary to establish consumer injury.

It is also clear that practices may be both unfair methods of competition as well as unfair practices within the meaning of Section 5. In *American Medical Association,* we found that restrictions on price advertising by a professional group were unfair by impeding the flow of information about the availability and price of medical services to consumers.[51] The restraints examined there were shown to harm competition substantially as **[31]** well as to harm consumers and to violate established public policy.[52]

In determining whether a practice, which is an unfair method of competition, is also an unfair act or practice, we are concerned primarily with its impact on consumers, principally individuals purchasing a product or service for their own consumption or investment. In *AMA,* for example, the challenged practices not only limited competition among physicians and thereby tended to undercut market incentives to lower prices and to increase the availability and quality of services, but also to deprive individuals of information essential to an informed choice. Here the record contains no analysis of its impact on individual consumers. In the absence of this analysis, we decline to accept the finding by the law judge that the practices were unfair.

2. *Market Structure and Performance*

The record evidence in this matter shows a market structure which is striking in its susceptibility to practices by individual firms which could promote price coordination. In addition, the historical performance of the market supports, rather than undercuts, this hypothesis.

2.1 *Market Structure*

There is no real dispute about the product or geographic market relevant for our analysis. The complaint's allegations **[32]** are confined to sales by domestic manufacturers of lead based antiknock compounds. These products are defined in the complaint as "additives

[51] *American Medical Association, supra,* 94 F.T.C. at 1010.

[52] *See, e.g., Bates v. State Bar of Arizona,* 433 U.S. 350, 364 (1977); *Virginia State Bd. of Pharmacy v. Virginia Citizens Council,* 425 U.S. 748 (1976).

to gasoline which increase its octane rating and which contain tetraethyl or tetramethyl lead." (Complaint, ¶1) Because of the absence of any dispute about relevant markets and because there is ample evidence in the record to support a finding that manufacturing of these products constitutes a relevant product market, and that the nation as a whole constitutes a relevant geographic market, we accept the assumption of the complaint that these markets are relevant for our analysis.

Since the early 1960's there have been only four sellers in this market. DuPont began selling lead-based antiknock compounds in 1948 and, until 1961, DuPont and Ethyl were the only firms in the market. PPG (then Houston Chemical Company) entered the market in 1961 and Nalco entered as a TML manufacturer in 1964. No foreign firm has ever sold these products in the U.S. (IDF 17–18)[53] **[33]**

The market is, of course, highly concentrated since four firms constitute 100% of the market. In addition, the market is dominated by the two largest firms—Ethyl and DuPont. During the period 1974 to 1979, Ethyl's share of the lead antiknock market averaged 34% and DuPont's share averaged 36%. PPG's average share during this period was 17.5% and Nalco's was 12.5%. (IDF 46) Based on these average shares, the HHI Index exceeds 2900.

Barriers to entry are high in this market. In particular, government regulation of lead-based additives—limiting their use for environmental reasons—makes it unlikely that there will be future entrants. (IDF 50) The developments in government regulation have reduced demand and contributed to excess capacity in the industry. (IDF 43) Consistent with these developments, there have been no new entrants into this industry since 1964. The striking absence of non-entry for more than 15 years and the developments in government regulation establish that barriers to entry have been high during the relevant time period, even if capital costs of entry or technological barriers may have been insignificant. There was no significant evidence offered by respondents, in expert testimony or otherwise, that entry is likely, and there was expert testimony to the contrary. (*See* IDF 50, 143)

In general, the products which constitute this market are homogeneous. There are two basic lead antiknock compounds—tetraethyl

[53] The following abbreviations are used in this opinion: ID, Initial Decision; IDF, Initial Decision Finding; EAB, Ethyl Appeal Brief; DAB, DuPont Appeal Brief; CX, Complaint Counsel Exhibit; REX, Ethyl Exhibit; Tr., Transcript page. In our view, no evidence released in this opinion constitutes trade secrets or confidential commercial information within the meaning of Section 6 of the FTC Act. However, the ALJ placed a number of documents and portions of testimony in the *in camera* portion of the record without an extensive review of the need for confidential treatment. Such treatment is within the discretion of the ALJ, particularly in the case of a lengthy record, because of the need to expedite trial procedures. Continued *in camera* treatment of any portion of this record, however, will require a particularized showing of the need for confidentiality to be submitted to the Commission within 30 days of the issuance of this opinion.

lead ("TEL") and tetramethyl lead ("TML"). TEL was originally produced in the 1920's and TML was first made in [34] 1960. TEL and TML are usually sold as mixtures although some refiners use pure TEL. (IDF 7) In 1976 Ethyl estimated that TML constituted about 20% of antiknock production. (REX 127P) The prices at which TML and TEL have been sold have historically differed, but the differential has narrowed to a few cents. For example, on May 25, 1978, TEL was priced at 73.62¢/lb. and TML was priced at 76.14¢/lb. By July 5 of that year the differential had disappeared. The different compounds sold by each of the four respondents are homogeneous. (IDF 12) Almost all mixtures are standard among all the respondents. (IDF 9) There is testimony that less than 1% of the sales were non-standard mixes. (IDF 10; Tr. 820) On some occasions, special additives were included in the basic compounds, but these were limited and not significant enough to complicate the process of easily equating the product of one respondent with that of another for price comparison purposes.

An additional structural consideration is the elasticity of demand. Supracompetitive prices are more likely in markets where demand is relatively inelastic, so that producers can benefit from raising prices above competitive market levels. The expert testimony is consistent in supporting the view that the demand for antiknock compounds is inelastic. (Hay, Tr. 3921, 3998; Mann, Tr. 5429; Glassman, Tr. 6257; Markham, Tr. 6782–84, 6832; Carlton, Tr. 6960) A study by Ethyl in the mid-1970's corroborates this view. (IDF 42)

A final consideration is that the two dominant firms have similar cost structures. (Carlton, Tr. 6959, 7067–71) Large [35] sophisticated buyers may also be able to disrupt collusive or coordinated pricing by pressing for discounts or other disruptions in pricing practices. This industry is marked by the presence of many large buyers, many of whom did press for discounts. Thus this factor weighs against others pointing in the direction of a poorly competitive market structure, though inadequate to change the overall conclusion.

As discussed above, standardized transactions and the free flow of information about terms of transactions are viewed by some commentators as structural factors which contribute to coordinated pricing and resulting in poor market performance. The essential allegations in the complaint charge that the challenged practices reduced competition by improving the information flow regarding transactions and by facilitating easy and coordinated price-matching. Thus, we do not assume these factors contributed to poor market performance, but we examine in more detail below evidence of their actual effects.

2.2 *Market Performance*

In assessing the degree to which this market performs competitively, we look to several key factors, including profit levels, vigor of price competition, the degree to which prices exceed marginal cost, prolonged excess capacity in the face of supracompetitive prices, and the degree to which market shares shift depending upon price competition by one or more companies. In general all these factors point toward a poorly performing market. Respondents make two arguments in opposition **[36]** to this view: 1) despite other indicators of poor performance, there is significant price discounting; and 2) poor performance in this market is a result of market structure, not the challenged practices. We deal with these arguments below.

2.2.1 *Profit Levels*

Profit levels in this market are high compared to suitable benchmarks. Appendix J in the Initial Decision shows each respondent's profits for the relevant products for the years 1974 through 1979. As the Initial Decision describes (IDF 163), a comparison of these benchmarks with average return on net assets for all manufacturing and for chemicals shows a dramatically higher rate of return. For example, Ethyl's and DuPont's return exceeded 150% of any benchmark comparison in every year during the period. PPG's return exceeded 150% of the benchmarks for four of five years and substantially exceeded the average benchmark for the period. Nalco's return similarly exceeded 150% of the benchmarks except for one year when it was slightly less than 150% of one of the benchmarks used for comparison.

Corroborating these figures were characterizations by company executives of the high profitability of this industry. An Ethyl executive characterized the business in early 1975 as a "golden goose." (CX 212Q) PPG recognized that in 1978 and 1979 the antiknock business had "historically high returns." (IDF 161) In addition, respondents' internal documents prepared before the proceeding reflected relatively high profit levels. DuPont and Ethyl submitted profitability studies prepared for this proceeding which showed profit levels substantially below **[37]** those discussed above. However, a number of deficiencies in these studies were found by the ALJ. (IDF 166) We believe the weight of the evidence on the record on this point clearly supports a finding of relatively high profits, consistent with a conclusion of poor market performance.

2.2.2 *Prices in Excess of Marginal Cost*

All the expert economists testifying in this matter agreed that prices for these compounds exceed marginal cost. (IDF 144) While there was disagreement over the implications of this finding—in particular, respondents' experts attributed it to the poorly competitive market structure—we can rely on the finding that price exceeds marginal cost as additional evidence that the market is not performing competitively.[54]

2.2.3 *Excess Capacity*

All the respondents had significant excess capacity during the late 1970's. (IDF 38–41). While excess capacity alone may not indicate poor market performance, and in fact may suggest that an exercise of market power by one or more firms is less likely, sustained excess capacity in the face of supracompetitive profits and prices indicates an absence of competitive pricing behavior. In a competitively performing market where prices were above marginal cost, one or more firms would be expected to expand market share by engaging in price reductions, eventually eliminating excess capacity. **[38]**

2.2.4 *Shifting of Market Shares*

Stability of market shares provides an indication of the degree of price competition in the market. As both respondents' and complaint counsel's experts testified, violatility of market shares is evidence of aggressive competition by firms wishing to increase market share.[55] This view is consistent with conventional economic analysis of oligopolistic markets. Since a firm which engages in aggressive pricing will gain market share from higher priced rivals, the absence of market share changes is more consistent with parallel pricing and cartel-like behavior. Shifting of business among customers is not inconsistent with a market stabilized at supracompetitive prices. Shifts may occur because consumers have immediate needs that cannot be satisfied by traditional suppliers or they may shift some purchases in order to maintain multiple sources of supply, as the record indicates occurred here. (IDF 26) Also, in a market with an emphasis on service rather than price competition, such as that here, individual buyers will respond to changes in services offered. On the whole, however, the shifting of business by particular buyers is less significant than expanding market share by aggressive pricing by one or more firms.

While there was shifting among respondents of the shares of purchases of individual customers (IDF 49), the shares of the market held by the respondents since Nalco and PPG have entered **[39]** and established their presence have been relatively stable. (*See* Appendix C of the Initial Decision) Respondents point to changes in market shares over a longer time period than the relevant period which was the focus at trial—1974 to 1979. Consequently, respondents analysis includes the entry and growth of Nalco and PPG. In fact, however, PPG and Nalco's position since the early 1970's has been relatively stable.

[54] *See* Hay, Tr. 3793–94, 3967–71.

[55] *See, e.g.,* Markham, Tr. 6874; Glassman, Tr. 6078–82.

The shares of all four firms have remained relatively stable despite significant excess capacity during the relevant period on the part of all four firms. These relatively stable shares tend to support, rather than contradict, a finding of poor competitive performance.[56]

2.2.5 *The Extent of Discounting*

The heart of this case is the need to properly analyze pricing behavior in the market for these products. Complaint counsel argue strongly that the pricing patterns observed during the relevant period, 1974 to 1979, show a highly "artificial" market, avoiding price competition by competitors' rapidly matching prices. Respondents contend that, although there is a high degree of uniformity and price leadership in list prices, there is extensive competition taking other forms. In [40] particular, respondents point to a substantial percentage of sales at prices discounted below list, non-price competition in the form of services provided by respondents, and competition in other contract terms, such as credit.

Before discussing respondents' contentions, it is useful to review the overall pricing patterns in the years 1974 to 1979. All the respondents published list prices for the products they sold.[57] After price controls were lifted in 1974, the first industry-wide price increase was announced in early February, 1974. (IDF 51) Appendix D of the Initial Decision shows the list price changes in antiknock compounds between February, 1974 and April 18, 1979, the last list price increase prior to issuance of the complaint. During this period, there were twenty-four price increases. In twenty of these cases, the new prices for each respondent were identical after the change and became effective the same day. In the other four cases, the new price lists were identical but the effective date varied by a day or two. (IDF 53–57)

We discuss further below the relationship between the price changes and the challenged practices, but, at this point, we are concerned with whether pricing patterns corroborate or conflict with the evidence showing the market did not perform competitively. While it is true that in a "perfect" market, prices for identical products tend to equality, the adjustment to new price levels typically requires some time period. In [41] addition, in a "perfect" market, price is set equal to marginal cost. Here it is clear that prices were above marginal cost; and the movement of list prices was based upon a high degree of price leadership. Consequently, price uniformity observed in this case is

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[56] Moreover, we would not expect perfectly stable market shares even in a highly anticompetitive market environment. Dr. Markham, Ethyl's economic expert, conceded that the change in market shares during the relevant period was less than the cigarette industry's during the period 1928 to 1933. (Markham Tr., 6876–77). During this period industry members were convicted of criminal antitrust violations. *See American Tobacco Co. v. U.S.*, 328 U.S. 781 (1946).

[57] Nalco did not sell TEL and PPG did not sell TML.

consistent with interdependent pricing in an oligopoly, rather than with uniform pricing predicted in a competitive market. In particular, supracompetitive pricing in an oligopoly is based principally on price leadership with eventual price stability at supracompetitive levels, often resulting in supracompetitive profits while competitive pricing results in price equilibrium which results in reasonable returns to sellers and prices and output at competitive levels.[58] Respondents in fact do not contend that the lead antiknock industry follows the competitive model, but that poor competitive performance stems from market structure alone, rather than the challenged practices.[59]

Other evidence is consistent with the proposition that persons familiar with the industry did not believe there was extensive price competition. An oil company executive wrote, "There has never been any price competition in the lead alkyl market." (IDF 149) He also testified, "we perhaps would have saved more money in the end if there had been price competition [42] of the type that exists in other chemical purchasing areas." (McCormick, Tr. 2646–47) An internal Ethyl memorandum quoted a buyer as saying:

> There is and never has been price competition in antiknocks. This business of either you or DuPont raising the price; the other coming up with a different price which the first company then meets is all a smoke screen. (IDF 149; CX 577B)

The firmness with which the industry resisted destabilizing the price structure is illustrated by Exxon's failure to obtain significant discounts despite its solicitation of bids during the relevant period and its promise of substantial additional volume. Exxon suggested various innovative pricing proposals to obtain discounts in 1975, 1976, 1977, and 1978. Examples suggest a fairly consistent pattern of respondents' replying with list prices, despite the possibility of substantial gains in business. (IDF 152) Texaco solicited discounts based on volume purchases. (Wilson, Tr. 3204; IDF 153) For example, in 1975 Texaco requested bids from each respondent, stating:

> Antiknock compounds have historically been priced identically by all of Texaco's suppliers. We are most concerned that there has been in effect, a fixed price which we assume is paid by all customers, without the normal volume discounts which exist in most markets. With these fixed prices, the only difference we see in our suppliers is the various services rendered by each. We would like to see these purchases handled on a more business-like competitive market basis, and plan, therefore, to place our future antiknock compound business basis [sic] the best volume discount and 'service value' offered by suppliers. (IDF 153)

[58] For a discussion of pricing behavior associated with tight oligopolies, *see, e.g.*, Sullivan, *Antitrust* 333–34 (1977); Scherer, *Industrial Market Structure and Economic Performance* 151–168 (2d. ed. 1980); A. Phillips, *Mark Structure, Organization, and Performance* 32–41 (1962).

[59] *See, e.g.*, DAB at 25; EAB at 33.

Despite the offer of substantial additional business and Ethyl's internal analysis showed the profitability of offering a [43] discount, it responded with a list price quotation. Each of the other companies responded with list prices as well. (IDF 153) Other examples of buyers' inability to obtain discounts from list price, even without services, were found by the ALJ. (See IDF 154–156) While PPG and Nalco did offer some discounts (discussed further below) Ethyl and DuPont were extremely reluctant to discount from list prices under any circumstances. This pattern is consistent with the hesitancy of price leaders in tight oligopolies to destabilize a supracompetitive structure by selective discounting.

Other comments by company officials reflect a perception on the part of respondents that the industry price structure was supracompetitive. A DuPont executive testified that by the mid-70's there was a fear that [the price structure] would tumble and that it "certainly had a potential for declining." (Tunis, Tr. 112) An internal Ethyl document showed concern about "maintaining a stable market for antiknocks." (CX 207D) These comments, in the context of a high profit industry with prices acknowledged by respondents' experts to be above marginal cost are consistent with a finding of poor competitive performance and supracompetitive pricing.

Respondents' contentions that non-price competition showed a vigorously competitive market are undercut by the widely accepted proposition that limitations on price competition spur non-price competition.[60] It is familiar economic theory that the more [44] complex and more hidden the form of competition, the more difficult is the achievement of coordinated, parallel behavior in an oligopoly.[61] As Mr. Hay, complaint counsel's expert testified, the furnishing of services was not inconsistent with diminished price competition. (Hay, Tr. 4143–4158, 4162–63) Similarly, competition in credit terms, shown only in a few instances in any event, is consistent with the hypothesis that elimination or severe reductions in price competition will tend to encourage competition to "spill over" into non-price terms of the transaction.[62]

As to sales at prices which were discounted from list, some 15–19% of industry sales were made at such a discount. (IDF 79) However, discount sales were rarely made by Ethyl and not at all by DuPont

[60] *See* Stigler, *supra,* at 23–26. He agrees with the "common belief among economists that price competition is much more effective in increasing output and reducing profits than non-price competition . . ." *Id.* at 26. *See also,* Areeda, *supra,* at 272–273.

[61] *See* Stigler, *supra,* at 42; Scherer *supra,* at 191.

[62] The fact that non-price competition, or even discounting off list, occurs is not inconsistent with a finding that price competition has been unlawfully restrained. *U.S. v. Container Corp., supra,* 393 U.S. at 337; *In Re Yarn Processing Patent Validity Litigation,* 541 F.2d 1127, 1137 (1976).

during the 1974–1979 period.[63] (IDF 58–60) PPG made about one-third of its sales between 1974 and 1979 at a discount. (IDF 64) These consisted entirely of sales to only three customers—[***] and PPG's competitors—Nalco and DuPont. Beginning in April 1980, PPG gave a small **[45]** discount off list to [***] (IDF 65) In 1979, about 58% of its sales were at a discount including co-producer sales. (IDF 66)

Despite the large share of PPG's sales made at a discount, these sales were limited to a very small number of customers out of the approximately 150 buyers in the market. In addition, PPG's market share remained relatively stable during the relevant period (*See* App. C of the initial decision). Since PPG's profits in lead antiknock compounds remained high during the relevant period, it is clear there was ample room for further discounting if PPG were intent on an aggressive attempt to expand its market share. PPG did have significant excess capacity in 1977 and 1978. (IDF 40) In contrast to any aggressive marketing strategy, PPG planners expressed concern that competition would increase "with possible pressure on the present stable prices." (CX 1928G) These factors indicate a careful, selective discounting policy, adequately restrained to avoid upsetting the supracompetive price level equilibrium prevailing in the market.

Nalco's discounting was more extensive than PPG's. During the relevant period, over 80% of its sales were made at a discount. (IDF 78) The ALJ found Nalco made discount sales throughout the relevant period to [***] Despite the fact that Nalco was the high cost producer, its profits remained higher than comparable industry benchmarks during the relevant period. (IDF 163) Nalco also had excess capacity during the **[46]** relevant period. (IDF 41) Nevertheless, Nalco's share did not change significantly during the relevant period.

In addition, most of Nalco's major customers receiving discounts had been favored since they assisted Nalco in entering the market in 1963. (IDF 139) We also note that Nalco and PPG were in a commercial relationship with at least one of the market leaders. DuPont purchased TML from Nalco, and PPG purchased TML from DuPont. (IDF 20) A partial dependence on DuPont or Ethyl by the two smaller companies would create an additional disincentive for aggressive discounting.

Ethyl and DuPont were generally aware of Nalco and PPG's pricing policies. Generally, the two market leaders believed they would act similarly and be less likely to discount while Nalco and PPG were more likely to do so. (IDF 139) DuPont's business assessment reports stated:

[63] The only sales below list made by Ethyl were to [***] viewed this discount as payment for [***] investment in a [***] (IDF 58)

DuPont and Ethyl have always competed in the domestic market primarily on the basis of service to the customer. Nalco has consistently priced their principal product, tetramethyl lead, below list to 5 major companies [***] whose purchase commitments enabled Nalco to enter the market in 1963 and whose purchases comprise more than 80% of Nalco's business. Nalco's service effort is minimal. Houston [PPG] also competes on the basis of services as well as below list sales to [***] and meeting of the Nalco discount to [***] (CX 923 H–I; RDX 135H)

PPG was aware of Nalco's discounting to a small number of major customers. (J.M. Robinson, Tr. 1142) Nalco was also aware of some of PPG's discount transactions. While efforts were made by PPG and Nalco to keep discount transactions confidential, customers assisted in revealing them to respondents. **[47]**

These findings show a clear pattern. The leading firms, DuPont and Ethyl, avoided discounting while the smaller firms engaged in it; and Nalco, the smallest of the four competitors, adopted a fairly consistent policy of selling below list. The available evidence indicates that Nalco's costs were higher, rather than lower, than its non-discounting major competitors. (IDF 32–37) Moreover, PPG and Nalco's discounts were generally known to Ethyl and DuPont but not to customers who did not buy at discount. We conclude that the overwhelming portion (approximately 80%, IDF 79) of sales in the industry were not sold at a discount, and that the two leading firms did not engage in any active price competition with each other. While the two smaller firms, particularly Nalco, engaged in discounting, off-list pricing was sufficiently restrained to preclude significant shifts in market shares or to force the two major firms to discount, even though they were charging above marginal costs and consistently earning supracompetitive profits.

3. *Evidence of the Effect of the Practices*

The review of market structure and performance provides a solid basis for concluding that the market was susceptible to the promotion of price uniformity at supracompetitive levels by the challenged practices. However, it is necessary to assess the evidence showing the actual effect of these practices on pricing patterns.

3.1 *Advance Notice of Price Increases*

All four respondents followed the practice of giving 30 days' advance notice of price changes. Typically, this practice **[48]** was promised to customers as a contract obligation. (IDF 107–111) Also, typically, either DuPont or Ethyl would initiate the price change. (*See* the summary of price changes in Appendix D to the Initial Decision). Since each company was generally obligated to give 30 days' notice of price changes to customers, uniformity with other competitors on the same effective day required that the initiator of the price change give *more* than 30 days' notice. This "extra" notice—beyond that required by the contract—is precisely what occurred in the great majority of cases. By providing several days extra notice, the initiator of the price change allowed the other companies to make identical price changes effective on the same day in 20 of the 24 price increases during the relevant period. The companies stated that the extra notice was precisely for the purpose of allowing competitors time to respond. (McNally, Tr. 2129; CX 93A) Moreover, if the competition did not respond, Ethyl's internal documents show that its standard plan was to roll back the initial change. (CX 1953Z298) PPG executives acknowledged that its price changes were determined by the actions of Ethyl and DuPont in initiating price changes. (J.M. Robinson, Tr. 1033, Fremd, Tr. 1592–93; CX 1285A, 1286; IDF 182)

The effectiveness of this pattern of advance announcements of price increases is shown not only by the vast majority of times in which uniformity in price and effective date was achieved, but also by the few instances when the pattern was broken. On one occasion, in August 1977, Ethyl undercut DuPont's price increase by announcing a lower price (that is, a smaller **[49]** increase) and a different effective date. In that case, however, DuPont did not announce the price change sufficiently in advance of the 30 day waiting period to give competitors an opportunity to respond with the same price and effective date. On the four occasions when there were price increases and the effective date was not the same, the prices became uniform with effective dates that varied by only a day or two. On no occasion were there list price differences which were not quickly eliminated. Consequently, except for occasional short periods when respondents had to maintain their old price one or two days beyond the change made by others because of the waiting period, there was no competition in list prices.

The experts who testified in this matter disagreed about the effect that advance notice price information had on competition. Dr. Hay testified that advance announcements "make it possible for all those list price changes to go into effect on the same day—at the same time. That is to say, no one producer is out there in the marketplace with a higher price than his rivals." (Hay, Tr. 3812) Dr. Mann agreed that advance announcements conveyed information and that the advance nature of such information, the speed of the conveyance, and reduced uncertainty could inhibit price differences based on different views about what price sellers should charge. (Mann, Tr. 5644–46) He felt prohibiting such practices would have little effect, however, since producers would find another way to accomplish the same result. (Mann, Tr. 5648, 5639–41) Dr. Glassman testified that advance notice does not reduce price [50] competition, that advance notice was common in other industries with no apparent correlation with industry concentration, and that advance notice may actually increase uncertainty. Dr. Carlton did not believe the challenged practices had any anticompetitive effect in this industry but did agree that improved flow of information could reduce price competition. He testified that anything that makes it more difficult to learn a rival's price makes it more difficult to have parallel behavior.

We conclude from reviewing the expert testimony in this matter that there is *general* agreement as to certain principles. Greater knowledge of competitor's prices may aid in price-matching, while, conversely, secrecy in discounting makes price-matching more difficult. Advance notice of price increases is one device for conveying price information to competitors but is not anticompetitive in all situations. It would be difficult to dispute these propositions. They are supported by accepted scholarly analysis.[64] There is disagreement among the experts, however, as to whether advance announcements had a significant effect in this industry, and indeed where this industry was not workably competitive.

As discussed above, we believe the evidence in the record clearly supports a conclusion that this industry did not engage in vigorous price competition, but instead was characterized by [51] highly uniform, supracompetitive prices with limited discounting in particular circumstances, and a pattern of lock-step price changes. As we discuss further below, we conclude the advance notice practices used by respondents in this industry facilitated price uniformity.

It is *not* the case that tight oligopolies with dominant firms inevitably result in the pricing pattern observed in this industry. An initiator of a price increase in such an industry does not guarantee himself a "grace period" to retract a price movement that others do not follow. The initiator must take some risk in announcing price increases and must calculate whether his temporarily higher prices may result in a loss of sales. Conversely, the initiator of a price decrease typically has no interest in others following. In a market with vigorous price competition, the initiator of a price decrease wants to prevent his rivals from learning immediately of his price movement, if possible, at least until he is able to gain additional volume. The likelihood of both these situations—the loss of sales by an initiator of a price increase who is not followed by his rivals or the gain in volume by a initiator of a price decrease who will not be immediately matched by

[64] *See, e.g.,* Areeda, *Antitrust Analysis* 274 (1981); Posner, *Antitrust Law: An Economic Perspective* 61 (1976); Stigler, *The Organization of Industry* 42–43 (1976); F.M. Scherer, *Industrial Market Structure and Economic Performance* 222–25 (2d ed. 1981); J. Bain, *Price Theory* 273–283 (1952).

his rivals—is greatly reduced by the advance notice pattern followed by the respondents.

By following a consistent practice over the relevant period adhered to by every industry member, the respondents have developed an effective way of signalling pricing intentions. The practice of conveying to a competitor what is, in effect, a price [52] "offer," then waiting for a response—while avoiding different list prices at any time—actually goes beyond the competitive effect in exchanging current price information condemned in *Container Corp.* In that case, the practices which reduced competition consisted of agreements to exchange current price information by firms representing almost all the market. Here firms representing *all* the market have not only developed a system for exchanging current price information but for communicating future information with the opportunity to announce future prices on a contingent basis. The result has been to make it as easy as possible—short of an agreement—to rapidly equalize prices at a particular level without the destabilizing influence of even limited periods where list prices differ.

The view of the companies' executives about the nature of pricing in their industry is instructive. A DuPont executive testified "the price structure certainly had a potential for declining." (Tunis, Tr. 112) Ethyl's internal documents reflect a concern about "maintaining a stable market for antiknocks."

> To restate earlier thinking, our concerns about market shrinkage relate to overcapacity and maintaining a stable market for antiknocks. It is our impression that in industry after industry, maintenance of selling prices and profits becomes more and more difficult—and finally impossible—as overcapacity grows. This is particularly true in an industry where the overcapacity is not temporary, but is increasing with time. We observe in other industries that, at some percent of overcapacity, a supplier finds the temptation overwhelming to shave price for an increased market share or increased pounds, because the effect on his profits are so positive. Anything that speeds antiknocks toward that critical point has to be viewed with concern. (CX 207D) [53]

These perceptions, in this context, suggest a concern that price levels could fall if the practices facilitating coordination were abandoned. Price changes which are predicated principally on cost changes are unlikely to precipitate a fear that prices will "tumble." On the other hand, prices well above marginal cost could be subject to dramatic price reductions if aggressive price competition breaks out. In fact, the record shows a noticeable lack of aggressive price competition at any time during the relevant time period on any significant scale.

A propensity to compete for additional service also reflects a decision by company officials to avoid price competition. The record contains numerous examples where respondents offered various services to particular customers but were consistent in their refusal to reduce prices from list. Complaint counsel's expert analyzed this tendency as indicative of a lack of price competition.[65]

3.1.3 *Respondent's Arguments and Justifications*

There is no real dispute about the high degree of uniformity among prices in this industry.[66] Respondents' principal argument, however, is that the underlying pricing dynamic in this industry is unaffected in a significant way by advance announcements of price increases. Moreover, they say that [54] advance notice has certain procompetitive benefits and that customers—the parties who would theoretically be harmed by anticompetitive practices—do not object.

Respondents say that price uniformity is the norm in a market with few sellers and homogeneous products. This contention is supported by expert testimony and by observations of company executives that different prices cannot be maintained for any sustained period because sellers rapidly learn of the differential and shift to lower-cost sellers.[67] Even in the absence of advance announcements, respondents argue that price increases initiated by one company would be learned by the other companies, who would decide whether or not to go along. If they did not follow the price increase, the initiator would presumably retreat from the proposed increase or risk losing substantial sales. For example, if Ethyl instituted immediately an increase, DuPont would learn about it quickly and determine whether to follow it. If DuPont did not respond in kind, Ethyl would retreat. Consequently, advance announcements do not significantly affect this pattern.

In addition, respondents say that advance notice promotes competition by encouraging competition in "forward ordering," that is, providing customers the opportunity to order in advance of a price increase scheduled to go into effect at a later date. Also, they say, advance notice is a spur to undercutting the initiator's price increase during the 30 day advance notice [55] period. (*See, e.g.,* DAB at 32) So, for example, if DuPont announces a 2.0¢/lb increase to be effective in 30 days, this gives Ethyl an opportunity to offer a 1.0¢/lb increase as an alternative. (By "undercutting" the respondents apparently mean a lower increase, not an actual price cut.)

Finally, they say, customers who testified at trial consistently did not object to the practice of providing advance notice and, in fact,

[65] *See* Hay, Tr. 3825–28, 4374–75. This view is consistent with conventional economic theory. *See* fn. 60, *supra.*

[66] Respondents do make a spirited argument that the level of discounting, for a market with these structural characteristics was substantial. As we discuss elsewhere, the degree of discounting was limited to particular situations and it does not offset the principal pattern of non-competitive pricing.

[67] (*See, e.g.,* Wilson, Tr. 3291–92, 3295–56)

testified that it provided advantages to them. The principal advantage is the opportunity to "forward order" at the old price. (*See, e.g.,* McCormick, Tr. 2663–64, 2704–06; Stern, Tr. 3455–56; IDF 112) Respondents also point to the fact that the practice of advance notice has been followed for many years, including during the time Ethyl had 100% of the market. Thus, they contend, the practice could not have evolved with the purpose of stabilizing prices since it was initiated before price competition could occur.

3.1.4 *Discussion*

Under a rule of reason analysis, it is appropriate to consider the evidence of harm to competition as well as any procompetitive effects of the challenged practices. In addition, *Boise Cascade* makes clear that the Commission should carefully weigh the evidence of actual effects of the practices on the competitive performance of the market. We consider respondents' arguments in the context of these requirements.

As respondents point out, it is true that there are risks in proposing price increases even with advance notice, because uncertainty as to competitors' reactions is not eliminated. For **[56]** example, the response to an announcement of a price increase, effective in the future, might be an announcement of a planned smaller increase by the other competitors. This situation did in fact occur twice in 1977. Alternatively, the response to an announced future increase might be the *status quo, i.e.,* competitors leave their price unchanged, or, in theory at least, competitors could respond with an announced decrease. Strikingly, neither of these latter two scenarios ever occurred during the relevant period. The only response by the "second" company was to follow the first company's lead completely or, in a small minority of cases, to announce a smaller increase.

While there is a degree of uncertainty in determining pricing responses even with advance notice, the theory of the complaint was not that *all* uncertainty was removed, only that the environment was changed enough to have a substantial effect in promoting anticompetitive price coordination. While prices would likely have tended toward uniformity (except for special hidden discounts) without advance notice, the process of reaching uniformity without advance notice would have been fraught with a much higher degree of risk for the initiator of a price increase. An immediate price change would have created a time lag until other competitors learned of the increase and decided how to respond. During this period competitors would have been rewarded by increased sales for maintaining their prices. A decision by a responding competitor to effect immediately a smaller increase would also have presented substantially greater risks without advance notice. The remaining competitors, if they **[57]** chose not to respond, would then gain sales from both the first and second initiators of price increases.

The actual pricing behavior in this market strikingly demonstrates how the risks were reduced—both to the initiator of a price increase and, in the few cases where it occurred, to the initiator of a lower increase in response to a previously announced increase. For example, in March 1977, Ethyl and DuPont simultaneously announced price increases of differing amounts. In the absence of advance notice, PPG and Nalco would have stood to gain sales immediately and, to the extent they could not meet additional orders, Ethyl, which proposed a smaller increase than DuPont, could have gained sales.

In fact, both DuPont and Ethyl not only gave the 30 days' required notice but each gave a few days extra notice, in the words of an Ethyl internal memo, so that "competition must reply by Friday [March 4, 1977]." (CX 114) DuPont, with the convenient opportunity to roll back its proposed price increase without ever having an effective higher price than its competitors, did just that by announcing an increase equivalent to Ethyl's on March 4.[68] This episode reveals how advance notice gave the opportunity for each company to change its price level without any company having a different effective price at any time. **[58]** Moreover, the initiators of the price increase, Ethyl and DuPont, were able to avoid any significant risk that they would be alone in their higher prices by providing an extra period for competition to "reply." Also, Ethyl was in an excellent position to assess DuPont's likely response to an additional increase, since DuPont had signalled its wish to raise prices already. In April 1977 Ethyl announced a price increase, again providing additional days' notice beyond the required advance notice period. An internal Ethyl document noted that "[c]ompetition must reply by 4–26–77." (IDF 176; CX 91, 1953Z82–83) The other three respondents did reply by April 26 and announced identical new list prices, effective on the same date as Ethyl's. Consequently, in two months, there were two price changes, with all four companies' list prices identical at all times and an overall increase of about 4% in list prices.

The companies themselves were well aware of the dynamics of advance announcements, a grace period for others to respond, and the opportunity for contingent rollbacks if competitors did not respond with identical price increases. The record contains numerous examples of Ethyl and DuPont executives considering the opportunity for the major competitor to respond during the grace period that proceed-

[68] PPG and Nalco apparently did not learn of the DuPont announcement until Monday, March 7, when it was carried in the press. Consequently, they made the new price effective on April 7, 30 days later. (IDF 175) Ethyl, responding to the fact that it would have had a higher price effective for 3 days before PPG and Nalco raised theirs, then changed its effective date to April 7, at which point the circle was complete.

ed the contractual thirty day notice period. (*See, e.g.,* McNally, Tr. 2129; CX 93A; CX 1953Z298) PPG executives also acknowledged that timing and amount of price changes were determined by the actions of Ethyl and DuPont. (J.M. Robinson, Tr. 1033, Fremd, Tr. 1592–93, CX 1285; CX 1286) **[59]**

The importance of giving advance notice is further illustrated by the pricing moves in August 1977. On August 15, 1977 DuPont announced a price increase effective only 31 days from the date of the announcement, on advice of counsel concerned about antitrust liability. (IDF 180) A few days later DuPont was informed by a caller from *The Wall Street Journal,* as well as a customer, that Ethyl had announced a smaller increase. On August 2 DuPont rescinded its original increase to match the timing and amount of Ethyl's increase. This was the first time a price increase had been intentionally undercut since other increases which were lower than an increase announced by the other major rival occurred simultaneously. (*See* IDF 54–55) In testifying about this incident, DuPont's Marketing Manager stated that this absence of an effective "grace period" before the advance notice made price-matching difficult. "By the time [Ethyl] learned of what we were doing they could not match the same effective date and give 30 days' notice." (Diggs, Tr. 2413) Because of the complexity caused by this absence of grace period, he testified, DuPont returned to providing more notice. "Well, my recollection is that in subsequent price changes after this date we lengthened the period somewhat by several days so as to provide time to test what the competitive reaction would be." (Diggs, Tr. *id.*)

The former DuPont Marketing Director testified about the reasons for giving more than 30 days' notice. He stated:

> [One reason was] to make sure we got it out to everybody in 30 days . . . And secondly, that is a very, very nerve-wracking, tense period, and we felt that our customers in many cases were **[60]** accusing us of being cavalier, that we really didn't give a damn what others were doing; we were on roads that said we were ignoring them.
>
> So what we tried to do was give them enough notice and *also an interval which gave our competitors a chance to respond, without having to change the effective date.* (emphasis added) (McNally, Tr. 2129).

These examples (and there are others in the record) show that it is highly likely that the pricing behavior in this market was significantly different than would have occurred without advance notice. It is reasonable to conclude that such precise uniformity of effective dates and price changes could not have occurred without the use of a grace period for competition to respond combined with contractual obligations for 30 days' advance notice of price changes. In making this conclusion, we rely upon the evidence showing how company executives themselves perceived the advance notice practice, the consistent pattern of price announcements and changes, the potential for price cutting to occur absent coordinated pricing, as well as our analysis of overall market structure and performance. On the basis of these findings, we believe it is reasonable to infer that the advance notice practices helped contribute to coordinated pricing, thus, supracompetitive uniform prices. While respondents, in theory at least, may have found ways to match prices without advance notice, it is reasonable to infer that such price-matching would have been more difficult and, consequently, that the likelihood of such pricing patterns without these practices was substantially lower. **[61]**

As to respondents' contention that advance notice was actually procompetitive because it encouraged "forward ordering" during the period before the new price became effective, we must consider this effect in the context of the effect of the advance notice practice on price competition. Forward ordering gave an opportunity to purchase at less than the new price announced, but it was limited by transportation, storage, and inventory constraints.[69] (IDF 80, 112) Consequently, forward ordering was a limited way to escape the effect of regular and uniform price changes, but not a device for escaping a price in effect at the time of ordering that was supracompetitive. Thus, forward ordering was of some benefit to customers, but was unlikely to be of sufficient benefit to offset the long term result of advance announcements in assuring lock-step price increases by all respondents.

As for the fact that customers who testified generally favored the practice of providing advance notice, we do not believe this is highly probative of the net competitive effect of the practice in this industry. The testimony by customers was essentially that they wished to have an opportunity to buy at the old lower price in advance of a new, higher price. Customer testimony was not specific about the degree of savings but **[62]** supported the general proposition that purchasing at the existing price before a price increase results in some savings. (*See, e.g.,* IDF 112) This is an understandable perspective, but does not contradict our fundamental conclusion. If asked, no doubt customers would testify that they favored price competition, too. Consequently, the question is whether the buyers' perception that advance notice enabled them to save on the purchase price is more than offset by our finding that advance announcements contributed greatly to uniform, supracompetitive pricing. In view of the limited extent of forward ordering and the extensive evidence of the contribution of advance announcements to price uniformity, we believe that buyer testimony

[69] As the ALJ notes, the record is not clear as to the amount of forward ordering involved. The benefit to customers from advance notice would consist of the amount ordered above the expected purchase in the absence of an advance notice of price change. The degree of forward ordering involved is suggested by DuPont's "in-house guidelines" to limit forward ordering to between four and six weeks' normal supply. (IDF 81)

does not justify a finding that the advance notice practices were, on balance, procompetitive.[70]

Finally, we do not believe the fact that advance price announcements were practiced before competitors entered the market means that their effects in the type of market presented here are not adverse to competition. It is true that the history of a practice may be relevant by showing the purpose of the practice, and purpose may be useful in assessing effects.[71] Here, however, there is no need to rely upon the proposition that the initial purpose of advance announcements was to facilitate **[63]** price uniformity in order to determine that the effect during the relevant time period has been to do so. As discussed further below, it is not surprising that a practice which was initiated for a benign purpose may become anticompetitive as the industry evolves, as other competitors adopt the practice, or as other practices are developed which, together with the earlier practices, produce an anticompetitive effect. Here we are confronted with a series of practices which interact to affect pricing behavior. While the initial purpose may be relevant in assessing current effect, as well as the use of the practice in other industries, our focus must be on the current effect of the practices in a particular industry.[72]

Respondents argue that the conclusion of the ALJ that advance notice had a substantial effect on pricing behavior is the kind of unfounded inference that the court in *Boise Cascade* found objectionable. We disagree. *Boise Cascade* does not require that the record evidence conclusively establish that all pricing behavior was a direct result of the challenged practices, nor does it hold that inferences cannot be drawn from applying conventional economic theory to the observed facts. Rather, the **[64]** court found that "the Commission has provided us with little more than a theory of the likely effect of the challenged practices." 637 F.2d at 578. In that case, we challenged parallel use of a freight factor, which was only one aspect of price. Here, we examine a series of practices which inter-relate to affect total price. There the market was less concentrated and other structural considerations were less compelling. In *Boise,* the record showed prices were in weekly flux without exact price-matching. Here, prices are much more uniform over time and move with lock-step rigidity.

[70] Although the procompetitive advantages of forward ordering are not sufficient to offset the competitive harm caused by the combined advance notice practices, our finding of liability is limited to the use of the extra "grace period" and we do not prohibit advance notice and forward ordering under our order.

[71] *See, e.g., White Motor Co. v. U.S.,* 372 U.S. 253, 261 (1963).

[72] In this connection, we note that advance notice is used in other chemical industries (IDF 107) and that there was some testimony that advance notice was of no benefit to the sellers, only to the buyers. (*See, e.g.,* Robinson, Tr. 1046) Respondents' argument concerning the historical use of advance notice appears to be limited to the use of 30 days' notice, not the extra "grace period." (*See, e.g.,* EAB at 12) While the record is unclear on this point, Ethyl apparently gave only 30 days' notice when it was the only company in the industry. (*See* Koehnle, Tr. 4613–4614) The use of grace periods evolved later but the record is not clear when this development occurred.

practices. We view this factual record as stronger than that presented in *Boise*.

Anticompetitive effects are not always capable of being specifically identified or quantified at the time a determination is made as to the probable competitive consequence of a particular type of activity. Therefore, the courts apply appropriate economic theory to the available factual record in an effort to reach a reasoned conclusion as to the likely effects anticipated. Thus, the Supreme Court in *Container Corp.* utilized conventional economic theory about oligopolistic price competition to make an inference about the anticompetitive effects of an illegal price vertification arrangement. 393 U.S. at 337. The instant case presents a similar situation. However, here the advance price announcement practices facilitated price coordination, reduced the risks of increasing prices and impaired the free functioning of the competitive process thereby violating Section 5. This record, if anything, provides a stronger evidentiary basis than *Container Corp.* for inferring that advance **[65]** price announcements facilitated price coordination, reduced the risks of increasing prices, and distorted the competitive process.

3.2 *Press Announcements*

Up until 1977, all four respondents issued press releases announcing their intention to institute a new price after the advance notice period. The ALJ found that, in conjunction with the advance notice practices of respondents, press notices increased certainty about rivals' pricing moves and facilitated price matching. Respondents contend that competitors learned quickly of pricing moves from other sources of information, principally customers, and, therefore, press announcements were insignificant in increasing certainty about competitors' intentions. In addition, respondents say that press announcements are useful to customers in learning about developments in the market (*see, e.g.,* Tunis, Tr. 361–362) and that press announcements of price changes were a form of free advertising that kept the companies' names before the public and helped assure actual and potential investors that cost increases were being passed on in price increases.

The principal issue in this dispute is whether press announcements significantly improved the flow of information about pricing moves beyond that available through the customer-supplier network. Several factors point to a conclusion that press announcements did significantly improve the flow of information of future prices. First, it is clear from the record that all four companies paid close attention to price **[66]** announcements in the business press, and internal documents show a number of instances when company officials noted that they learned of price changes from the press. (*E.g.,* CX 292A; CX 936A;

CX 950A.) Second, press releases were generally issued on the same day as customer notification, though there were a few instances in which the press release was delayed for one to four days.[73] Publication typically followed within one day, though in a few cases it took as much as 3 days. (IDF 173)

In addition, there are at least two instances in which press announcements played a significant role in pricing actions. In the first example, discussed above, Ethyl and DuPont announced planned price increases simultaneously, though DuPont's proposed increase was higher. A report in *The Oil Daily* on March 3 noted that spokesmen for both companies said they were studying the situation and included a quote from the Ethyl spokesmen to the effect that it had "no immediate plans for further adjustment" of its prices. (CX 121, 831) One day later DuPont announced that it would retreat to the Ethyl price. It is hard to imagine that this incident would not constitute an unlawful exchange of information about current and future prices under well established caselaw if made directly from Ethyl to DuPont.

In a second example, the *Wall Street Journal* carried an incorrect story about the effective date of a proposed DuPont price increase, stating it would be effective on March 1, rather than February 24 as DuPont customers were told. (CX 149) PPG **[67]** then moved to meet the date published in the story, rather than the date told DuPont's customers.

On the other hand, respondents continued to learn about price changes from their customers after press releases were essentially abandoned. The record contains some examples in which competitors learned of price change notices on the same day they occurred. Of the 24 list price increases between January 1974 and June 1979, one or more of the competitors first learned of the increases from customers on 18 occasions, typically within one day. (*See* EAB at 43–44, fn. 102, and the exhibits cited there.) Finally, the pricing patterns established before 1977 continued to be essentially the same after press releases were abandoned.

A further consideration is respondent's argument for the procompetitive effects of press announcements. It is certainly true that press announcements have some value generally to customers wishing to follow industry developments. However, in this industry, there are few customers (only about 150) and they are traditionally informed by direct notice. (IDF 108–111) Consequently, press announcements provided little additional information. As to respondent's arguments that these announcements were a form of "advertising," useful in getting respondents' names before the public, and that they were helpful in

[73] *See* App. D of the Initial Decision.

comforting investors that costs would be passed along, there is little in the record to support these propositions except self-serving testimony. **[68]**

In summary, while respondents' justifications for press announcements are not convincing, it is impossible to conclude on the basis of this record that press announcements contributed significantly to the other factors promoting price coordination, particularly, the advance notice practices. This conclusion is not to say that press announcements cannot be anticompetitive and serve as a device for stabilizing prices, either intentionally or unintentionally. In this case, however, the customer-supplier network is quite effective in conveying price information, so that the additional contribution of press announcements was of marginal effect.

3.3 *Most Favored Nations Clause*

The third practice challenged in the complaint is the use of "most favored nations clause"—contract provisions which require offering the benefits of a lower price to all customers if it is offered to any. The theory of the complaint adopted by the ALJ is that these clauses reduce price competition by reducing the incentive for the seller to provide any discounts, since it has contractually obligated itself to do so only if its overall pricing level is reduced. Further, the ALJ concluded that the use of these clauses by at least the two major competitors was known by both DuPont and Ethyl and increased the certainty on the part of both that neither would discount.

All four companies have used these clauses, but PPG and Nalco's use has been more limited. In particular, PPG does not include the clause in its standard contract and the complaint does not charge it with this practice. (Complaint, ¶12(b)) **[69]** Ethyl abandoned use of the clause in January 1981, but well after the complaint was issued.

Complaint counsel's expert witness testified that the most favored nation clause reduced price competition in several ways. First, it reduced the incentive of a supplier to discount since any discount would have had to be extended to all customers. Second, extending the discount, as required by the clause, would make the granting of a discount more noticeable to competitors. Third, to the extent that other competitors were aware of the clause, it increased confidence the other firm would not discount. Finally, the clauses were used to "suppress customer reaction to high prices" by serving as a justification for failure to consider discounting. (Hay, Tr. 3813–14) Dr. Markham testified that the clauses were simply a restatement of the policy that would be followed without them. (Markham, Tr. 6819, 6896) Dr. Mann testified that the clauses had no effect because he saw no evidence in the record that they did have an effect and that the clauses restated the Robinson-Patman Act. He also stated, however, that evidence that such clauses did have an effect would include recognition by a respondent that the clauses helped maintain a systematic viewpoint among competitors as to reliance upon the clauses in rejecting requests for discounts. Mr. Glassman testified that overall the challenged practices did not have an anticompetitive effect. However, in regard to the most favored nations clauses, he stated that, had he recalled any evidence of adverse competitive impact he "would have perhaps said that to a very limited extent, the existence of a **[70]** most-favored nations clause could have added just a tiny bit to the possibility that there would be no price discounts." (Glassman, Tr. 6508) He also testified the clauses were used by Ethyl and DuPont as "an excuse for not discriminating among customers and giving discounts." (Glassman, Tr. 6511). At trial, he did not concede that the absence of the most favored nations clause had any relationship to PPG's ability to compete. (Glassman, Tr. 6514) However, in his deposition, he testified, "The absence of a most favored nations clause in PPG's business helps them compete because they don't feel at all constrained in terms of giving special deals and discounts." (Glassman, Tr. 6514–15)

Dr. Carlton said that the use of these clauses by Ethyl and DuPont could not have had an adverse effect on competition since Ethyl was not constrained from granting a discount and since neither Ethyl nor DuPont was influenced by the fact that the other had this clause in contracts.

While the experts disagree on the actual effect of the clause in this industry, respondents' experts appear to reach the conclusion that the clauses had no effect, because: 1) the non-discounting pricing policies would be followed in any event; 2) Ethyl and DuPont were similarly constrained by the Robinson-Patman Act; or 3) Ethyl and DuPont had no real confidence that the other would actually follow the obligations of the clause.

At the outset, it is useful to distinguish the requirements of the clause as interpreted by respondents from those of the **[71]** Robinson Patman Act.[74] In general, Ethyl and DuPont interpreted the clause to customers to mean that a discount provided to one customer would have to be provided to all. (*See, e.g.,* Lockerbie, Tr. 764–67; IDF 117–118) One internal Ethyl analysis, however, interpreted the clause to mean that an equal discount would only have to be offered to customers purchasing the same or greater quantities. (IDF 192) In contrast, the Robinson-Patman Act prohibits discrimination in prices which substantially lessens competition, unless the seller can prove that a difference in price was justified by cost differences or was a good faith

[74] 15 U.S.C. 13.

effort to meet a competitor's price. For our purposes, the "meeting competition" and "cost justification" defenses under the Act highlight the most significant differences between the Act's effect and the operation of respondents' most favored nations clauses.

There is little doubt that a company using the clause has an additional incentive not to give selective discounts. Doing so triggers a contractual obligation to lower its pricing level to all customers, thereby perhaps reducing profits generally, or to risk legal liability by violating its contractual obligation. The companies in fact frequently relied upon the clause in telling customers why they refused to provide discounts. (IDF 194) DuPont recognized that offering a discount to Exxon, or other companies, could result in a general price decline. (CX 1081A; IDF 197) Ethyl also recognized that the clause restricted **[72]** its pricing flexibility. (IDF 197) These companies' internal documents indicate that executives viewed the clauses as having a significant effect on their pricing policies. (See IDF 197–199) All the economic experts who testified were of the opinion that these clauses —if adhered to—could reduce the incentive to discount to selective customers. PPG's expert testified that the absence of the clause helped PPG discount. (IDF 200) Thus, it is difficult to accept respondents' contentions that the clauses played no role in pricing behavior. Frequent reliance on the clauses, both within the company and to customers, indicates otherwise. Moreover, the record shows that Ethyl and DuPont's knowledge that each used the clause affected each company's perceptions about the other's likely pricing behavior. Ethyl's management discussed the impact of the most favored nations clause in internal reviews. An Ethyl management review in November 1975 referred to the fact that both DuPont and Ethyl had most favored nations contracts and that PPG and Nalco were "less encumbered." (CX 394Z5; IDF 197) In 1977, Ethyl's Chairman asked about a possible "free-for-all" if "DuPont abandoned their most favored nations provision with the next set of contracts." (CX 222B) Ethyl's Director of planning testified about the question posed in the 1975 memorandum:

> Petroleum Chemicals made a point . . . that the favored nations restricted their ability to take actions. So [the President of Ethyl] said, "Okay, suppose DuPont [removed the most favored nations clause] and you didn't do it? Now what would you do? Here you may have to take an action." (Day, Tr. 615) **[73]**

An Ethyl Management planning document in March 1977 observed that removal of the clause could precipitate significant marketing changes:

> . . . we would have to extend the same reduced price to any . . . customer who buys more

from us . . . With a new contract that eliminated the favored nations clause, we could meet competition at a selection discount without having to extend the discount . . . The only advantage of a new contract is that it allows us to meet competition selectively. However, the fact that [Ethyl] was cancelling old contracts and eliminating the favored nations clause would be known to competition almost immediately. *It would signal to them a basic change in sales strategy.* (emphasis added) (CX 220 P-Q)

DuPont also believed that it could not eliminate the most favored nations clause without creating a substantial change in the perception of its marketing strategy. DuPont's Director of Marketing testified:

Q: Could you have eliminated [the clause] in your judgment, if you wanted to?

A: No. Even if I had done nothing more than walked out to the marketplace and said, "We are going to take the [clause] out of contracts," the reaction that would have produced would have been one of wild speculation as to why. I mean this thing was in practice for an extended period of time—I don't know how long; I guess since we were in business—and if we had pulled the thing out, my judgment says that I would have reacted in the same way. I would have said, "What are you doing? Who's got the deal? How much of the deal can I get? What's going on?" And even if there was no deal, it was just one of those things that by default would have been impossible. (Tunis, Tr. 392–393)

The record contains an example of how the most favored nations clause affected the pricing considerations of DuPont. In [74] responding to a request by Exxon for a price quotation on an F.O.B. plant site basis, the DuPont sales representative assessed the likelihood that competitors could accept Exxon's offer. He concluded Ethyl was unlikely to do so and testified that the most favored nations clause was probably a factor in his assessment. (Miller, Tr. at 2000).

Both Ethyl and DuPont contend that, on the one hand, they could have discounted without the clause and, on the other, that there was no incentive to discount because rivals would have learned of the price cuts and matched them. In fact, neither Ethyl nor DuPont ever discounted with one possible exception.[75] Admittedly, as in the case of evaluating the effect of advance notice of price changes, there is no convenient laboratory experiment available to confirm how Ethyl and DuPont would have behaved in the absence of the clauses. As discussed above, however, the record provides a solid basis for an inference that these clauses made a significant contribution to reduced price competition when used in conjunction with the other practices we find anticompetitive. In reaching this conclusion, we rely also upon the particular circumstances of this industry, including its structure and performance, as well as evidence about the effect of these clauses. In an industry with periodic discounting by the leading

[75] Ethyl gave a small discount to [***] in return for [***] (IDF 58) The significance of this discount is unclear except in the conspicuousness of its isolation.

firms, despite the contractual use of such clauses, or in an industry with a structure less likely to [75] result in interdependent behavior, a different conclusion might be appropriate.

Against the indications that the most favored nations clause discouraged selective discounting, we must weigh respondents' arguments justifying the use of such clause. Respondents' principal proffered business justification for the use of these clauses is that they are desired by customers who wish to insure they are not disadvantaged.[76] Refiner testimony was generally to the effect that the clause provides some assurance that they are not receiving discriminatory prices and that they were on an equal footing with major companies. We are mindful of the need to consider carefully stated customer preferences, particularly when the theory of the complaint is that unlawful anticompetitive pricing has its most direct effect on them. However, this is a particularly good example of a practice which may be desired by individual customers, viewed from their limited perspective, while proving harmful to customers as a class. As in the cases of advance notice of price changes and uniform delivered pricing, a complex inquiry is required to determine effects on an industrywide basis. Thus, an individual customer's perspective, though deserving careful consideration, is inevitably limited in shedding light on the overall effect on competition. The preference of customers expressed in testimony was that they did not wish to be at a price disadvantage in relation to other [76] companies. However, this preference for market performance directly conflicts to some degree with a market performing competitively since more frequent discounting, particularly by the dominant firms, would no doubt have improved overall market performance. Consequently, we do not view customer testimony favoring these clauses as sufficient to offset other evidence in the record demonstrating their anticompetitive effect.

To the extent respondent attempts to justify the practice on the grounds of "fairness" or "ethical" business behavior as some of the testimony suggests, we reject that notion. Expert testimony in this matter and conventional economic theory support the principle that selective discounting is procompetitive rather than anticompetitive in the context of this market structure and absent competitive injury of the type prohibited by the Robinson-Patman Act.

3.4 *Uniform Delivered Pricing*

The fourth type of practice challenged in the complaint is uniform delivered pricing, that is, offering products for sale, including freight,

[76] We have already discussed the argument that the clauses carry out the purposes of the Robinson-Patman Act. To the extent the clauses go beyond the requirements of the Act, as they clearly do, this justification obviously fails.

at the same unit price to any customer in the U.S. Under this system, for example, Nalco would sell products from its Texas plant to a California customer at the same price as DuPont would sell to the same customer from its California plant. The theory of the complaint is that this practice of quoting uniform delivered rates makes interdependent price coordination much easier by removing the complexity of attempting to match a competitor's total price—base price plus freight [77] calculated for a particular customer—and instead matching a standard list price to all customers which includes freight.

The practice of quoting prices on a delivered basis was initiated by Ethyl in the 1930's when it was the only firm in the industry. (IDF 124) Respondents use leased facilities, primarily rail tank cars, to ship their products. In cases where buyers have asked to be quoted an F.O.B. manufacturing plant price (that is, price if the buyer assumed responsibility for transportation), the respondents have refused. Sun, Exxon, and Shell, for example, requested price quotes on this basis. (IDF 189)

Expert testimony in this case disagreed as to whether uniform delivered pricing helped to reduce price competition in this industry. Complaint counsel's expert, Dr. Hay, testified that consistently quoting prices on this basis makes it clear whether a competitor is discounting and simplifies the price to be communicated for purposes of price-matching. He believed the practice did reduce competition in this industry. (*See* Hay, Tr. 3812–14) Dr. Markham testified that delivered pricing does not reduce uncertainty because freight costs are too small to be significant (Markham, Tr. 6813) and that price-matching could occur, even if prices were quoted on a non-delivered basis, because rival's freight costs could be easily calculated. (Markham, Tr. 6814–15; 6894) Dr. Mann testified that if all the manufacturers adhered to a uniform delivered pricing system, uncertainty would be reduced, but that he had "not seen any evidence that [persuaded him] that that's the case." (Mann, Tr. [78] 5671–72) Mr. Glassman's testimony appears to be that uniform delivered pricing could facilitate price-matching but that freight costs were a small proportion of costs in this industry and, therefore, that uniform delivered pricing had not led to resource misallocation. (Glassman, Tr. 6521–25)

Thus, as in the case of advance price announcements, there is general agreement among the expert witnesses that uniform delivered pricing can facilitate price-matching but disagreement over whether it had an effect in this industry. Also, as in the case of advance price announcements, it would be difficult to dispute the proposition that uniform delivered pricing may reduce price competition, since it is generally recognized as capable of [79] doing so in economic literature.[77] The Commission, upheld by the courts, has challenged base point pricing systems on several occasions.[78]

The courts and the Commission have applied different legal standards in assessing base point pricing schemes under the Sherman Act and the FTC Act depending upon whether agreements to use delivered pricing were found. The Commission indicated in *Boise Cascade Corp., supra,* that an agreement by competitors to fix one element of price would be *per se* unlawful.[79] On the other hand, in *Triangle Conduit, supra,* the court of appeals found a violation based upon individual use of base point pricing in an industry with particular characteristics which made price [80] coordination likely.[80] Thus the court appeared to engage in a limited rule of reason analysis to determine whether the pricing practices followed by individual companies were likely to have a anticompetitive effect.[81]

A national uniform delivered pricing scheme is essentially a variation of a base point pricing scheme since all competitors are absorbing different freight costs for different customers in order to arrived at a single, uniform delivered rate. Here, we apply a rule of reason analysis to determine whether, based on the structure of the market, the observed performance of the market, and the evidence connecting the use of uniform delivered pricing with observed pricing behavior shows it is likely that respondents' individual use of delivered pricing, together with the contemporaneous use of the other challenged practices, substantially reduced competition.

The pricing patterns in this industry, as discussed above, are striking in the degree to which uniformity has been maintained and prices for all respondents have moved upward or downward (mostly upward) in lockstep fashion. As discussed at length above, the price movement dynamics in this industry have [81] depended upon the price leadership of Ethyl or DuPont periodically "testing the waters" with a price

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77 *See, e.g.,* Scherer, *Industrial Market Structure and Economic Policy* 325–334 (2d ed. 1980); P. Areeda, *Antitrust Analysis* 273–75 (3rd ed. 1981) "A delivered price system permits each seller to quote the same price to every buyer regardless of location. Thus, the most troublesome effect of an industrywide, rigid, delivered pricing system may be to facilitate noncompetitive pricing." *Id.* at 383 (citations omitted); R. Posner, *Antitrust Law: An Economic Perspective* (1976). "The purpose of basing point pricing is to facilitate collusion by simplifying the pricing of colluding firms. . . . It is plainly inconsistent with competition, which would quickly eliminate any phantom freight charges." Id. at 70–71. *See also, e.g.,* C. Kaysen, "Basing Point Pricing and Public Policy," 63 Q.J. Econ. 289 (1949). *See also* Justice Department Guidelines. "Although not objectionable under all circumstances [mandatory delivered pricing practices] tend to make collusion easier, and their widespread adoption by firms in the market raises some concern that collusion may already exist." *Id.* at 37.

78 *See, e.g., FTC v. National Lead Co.,* 352 U.S. 419 (1957); *FTC v. Cement Institute,* 333 U.S. 683, 713 (1948); *Triangle Conduit & Cable Co. v. FTC,* 168 F.2d 175 (7th Cir. 1948), *aff'd by equally divided court sub nom. Clayton Mark & Co. v. FTC,* 336 U.S. 956 (1949). Delivered pricing schemes have also been challenged under the Sherman Act. *See, e.g., Maple Flooring Manufacturers Assoc. v. U.S.,* 268 U.S. 563 (1925).

79 91 F.T.C. at 100.

80 For example, the court of appeals noted that the sellers were geographically dispersed, sellers refrained from offering F.O.B. mill prices, and there was regular price-matching. 168 F.2d at 177–179.

81 "We cannot say that the Commission was wrong in concluding that the individual use of the basing point method *as used here* does constitute an unfair method of competition." *Triangle Conduit,* 168 F.2d at 181. (emphasis added) The Commission also had found a likelihood of anticompetitive effects. 38 F.T.C. 534, 593 (1944).

change and retreating if necessary. In the great majority of cases, retreating has not been necessary, because the other competitors have demonstrated their willingness to adopt the initiator's proposed price increase. In the few cases where retreating was necessary, this was achieved by responding to the second pricing move. In the only cases where such a retreat was necessary, the second pricing move was to propose a smaller increase and all the other companies went along.

Essential to this pricing pattern was a standard price list for the two principal products, facilitating swift and coordinated price movements. The respondents were aware that the general pattern was for all to use uniform delivered pricing. (IDF 184; Tunis, Tr. 138) In addition, there was testimony that delivered pricing contributed to competitors' knowledge about others' price levels. (*See* Fremd, Tr. 1704).

The record provides an example of DuPont's resisting granting Exxon a price quote on an F.O.B. basis because of the likely competitive reaction of Ethyl. DuPont's Director of Marketing testified:

> Q: What disadvantage did you see in extending this innovative special price to Exxon?
>
> A: Well, I saw all kinds of problems that we have talked about relative to this price being placed in the competitive realm, the information to my competition, reaction to that kind of price at other accounts, and a general deterioration in the overall pricing of antiknock compounds. (Tunis, Tr. 441) [82]

Further, he was asked why he assumed Ethyl would not grant such a discount either. He answered:

> Well, again you have to look at DuPont and you have to look at Ethyl and [PPG] and Nalco as entities in the marketplace. And Ethyl is about evenly positioned with DuPont, both in terms of the market share, in terms of cost, in terms of their capabilities to service accounts, sidetracks, delivery fleet—equal product.
>
> Q: What did that have to do with what you believed, even shakily, that Ethyl might do?
>
> A: An extension of rational logic. If it was not good for us, it was my perception it would not have been good for Ethyl Corporation at that point in time. (Tunis, Tr. 442)

We would expect major rivals to assess the other's likely pricing behavior in a highly concentrated market. Here, DuPont and Ethyl were able to rely on the convenient standard of a delivered price to avoid uncertainty in interpreting each other's pricing posture. Granting Exxon F.O.B. price might not have been a real "discount" in the sense lower price might only have reflected the omission of transportation costs. Yet it is clear that F.O.B. pricing would have been viewed as aggressive pricing which both Ethyl and DuPont wished to avoid.

In general, discounts were made known to other competitors by customers.[82] Consequently, Ethyl and DuPont were deterred in part from granting discounts because there was a substantial risk the other would learn about it. F.O.B. pricing would have introduced the complexity of "masking" discounts because it would have introduced price variations among customers. [83]

Complaint counsel's expert witness testified that uniform delivered pricing had the effect of simplifying the communication of prices for 150 different customers, and increased the confidence of a competitor that its rival's price was at list price rather than at a discount. The thrust of respondents' experts' testimony on delivered pricing was that delivered pricing could contribute to price-matching, but it was unlikely to have a significant effect because prices could be easily matched without this practice. (*See, e.g.,* Glassman, Tr. 6521–6524; Markham, Tr. 6814–6815)

We conclude there is no real dispute as to the general proposition that pricing complexity in itself interferes with price-matching.[83] The argument between the parties thus appears to be whether delivered pricing in this industry contributed significantly to price matching or whether it was equally likely to occur without it. Respondents' principal argument on this point is that the companies could easily match total delivered prices by observing quoted base prices—[84]excluding freight charges—and calculating freight rates by use of standard freight tables, use of freight cost experts, or the like.

The only freight rate expert who testified in this matter was Mr. Kripphane. The thrust of his testimony was that calculating freight rates in order to match competitors' prices would be relatively easy:

> I don't see any uncertainties in calculating what the freight charges might be. They're there, you know. We have all the rate information that we need available to do that job . . . We are doing it now [with respect to sulphuric acid]. (Kripphane Tr. at 5063)

On the other hand, there is testimony from company executives that determining competitors' freight costs and rates would be difficult. PPG's Vice-President and General manager testified:

> Q: If both PPG and DuPont were to sell on a manufacturing-point basis plus freight, would you consider it mind-boggling to match the price of DuPont at Getty?

[82] *See, e.g.,* EAB at 38–39; IDF 129; IDF 142; DAB 29.

[83] Professor Areeda describes a general proposition about behavior in an oligopoly: "[U]ncertainty about rivals' behavior may force each oligopolist to act more like a perfect competitor. He will price nearer his costs in order to win each sale when he lacks confidence that a higher price will not be undercut by a rival. Such uncertainty, with its attendant impairment of oligopolistic coordination, grows as the number of transactions declines, as public knowledge lags or fails, and *as transactions became less comparable.*"(emphasis added) Areeda, *supra,* at 274–275. Avoiding different product brands or configurations, states Professor Areeda, "accounts for some industry attempts to adopt delivered pricing so as to standardize transportation costs, to reduce product variety, or to adopt some common denominator for disparate goods." *Id.,* fn. 7.

A: Getty and possibly 70 other customers. Yes, it would be a difficult, complex structure to develop to remain competitive under that situation . . . So the whole problem would be quite complex, in my thinking. (Robinson, Tr. at 1050–51)

Other testimony and internal documents support the proposition that matching freight costs would be difficult because of the large number of variables involved. (*See, e.g.,* IDF 185–187) Thus, while it is true that freight tables during the relevant period were fixed and published by federal and state agencies, there are actually a number of complexities in matching [85] competitors' prices based on these tables. Freights vary based on the particular point of origin, the size of the tank car used, and the carrier route chosen. If two or more types of vehicles are used in transit, for example, shifting from jumbos to smaller cars, a new variable is introduced. Shippers may also qualify for reduced rates based on volume shipments over time and such savings would not be known until the end of the period. If refiners were permitted to take delivery at respondents' plants, or at transloading terminals, they could qualify for such discounts. (Krippahne, Tr. 5141–43)[84]

The nature of the industry confirms that price matching would be considerably more difficult if list prices were quoted on a manufacturing plant basis. Respondent's plants are scattered over the United States. Ethyl's plants are in Louisiana and Texas. DuPont's plants are in New Jersey, California, and Beaumont, Texas. PPG's plant is in Beaumont, Texas. Nalco's plant is in Freeport, Texas. (IDF 1–4) The more than 150 customers are similarly scattered through the U.S. In order to determine the total price charged a competitor, any respondent would have to estimate freight costs from each of the other plants to each of the other customers and, if it were to be matched, adjust its own base price, freight charge or both to do so. This in turn would produce inequality among respondents' [86] prices to its own customers and require further adjusting. Moreover, estimating prices based on costs would be hazardous, since, even if the cost estimates were correct, the competitor might not charge freight rates reflecting costs. That, in fact, is the predominant pattern now since prices do not even attempt to reflect varying transportation rates.[85]

Respondents argue that they could rely on information from cus-

[84] DuPont apparently made a number of errors in one ambitious attempt to calculate minimum freight costs to every domestic refinery from the closest antiknock compound plant. (Kripphane, Tr. 5108–12) This complex process would necessarily be taken on a periodic basis under respondents' scenario.

[85] To the extent respondent argues that freight cost estimates can be easily made based upon freight rates fixed and published by government agencies, we note that Congress has enacted legislation giving more flexibility to carriers in setting freight rates. Staggers Rail Act of 1980, Pub. Law No. 96–448, 94 Stat. 1895 (1980). We do not rely on this statutory development to conclude that uniform delivered pricing has facilitated anticompetitive price uniformity in the past and we consider it only for the purpose of determining the need for and effectiveness of a cease and desist order. Even with published rates for common carriers, sellers have been free to deviate from these rates in quoting total prices to customers.

tomers to match rivals' delivered prices without having to estimate freight rates based upon information about customers. As Ethyl's counsel puts it, "[E]ven in the absence of uniform delivered pricing respondents could immediately learn of and match one another's effective prices, either by talking to customers or by studying published freight rates." (EAB at 47) In contrast, however, DuPont's Director of Marketing testified that F.O.B. plant pricing to a large customer could lead to "a general deterioration in the overall pricing of antiknock compounds." (Tunis, Tr. 441) This statement strongly suggests uniform delivered pricing is necessary to avoid introducing **[87]** uncertainty and complexity into the process of price-matching, resulting eventually in price competition.[86]

The scenario proposed by respondents—facile price-matching by calculations of rivals' freight costs—is extremely difficult to accept. At the very least, it posits that respondents would begin to match prices on a customer by customer basis since competitors would not be quoting all customers the same delivered price. In short, notwithstanding Mr. Krippahne's testimony, we believe the preponderance of the evidence shows that it would have been considerably more difficult for respondents to achieve the high degree of price matching that occurred during the 1974 to 1979 period without the convenient common benchmark of uniform delivered prices.

Respondents offer a number of justifications for the use of uniform delivered prices, pointing to consistent customer testimony favoring the practice, the hazardous nature of the **[88]** materials and the desire by customers to avoid responsibility for delivery, and the efficiencies in avoiding the cost of calculating freight rates on an individual basis. We discuss each of these in turn.

As to the argument that customers desired delivered pricing, it is clear from the record that customers periodically requested that respondents quote prices on a F.O.B. manufacturing plant basis. In addition, the appropriate remedy in this case, as proposed by the ALJ, is not to require all prices be quoted on an F.O.B. basis but to give customers this option. Thus, customers who prefer not to negotiate on an F.O.B. plant price will continue to purchase on a delivered price basis. Finally, we note that customers view the challenged practices

[86] It has been asserted by a number of commentators that delivered pricing in a tight oligopoly is necessary to maintain stable pricing and avoid a breakout of price competition. "If the discrimination [in freight absorption] is unsystematic both mills will be uncertain how low a price they must quote to win an order in their home territories. . . . such uncertainty can precipitate a breakdown in oligopoly discipline, culminating in a general erosion of the price structure, cuts in the announced F.O.B. mill price, and perhaps even outright price warfare." Scherer, *supra*, at 327. *See also, e.g.*, Stigler, *The Organization of Industry* 161–162 (1976). Respondents also suggest that freight rates are insignificant because they are a small portion of the price. (*See* IDF 190). However, small changes in price inevitably introduce complexities into price-matching which complicate the overall pattern and thus have more impact on competition than suggested by the portion of total costs. The importance of even small changes is indicated by respondents' concern about precise matching of prices and effective dates before the price change "rounds" of announcements and adjustments were completed.

from a particular perspective—the effect on their individual firms if the practice is changed as to them. It is difficult for any customer to view the desirability of the challenged practice as turning on its effect on overall price competition—a conclusion which requires a complex analysis of the structure of the industry and assessments by economic experts. No doubt, if asked, every customer would testify it desires price competition which could lead to lower prices.

We also reject the argument that the toxicity of the materials justifies a practice with such an effect on price competition. First, customers, under our order, are free to continue to purchase products on a delivered basis. Second, customers are free to negotiate when the risk of loss passes from the seller to the buyer. The carrier is ultimately responsible **[89]** for safe intra-transit delivery in the absence of a contractual agreement to the contrary. U.C.C. Section 2–509.

Finally, we consider the argument that delivered pricing reduces costs by avoiding the need to estimate freight charges on an individual transaction basis. While we do not necessarily disagree with this argument as a general proposition, we note that this argument is inconsistent with respondents' contentions that the process of estimating freight costs is easily accomplished. There was testimony that respondents could use published freight information to determine rates between different points. (IDF 187) However, it is a much stronger proposition that a single seller can calculate its own freight rates to various parts of the country on a predictable basis, given its knowledge of its own modes of transportation, shipping volumes, etc., than that respondents could easily regularly calculate competitors' freight costs for purposes of facile price-matching. Evidence was offered at trial that some respondents already calculate freight costs to insure they are using low-cost shipping methods and the carrier has not made errors in calculating costs. (CPF 10–12) To the extent, as respondent argues, that most customers want to purchase on a delivered price basis, the costs of calculating freight rates will occur only for a minority of transactions. Given this evidence, we conclude that the advantages of optional F.O.B. pricing are not outweighed by the limited costs of each respondents' own freight calculations. **[90]**

There is also a failure of proof on the novel proposition that smaller refiners tend to be advantaged over large refiners by delivered pricing. (*See* IDF 19)

4. *Findings of Liability*

4.1 *Liability of Ethyl and DuPont*

Based on our review of the market and the effect of the challenged practices, we conclude that the combined use by Ethyl and DuPont of "grace periods" in advance of contractual requirements for advance notice, most favored nations clauses, and uniform delivered prices, under the particular circumstances presented here, were unfair methods of competition. The regular use of these "grace periods," in conjunction with the other enumerated practices, contributed substantially to uniform, supracompetitive prices by facilitating systematic price-matching by all members of the industry. There is little doubt that pricing behavior would have been much different had there been no opportunity for the dominant firms to test the waters, then adjust prices according to subsequent pricing moves by the other three competitors.

We emphasize that we have reached this conclusion only after a thorough review of market structure and performance and an examination of the actual effects of these practices on pricing behavior. Thus, we reject the argument that the Courts have upheld advance price announcements as lawful under all circumstances. (*See, e.g.,* DAB 7) The references to the lawfulness of advance price announcements in *Catalano, Inc. v.* **[91]** *Target Sales, Inc.*[87] and *U.S. v. General Motors Corp.*[88] stand only for the proposition that, *standing alone,* without evidence of anticompetitive effects, advance price announcements are not unlawful. However, because of the absence of persuasive evidence that press announcements contributed significantly to the anticompetitive market behavior presented here, we decline to find that press announcements, as used by the parties, were unfair methods of competition. Consequently, we do not need to resolve the issue of when and under what circumstances press announcements may be enjoined because of anticompetitive effects, consistent with the First Amendment.[89]

The use of most favored nations clauses and uniform delivered pricing by Ethyl and DuPont in conjunction with the advance notice practices, under the circumstances of this case, contributed significantly to price-matching and non-competitive market performance. We reject the argument that most-favored nations clauses are inherently lawful because they further the purposes of the Robinson-Patman Act. It is clear that the clauses go farther than contractually binding the company to comply with the Act. In view of their regular use by the dominant firms and the adverse competitive effects demonstrated by the record, we find their use to have been an unfair method of **[92]** competition. We also reject the argument that use by the General Services Administration of the clauses compels a finding that they are lawful under all circumstances. Use of a practice by a govern-

[87] 446 U.S. 643, 647, 649 (1980).

[88] 1974-2 Trade Cas. (CCH) ¶75,253 (E.D. Mich 1974).

[89] *See Central Hudson Gas & Electric Corp. v. Public Service Commission,* 447 U.S. 557, 566 (1978) for the general test for constitutional limitations on non-deceptive commercial speech.

ment agency cannot be dispositive as to whether its use by private parties may constitute an unfair method of competition under all circumstances. Our decision today does not find use of the clauses *per se* unlawful, only prohibited under particular circumstances such as those presented here.

We also reject arguments that uniform delivered pricing has been upheld as *per se* lawful by the courts or the Commission. A Commission Advisory Opinion cited by respondents[90] dealt with the requirements of the Robinson-Patman Act and was limited to the facts presented there. Nor do we read *Boise Cascade*[91] to affirm the lawfulness of uniform delivered pricing. The *Boise* court holding was limited to the proposition that there was insufficient evidence of actual adverse effects on competition to sustain a finding that the base point pricing scheme reviewed there was an unfair method of competition.

Here we are not dealing with the requirements of the Robinson-Patman Act's prohibition of price discrimination which substantially lessens competition. Instead we are faced with a systematic use by all industry members of uniform delivered prices in a competitive environment highly susceptible to uniform, supracompetitive pricing and which, in fact, displayed **[93]** highly coordinated price changes over a prolonged period. Respondents' plants are scattered across the country and more than 150 industry customers are similarly distributed nationwide. The industry's structure is strikingly non-competitive as is the industry's pricing performance. The record shows that, in the absence of uniform delivered pricing, it is highly likely that variations in price would occur, based on distance and mode of transportation. Moreover, some customers would desire to purchase products on an F.O.B. manufacturing site basis. Further the record shows that the feasibility of price-matching based estimating rivals' freight rates is quite limited. Expert testimony is divided as to the effect of uniform delivered pricing in this industry, though there is general agreement that delivered pricing can contribute to non-competitive pricing under some circumstances. Finally, conventional economic scholarly analysis of this practice is that it may serve as a device for reducing price competition, whether it is a result of express agreement or conscious parallel behavior. Under these circumstances we believe it is reasonable to infer that the individual use of uniform delivered pricing by respondents reduced price competition.

We believe the record shows that use of these three practices by Ethyl and DuPont substantially lessened price competition. Nevertheless, it is, as a practical matter, impossible to assess the precise contribution each of these **[94]** practices made to reducing competi-

[90] *See* Advisory Opinion Digest No. 194, 73 F.T.C. 1309 (1968).
[91] *Boise Cascade Corp. v. FTC*, 637 F.2d 573 (9th Cir. 1980).

tion. It is possible that, in the absence of uniform delivered pricing, the system of advance price announcements with a grace period for competitors' responses would not have functioned as such an effective device for coordinating pricing moves. Similarly, most favored nations clauses might have been ignored if advance announcements had not been utilized in a way which facilitated pricing coordination. Nevertheless, we feel confident in concluding that each of these practices reinforced the effect of the other and made a significant contribution to reducing contribution.

Admittedly, it is not possible to make precise estimates as to how the market would have functioned without these practices. Inevitably, we must draw certain inferences about the likelihood that price competition will improve in this industry in the absence of these practices. Section 5, and much of antitrust analysis generally, does deal in probabilities. In our view the performance of this industry over the relevant period and the strong factual record linking the challenged practices with poor pricing performance provide an ample basis for concluding that it is more likely than not that the challenged practices reduced competition.

As described further below, we believe there is a strong likelihood that price competition may be restored to this industry by prohibiting Ethyl and DuPont from use of most favored nations clauses, the exclusive use of uniform delivered pricing and the use of "grace periods" prior to advance announcements of price increases. The ban on most favored nations clauses by **[95]** Ethyl and DuPont is warranted because the record shows they inhibited discounting by both companies and they increased the confidence of each that the other would not discount. In addition, the procompetitive justifications for these practices proffered by respondents are not persuasive. They essentially amount to a claim that individual customers prefer them because no single customer wants to be at a price disadvantage. As we state elsewhere, this is an understandable perspective from the point of view of an individual customer that is not necessarily consistent with the long run interests of all customers in price competition.

We prohibit uniform delivered pricing because its consistent use has been shown to greatly aid in coordinating pricing in this poorly performing industry and, consequently, in reducing price competition. The introduction of variations in the terms upon which individual customers may purchase antiknock compounds should go far in disrupting the well-developed system of price-matching followed in this industry. Consequently, we do not believe it is essential to ban flatly advance price announcements, particularly in light of the advantages of forward ordering to customers. A ban on the "grace period" prior to the advance notice required by contract will eliminate the device used by respondents to "test the waters" of a possible price increase. As described above, the pattern followed by the respondents quite consistently was the announcement of price increase by either Ethyl or DuPont sufficiently in advance of the 30 day notice period to allow the other major rival to **[96]** communicate whether it would go along with the increase and declare an identical price effective on the same day. All of the 24 price increases examined by the ALJ (*see* App. D to the Initial Decision) were initiated by Ethyl or DuPont. In each case a few days extra notice, in addition to the 30 days required by contract, was provided by the initiator. In each case, the other major rival responded to the initiator within the grace period and in almost every case, the two small respondents were able to respond within the grace period. In the great majority of cases, the response by the major rival was to match the initiator's increase. In the few cases where the response was to announce a different price, the initiator (or the company making the second move)[92] was able, within the grace period to readjust. Industry testimony, discussed above, confirms the key role of the "grace period." Because of the important role played by this "grace period" we limit our advance announcement ban to this **[97]** practice. This decision is within the discretion of the Commission to fashion remedies which are reasonably related to the unlawful practices.[93]

It is true that respondents may be able to avoid the impact of this restriction by developing a pattern of readjusting during the advance notice period. (*See, e.g.,* the argument in EAB at 41) For example, if Ethyl announced a price increase on January 1, effective in 30 days, and DuPont announced an identical change on January 3, effective in 30 days, Ethyl could readjust its effective date. At the very least, however, such a scenario complicates price-matching considerably because Ethyl may not learn of DuPont's new effective date immediately upon DuPont's announcement, thereby making it impossible to match it identically. Similarly, PPG and Nalco may delay somewhat in making a change, necessitating Ethyl's waiting an additional period before deciding to announce a new effective date. Presumably, DuPont could itself respond by revising its effective date, but the process is a good deal more complex. Combined with a ban on the exclusive use of uniform delivered pricing and the variations in prices introduced by periodic F.O.B. manufacturing **[98]** plant prices, we

[92] For example, in the case where both Ethyl and DuPont made simultaneous announcements, the one announcing the higher price typically adjusted.

[93] The general principles concerning the discretion of the Commission in fashioning relief were recently stated in *Sears Roebuck and Co. v. FTC,* 676 F.2d 385 (9th Cir. 1982). The Commission "has wide latitude for judgment [as to the proper remedy] and the courts will not interfere except where the remedy selected has no reasonable relation to the unlawful practices found to exist." *Jacob Siegel Co. v. FTC,* 327 U.S. 608, 612–13 (1946). Here we use our discretion to select the most narrow remedy consistent with the need to assure a likely return to price competition in this market.

believe the prospect of highly uniform prices moving in lock-step fashion is substantially reduced.

4.2 *Liability of PPG and Nalco*

The record shows that the dominant firms in this industry during the relevant period were Ethyl and DuPont, with an average combined share of about 70%. PPG, the third largest firm had an average share of 17.5% and Nalco's was 12.5%. (IDF 48) PPG and Nalco did not use certain of the challenged practices as consistently as Ethyl and DuPont, and both engaged in more extensive off-list pricing than the two larger firms. A substantial portion of PPG's sales—58% of all sales, including co-producer sales—were made at a discount off list. (IDF 66) Over 80% of Nalco's sales were made at a discount. (IDF 78) Together these two companies made virtually all the discounted sales in the industry during the relevant period. Consequently, in this section, we discuss considerations of liability with regard to PPG and Nalco, including any relevant differences between the two smaller firms and their larger rivals.

As to advance list price announcements, both PPG and Nalco regularly followed this practice. PPG's standard sales agreement included a commitment to give 30 days' advance notice as did Nalco's. (IDF 110–111) While some of Nalco's contracts did not contain the provision, its standard practice was to provide notice. While it is true Nalco did not provide over 30 days' notice, it did not do so because it never functioned to initiate a change in industry list prices and consistently waited until **[99]** after the first and second pricing move (if any) before following the price leaders. As to press announcements, PPG and Nalco followed the same practice of releasing their new list prices to the business press. There was no significant difference among respondents in this regard.

Both PPG and Nalco quoted list prices on a uniform delivered basis. Nalco argues that, because of its extensive discounting off list, and because list prices were quoted on a uniform delivered basis, most sales were not made on this basis. On the other hand, all Nalco sales at list were on a delivered basis, and all discount sales were made on a delivered basis. The record discloses no instance in which Nalco quoted a price on an F.O.B. seller's plant basis or explicitly reduced prices because of lower freight costs. Thus, a more accurate characterization is that Nalco typically discounted, but all list prices and the basis for all discounts were uniformed delivered prices.

Not all respondents used a most favored nations clause consistently. PPG's standard contract did not have the clause and it used it infrequently. Nalco used it in a minority of cases.

In determining the significance of PPG and Nalco's deviation from the more rigid patterns of their larger competitors, we are concerned with whether the practices followed by them contributed in a significant way to the anticompetitive pricing performance of the industry and whether an order against them is in the public interest. In assessing these considerations we are mindful of both the practical future effect of any order as well [100] as equity among respondents. For example, it is possible that either Ethyl or DuPont could be allowed to engage in any of the challenged practices in the future with no harmful effect as long as all other industry members are banned. This anomalous result, if followed in issuing an order, would lead to an arbitrary and inappropriate application of the Commission's authority, however, and must be avoided. Consequently, the core question is whether any of the practices engaged in by PPG and Nalco contributed to competitive harm set out in the record and whether there is a meaningful possibility of recurrence in the absence of an order. For the reasons discussed below, we believe liability should be found for both Nalco and PPG, but we also conclude no order provisions are warranted as to either company.

As for use of most favored nations clauses, the ALJ did not find Nalco liable for use of these clauses, and the complaint did not allege PPG used them. Nalco did not use the clauses as consistently as did Ethyl and DuPont and the record does not support a finding that the use of these clauses by Nalco had a significant effect on the overall pricing pattern.

We understand the ALJ to have issued an order prohibiting most favored nations clauses for PPG and Nalco on the theory that they may have difficulty competing unless they are able to remove them unilaterally from their contracts despite his finding that their use was not significant. (IDF 166, 152) Although there may be circumstances under which an order provision based on this rationale is appropriate, we decline to do so here, in large part [101] because there is no indication in the appeal briefs of either Nalco or PPG that they believe such an order provision is in their interest.

The participation by PPG and Nalco in the rigid pricing patterns followed by the entire industry, however, justifies a finding of liability for the use of uniform delivered pricing. Neither company broke the pattern of quoting identical delivered list prices during the relevant time period. Neither attempted to restrain a list price increase by failing to follow the pricing leaders or by quoting list prices on other than a delivered basis. Moreover, it is clear that Ethyl and DuPont paid attention to the price moves of the two smaller companies and, particularly in the case of PPG, were not certain that a coordinated pricing move had been successful until PPG had responded. On the other hand, neither initiated a price increase and, consequently, their use of "grace periods" in advance of contractually required notice was of marginal significance.

As in the case of PPG, we conclude Nalco's discounting was sufficiently restrained so as not to upset the prevailing market equilibrium. It is true that Nalco and PPG have introduced some competitive element into the market. However, for purposes of determining liability, the question is not whether these respondents should be punished or rewarded for pricing restraint but whether their practices contributed to anticompetitive price uniformity. This record demonstrates that they did.

We do not conclude, however, that the public interest requires placing Nalco or PPG under the requirements of a cease **[102]** and desist order. As discussed further below, PPG plans to withdraw from the industry within a few months of the beginning of 1983. The new industry structure—likely to remain stable for the foreseeable future—will consist of two dominant firms and one smaller firm. Nalco never initiated a price increase during the relevant period and has consistently followed a strategy of matching the industry leader's list prices while making the great majority of its actual sales at a discount from list. It is unlikely that Nalco will adopt a strategy of initiating price increases in the future, and, consequently, an order provision barring use of pre-contract announcements, such as we include in our order applying to Ethyl and DuPont, is unnecessary.

As for uniform delivered pricing, it is true that Nalco has not deviated from setting list prices on this basis but, if Nalco's pattern of discounting is continued, most of its sales will actually not be made at list price. By far the primary influences in stabilizing and coordinating prices at supracompetitive levels have been the two dominant firms. An order which requires these two firms to offer products on an F.O.B. plant basis will likely eliminate the influence of delivered pricing in stabilizing prices at supracompetitive levels, making such an order provision against Nalco less necessary. A further consideration is that, for the reasons discussed below, we do not enter an order provision against PPG and, therefore, we are less inclined to issue an order against the single remaining non-dominant firm in this industry. **[103]**

4.3 *PPG's Motion to Dismiss*

Subsequent to oral argument, PPG filed a motion to dismiss the complaint as to it on the grounds that it planned to discontinue production of antiknock compounds on December 31, 1982 and to withdraw completely from the industry a few months thereafter. PPG attached affidavits to its motion from responsible corporate officials attesting to these and related facts. PPG argued that the imminent withdrawal from this industry made the proceeding moot as to PPG and precluded a determination that an order against it would be in the public interest. Complaint counsel oppose the motion on the grounds that: 1) it is premature to consider a claim of mootness until PPG has actually withdrawn from the industry; 2) PPG has failed to show wrongful behavior cannot reasonably be expected to reoccur; and 3) there is a "compelling public interest" in resolving the legality of PPG's conduct.

Complaint counsel do not question the factual premises of PPG's motion—that it will completely withdraw from the industry within a few months of the beginning of 1983. Consequently, for purposes of our consideration of PPG's motion, we accept this premise as correct. However, a stated intention to withdraw from an industry, or even an actual withdrawal, does not necessarily require a dismissal of a complaint or preclude entry of an order because, *standing alone,* these developments do not insure that there is no "cognizable danger of recurrent **[104]** violation . . ."[94] Order provisions may be appropriate even if the respondent has ceased production in the industry which was the focus of the complaint.[95] An order may be appropriate if the practices which are the subject of the order may be employed in other industries or where re-entry is a reasonable possibility.

The fact that a particular respondent is clearly abandoning an industry is more significant, however, when there is no real likelihood of it re-entering the industry and when the order provisions under consideration apply only to practices in that industry. In this case, the statements of company officials, the decline in demand for antiknock compound, resulting from developments in government regulation, and the existing capacity of the remaining industry members show re-entry is highly unlikely.

A further consideration in concluding that an order against PPG is unwarranted is that, like Nalco, PPG's conduct has not been nearly as central to the overall industry pricing pattern as that of the dominant firms. PPG never initiated a pricing increase during the relevant period and most of its sales, including co-producer sales, were at a discount. PPG's withdrawal from the industry and the less compelling need for an order, compared to the considerations applicable to Ethyl and **[105]** DuPont, lead us to conclude an order against PPG is not required by the public interest.

4.4 *Mootness*

In their appeal briefs respondents argue that the case is moot because the limited life expectancy of the industry makes relief un-

[94] *United States v. W.T. Grant Co.,* 345 U.S. 629, 633 (1953).
[95] *See National Lead Co. v. FTC,* 227 F.2d 825, 839–840 (7th Cir. 1955), *rev'd on other grounds,* 352 U.S. 419 (1956).

necessary. Further, they say that price competition has improved during the relevant time period.[96] The ALJ found that a significant market for these products would continue at least through 1990. (IDF 43) He also found that the market may stabilize at an annual level of about 300 million pounds if heavy-duty trucks are exempt from EPA restrictions. (IDF 43, 45)

Subsequent to oral argument, DuPont filed a motion to dismiss, alleging developments since the record closed provided additional evidence that the public interest would not be served by continuing this proceeding. These new developments consist of an action by the Environmental Protection Agency to further reduce the permissible use of antiknock compound for environmental reasons. DuPont makes the allegation, unrefuted by complaint counsel, that in October 1, 1982, EPA promulgated new regulations which will reduce demand for antiknock compounds from 260 million pounds in 1985 to 90 million pounds in 1990. The **[106]** current price for antiknock is $1.07 according to DuPont (see memorandum supporting the motion at 6), and, consequently, total market sales will decline to something above $90 million by 1990.

DuPont's essential factual assertions are uncontested by complaint counsel and, for purposes of ruling on its motion, we take them as true. We note at the outset that DuPont does not contend that the market for antiknocks will soon disappear completely. Its principal contention appears to be that total industry production now and in the near future is so insignificant in size that the public interest could not be served by a Commission order. An industry with sales ranging from $260 million downward to $90 million for the coming 7 years is hardly insignificant, however. DuPont has pointed to no case where an industry of this size has been deemed too small to justify a Commission order.

DuPont also argues that the current "value" to buyers exceeds the price at which antiknocks are sold. This argument is based on the affidavit of a company official attesting to a purchase of an entitlement for a price suggesting the actual "value" to the buyer is worth more than twice the alleged market price. Even if certain buyers were willing to pay more for antiknocking compounds in certain quantities than prices at which they were offered, we could not conclude that the prices were equivalent to marginal cost or, more generally, that the market was performing competitively.

A more difficult question is whether declining demand may create

[96] An argument that market conditions have changed sufficiently to obviate the need for relief should be distinguished from the defense that the challenged practices were abandoned. We understand respondents to argue that a defense of abandonment could apply to press releases because these were generally halted before they were aware of the Commission's investigation leading to this proceeding. Because we do not find liability for issuance of press releases we do not address the possibility of an abandonment defense.

such excess capacity that price competition will be **[107]** stimulated. In this regard, we should recall the possible effects of excess capacity on industry behavior. First, excess capacity discourages new entry and in this sense contributes to the stability of uniform, supracompetitive pricing. Second, excess capacity may create additional incentives to collude or price interdependently in order to preserve profits in a period of declining demand. Finally, it may create incentives for discounting by encouraging one or more industry members to expand output and market share by aggressive pricing.

Respondents point to this last factor, and what they argue to be increased price competition, as evidence of a healthier competitive environment. The ALJ rejected this argument. After examining the level of discounting, profit levels and other factors, and how they may have changed in the recent past, he concluded that the evidence did not support a finding that the market had changed so substantially that relief was unnecessary. For example, market shares have remained relatively stable through the first half of 1980. (CX 2073; REX 324A–§17) Ethyl and DuPont's profits have remained relatively high through 1979. (IDF 163; IDF App. J)

As to changes in the level of discounting, complaint counsel's expert witness, Dr. Hay, agreed that there was some improvement in the level of competition during the relevant time period, primarily attributable to the decline in demand. (Hay, Tr. 3863) However, he also testified that prohibiting the **[108]** challenged practices in the future would be likely to "improve the vigor of competition or the speed with which that vigor is achieved." (Hay, Tr. 3837)

The fact that there were some price reductions during 1979 and 1980 during a period of falling demand illustrates that the industry was not totally immune to market forces of supply and demand. However, the fact that prices fell while costs were generally increasing (Robinson, Tr. 1230–31)—and profits still remained high—is a good indication of the degree to which prices were maintained at supracompetitive levels before the limited increases in price competition.

We do not conclude from these limited changes in market performance, however, that the industry conditions have so markedly changed that relief is not warranted. There has been no new entry and there is likely to be none.[97] PPG's stated intention to withdraw from this industry changes the industry structure to an even more concentrated oligopoly, dominated by the two larger rivals.[98] Market

[97] PPG, for example, relies upon the ALJ's finding of high barriers to entry in supporting its motion to dismiss. DuPont's motion to dismiss is predicated on an assumption of a declining entry, a condition consistent with our assumption of no significant new entry.

[98] PPG's production capacity will not be sold to an existing competitor or potential entrant, but will be sold for scrap. Reply of Respondent PPG Industries, Inc., to Complaint Counsel's Memorandum of Opposition to Motion for Dismissal of PPG, Dec. 21, 1982 at 2.

shares have remained relatively stable and profit levels remain relatively high. While there have been limited price decreases, a decrease in **[109]** price and profit levels does not preclude a finding of continued anticompetitive effects of the challenged practices. (Hay, Tr. 4385–86; Mann, Tr. 5583–84) In fact, the only substantial change in industry conditions—sharply declining demand—will be negated if demand stabilizes at a lower level. In that event, industry conditions could reach a new equilibrium at a reduced level of output with the same poor competitive environment as at the beginning of the relevant period.

In short, we do not believe the limited evidence of a healthier competitive performance during the recent past, primarily resulting from a decline in demand, or developments in government regulation which will further reduce demand warrant a finding that relief is unnecessary. This change does not represent the type of major structural change that negates the assumptions upon which the findings of anticompetitive effects are based.

4.4 *Vagueness of the Standard*

Respondents argue that Section 5 was not designed to address practices which are neither collusive nor monopolistic. In addition, they assert that there are compelling policy reasons why Section 5 should not be used to reach respondents' conduct. As discussed in Part 1 of the opinion, the Commission believes that both Congressional intent and subsequent court interpretations of Section 5 provide a clear legal basis for the condemnation of practices that are shown to harm competition, such as those challenged here. Moreover, we reject the assumption that anticompetitive practices that exist without the **[110]** benefit of an agreement, should not be subject to Section 5 because the legal standard is too vague.

Whenever conduct is examined for a potential antitrust problem other than limited *per se* violations, a detailed analysis of a number of factors is required. For example, conduct alleged to be monopolistic or an attempt to monopolize, in violation of Section 5 or Section 2 of the Sherman Act,[99] is analyzed in the context of an industry's structure and performance as well as the purpose and effect of the questioned conduct.[100] Likewise, in the areas of exclusive dealing and territorial restrictions, when agreements are scrutinized under a rule of reason for a violation of Section 5 or Section 1 of the Sherman Act, similar factors are considered.[101] Thus, the simple admonition to

[99] *See, e.g., Borden (Real Lemon),* 92 F.T.C. 669 (1978), *enforced, Borden, Inc. v. FTC,* 674 F.2d 498 (6th Cir. 1982).

[100] *See, e.g., E.I. DuPont De Nemours & Co.,* 96 F.T.C. 653, 745 (1980) (complaint dismissed).

[101] *See, e.g., Tampa Elec. Co. v. Nashville Coal Co.,* 365 U.S. 320 (1961) (requirement contracts); *Continental T. V., Inc. v. GTE Sylvania Inc.,* 433 U.S. 36 (1977) (territorial restrictions); *Beltone Electronics Corp.,* Docket No. 8928 (complaint dismissed, July 6, 1982) [100 F.T.C. 68] (territorial restrictions).

"avoid agreements" is often of little assistance to practical business decision-making in avoiding conduct which may be judged unlawful under a rule of reason.

Our objective in the analysis of this matter has been to articulate a clear and straightforward legal standard that will enable business and antitrust counsel to conduct a manageable evidentiary inquiry that will provide a degree of certainty and [111] guidance as to whether certain practices violate Section 5, by facilitating price uniformity or other anticompetitive coordinated conduct.

In summarizing the standard we have applied here, it is useful to restate the steps in our inquiry. First, we examined the structure of the industry to determine if it was susceptible to practices which might facilitate anticompetitive interdependent conduct—in this case uniform, supracompetitive pricing. We found extremely high concentration, high barriers to entry, a homogeneous product, inelastic demand, in addition to other factors indicating the industry is prone to interdependent pricing. Second, we assessed the performance of the industry to determine if it was consistent with the poor competitive performance that would be expected from this market structure. We found relatively high profits, prices in excess of marginal cost, relatively stable market shares, rising prices in the face of sluggish demand and excess capacity, limited discounting, highly uniform prices, lock-step changes in prices, along with additional factors indicating poor competitive performance. Finally, we examined evidence that the particular challenged practices actually had an effect on significantly reducing price competition. This evidence included testimony and other statements by industry officials and customers, an examination of the use and nature of the four practices, expert testimony and accepted economic theory and scholarly analysis. We found that there was a close relationship between three of the challenged practices and the pattern of pricing observed in this industry, [112] and we concluded that it was highly unlikely that pricing would have occurred in such a non-competitive fashion in the absence of these three practices. Finally, we examined the possible procompetitive justifications for these practices.

We disagree with the arguments put forward by respondents that a prohibition of particular facilitating practices which are shown to have made a substantial contribution to coordinated pricing creates an unduly vague standard of unlawful behavior. We emphasize that we have not found coordinated pricing itself to be unlawful, only specific practices which are shown to promote it. Professors Areeda and Turner have pointed to problems in identifying and prohibiting interdependent pricing by oligopolists:

. . . interdependent non-competitive pricing, devoid of any additional elements of collusion, does not lend itself to treatment as an unlawful conspiracy. Not only is an injunction against "agreement" insufficient, but it is impossible to formulate a more specific injunction that is both judicially [113] administratable and consistent with the rules governing monopolists.[102]

In contrast, however, Areeda and Turner conclude that particular practices which facilitate coordinated pricing may be prohibited:

No serious practical or logical problems are encountered in enjoining individual oligopolists from quoting delivered prices only . . . To be sure, such injunctions run beyond a simple prohibition against "agreeing" on such matters, because more specific direction is necessary to assure termination of the illegal action, but they are as readily enforceable.[103]

Here, we do not face the difficult issue of determining under what circumstances parallel use of practices which results in coordinated behavior may constitute an agreement for purposes of Section 1 of the Sherman Act. Instead, we believe a more [114] manageable task and one that presents less conceptual difficulties is proscribing such practices as unfair methods of competition. This approach also has the advantage of not extending liability to private causes of action, resulting in treble damage liability, or creating a prima facie case in a private treble damages action.[104] We do not take the view that Section 5 can be used to prohibit any practice if doing so could improve competition to any extent. Consequently, we do not view any practice that theoretically reduces uncertainty about competitors' likely reactions to pricing moves as unlawful. Here, however, we are faced with an industry exhibiting strikingly poor competitive structure and performance and where the evidence shows particular practices have contributed to consistent uniform, supracompetitive pricing. Not only has certainty as to competitors' prices been increased substantially but the industry exhibited a consistent pattern of price matching, including price leadership by the two industry leaders, a well-devel-

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[102] Areeda and Turner, *supra*, Vol. III at 362. On the other hand, Posner argues that economic evidence in price-fixing cases may allow a finding of violation based on tacit collusion without evidence of actual communication. Posner, *Antitrust Law: An Economic Perspective* 76 (1976). As to feasibility of banning specific individual practices, we note that a relatively recent Justice Department consent decree prohibits two producers of heavy electrical equipment from engaging in a number of practices which are related to price coordination. *U.S. v. General Electric*, 1977 Trade Cas. ¶61,660 (E.D. Pa.). *See also FTC v. National Lead Co.*, 352 U.S. 419 (1949), upholding a Commission order enjoining individual use of delivered pricing practices.

[103] Areeda and Turner, *supra*, Vol. III at 362. Posner also agrees that "basing-point systems should be enjoined under Section 1 of the Sherman Act regardless of whether there is proof of actual agreement, because the plain purpose of such systems is to foster monopoly pricing." *Antitrust: Cases, Economic Notes and Other Materials* 135 (1974). Thus, these divergent schools of thought as to the proper analysis of oligopoly pricing agree that certain practices which facilitate coordinated pricing should be enjoined, without traditional evidence of agreements, even though both views consider the prohibition can be based upon a finding of a Section 1 conspiracy.

[104] Congress has recently enacted the Export Trading Company Act which provides a limited private cause of action based upon the FTC Act. Pub. Law 97–290 (1982). While there have no judicial interpretations under this act, we believe the limitations of the action make it unlikely that private actions could engender substantial additional business uncertainty as to use of facilitating practices.

oped system for announcing price by "testing the waters," a response by the other major industry members, and subsequent falling into line by the two smaller competitors.

In such a case, practices which contribute significantly to reducing competition with no offsetting procompetitive [115] justifications and which are closely analogous to recognized violations of the Sherman Act are clearly within the scope of unfair methods of competition.

5. *Remedy*

The ALJ entered an order dealing with the four challenged practices. We modify this order in a number of respects for the reasons we have discussed as well as those cited below. Complaint counsel have also appealed the ALJ's order in some respects. Their appeal is dismissed to the extent inconsistent with the order we have entered.

As discussed above, we do not agree with the ALJ that the order should prohibit all respondents from announcing to actual or potential customers the price of antiknock compound in advance of its effective date. In addition, we reject the ALJ's inclusion of a provision prohibiting communication of price information to other respondents except in connection with a sale to or purchase from another respondent.[105] We believe that a ban on the announcement of a price change in advance of that required by contract with customers, combined with other order provisions, is likely to disrupt the coordinated pricing practiced in this industry. [116]

Our order prohibiting price change announcements in advance of the period required by contract does not violate the First Amendment. This restriction constitutes a narrow limitation on one type of commercial speech which has been shown to result in substantial harm to competition. We believe the restriction is as narrowly circumscribed as possible, consistent with remedying the practices found to harm competition. Consequently, this limitation meets the test for permissible limitations of speech stated in *Central Hudson Gas & Electric Corp. v. Public Service Commission*[106]:

> At the outset, we must determine whether the expression is protected by the First Amendment. For commercial speech to come within that provision, it at least must concern lawful activity and not be misleading. Next, we ask whether the asserted governmental interest is substantial. If both inquiries yield positive answers, we must determine whether the regulation directly advances the governmental interest assert-

[105] In this connection, we deny complaint counsel's appeal of the ALJ's decision not to ban interproducer sales. Complaint counsel's theory is that interproducer sales convey price information which can facilitate anticompetitive price matching. We do not believe this limited exchange of price information will be significant in the context of other order provisions.

[106] 447 U.S. 557 (1980).

ed, and whether it is more extensive than is necessary to serve that interest.[107]

In *National Soc. of Prof. Engineers v. U.S.*,[108] the Court upheld a ban on a professional association's adopting certain opinions, policy statements, or guidelines. Despite a claim that the ban was constitutionally impermissible, the Court stated such prohibitions may be an "unavoidable consequence of the [117] violation."[109] The question is whether "the relief represents a reasonable method of eliminating the consequences of the illegal conduct."[110] We believe this narrow limitation on respondents' commercial speech is reasonable in view of the prior history of anticompetitive effects and the limited burden on respondents' commercial speech in complying.

As discussed earlier, we vacate that portion of the ALJ's order which barred communications to the press of price changes for 30 days following the effective date of the price change. As we noted above, the record is not persuasive in showing that announcements to the press significantly contributed to uniform, supracompetitive pricing beyond that accomplished by announcements to customers. However, we extend the proscription on price announcements in advance of the contractual period to include a prohibition of advance announcements to anyone not in respondent's employ or under contract in connection with selling antiknock products,[111] including press, to avoid respondents' simply using alternative ways of communicating price information in advance of contractual notice requirements. We do include [118] provisos for conveying price information in negotiations or to governmental bodies or by virtue of governmental process which might otherwise violate the order.

Our order also permanently prohibits the use of most favored nations clauses by DuPont and Ethyl but does not apply to PPG and Nalco contracts. The permanent ban is limited to Ethyl and DuPont because of their greater use of the clauses and the more significant effect their use of them was shown to have.

We have also included provisions prohibiting use of uniform delivered pricing unless respondents provide an option to purchasers to buy on an F.O.B. manufacturing plant basis. This was the approach taken in *Boise Cascade*[112] and *Martin Marietta Corp.*.[113] We decline to include the ALJ's additional provisions prohibiting the use of a formula which "systematically" matches the cost of any other produc-

[107] *Id.* at 566.
[108] 435 U.S. 679 (1978).
[109] *Id.* at 697.
[110] *Id.* at 698.
[111] This provision is included to allow respondents to communicate price information in advance of the contractual date to persons, not in respondents' employ, who are nevertheless under contract to assist in marketing or sales, *e.g.*, independent sales representatives, printing companies who must publish price lists, or the like.
[112] *Boise Cascade Corp., supra*, 91 F.T.C. at 109-10;
[113] *Martin Marietta Corp.*, 88 F.T.C. 989 (1976) (consent order).

er or equalizes the cost to customers quoting uniform charges to customers not similarly situated. Further, we decline to accept complaint counsel's proposal to ban any quotations on a delivered price basis. We believe it is enough to disrupt any pattern of price matching to allow any purchaser to buy on an F.O.B. mill basis. The variations introduced into the total prices charged to customers by a certain number of transactions on an F.O.B. mill basis, along with a prohibition on announcements in advance of the contractually required period and most favored nations [119] clauses, should effectively prevent price-matching. This more limited approach also avoids the ambiguities and enforcement difficulties which would follow from including the ALJ's or complaint counsel's approaches to delivered pricing.

DISSENTING STATEMENT OF CHAIRMAN JAMES C. MILLER III

Today the Commission embarks on a bold new adventure to the frontiers of antitrust law, clearing no path for those who follow, and leaving no signposts to guide the inexperienced traveler. I fear that such a journey is fraught with peril for both the explorers and for those required by law to follow the trails we blaze. I therefore decline to join the majority, and hope that the future provides a compass to guide our way along the uncharted path the Commission pioneers.

The Commission's decision creates a new antitrust cause of action that, while construed by the majority to be limited to the Commission's enforcement of Section 5 of the FTC Act, may nonetheless alter radically the scope of permissible business practices available to firms in so-called oligopolistic industries. Because I fear the implications of today's decision are potentially both far-reaching and harmful to competition, I must respectfully dissent. And, because of the many troubling aspects of the majority's lengthy opinion, I feel further compelled to abandon the cardinal virtue of civilized dissenters—brevity.

I. INTRODUCTION AND SUMMARY

In essence, the majority holds today that practices adopted unilaterally by individual firms in an oligopolistic industry may constitute "unfair methods of competition" in violation of Section 5 if such practices "facilitate" interdependent behavior among the oligopolists, even absent any collusive, monopolistic, or predatory [2] conduct. (Maj.Op. at 3, 28–29.)[1] In applying this new legal standard, the majority finds that all four U.S. producers of lead-based antiknock com-

[1] The following abbreviations are used in this opinion:

Maj.Op. - Majority Slip Opinion
ID - Initial Decision Page Number
IDF - Initial Decision Finding Number
Tr. - Transcript of Testimony Page Number
[illegible] Dupont's Exhibit Number

pounds ("antiknocks") have violated the antitrust laws by adopting—at different periods of time and for legitimate business reasons—differing combinations of three so-called "facilitating" practices. Specifically, the majority finds all four respondents—DuPont, Ethyl, PPG, and Nalco—liable under Section 5 for use of uniform delivered pricing. (*Id.* at 2–3, 91–92, 101–02.) In addition, DuPont and Ethyl are also found to have violated Section 5 by using advance notice of price increases and "most-favored-nation" contract clauses ("MFN clauses"), which require the seller to offer a lower price to all buyers if it is offered to any. (*Id.* at 3, 91–92).

Employing what it terms a "rule of reason" approach (*Id.* at 28.), the majority finds that the four respondents—which account for 100 percent of U.S. antiknock sales—have violated the "spirit" of Sherman Act Section 1's prohibition of conspiracies in restraint of trade, as enforced by the Commission through Section 5 of the FTC Act. They are held liable even though no agreement—explicit or implicit—was alleged or proven. Rather, the unilateral adoption by each respondent of one or more of the challenged practices is found to be an unfair method of competition under Section 5. The legal standard proposed as a basis for this finding of liability is that Section 5 empowers the Commission to find that practices, which otherwise may be lawful in and of themselves, may, when used at the same time by members of an oligopoly, facilitate a kind of interdependent behavior that leads to the anticompetitive result the framers of the Sherman and FTC Acts sought to prevent. **[3]**

In dissenting from the Commission's decision in this matter, I do not necessarily reject the general concept underlying the new cause of action created by the majority. At the outset of our review of this matter, I did not reject the idea that it may be both prudent antitrust policy and within the scope of this Commission's legal authority to establish an antitrust rule of law governing "facilitating practices" within an oligopoly. I envisioned such a rule as condemning "lock-step", long-term use by all members of an oligopoly of uniform practices that had no legitimate business reasons, and that could be proven to reduce the overall level of competition by facilitating reductions in industry output of a truly homogeneous product—reductions that could not be remedied either by an existing industry renegade, or by a destabilizing new entrant. While such a rule would face both formidable theoretical hurdles and practical problems of proof, the concept nevertheless seemed a plausible one.

The Commission's experience in deciding the instant matter has, however, served to heighten considerably my skepticism about the theoretical bases and practical utility of such a legal theory. Both the legal standard adopted by the majority and the manner of its application to the record evidence here cause me to question whether antitrust prosecutors and adjudicators are sufficiently sophisticated to surmount the obstacles presented by such a theory. Simply put, can the Commission generate more benefits by invoking the theory correctly than the mischief it can create by applying it erroneously?

I need not reach this difficult question today. Rather, laying my skepticism aside and accepting the theoretical possibility that, as the majority contends, the "collusive result" can occur in the absence of collusion, I would nevertheless reject a finding of liability for any of the respondents in this proceeding. I would do so because: (1) the particular legal standard established by the majority may itself be anticompetitive and contrary to the goals of the FTC and Sherman Acts; (2) that standard is too vague and unpredictable to serve as an understandable guide to business that must follow it; and (3) the majority has applied its own standard incorrectly to the facts in this record. [4]

Before explaining further the basis for my dissent, several preliminary points bear mentioning. First, I concur in the majority's conclusion that respondents' (now-discontinued) use of press releases announcing future price increases does not violate Section 5. (Maj.Op. at 3, 65–68.) Second, while the majority merely "declines to adopt" the ALJ's conclusion of law (at ID 167.) that the remaining three challenged practices are unlawful as "unfair acts or practices" within the meaning of Section 5 (Maj.Op. at 3, 31.), I see no reason to pause there. I would go further and reverse the ALJ's gratuitous conclusion on this point. Although this alternative "unfairness" cause of action was (regrettably) pleaded in the Commission's 1979 Complaint (¶14), this case seems to me clearly to be an antitrust challenge focusing upon alleged harm to competition, not a consumer protection matter concerned with injury to individual consumers.

II. THE MAJORITY'S STANDARD MAY BE ANTICOMPETITIVE

The majority's standard may itself be anticompetitive because its focus is too narrow. It fails to capture the essence of a dynamic, competitive market. By focusing on price competition only—and almost exclusively on list-price competition—it ignores the most important elements of competitive rivalry in this and many other American industries. By finding successful entrants liable for using practices that buyers demand, the standard discourages entry into oligopolistic industries. By focusing on a period in which any incentive to expand and earn additional market share was severely constrained by government controls, the standard fails to allow a meaningful test of its inferences and ignores the historical bases for the challenged practices. By focusing solely on the motives and behavior of respondents, it ignores the important influences of their customers, themselves potential entrants via backward vertical integration.

A. *The Standard Ignores Non-Price Competition*

A standard that focuses exclusively on price competition may be harmful because it ignores other forms of competition that buyers value and that can shape a competitive result. For many years now, many economists have rejected the narrow view that only [5] prices should matter in assessing competition. As Joseph Schumpeter said more than three decades ago:

> Economists are at long last emerging from the stage in which price competition was all they saw. As soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted from its dominant position.[2]

The record here strongly indicates that in the antiknock industry the dominant form of competition is, in fact, along non-price dimensions. These include especially the provision of services related to the safe handling and the safe and efficient use of highly toxic and explosive liquid compounds in the production of high-octane leaded gasoline. Specifically, the ALJ found that safety services are provided because of the "explosive and toxic nature" of the product. (IDF 91.) In addition, complaint counsel's economist expert testified that some of those services are "almost an inevitable part of the [antiknock] product." (IDF 210.) One of the respondents attributed a 35 percent sales gain to ten important customers in 1975 to services it had rendered that year. (IDF 98.) Moreover, there is evidence that the leading firms "literally buried" their customers with services. (IDF 90; *see also* IDFs 91, 99, 102, and 151.) Further, the ALJ found that "the furnishing of services played a significant role in the competitive rivalry between the antiknock suppliers" (IDF 151.), and that "the record is clear that refiners valued the services furnished by respondents and much antiknock business was awarded based on services." (ID 140; *see also* Testimony of Complaint Counsel's Economist Expert, cited at IDF 210.) Remarkably, the majority concedes that this case involves "a market with an emphasis on service rather than price competition" (Maj. Op. at 38.), but ignores the implications of this fact throughout the remainder of its analysis. (*See, e.g., Id.* at 39: "The heart of this case is the need to properly analyze *pricing* behavior in the market for these products.") [6]

Economic theory makes clear that such non-price competition cannot be ignored in assessing competitive performance. As Adam Smith noted in his classic treatise:

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[2] J. Schumpeter, *Capitalism, Socialism and Democracy* 84 (1950).

In a free trade an effectual combination cannot be established but by the unanimous consent of every single trader, and it cannot last longer than every single trader continues of the same mind.[3]

In this industry the product *cum* services—the antiknock product "package"—varies substantially among the four respondents. One respondent provides very few services internally, hiring outside consultants to provide free advice on matters of health and safety and efficient use of antiknock compounds. (IDF 96.) Another respondent furnishes most of its services through "inhouse expertise", such as direct assistance in designing and building customers' plants. (IDF 91.) Another provides computer programming assistance and training of refiners' employees. (IDF 92.) Others innovated a "tolling" arrangement in which waste products from customers' refineries are recycled and used as "scavengers" to improve the "blend." (IDFs 32, 83; and ID 155.) Yet another respondent, in conjunction with a refiner, developed a new product—tetramethyl lead (TML). When blended with the existing tetraethyl lead (TEL) product, TML created new product arrays of varying TML/TEL blends, with varying product performance characteristics.

In addition, all four respondents compete with varied and varying billing arrangements, which they strenuously try to keep secret from their competitors. (IDFs 138 and 183.) All deliver antiknocks at older, lower prices after a price increase has gone into effect. (IDF 81.) This practice is so complex that the ALJ found it would take "a major accounting project" to determine the equivalent amounts of price discounts. (ID 139.) One competitor keeps the arrangements secret from its own sales personnel, issuing the concessions in credit statements to its buyers. (IDF 138.)

The ALJ's findings on this record also show that respondents do learn of their competitors' practices, but not always instantaneously or accurately. For example, [7] sometime in 1977 Ethyl learned (apparently for the first time) that DuPont had been (1) picking up invoices for customers' outside consultants, (2) giving away weigh tanks, and (3) shipping antiknock beyond effective dates at old prices. (IDF 141.) Ethyl also discovered that PPG was giving rebates for customers' outside consulting services. (IDF 141.) Sometime within the period 1975 to 1977, one refiner customer revealed to DuPont a special discount arrangement it had begun with Nalco as early as 1974. (IDFs 68 and 140.) Prior to this proceeding, none of the other three respondents even knew of Nalco's use of MFN clauses, and PPG could not confirm that its rivals used such clauses until the Commission's complaint in this matter did them the courtesy of removing that bit of

[3] A. Smith, *Wealth of Nations* 129 (1937 ed.).

"uncertainty." (IDF 136.) Also, Ethyl erroneously thought Nalco was selling some of its antiknock at F.O.B. prices. (IDF 137.) Both Ethyl and DuPont had difficulty monitoring the "multileg" transactions between PPG and Nalco in which they exchanged or sold TML and TEL. (ID 142.)

If such pricing and quasi-pricing arrangements were difficult for competitors to monitor, it was obviously even more difficult for them to discover the exact value of the numerous varieties of internal service arrangements (such as computer programs, employee training, refinery inspections, and so on). In short, these non-list price competitive arrangements not only benefit refiner-customers, but also make any restriction of output below competitive levels a highly dubious prospect in the antiknock industry. As one commentor observes:

> *Under contemporary, multi-vectored, dynamic competition, the probability of tacit collusion among a few producers is negligible because the decision variables are so numerous that no producer is able to anticipate the precise actions of his competitors.* . . . Clearly, measurement of the effectiveness of competition in a market requires an assessment of *all* vectors, and a summation of their competitive effects. The strength of competition cannot be assessed by confining attention to *prices*.[4] [8]

Yet, the Commission's decision effectively dismisses the record evidence of non-price competition as undesirable, and ignores its potentially destabilizing influence on any supracompetitive industry equilibrium. The majority's principal citation for such an approach (Maj.Op. at 43 n.60.) is a work by Professor George Stigler, in which, according to the majority, he concludes that "price competition is much more effective in increasing output and reducing profits than non-price competition . . ."[5] In fact, the remainder of the very paragraph cited by the majority makes clear that Stigler was referring to what he characterized as an "empirical judgment."[6] Stigler did not say that a competitive result would not occur where non-price competition is possible. Empirical research subsequent to his cited publication has demonstrated that it can.[7] Moreover, Stigler's analysis assumes the existence of a closed market and a collusive agreement. No such conspiracy was alleged or proven in this case.

As Professor (now Judge) Posner observed:

> [I]f other forms of competition—inventory, product quality, *service*, or whatever—are very important, the only effect of eliminating price competition may be to channel

[4] N. Jacoby, *Corporate Power and Social Responsibility* 140 (1973).

[5] G. Stigler, *Organization of Industry* 23–28 (1968).

[6] *Ibid.*

[7] *See, e.g.*, J.C. Miller III and G.W. Douglas, "Quality Competition, Industry Equilibrium, and Efficiency in the Price-Constrained Airline Market," 64 *American Economic Review* 657 (1974).

competitive energies into other, and costly, forms of competition.[8] (Emphasis added)

Or, to quote Professor (now Judge) Bork:

There is no difficulty in explaining the prevalence of product rivalry. Those who see in it the peculiar machinations of oligopolists overlook the obvious fact that consumers are sensitive to much more than price. Most products present a bundle of satisfactions, both functional and aesthetic; product rivalry is essential, particularly in complex products, if the variety of consumer tastes is to be satisfied effectively. Intense product rivalry, therefore, signals not lack of competition but its presence.[9] **[9]**

To adopt a legal standard that disregards these significant non-price aspects of competition—aspects that customers value and that are an integral part of an industry's competitive process—would seem to run directly *counter* to the intent of the authors of the FTC and Sherman Acts that the majority wishes to further. It is indeed ironic that the standard adopted by the majority would tell firms in oligopolistic industries that in the future they should focus their competitive activities on forms of competition more readily detectable by competitors (*i.e.,* list-price competition), thereby making anticompetitive arrangements—whether collusive or interdependent—more readily achievable.

B. *The Standard Ignores Discounting Off List-Price*

Beyond neglecting the many important types of non-price competition just discussed, the majority's myopic fascination with list-price movements also ignores an equally important characteristic of the antiknock industry. Although the majority characterizes off list-price discounting in this industry as "limited" (Maj.Op. at 51, 111.), the record evidence clearly shows that substantial discounting occurred during the "relevant period." The majority concedes that during the 1974–79 period, PPG discounted in about one-third of its sales, and that *a full 58 percent of PPG's antiknock sales (including co-producer sales) were made at discounts off list-price in 1979.* (*Id.* at 44, 98.) Nalco's pricing behavior was even more remarkable. As the majority are again forced to admit, *over 80 percent of Nalco's sales were made at a discount off list-price.* (*Ibid.*) These undisputed figures demonstrate that sales at list price for these two competitors were the exception, not the rule. Indeed, as the majority notes in discussing whether Nalco need be made subject to the Commissioner's order, Nalco made the "great majority" of its sales at a discount from list (*Id.* at 102.), and "[I]f Nalco's pattern of discounting is continued, most of its sales will actually not be made at list price." (*Ibid.*) **[10]**

[8] R. Posner, *Antitrust Law* 60 (1976) (hereafter cited as "*Antitrust Law*").
[9] R. Bork, *The Antitrust Paradox* 190–91 (1978).

With respect to DuPont and Ethyl, the principal form of competition chosen by these two largest antiknock producers was the provision of services and other non-price aspects. However, while the majority finds otherwise, the ALJ correctly found that DuPont and Ethyl did engage in several practices that amounted to a price discount, such as allowing "forward ordering," late billing, and credit arrangements. (IDFs 80 and 88.) In addition, the record discloses at least one instance in which one of those firms in fact granted a discount to a refiner customer over most of the "relevant period". (*See* Maj.Op. at 74 n. 75.)

The ALJ found that the respondents took "extreme measures to ensure off-list pricing information is kept strictly confidential" (IDF 183.), and to keep the "transactions prices" of such arrangements confidential. (IDF 138.) Further, notwithstanding the record evidence of aggressive price competition by the two smallest firms, the majority condemns the "participation by PPG and Nalco in the rigid pricing patterns followed by the entire industry" and states (remarkably): "As in the case of PPG, we conclude Nalco's discounting was sufficiently restrained so as not to upset the prevailing market equilibrium." (Maj.Op. at 101.) Whatever one may conclude as to DuPont and Ethyl, I simply do not believe that the record supports this conclusion as to PPG and Nalco. Once again, I find it ironic that the majority—so anxious to increase "uncertainty" in this industry—finds PPG and Nalco liable because their price-cutting was done secretly, rather than by lowering the published list-price. It is difficult to understand how the majority can square its finding of liability as to PPG and Nalco with its own statement: "It is familiar economic theory that the more complex and more hidden the form of competition, the more difficult is the achievement of coordinated, parallel behavior in an oligopoly." (*Id.* at 43–44.) One result of today's decision may well be that future discounting will occur more often on a list-price basis, where all competitors can more readily detect it and react, according each respondent greater certainty in setting its list-prices. [11]

C. *The Standard Is Too Broad Because It Ensnares PPG and Nalco, Who Were Procompetitive Factors in the Industry*

Perhaps the most disturbing implications of today's decision are raised by the majority's finding that PPG and Nalco are equally liable as this industry's two most successful firms, Ethyl and DuPont. Any lingering doubts about the inappropriateness of the legal standard adopted by the Commission today vanish when one examines the record evidence upon which this liability is imposed. Not only did these smaller firms engage in the challenged practices to a lesser extent than DuPont and Ethyl, but the record demonstrates that their influence on the antiknock industry was markedly procompetitive.

The majority finds both PPG and Nalco liable only for using uniform delivered pricing. (Maj.Op. at 2–3, 100–01.) PPG was not even alleged to have used MFN clauses. (*See* Complaint ¶12(b).) The majority finds that Nalco used MFN clauses "in a minority of cases", and concludes (correctly) that "the record does not support a finding that the use of these clauses by Nalco had a significant effect on the overall pricing pattern." (Maj.Op. at 100.)

Moreover, the ALJ found that both PPG and Nalco have been "procompetitive forces" in the antiknock industry since they entered in the early 1960's (ID 161 n.24.), which includes the "relevant period." Even the majority is forced to admit that "It is true that Nalco and PPG have introduced some competitive element into the market." (Maj.Op. at 101.) Even placing all other considerations aside, a legal standard that imposes liability on the smallest members of an "oligopoly" who have been found to be aggressive procompetitive forces in both price and non-price dimensions discussed above—apparently because in the majority's view PPG and Nalco were not able to bring their industry all the way to the perfectly competitive model —simply sweeps too broadly. Whatever the arguments for finding the two largest respondents liable, I think it clear that the complaint against PPG and Nalco should be dismissed. [12]

I suspect it will be cold comfort to PPG and Nalco to discover that, although liable under Section 5, they are not subject to the Commission's order in this case. While the majority's new cause of action is ostensibly confined to Commission enforcement under Section 5, there is no assurance that private litigants will not try their luck at extending it to the Sherman Act. (This might be attempted under either a tacit agreement theory under Sherman Section 1, or as a conspiracy to monopolize theory under Section 2. Such an attempt would find support in the majority's lengthy discussion of why existing Sherman Act precedent involving tacit collusion supports a finding of unlawful conscious parallelism among oligopolists. (*See* Maj.Op. at 16–20.))

More important, in a very real and very significant sense, today's finding of liability as to PPG and Nalco may well engender anticompetitive consequences by the message sent to even small actors in other oligopolistic industries (and to firms contemplating entry into them). That message is that even if those relatively small firms are procompetitive forces and unilaterally and for sound business reasons adopt practices that their (larger) customers desire, they had best keep one eye on the FTC (and perhaps uninhibited private litigants) for a potential lawsuit.

In particular, today's decision may have the unintended effect of deterring entry into oligopolistic industries. Potential entrants (such as those in the position of PPG in 1961 and Nalco in 1964) will no longer be certain they may safely adopt the prevailing trade practices within the target industry, even if the practices are desired by buyer and seller alike and are adopted unilaterally. Oligopolies—where they do not result from government regulation—are usually able to persist only by virtue of significant scale economies or other efficiencies. It would be most unfortunate—and the height of irony—if the majority's actions today deterred new entry into such industries.

D. *The Majority's "Relevant Period" Is Inappropriate*

A legal standard intended to promote the interests of consumers and the objectives of competition policy should focus upon a time period sufficiently long to [13] constitute a meaningful, representative test of the competitive effects of the challenged practices, and to allow an assessment of their historical bases—whether anticompetitive or efficiency-related. The time period chosen and focused upon by both the ALJ and the majority as "the relevant period" (Maj.Op. at 1.)[10]—January 1974 to May 1979—does neither. Instead, the majority carves out a single (albeit important) five-and-one-half-year "slice" of the antiknock industry's nearly 60-year history in which special factors may account for the effects the majority finds objectionable, and from which it is not possible to determine either the purposes or actual effects of the challenged practices. Because the majority opinion is virtually silent on developments prior to the "relevant period," a brief historical digression is necessary.

1. The Challenged Practices Were Adopted Before Interdependent Behavior Was Possible

In 1924, Ethyl's predecessor corporation was formed to market TEL compounds produced under a patent monopoly controlled (indirectly) by the DuPont Corporation. In 1938, Ethyl began producing TEL itself. But until 1948 Ethyl remained the sole U.S. marketer of antiknocks. (IDFs 16–17.) The majority concedes that Ethyl adopted uniform delivered pricing in the 1930's while it was the sole antiknock producer. (Maj.Op. at 77.) Most-favored-nation clauses were also adopted unilaterally by Ethyl while it was the only producer (IDF 156.), as were advance price notices. (Maj.Op. at 55, 62.) In short, none of the three challenged practices were adopted as a result of any decisions by competing firms—conscious or unconscious—to restrict

[10] The majority opinion asserts that the Commission complaint alleges the challenged practices were followed "over an extended period." (Maj.Op. at 1.) In fact, the complaint is completely silent with respect to the duration of the alleged practices.

output or promote stability. Rather, as I discuss below in Part IV(C), they were adopted for reasons of efficiency and in response to customer demand. [14]

2. The "Relevant Period" Is Atypical And Unrepresentative

In addition, the history of this industry shows that the time period chosen as "relevant"—1974 to 1979—is, in fact, too short to draw any inferences of anticompetitive effects. It is possible that the claimed high prices and profits and stable market penetration cited by the majority (Maj.Op. at 36–39, 40–41, 47.) may all be attributable to the influences of government regulations alone. No such effects prior to the 1974–79 period are demonstrated by the ALJ's or the majority's findings.

From August 1971 to January 1974, federal price controls froze the price of antiknocks (at least for TEL). (RDX 332G.) In the meantime, as the majority notes, in 1973 federal environmental controls were promulgated that would ultimately result in a 90 percent reduction in antiknock industry demand, but with both the exact amount and timing of the reduction unclear. (Maj.Op. at 105; ID, Appendix C.) Originally, respondents believed the controls were to be phased in over a four-year period from 1975 to 1979. But numerous delays resulted in postponing the start until 1978, after which demand fell sharply. (IDFs 43–44; and ID, Appendix C.) One respondent, PPG, is currently in the process of exiting the industry. (Maj.Op. at 102–03.)

Thus, any tendency for prices or profits to rise in the 1974–79 period may be attributable to the substantial risk introduced by government regulations. In addition, the threat of impending extermination or near-extermination substantially weakened any desire to expand and achieve any significant additional market penetration in that period. (IDF 40.)

Finally, in many industries the expiration of price controls was followed by rapid price hikes, as firms subject to controls sought to compensate for years in which output prices were frozen.[11] [15]

In the period preceeding the start of the majority's "relevant period" there was significant entry, substantial volatility of market penetrations, stable or falling product prices, and the development of innovative products and processes. From 1948 to 1974, Ethyl's share fell from 100 to 33 percent of the market. From 1961 to 1974, DuPont's share fell from 50 to 38 percent, while Nalco had grown from nothing to 12 percent and PPG from nothing to 16 percent by the start of the "relevant period." (ID, Appendix C.) Meanwhile, from 1960 to 1974 the price of TEL rose by only 17 percent, and the price of TML actual-

[11] M. H. Kosters, *Controls and Inflation: The Economic Stabilization Program in Retrospect* 40–41 (Washington: American Enterprise Institute for Public Policy Research, 1975); M. and R. Friedman, *Free to Choose* 279–80 (1980).

ly *declined* by 10 percent. (IDF 52.) In sharp contrast, during this same period the overall producer price index rose by 57 percent.[12] During this same time frame, Nalco developed TML, and both Nalco and PPG developed new production processes for recycling oil refiners' waste products. (IDFs 32 and 83.) All four of the so-called "facilitating" practices challenged in the complaint were in fact in use by two or more respondents during this 1960–74 period. (*See, e.g.,* IDF 124.) The majority fails to explain why these practices did not "facilitate" supracompetitive price increases during this period. Presumably, the majority feels this 14-year period is simply not "relevant."

In sum, the majority has focused exclusively on a time period during which the "aftershock" of price controls rippling through the economy, coupled with the market disruption created by the impending environmental restrictions on leaded gasoline, combined to exert a profound effect on the antiknock market. The majority attributes all of the pricing and profit performance during 1974–79 to respondents' facilitating practices, and none to government intervention. It is readily apparent what serious mischief a legal standard can create when it permits prosecutors to establish a performance-based antitrust law violation upon evidence from a short, unrepresentative, and unusual time period that is viewed in isolation from the remainder of the industry's [16] history. Such a legal standard hardly seems consonant with the goals of competition policy.[13]

E. *The Standard Ignores Respondents' Customers*

The majority dismisses the actions and potential actions of respondents' customers—petroleum refiners—as irrelevant and "misguided." The basis for this approach is the majority's notion that refiners do not realize that the practices they have demanded of respondents help the refiners individually, but harm them as a group as industry output is allegedly restricted below competitive levels. (Maj.Op. at 75–76.)

The majority concedes—as it must—that respondents' customers are large, sophisticated, and aggressive firms, "many of whom did press for discounts", and that this fact cuts against their anticompetitive inferences. (*Id.* at 35.) However, it then proceeds to ignore the ramifications of this fact for its theory, saying only that it is "inadequate to change [our] overall conclusion." (*Ibid.*) Six antiknock buyers —Exxon, Mobil, Texaco, Gulf, Amoco, and Chevron—are among the ten largest U.S. industrial corporations. (IDF 19.) Many of these refin-

[12] *Economic Report of the President* 227 (1983). The Commission may take official notice of such regularly-prepared statistical compilations published by the federal government. FTC Rules of Practice Section 3.43(d), 16 C.F.R. 3.43(d) (1982). *See also* Fed. R. Evid. 201.

[13] It might be another matter if there were evidence that the industry had lobbied for the regulations in question. Such is not the case here.

ers are fully capable of integrating backward into the production of antiknocks if services were deficient, or if prices exceeded marginal cost—*i.e.,* if respondents' profits were excessive. This is more than a theoretical possibility. The ALJ found that five of the largest antiknock buyers jointly own the export market's largest producer, OCTEL. (IDF 37.) (Tariffs apparently preclude OCTEL from exporting into the U.S. in competition with respondents. (IDF 104.)) One such refiner provided technical and marketing assistance as well as financial help to facilitate Nalco's entry in 1964, and participated in Nalco's successful development of a new product, TML. Other refiners provided financing to both Nalco and PPG (then called Houston) in their inaugural years. (IDFs 50 and 139.) **[17]**

Thus, when the focus of the analysis is broadened to include the special nature of customers in the antiknock industry, a considerably different picture of the competitive process emerges. In spite of criticisms by some of complaint counsel's refiner witnesses concerning respondents' pricing policies, those refiners appear to be in large measure satisfied with and responsible for the practices they criticized. Many refiners demanded the challenged practices, and felt they saved them money. Much like advertising, refiners relied on the challenged practices to compare prices or to reconsider contracts. (IDFs 112 and 126.)

There were no barriers blocking refiners from entering themselves and taking away business from an unresponsive and uncompetitive antiknock industry. Even if such entry were less likely following the EPA's actions since 1973, the majority does not explain why entry was not feasible before the "relevant period." If prices were too high or services too low at any point in time, the refiners could not only play one seller off against another, but could threaten respondents' very existence in the antiknock market with backward vertical integration. That none of these potential entrants chose to do so at any point in time—especially today when a firm with 17 percent of 1980 sales is existing the industry and is destroying rather than selling its production facilities—is simply inconsistent with the cartel result. Perhaps the statement of one of complaint counsel's refiner witnesses, a purchasing agent for Exxon Corporation, explains best why refiners did not enter the antiknock market as producers:

> We think it's [respondents' antiknock fluid] a bargain. Even though we fuss at our vendors a lot, it really is a bargain for us as far as achieving higher quality at a lower price. (Steen, Tr. 3457.)

In sum, the record evidence in this case shows that the majority's legal standard disregards the role of respondents' customers, ignores the history of the challenged practices, fails to consider the effects of non-price dimensions of competition, and, I believe, runs counter to the goals of this nation's laws on competition. If a standard of harmful interdependent oligopoly behavior is to be adopted, it should not be so narrow [18] and static that it permits inferences of harm which a broader, dynamic perspective would show to be, in fact, procompetitive and beneficial to competition and consumers. For these reasons alone, I cannot join in the majority's decision.

III. THE STANDARD IS TOO VAGUE AND UNPREDICTABLE TO SERVE AS A REASONABLE GUIDE TO BUSINESS BEHAVIOR

As the majority intimates, even if a particular legal standard is sound in theory, it may not be sufficiently simple and clear to serve as a guide for business behavior. No matter how conceptually elegant a theory, it is of no practical value if businesses cannot figure out what they are supposed to do and not do until after the fact. Yet this is precisely the result of the standard adopted in this case.

Under the cause of action created today, firms acting independently and adopting one or more practices for legitimate business reasons at the behest of their customers would become liable at some unknown time when some unknown combination of the practices used by an unknown number of the firms took place. Even firms not found to employ the practices in any objectionable way would be liable for, in effect, "hanging around the wrong crowd." The principal guidance provided by the majority would be a list of four objectionable structural and seven objectionable performance characteristics, with a proviso that "additional" features may be relevant as well. Most of those characteristics are as vaguely stated as the challenged practices, and many exist in both competitive and monopoly situations. (*See* Part IV(A), below.)

This is simply not an understandable rule of law. At best, it would add another dimension of regulatory risk and uncertainty to this and other industries' environments. At worst, it would actually deter beneficial, procompetitive behavior, for fear of triggering a Section 5 violation for unknown and unknowable reasons.

A. *The Standard Does Not Specify When the Challenged Practices Became Illegal*

The majority decision seems to imply that each of the challenged practices in and of itself may be legal—that it is a combination of the practices that is objectionable. [19] (Maj.Op. at 90–94.) Specifically, it allows that grace periods provided with advance price notification might be lawful if it were not for the practice of uniform delivered pricing. (*Id.* at 94.) It further concedes that MFN clauses might be legal if it were not for the practice of advance price notification. (*Ibid.*) Finally, it admits that even then the practices might be legal if a different set of structural and performance variables characterized an industry. (*Id.* at 22, 24–27, 110.)

It is, of course, well and good to have a standard that is sufficiently flexible to allow reasonable behavior. Given that a standard is to be set, it should by no means make interdependent oligopoly behavior a *per se* violation. But there should be sufficient clarity to allow firms a reasonable certainty of liability under a knowable set of circumstances.

A standard should allow further firms in similar circumstances to predict when a set of practices adopted for legitimate business reasons in response to customer demand becomes an antitrust violation. Was Ethyl guilty of a Section 5 violation when it adopted each of the practices unilaterally? Or did they become a violation when DuPont entered in 1948, and subsequently sought to take away sales from Ethyl by adopting the same business methods Ethyl had found successful? Or did the practices become unlawful when PPG's predecessor (Houston Chemical Company) entered in 1961 and sought to take away sales from Ethyl and DuPont? (PPG gained 16 percent of sales within 13 years as DuPont, the sales leader, lost 12 points in that period.) Or did the illegality arise when Nalco entered in 1964 and gained almost 12 points over the next 10 years—all at the expense of the two leading firms, DuPont and Ethyl? (*See* ID, Appendix C.) To each of these questions, the majority provides no answer.

At no point does the majority explain when the violation was triggered. The most likely inference appears to be that liability followed the imposition of government regulations in the 1970's which threatened extermination of the industry and which, according to the majority's decision, practically eliminated the possibility of further [20] entry. (Maj.Op. at 33.) This is because the decision elsewhere states that it "would not expect such [pricing coordination] practices to have a significant effect unless barriers to entry deterred potential entrants from 'competing away' excess profits earned by firms with supracompetitive prices." (*Id.* at 25.) Since there was significant entry in the 1960's with substantial shifts in sales penetration, I can only infer that the decision finds that the violation occurred sometime during the subsequent period of government controls.

If that is the case, it should be so stated so that in the future potential violators will have a better chance of knowing *when* otherwise lawful practices may become a law violation. If it is not the case that government regulation triggered the violations found here, then the "relevant period" should be extended backward in time to determine precisely when the violation occurred, and with what effect on competition and consumers.

B. *The Standard Does Not Specify What Combination of the Practices Is Unlawful*

There are considerable uncertainties in the majority decision regarding potential liability for alternative combinations of the challenged practices. The clearest implication is that uniform delivered pricing is most objectionable to the majority. All four respondents are found liable for its use. (Maj.Op. at 2, 90, 93, 101.) The majority implies the other challenged practices could be lawful if it were not for uniform delivered pricing. (*Id.* at 94.) Further, the majority intimates that the truly objectionable aspect of advance price notification is the additional "grace period" over and above the notice period contractually required. (*See, e.g.,* Maj.Op. at 101.) Today's decision holds liable two firms—PPG and Nalco—whose only "hard core" challenged practice was uniform delivered pricing. (Nalco did not employ a grace period in conjunction with its advance notification contracts, and PPG did not utilize the grace period to initiate any price increases.) For the reasons discussed in Part IV(D), below, there is no basis in this record to infer anticompetitive effects from use of such delivered pricing by PPG and Nalco, or either of the remaining two respondents. [21]

DuPont and Ethyl are found to have engaged—unlawfully—in *three* of the challenged practices. Nalco is found to have used the same three practices, but to be liable for only *one* (uniform delivered pricing). PPG is found to have employed only *two* of the three practices, but to be liable for only *one* (again, uniform delivered pricing). I suspect it will be difficult indeed for firms operating in "oligopolistic" industries to sort all of this out into any meaningful antitrust compliance guidelines.

Moreover, a legal standard that implies that each of several challenged practices may be lawful by themselves, but then holds liable two firms on the basis of only one of the practices, is less than precise. At best, such a standard may make firms more cautious about entering oligopolistic industries in which one or more of the challenged practices are the prevailing terms of trade.

IV. THE FACTS IN THE RECORD DO NOT MEET THE PROPOSED STANDARD

Even if the majority decision's proposed standard were broad enough and clear enough to serve as a basis for imposing liability, no violation could be found on the facts in the record. The record shows that neither the structure, performance, nor conduct criteria of the standard are satisfied by the facts in this case.

A. *The List of "Objectionable" Structural and Performance Variables Do Not Support The Majority Conclusion*

The majority decision offers a list of objectionable structural and performance characteristics that are intended to resolve the vagueness problem, and to serve as the theory on the basis of which the inferences of anticompetitive effects may be drawn. The majority argues that the challenged practices can be inferred to be unacceptably anticompetitive (and hence unlawful) if they are associated with certain "structural" and "performance" characteristics. They identify five such structural characteristics: (1) high concentration, (2) high entry barriers, (3) a homogeneous product, (4) inelastic demand, and (5) "additional [structural] factors." They then designate eight performance characteristics: (1) "highly uniform" prices, (2) "lock-step" price changes, (3) "limited" discounting, (4) "stable" market shares, (5) "relatively high" profits, (6) price in excess of [22] marginal cost, (7) rising prices accompanied by both "sluggish demand" and "excess capacity," and (8) "additional [performance] factors." (Maj.Op. at 110–12.)

Each of the cited characteristics is subject to alternative interpretations in the context of almost any real-world industry situation. In addition, the categories labelled "additional factors" contain characteristics that are clearly procompetitive in the antiknock industry. I consider here certain of these structural and performance variables that the majority misinterprets in its analysis.

1. Structural Factors

a. *High Concentration*

It is undisputed that the antiknock industry is highly concentrated. It is also true that such concentration lends itself to an awareness that each firm's actions will influence those of its competitors and, ultimately, affects the industry equilibrium levels of price, services, and output. But this is true of all oligopolistic industries, irrespective of whether the practices challenged in this case are utilized. As one commentator observes:

[O]ligopoly competition may be as virile as competition in an industry with a large number of small- or medium-sized firms. . . . It is immaterial that each oligopolist firm acts with awareness of its competitors as long as it makes its independent decisions on price, quality of product and service, research and innovation, cost and profit factors. . . . Again I stress that the courts have not condemned a mere oligopoly market power as a Sherman Act violation. The Supreme Court has distinguished genuine collusive conduct of oligopolists from mere conscious uniformity of business behavior arising from mutual awareness of common economic or business justifications in harmony with independent self-interest.[14]

Or, more recently, as others observe: [23]

When there are at least two noncolluding firms in an industry, there is no clear-cut relationship between the number of firms and the degree of competition.[15]

b. *High Entry Barriers*

I heartily concur in the majority's conclusion that the practices challenged in this case cannot lead to supracompetitive results in the absence of effective entry barriers. (Maj.Op. at 25.) However, the majority's definition of an entry barrier is subject to question. As Posner points out, properly viewed, an entry barrier is not a high cost of entry. Rather, it is a high (long-run) cost that entrants must bear in excess of those costs incurred by existing firms.[16] In this case government price controls and environmental regulations weighed equally on all firms, present or potential. Thus, they are not entry barriers in the true economic sense. But even assuming EPA regulations make it unlikely any new firms will enter the antiknock industry, this "structural factor" was not present until the early 1970's. Thus, we must presume the challenged practices were lawful until that time. It follows that, under the majority's theory, the imposition of environmental regulations gave rise to an antitrust violation on the part of all industry firms and—in addition to mandating the medium-term demise of the industry—presumably required all four respondents to restructure their traditional business practices. [24]

c. *Homogeneous Product*

The record evidence amply supports the majority's conclusion that antiknock compounds of a given proportion of TML and TEL are identical. (Maj.Op. at 33–34.) However, the record also demonstrates that alternative mixtures of the two compounds (*e.g.,* 75/25 TML/TEL vs 25/75 TML/TEL) have different characteristics and different prices. (*See, e.g.,* IDF 7.) More important, the antiknock product was sold with essential safety services—services that varied substantially among the four respondents. Moreover, the record shows respondents

[14] S.C. Oppenheim, "The Sherman Act and Internal Company Growth," NICB Conference on *Antitrust in an Expanding Economy* 11 (May 16, 1962); *see also* R. Bork, *The Antitrust Paradox* 103–04, 163–97 (1978).

[15] E. Fama and A. Laffer, "The Number of Firms and Competition," *American Economic Review,* Vol. LXII, No. 4 (September 1972), p. 674. *See also,* M. A. Adelman, "Effective Competition and the Antitrust Laws," *Harvard Law Review* 1297 (September 1948); G. C. Archibald, " 'Large' and 'Small' Numbers in the Theory of the Firm," *Readings in the Economics of Industrial Organization,* edited by Douglas Needham (New York: Holt, Rinehart, and Winston, 1970), p. 168; H. Demsetz, *The Market Concentration Doctrine* (Washington, D.C.: American Enterprise Institute For Public Policy Research, 1973), p. 26; and J.M. Vernon, *Market Structure and Industrial Performance - A Review of Statistical Findings* (Boston: Allyn and Bacon, Inc., 1972), p. 117; J.S. McGee, *In Defense of Industrial Concentration* 129 (1971).

[16] *Antitrust Law* at 59, citing G. Stigler, "Barriers to Entry, Economies of Scale and Firm Size," *Organization of Industry* 67 (1968).

used varying credit terms and delivery dates.[17] (*See* Part II (A), above.) In short, the product—properly defined to include the associated services and delivery arrangements—is, upon close inspection, far from homogeneous. The majority's failure to recognize this explains its decision to ignore the numerous dimensions of price and non-price competition in this industry.

d. *Inelastic Demand*

The majority decision states that inelastic demand is necessary for the existence of supracompetitive prices and profits—to assure that any output restriction results in "price above marginal cost." (Maj.Op. at 25.) If this statement regards *industry* elasticity, it is simply wrong. As Posner observes, inelastic industry demand at the market price—which does prevail in the antiknock industry (IDF 42.)—is inconsistent with a monopoly result, and "is rather good evidence that the sellers are not colluding—at least, not effectively."[18] (This is because where industry demand is inelastic, joint marginal revenue would be negative.) If the majority means that *firm* demand curves are inelastic at the market price, it implies that they were acting irrationally, since marginal revenue would be negative. In addition, any inference of inelastic firm demand is inconsistent with the high degree of price sensitivity shown by buyers in the record. (IDF 27.) [25]

e. *Additional Structural Factors*

The most obvious "additional" structure factor is the undisputed presence of large, sophisticated, and aggressive buyers. As the majority admits, this cuts against any inference of anticompetitive conduct and effects. As previously indicated, this is a crucial factor in this industry, since buyers were the most obvious source of potential entry and could have integrated backwards into the antiknock industry if profits were really excessive.

The additional crucial structural factor needed to support the majority's legal theory (which the majority decision also cites but ignores) is that "price competition [must be] more important than other forms of competition." (Maj.Op. at 22.) As discussed extensively above, the existence of substantial non-price competition—such as the service element in the antiknock industry—substantially reduces the likelihood of anticompetitive effects. The record in this case bears that out.

f. *Summary*

Thus, the majority defines and applies three of its four structural

17 For the proposition that differing delivery dates and credit terms can introduce "an element of heterogeneity", *see* J. Hirshleifer, *Price Theory and Applications* 337 (1976).

18 *Antitrust Law* at 57.

prerequisites in a manner inconsistent with the proper economic meaning of these concepts. Moreover, it omits discussion of two others that point to an absence of anticompetitive effects. When properly analyzed, five of six important structural conditions are not met by the facts in this case. The product—*cum* services and off-list price dimensions of competition—is *not* homogeneous. *Industry* demand at the transactions price is inelastic, while *firm* demand is elastic. Price does *not* appear to be the most important dimension of competition in this industry. Customers *are* large, sophisticated, and aggressive. Although there are important tariffs, entry barriers are *not* high, as evidenced by the entry and successful expansion of two respondents in the period preceding the "relevant period." (This conclusion is bolstered by the fact that respondents' customers could (as they have in other countries) integrate backward into the industry.) The majority's single remaining "structural" factor—industry concentration—is itself the subject of intense **[26]** debate in the economic literature as to cause and effect.

2. Performance Factors

a. *"Highly Uniform Price" and "Lock-Step" Prices Changes*

It is clear that the majority views the uniformity of respondents' list-prices and their tendency to rise in so-called "lock-step" fashion as the heart of this case. (Maj.Op. at 51, 64, 80.) It emphasizes that, of 24 list-price increases during the "relevant period," 20 were identical and occurred for all respondents on the same day. (*Id.* at 48.) The basic problem with this notion is that, as the majority itself recognizes, prices tend towards uniformity in competitive markets as well as non-competitive ones. The decision seeks to resolve this dilemma by saying that it is not so much the uniformity of prices but the rapid speed at which respondents' prices adjust that demonstrates the asserted fact that prices are above competitive levels and that "price leadership" is involved.

First, I note the circularity of the claim that price uniformity (however defined) is anticompetitive because prices are above competitive levels and that prices exceed competitive levels because of price uniformity. Second, the existence of substantial service competition among respondents shows that pricing cannot be discussed in a vacuum. In this industry, any tendency for pricing to rise above marginal cost would be checked by competition along service and other nonprice dimensions.

Third, the notion that "price leadership" and simultaneous movements in price provide the key distinctions between competitive and supracompetitive markets is simply erroneous. To quote from a leading economics text:

All prices in all markets are administered in the sense that each person decides at what price he shall sell (in the light of market demand) . . . The prices and sales of firms are interdependent. They watch each other closely and, like dogs chasing a rabbit, move together, even in those cases where there is no leader, simply because they seek the same quarry.

* * * * * * * [27]

That the same firm is usually the first to make a price change which others almost always follow does not mean that the leader dictates prices to other firms, nor does it imply some tacit agreement not to compete with prices. It can attest to the lead firm's greater acuity and knowledge of market conditions.

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Simultaneity of price action or "dominance" by one firm is not evidence *for or against* the existence of *effective* collusive agreements. The number of sellers and the coordinated price-search process, whether it be simultaneous or lagging behind some apparent "price leader," are also irrelevant.[19] (Emphasis in original)

Or, as Posner observes:

To be sure, there are dangers in pressing the "meeting-of-the-minds" approach too far. Suppose that a group of competing firms simultaneously experience an increase in the cost of some raw material that each one uses. In deciding how to respond to the common cost increase, each firm will consider the probable response of its competitors to the increase, since its ability to pass on the cost increase in whole or part to its customers by raising price will depend on the pricing decisions of its competitors. The process by which the firms arrive at the new equilibrium at a higher price may thus have elements of "tacit agreement." The process is not an anticompetitive one; yet if the firms explicitly coordinated their pricing in reaction to the cost change, the law would treat their agreement as illegal collusion—and rightly so, since there would be justifiable suspicion that the agreement was both unnecessary to smooth adjustment to the cost increase and motivated, at least in part, by a desire to raise the market price by more than the cost increase actually requires.

This example shows that the law should not always equate tacit and explicit pricing agreements. Some degree of tacit coordination of pricing in reaction to external shocks, such as the increase in raw-material costs examined above, is inevitable and unobjectionable.[20]

[19] A. A. Alchian and W. R. Allen, *University Economics*, 345–46, 356 (1971).

[20] *Antitrust Law* at 72. *See also* D. Turner, "The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal," 75 Harvard L. Rev. 669 (1962).

In short, pricing uniformity is the inevitable result of open market processes and is consistent with either competitive or anticompetitive behavior and results. It is the expected condition in a so-called oligopoly such as the antiknock industry, with or without use of the challenged practices. [28]

b. *"Relatively High" Profits and Price Above Marginal Cost*

It appears there is simply a failure of proof on the claim that profits were excessive. First, the accounting method employed failed to use *current* costs (*see, e.g.,* IDF 166.), which are necessary for any inference that entry of equally efficient competitors is being deterred.[21] Second, as Posner notes, where costs vary among firms, the competitive optimum is where price equals cost for the *marginal* seller only.[22] And as Demsetz notes, differential profits among sellers are inconsistent with an anticompetitive situation.[23] PPG's 1978 reduction in capacity and its recent exit are scarcely consistent with price above marginal cost for the marginal firm. In addition, the accounting data cited by the ALJ show Ethyl's estimated rates of return before taxes are generally twice as high as those for PPG and Nalco for the "relevant period," with DuPont in between. (IDF, Appendix J.)

Moreover, as Posner also observes, "equality of price and (long-run) marginal cost is efficient only when the market is in an equilibrium, or stable, condition."[24] Such a description scarcely characterizes the antiknock industry during the "relevant period." Even as the market distortions caused by price controls were fading, those caused by environmental regulations were growing. Risk existed in the certain knowledge of near-extermination, with only the timing and pattern of the precipitous decline unclear. [29]

These facts—and the fact that at no time before, during or since the "relevant period" did any of the large oil company buyers attempt to integrate vertically into this industry—are inconsistent with the majority's finding of supracompetitive profits and performance in the antiknock industry.

c. *"Limited" Discounts and "Stable" Market Shares*

The majority's legal standard does not specify when, or in what order of magnitude, these measures are sufficient to rebut an anticompetitive inference. Moreover, the record indicates a non-trivial

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[21] G. Benston, "The FTC's Line of Business Program: A Benefit-Cost Analysis" (*Business Disclosure: Government's Need to Know;* ed. by Harvey J. Goldschmid, 1979), p. 92–94. *See also* F.M. Fisher and J.J. McGowan, "On the Misuse of Accounting Rates of Return to Infer Monopoly Profits", 73 *American Economic Review* 82–91 (March 1983).

[22] *Antitrust Law* at 136.

[23] H. Demsetz, "Two Systems of Belief About Monopoly" (*Industrial Concentration: The New Learning;* ed. by H. Goldschmid, J.M. Mann, and J.F. Weston, 1974), p. 177–79.

[24] *Antitrust Law* at 136.

amount of each, especially when the time horizon is broadened at either end. (*See* Parts II(B) and (D)(2), and III(A), above.)

d. *Rising Prices Accompanied by "Sluggish" Demand and "Excess" Capacity*

As indicated, examining price rises without reference to the effect of government controls can lead to erroneous inferences as to their cause. In this case, the rising prices cited by the majority followed over two years of price controls, and occurred during a period of extreme uncertainty and risk and of frequent raw material shortages. (*See* Part II(D)(2), above.)

Government controls also had a major effect on respondents' decisions on output and capacity. (*See* Part II(D)(2), above.) These included not only product regulations that, starting in 1974, threatened imminent drastic sales declines, but also EPA plant emissions controls that even made it necessary to invest in maintaining some existing equipment and plant. (IDF 38.) Thus, it is not surprising that two respondents, Ethyl and PPG, reduced plant capacity during the relevant period.

Yet, by 1979, a year plagued by supply problems with lead and sodium inputs (IDF 40.), Ethyl was operating at 95 percent capacity, and in 1980—for which no capacity data are available—it replaced DuPont as the industry leader. (IDF 38; ID, Appendix C.) DuPont, which operated at between 84 and 94 percent of capacity in the recession years of 1974 and 1975, achieved 100 percent capacity in 1976. (IDF 39.) While the record is somewhat unclear following that time, the ALJ states that DuPont operated at **[30]** "excess capacity" through 1979. (IDF 39.)

Nalco operated at from 77 to 89 percent capacity during the 1974 to 1979 period and had supply problems in three of those years. (IDF 41.) The ALJ found that "PPG did not have any significant excess capacity" from 1974–1976, and operated at 86, 100, and 88 percent capacity during the next three years. (IDF 40.) In addition, Nalco was the high-cost producer in the industry, so that any excess capacity on its part is perfectly consistent with price equal to marginal cost for it, the marginal firm—the competitive optimum for an industry with varying firm costs. (*See* Part IV(A)(2)(b), above.)

Similarly, PPG's current exit and creation of excess facilities that no one wants to buy is itself inconsistent with any idea that profits in this industry *were* during the "relevant period" or are today excessive. This is an important point because economic profit—the kind that is relevant to any assessment of competition—is a forward-looking concept that must take expected future events (such as eventual near-extermination) and uncertainty (such as the timing of the process) into account. (*See* references cited at Part IV(A)(2)(b), above.)

e. *"Additional Factors"*

The most important "additional factors" in this case are the various beneficial services and innovations in products and production processes. (*See* Part II(A), above.) Once again, as in the case of the structural factors, these are ignored by the majority opinion.

f. *Summary*

The decision's (mis)application of performance criteria to the record evidence does not provide support for an oligopoly theory under which anticompetitive effects can be inferred from the challenged practices. The majority's facile treatment of these criteria only adds to the confusion caused by the conduct criteria, which fail to explain when the challenged practices become a violation, in what combination, or when adopted by what number of firms. **[31]**

B. *Evidence on Conduct*

What seems to trouble the majority most in this case is its perception that there is some sort of intent on the part of each of the four respondents to "maintain" a "stable market" in this industry by unilaterally maintaining the challenged practices. In support of this perception, the majority cites an Ethyl document expressing concern about "maintaining a stable market for antiknocks" in a period of "market shrinkage" and "overcapacity." (Maj.Op. at 52.) It also cites testimony by DuPont's Director of Marketing that selling at F.O.B. to a large customer in this time period could lead to a decline in general prices (*Id.* at. 81.), and statements by him and an Ethyl document about the possible impact of eliminating MFN clauses on industry "marketing practices." (*Id.* at 72–73.) Finally, the majority cites evidence that both DuPont and Ethyl view the practice of advance price notification with grace periods as a way to "test" competitors' reactions before making pricing actions final. (*Id.* at 58–60.)

While the cited statements are subject to varying interpretations, they may reflect little more than expressions of great concern about the inevitable destabilization and monetary losses that would occur once the environmental controls were put into place and phased into completion. Recall that the phasing down was to have begun on January 1, 1974—the beginning of the "relevant period," but after a series of uncertain delays (*ex ante*), the start of the process began on January 1, 1978. (IDF 44.) It was followed by a precipitous drop in demand, over 50 percent in three years (IDF, Appendix C.), as the controls became binding.

Thus, the Ethyl statement about "maintaining" a "stable market," as well as the DuPont and Ethyl statements about the potential for destabilization from changing certain marketing practices, are consistent with fully justified fears about what might happen to them as a result of sudden changes in industry conditions—whether they be caused externally such as by government controls, or internally, such as those initiated unilaterally in the form of new or different marketing practices, products, or production **[32]** methods.

Moreover, concern expressed (internally) by some business executives from two respondents about the prospect of market destabilization does not necessarily imply that price or the price-service equilibrium was at supracompetitive levels. Any resulting destabilization could drive existing prices below cost or below the competitive level—the marginal cost of the marginal firm—even from a pre-existing competitive equilibrium, as PPG's recent exit makes clear. In that regard, the cited statements do not establish an intent to increase market stability. It is one thing to adopt actions that might raise prices above competitive levels. It is quite another simply to refrain from actions that might reduce prices below competitive levels.

Another aspect of the challenged practices on which the majority place great reliance in finding liability is the use by some respondents of a grace period that provides notice of price changes over and above that contractually required. Although the majority notes that only DuPont and Ethyl used it (Maj.Op. at 95–96, 98–99.), its opinion attacks the grace period by including all four firms:

> By following a consistent practice over the relevant period adhered to by every industry member, the respondents have developed an effective way of signalling pricing intentions. The practice of conveying to a competitor what is, in effect, a price "offer," then waiting for a response—while avoiding different list prices at any time—actually goes beyond the competitive effect in exchanging current price information condemned in *Container Corp.* In that case, the practices which reduced competition consisted of agreements to exchange current price information by firms representing almost all the market. Here firms representing *all* the market have not only developed a system for exchanging current price information but for communicating future information with the opportunity to announce future prices on a contingent basis. (Maj.Op. at 51–52, emphasis in original.)

In fact, the price movements associated with the "grace period" are no more a "signalling tool" in this industry than the actual movement of prices among competitors in any small numbers situation. Where there are few competitors *any* price change is a "signal" to competitors about a firm's intentions, whether that change be in spot or futures market contracts. **[33]**

Moreover, as long as what amounts to a "futures" market in this case (the practice of advance price notification) is allowed to exist, no change in the so-called "testing" behavior can be expected to occur. The very same "testing"—raising, then adjusting prices before they are implemented—can be achieved simply by adjusting the effective dates of the announced price increases after the announcement. In addition, the practice of forward-ordering at the old price can be extended in time to accommodate any disenchanted buyer, without any loss of sales, even after a price rise occurs. Thus, the majority's notion that respondents will be less likely to initiate price rises if the "grace period" is abolished is without support in the record.

C. *The Challenged Practices Were Adopted For Legitimate, Procompetitive Business Reasons, And Were Desired by Respondents' Customers*

The majority asserts that in assessing the challenged practices under a rule of reason approach, it considers any procompetitive effects of the practices. (Maj. Op. at 22.) It then proceeds to reject all of respondents proffered justifications for the practices, feeling they are outweighed by the assertedly anticompetitive effect of the practices on (list) price. (Maj.Op. at 89–91.) I find respondents' arguments persuasive and more than ample to offset the tenuous inferences upon which the majority's finding of anticompetitive effects is grounded.

Ethyl adopted one of the challenged practices—uniform delivered pricing—just prior to 1938 as a means of encouraging its buyers to receive the highly explosive fluids in tankcars as opposed to drums. (IDF 124.) Today, although some large refiners with plants located close to respondents' plants object to the practice, other buyers find that the practice saves state transportation and inventory taxes, which they would have to pay if title passed prior to delivery. They also testified that it simplifies purchasing decisions by allowing quicker evaluation and comparison of respondents' prices. (IDF 126.) The ALJ found that the practice "possibly does eliminate some costs customers would incur under an F.O.B. system" (IDF 126.), and that it is based on "some legitimate business reasons." (IDF 156.) The record indicates that freight savings to buyers located [34] closest to respondents' plants from an F.O.B. system would only be roughly one percent of selling price. (*See* Part IV(D), below.)

Like uniform delivered pricing, the ALJ found that MFN clauses are also based on "some legitimate business reasons." (ID 156.) The record reflects that refiners desire the clauses (ID 154.), including the small refiners. (IDF 121.) Moreover, one respondent—Nalco—met customer objections when it generally dropped the practice. (IDF 120.) (PPG was not charged with utilizing the practice.)

The ALJ found that refiner witnesses (including those from small refiners) also generally favored respondents' practice of providing advance price notification. (IDF 112.) There is no evidence that it—or the accompanying grace period to which the majority particularly objects—was adopted as a result of any meeting of the minds of respondents. The grace period was not even utilized by Nalco. (Maj.Op. at 98.) PPG's officials testified that it would like to drop the practice. (IDF 110.) Refinery witnesses (including complaint counsel's) testified that they believed the practice saves them money by permitting "forward ordering" at the old price, and that it facilitates their firms' ability to reconsider respondents' contracts and to engage in financial and other planning. (IDF 112.)

D. *The Majority's Key Practice—Uniform Delivered Pricing—Was Presumed But Not Proven To Be Anticompetitive*

Finally, I discuss what appears to be the lynchpin of the majority's finding of liability—the impact of uniform delivered pricing, a practice respondents' customers utilized to compare prices. Given the majority's extensive treatment of the case law involving uniform delivered pricing, its statement that absent such delivered pricing the practice of advance price notification with grace periods might be lawful, and the fact that liability for two of the four respondents rests solely upon the asserted anticompetitive effects from this one practice, it seems appropriate to analyze the benefits and costs of this practice in some detail. [35]

Curiously, after mentioning respondents' arguments that the practice did not have a substantial influence on antiknock selling prices, the majority's decision makes no attempt to look at the numbers in the record. Instead it chooses to emphasize—erroneously—that as in *Triangle Conduit*,[25] respondents' plants are "scattered over the United States," so that delivery costs are quite different among them to different refiners. (Maj. Op. at 85, 93.) The majority then invokes its uncertainty theory, and finds that replacing this practice with F.O.B. pricing "would have introduced the complexity of 'masking' discounts because it would have introduced price variations among customers." (*Id.* at 82.)

This claim is supported in the first instance by reference to Nalco's practice of selling its Texas-produced TML to a customer in Antioch, California for the same price as DuPont charges in that location. (*Id.* at 76.) But the record shows that Nalco shipped its TML to Antioch, where it purchased DuPont's TEL for mixing prior to customer purchase. (IDF 89.) Similarly, DuPont would at least sometimes purchase TML from Nalco's Texas plant for mixing prior to delivery (IDF 20.) or, alternatively, ship its TML and TEL products to its mixing plant

[25] *Triangle Conduit & Cable v. FTC*, 168 F.2d 175 (7th Cir. 1948), *aff'd by equally divided court sub nom., Clayton Mark & Co. v. FTC*, 336 U.S. 956 (1949).

in Texas. Although DuPont had manufacturing plants in California and New Jersey, it has a mixing plant in Texas. Contrary to the majority's erroneous and misleading assertion that respondents' plants are "scattered across the country" (Maj.Op. at 85, 93.), they are in fact remarkably concentrated. DuPont's mixing plant as well as *all* plants of each of the other three respondents are all located within a 300-mile radius in Texas and Louisiana. (IDFs 1–4; Rand McNally Atlas.)

Thus, for example, when Nalco sold a 50/50 TML/TEL mix to customers in Antioch, California (TML cannot be used without mixing), its price with delivery cost would be identical to its F.O.B. price in either California or Texas or at any point in between. Moreover, the same kind of tendancy toward inter-area price equalization—[**36**]with or without this challenged practice—occurs when (as is generally true here) the *buyers'* plants are scattered across much of the U.S.

In addition, the ALJ found that average freight costs in the antiknock industry "are small in relation to the total market price." (IDF 190.) The exhibit cited by the ALJ on delivery costs (IDF 127; and RDX 333.) supports this finding. It shows that in 1979, average actual delivered costs among respondents' customers amounted to 1.53¢ per pound [less than 2 percent of list price in that year (IDF, Appendix D)] and that the lowest potential F.O.B. price for the refiner located closest to respondents' plants was 0.3¢ per pound. Thus, the maximum possible effect on such refiners versus the industry average was on the order of 1.2¢ per pound, or little more than 1 percent of selling price.

At the other end, there were two small refiners with shipping costs of 8.1¢ per pound who were, in effect, receiving a discount of that amount—less the 1.5¢ average actual freight costs per pound incurred in delivery. But 59.5 percent of the refiners, and 84.5 percent of shipments, had actual average freight costs of under 2¢ per pound. And 76 percent of the refiners and 94.5 percent of shipments had actual average freight costs of less than 3¢ per pound. Of the ten largest buyers, the spread ranged from 0.5¢ per pound to 2.8¢ per pound. (RDX 333.) Given the list-price of antiknocks—which DuPont currently places at $1.07 per pound (Maj.Op. at 106.)—it can readily be seen that the ALJ was correct in finding that delivery charges are "small in relation to sales price." (IDF 127.) This fact, coupled with the relatively centralized locations of respondents' plants, demonstrates that use of uniform delivered pricing cannot have had the significant anticompetitive effect attributed to it by the majority.

Given the legitimate business reasons for this practice (including the desire by respondents and their customers that respondents maintain title and liability for the explosive compounds until delivery), given the savings on state taxes and on bookkeeping costs associated with determining where the products went, and given the small fraction of total sales price accounted for by transportation costs, I find insufficient support in [37] the record for the allegation that uniform delivered pricing had any substantial impact on competition in this industry. Elimination of uniform delivered pricing would not introduce substantial F.O.B. price variations among respondents, and its overall cost to customers as a group would likely exceed any conceivable benefits to particular refiners.

V. CONCLUSION

In sum, taken together the challenged practices—uniform delivered prices, advance price notification with grace periods, and most-favored-nation clauses—arguably reduce buyers' search costs and facilitate their ability to find the best price/value among refiners. In light of the intense competition in services and other non-list-price dimensions, moreover, the record fails to prove that these practices are anticompetitive. Their prohibition could well impose costs on consumers without any corresponding benefits. For these reasons, and for a similar lack of any evidence of anticompetitive structure and performance; for the failure to articulate an understandable and predictable standard of liability; and for the use of a criterion whose focus is so narrow as to present a possibly erroneous and harmful view of competition, I dissent.

FINAL ORDER

This matter, having been heard by the Commission upon the appeal of respondents and complaint counsel from the Initial Decision and upon briefs and oral argument, and the Commission for the reasons stated in the accompanying Opinion having determined to deny the appeal of respondents and complaint counsel,

It is ordered, That the Initial Decision of the administrative law judge be adopted as Findings of Fact and Conclusions of Law except to the extent inconsistent with the [2] accompanying Opinion. Other Findings of Fact and Conclusions of Law of the Commission are contained in the accompanying Opinion. Pending motions are dismissed or otherwise resolved as provided in the Opinion.

It is further ordered, That the following Order to Cease and Desist is hereby entered.

ORDER

I

Definitions

For the purpose of this Order, the following definitions shall apply:

A. *Lead-based antiknock compound* means additives to gasoline which increase its octane rating and which contain tetraethyl or tetramethyl lead.

B. *Delivered price* means a single undivided price inclusive of product and transportation charges.

C. *Point of origin price* means a price set by a respondent for a purchase by a customer at a mill or distribution point from which a delivered price is quoted to that customer. The point of origin price shall be no greater than the delivered price offered to the customer less the actual transportation costs which would have been incurred by the seller if the sale were made on a delivered basis.

D. *Customer* means any actual or potential purchaser of a lead-based antiknock compound.

E. *Most favored nation agreement* means any contractual provision or understanding that requires, or potentially requires, a price paid by one purchaser of lead-based antiknock compound be offered to one or more other purchasers of the seller.

F. *Respondents* shall mean Ethyl Corporation and E.I. DuPont de Nemours and Company, their [3] successors and assigns, and their officers, agents, representatives and employees, acting directly or indirectly, through any corporation, subsidiary, division or other device, individually or in combination.

II

It is ordered, That respondents, in connection with the sale or distribution of lead-based antiknock compound in the United States, shall forthwith cease and desist from:

A. Publishing, distributing or communicating in any manner notice to any person outside the company, other than persons under contract in connection with marketing or sales, concerning any change or modification in the list price of lead-based antiknock compound in advance of the period contractually required for advance notice to customers.

B. Entering into a contract for the sale or delivery of lead-based antiknock compound with any customer containing a most favored nation agreement; or maintaining or complying with a most favored nation agreement in any contract for the sale or delivery of lead-based antiknock compound.

Provided, That nothing in subpart A above, shall be construed to prohibit any respondent from (1) conveying to an actual or potential customer the information necessary to respond in good faith to a request to bid on or engage in negotiations regarding the purchase of any lead-based antiknock compound; (2) contracting to sell any lead-based antiknock compound at a price determined pursuant to such bid or negotiation which is effective on a specified future date subject to neither contingency nor condition; or (3) conveying information in compliance with any order, or in connection with participation in any proceeding, of a court, legislative body or administrative agency. [4]

III

It is further ordered, That whenever a respondent offers a delivered price to a customer for the purchase of lead-based antiknock compound, said respondent shall offer the customer the option of a point of origin price at the respondent's production facility from which shipment is to be made, and at the option of any actual or potential customer:

A. Allow any customer to arrange or furnish transportation for any purchased lead-based antiknock compound from the respondent's production facilities; or

B. Offer a separately-stated price for transportation furnished or arranged by the respondent.

IV

It is further ordered, That each respondent, individually, shall forthwith make its lead-based antiknock compound sales contracts and other agreements consistent with this Order.

V

It is further ordered, That nothing contained in this Order shall be interpreted as prohibiting a respondent when acting individually, (1) from establishing the price at which, and selecting the customers to which, it shall sell; or (2) from selling at a point of origin or delivered price established in good faith to meet the equally low price of a competitor. No [5] pricing practice engaged in by a respondent shall be deemed immune or exempt from the antitrust laws by reason of anything contained in this Order.

VI

It is further ordered, That each respondent shall forthwith deliver a copy of this Order to all present and (for a period of ten years from the entry of this Order) future personnel, agents and representatives of respondents having sales, distribution or policy responsibilities regarding lead-based antiknock compound, and each respondent shall forward a copy of this Order to each of its purchasers during the past twelve months of any lead-based antiknock compound in the United States.

VII

It is further ordered, That each respondent notify the Commission at least thirty (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 affect compliance obligations arising out of this Order.

VIII

It is further ordered, That each respondent shall, within sixty (60) days after service upon it of this Order, file with [6] the Commission a report, in writing, setting forth in detail the manner and form in which it has complied with this Order and such additional reports thereafter as the Commission may require.

Chairman Miller dissented. Commissioner Douglas did not participate.