No. 26

In the Supreme Court of the United States

OCTOBER TERM, 1967

UNITED STATES OF AMERICA, APPELLANT

v.

PENN-OLIN CHEMICAL COMPANY, ET AL.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

BRIEF FOR THE UNITED STATES

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CITATIONS

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OPINIONS BELOW

The opinion of the district court on remand (which comprehends its findings of fact and conclusions of law) (R. 806) is reported at 246 F. Supp. 917. The opinion of this Court remanding the case is reported at 378 U.S. 158, and the first opinion of the district court (R. 759) is reported at 217 F. Supp. 110.

JURISDICTION

The judgment of the district court dismissing the government's amended complaint on remand was entered on November 2, 1965 (R. 836). The United States filed a notice of appeal to this Court on January 3, 1966 (R. 837). Probable jurisdiction was noted on February 13, 1967 (R. 840; 386 U.S. 906). The jurisdiction of this Court to review the judgment below on direct appeal rests on Section 2 of the Expediting Act of February 11, 1903, 32 Stat. 823, as amended, 15 U.S.C. 29. *United States* v. *Columbia Steel Co.,* 334 U.S. 495; *United States* v. *duPont & Co.,* 353 U.S. 586.

QUESTIONS PRESENTED

Olin-Mathieson Chemical Corporation and Pennsalt Chemical Corporation formed a joint venture, Penn-Olin Chemical Company, to manufacture and sell sodium chlorate in the southeastern United States. The government challenged the legality of the joint venture under Section 7 of the Clayton Act. After trial, the district court dismissed the complaint on the ground that the government had failed to show that, but for the joint venture, both Olin and Pennsalt would have entered the southeastern market on their own. This Court reversed, holding that it was unnecessary to show that both companies would have entered, and remanded the case for a finding as to the reasonable probability that either firm would have entered the market while the other remained a significant potential competitor. On remand, the district court held that the government had not proved that, in the absence of the joint venture, independent entry by either Olin or Pennsalt was reasonably probable, and again it dismissed the complaint. The questions presented on this appeal are:

1. Whether the district court's conclusion that neither Pennsalt nor Olin would have entered the

relevant market independently was based on an erroneous standard and was inconsistent with the decision of this Court remanding the case for further proceedings.

2. Whether, assuming that either Pennsalt or Olin would have entered the market, the elimination of the potential competition of the other by the joint venture may have lessened competition substantially within the meaning of Section 7.

STATUTE INVOLVED

Section 7 of the Clayton Act, 38 Stat. 731, as amended, 15 U.S.C. 18, provides in pertinent part:

> That no corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.

STATEMENT

This is a direct appeal from a final judgment of the district court, dismissing (after trial and initial dismissal, appeal to this Court, reversal, and additional hearings upon remand (see *United States* v. *Penn-Olin Chemical Co.*, 378 U.S. 158)), a civil antitrust complaint filed by the government (R. 1) charging that Olin Mathieson Chemical Corporation ("Olin") and Pennsalt Chemical Corporation ("Pennsalt") violated Section 7 of the Clayton Act by jointly forming the Penn-Olin Chemical Company ("Penn-Olin") to produce and market sodium chlorate in the southeastern United States.

I. THE FACTS

A. BACKGROUND

1. The product

Sodium chlorate is a chemical whose primary use is as the raw material for chlorine dioxide, a bleach widely used in the pulp and paper industry. In 1960 (the year of the joint venture), that industry consumed 64 percent of the nation's total production of sodium chlorate (217 F. Supp. at 116), and although sodium chlorate has other uses—in weed killers and other agricultural chemicals and to produce certain valuable derivatives like ammonium perchlorate (*ibid.*)—the pulp and paper industry is expected to remain its principal user (see PX 32; R. 453–454; PX 96A).[1] Commercial sodium chlorate is produced by electrolysis of an acidified solution of sodium chloride (salt), and in 1960 91,900 tons of the chemical, having a value of about $18 million, were produced in the United States (217 F. Supp. at 115).

2. The companies

Olin.—Olin is a large diversified corporation formed in 1954 by the merger of Olin Industries, Inc. and

[1] Exhibit citations not accompanied by record references refer to unprinted exhibits or unprinted portions of printed exhibits. All are contained in the record lodged with this Court on this ap-

Mathieson Chemical Corporation (217 F. Supp. at 114). Its chemical division, one of seven operating divisions, produces a wide range of chemicals and chemical products in plants located in 15 States, and accounts for about 30 percent of Olin's operating revenues (*ibid.*). In 1960 Olin's net sales of chemicals and chemical products were $217 million, and of all products, $900 million. Its assets totaled $860 million, and its capital expenditures that year amounted to almost $49 million (217 F. Supp. at 114).

In the early 1930's, one of Olin's predecessor companies produced sodium chlorate for its own use (217 F. Supp. at 118). Olin itself has never engaged in commercial production of the chemical (*id.* at 117), although it purchases substantial amounts of sodium chlorate annually for internal consumption (R. 783 and n. 19) and also owns the patented Mathieson process for producing chlorine dioxide from either sodium chlorite (of which Olin is the only domestic producer (217 F. Supp. at 118)) or sodium chlorate (see PX 408, pp. 19–20). Sodium chlorate has a 3–1 cost advantage over sodium chlorite for this purpose in large-scale production (217 F. Supp. at 117–118 and n. 5). Olin, since the 1950's, has licensed the Mathieson process royalty-free to a large number of paper manufacturers, and today most of the chlorine dioxide used by the pulp and paper industry for bleaching purposes is produced under it (*id.* at 117, 118; PX 188; PX 245, R.

peal. "Tr." references are to unprinted testimony presented on remand, and "Tr. A." to unprinted testimony presented at the original trial. Both transcripts are a part of the record lodged with this Court on this appeal.

540). Olin has provided other bleaching services to the pulp and paper industry since the 1930's (PX 408, pp. 39–40).

Pennsalt.—A member of the chemical industry for 110 years, Pennsalt is engaged in the production and sale of chemicals and chemical products throughout the United States (217 F. Supp. at 113). In 1960, Pennsalt's sales were more than $90 million, and it had assets of approximately the same amount (*ibid.*). Between 1956 and 1961, it made capital expenditures of about $60 million (R. 97). In 1958 it began a $55 million modernization and expansion program (217 F. Supp. at 113–114).

Since 1941 Pennsalt has been producing sodium chlorate at a single plant located in Portland, Oregon (217 F. Supp. at 117). The annual capacity of this plant rose steadily from 2,194 tons in 1941 to 15,392 tons in 1959 (*ibid.*). Most of Pennsalt's sales of sodium chlorate have been to users located west of the Rocky Mountains (*ibid.*); in 1960, it had 57.8 percent of that market (*id.* at 123). Pennsalt installed the Mathieson process in western paper mills under a 1953 agreement with Olin (PX 60), and by 1960 was supplying all of the sodium chlorate used by these mills (217 F. Supp. at 117).

Pennsalt has also marketed sodium chlorate in the southeastern United States since 1957 (PX 414, Table X). However, of the 4,186 tons it shipped there in 1960 (217 F. Supp. at 121), 3,203 were sold by Olin as Pennsalt's agent under a test-marketing program (217 F. Supp. 121; Tr. A. 706) undertaken by Pennsalt to determine the feasibility of manufacturing chlorate in the Southeast either independently or jointly (PX 135). Pennsalt could not continue to market sodium chlorate effectively in the Southeast without a production facility in that area (Tr. A. 572–573), especially since the Portland plant was being utilized beyond its capacity (PX 376, Tr. A. 606).

Penn-Olin—The joint venture agreement between Pennsalt and Olin, signed on February 11, 1960 (see R. 796), was preceded by four years of negotiation (R. 798), and an even longer history of cooperation in various aspects of the sodium chlorate business. This cooperation is illustrated by the test-marketing agreement noted *supra*, p. 6, and by an agreement signed in 1958 that "neither [Pennsalt nor Olin] * * * should move in the Chlorate or perchlorate field without keeping the other party informed * * *, and each bound itself to bring to the attention of the other any unusual aspects of this business which might make it desirable to proceed further with production plans" (PX 111).

In forming Penn-Olin, the parties agreed to utilize Pennsalt's technology for sodium-chlorate production [2] and proceeded to construct a 26,500-ton plant

[2] A plant using a technical process which had been obtained by Olin for the production of the chemical was estimated to cost $300,000 less than the Penn-Olin proposal then under consideration, and to involve significantly smaller operating costs (PX 247, R. 544–545). Olin, however, yielded to "Pennsalt['s] pride in their own cell" (PX 247, R. 544). Although the Penn-Olin proposal was later modified, reducing the cost of construction by $300,000 by eliminating some of the facilities and awarding construction contracts to local concerns, no comparison was made by Olin's management between the final Penn-Olin proposal which was accepted and Olin's last project for independent entry. In fact, Olin's last project for independ-

at Calvert City, Kentucky, at a cost of $7.5 million (246 F. Supp. at 925). Although there had been some discussions, during the negotiations, concerning Penn-Olin's securing a loan, at no time did it make any effort to do so (R. 600), and in the end each parent supplied one-half of the plant's total cost (R. 583). The plant began operation in September 1961, with Pennsalt responsible for production and Olin in charge of sales (217 F. Supp. at 114).

3. The sodium chlorate industry

Prior to the formation of Penn-Olin, there were three producing companies in the United States, but only two had plants in the Southeast (217 F. Supp. at 116). Hooker Chemical Corporation ("Hooker"), the largest of the three, had entered the industry in 1956 by acquiring Oldbury Electro Chemical Company, which had been producing sodium chlorate since the turn of the century (*ibid.*). Hooker has two plants: one at Columbus, Mississippi (capacity 32,000 tons per year in 1960) and another at Niagara Falls, New York (capacity 18,000 tons) (*ibid.*). American Potash & Chemical Corporation ("AmPot") (which entered the industry in 1955 through the acquisition of Western Electro Chemical Company) also had two plants, located at Henderson, Nevada (1960 capacity,

ent entry predicted a 13.1 percent rate of return while the Penn-Olin plant was estimated to return only 10.1 percent (PX 32, R. 462; R. 819). In addition to lower construction costs, a part of this difference is probably attributable to the $75,000 freight advantage of Olin's Chattanooga, Tennessee site in serving the southeastern pulp and paper mills over the Calvert City location (PX 197, p. 2).

27,000 tons), and Aberdeen, Mississippi (15,000 tons) (*ibid.*). The third producer was Pennsalt, which, as noted, had a single plant at Portland, Oregon.[3]

Between 1950 and 1960 the domestic production of sodium chlorate more than quadrupled (PX 376), as the use of chlorine dioxide bleaching by the pulp and paper industry burgeoned (217 F. Supp. at 116). This expansion was attributable primarily to the efforts of Olin and Allied Chemical Corporation (Solvay Division) in granting royalty-free licenses to the pulp and paper manufacturers under their patented processes for the generation of chlorine dioxide (R. 769 and n. 5; *supra*, p. 5).[4]

The growth was most pronounced in the Southeast (one of the two major markets for sodium chlorate, the other being the West (217 F. Supp. at 120)). By 1960, the Southeast had the heaviest concentration of sodium chlorate buyers in the country (the pulp and paper mills being the largest of these by far) and nearly half of the national sodium chlorate productive capacity (217 F. Supp. 119–120).[5]

[3] Since the institution of this lawsuit, Pittsburgh Plate Glass Company has announced plans to construct a 15,000 ton plant at Lake Charles, Louisiana (217 F. Supp. at 117).

[4] As of 1961, there were four different processes that could be used to generate chlorine dioxide from sodium chlorate. However, most chlorine dioxide used by the pulp and paper producers was produced under the Mathieson and Solvay processes (PX 188). And as between those processes the Mathieson process clearly predominated (PX 254, R. 551).

[5] The capacity of Hooker's plant at Columbus, Mississippi, almost doubled between 1957 and 1960 (217 F. Supp. at 116), and in 1957 AmPot authorized construction of a plant at Aberdeen, Mississippi, to meet the growing demand in the Southeast and to enable it to compete effectively in that area with

That year, the southeastern market was divided among the three producers as follows: Hooker 49.5 percent, AmPot 41.6 percent, Pennsalt 8.9 percent (*id.* at 125).

B. PROSPECTS FOR NEW COMPETITION IN THE SOUTHEAST BEFORE THE JOINT VENTURE

1. Pennsalt

Prior to the joint venture, Pennsalt had given consideration to expanding its chlorate operations in the Southeast, but realized this could not be accomplished economically without a plant in the region. As early as 1951 it had made cost studies for a plant at Calvert City, where it already had chemical production facilities (217 F. Supp. 128; see PX 61). These estimates were updated in 1954 (PX 62), and from 1955 to the time of the joint venture Pennsalt gave almost continuous consideration to the establishment of a facility in the Southeast (PX 62; see PX 66, R. 74–76; see, also, PX 63, 64).

In response to a 1956 announcement by Hooker that it was going to increase the capacity of its plant at Columbus, Mississippi, Pennsalt designated a task force to evaluate the company's future in sodium chlorate production in the East, "either alone or jointly with a partner such as Olin * * *" (PX 74, 72, 73).[6] The task force, instructed that the "* * * tenor

Hooker's Columbus plant. In 1961, its capacity was increased almost 50 percent to 22,500 tons per year. (*Ibid.*)

[6] Pennsalt's president wrote the vice president in charge of the Portland plant: "On the face of it, this makes us look kind of silly when we consider the number of times we have evaluated

of the study is to find out how we can do it rather than why we can't" (PX 74), concluded that a 15,000 ton plant at Calvert City would cost $4.8 million and would return 11.4 percent on investment before taxes. A 14.1 percent return was predicted for a 20,000 ton plant at the same location. The task force advised (*ibid.*):

> Pennsalt's important position in sodium chlorate in the northwest has provided us with the manufacturing, selling, and technical service know-how required for the merchandising of this product. It would appear logical therefore for us to extend our position in the east provided we could be assured of a market potential of at least 15,000 tons per year.

A management firm (Arthur D. Little, Inc.) was then retained to study Pennsalt's selling potential in the Southeast. The Little Report, dated August 19, 1957 extensively analyzed the market and concluded that "there appears to be an excellent opportunity for another supplier in the East" (PX 96B, R. 482). It stressed that Pennsalt "enjoys a good reputation in the pulp trade, it has the experience of the Northwest market to draw upon, and it has the Mathieson chlorine dioxide generating process. In addition, the judicious selection of a location for a new plant could

unsuccessfully the installation of a chlorate plant in the Southeast" (PX 71). The vice president replied: "[Sodium chlorate] fits ideally into our product line. It is of course disconcerting to see Oldbury construct and expand a plant, and now to learn that Hooker intends to further expand its operations in our own back yard" (PX 73).

help Pennsalt gain a stronger foothold in the Eastern pulping areas" (PX 96B, R. 484). On the basis of the Little Report, Pennsalt's commercial development department, in October 1957, recommended that the company build a plant for the manufacture of sodium chlorate in the East (PX 96C, R. 494), reasoning that Pennsalt could obtain a "sound" position in that market because: (1) additional productive capacity was needed in the area; (2) Pennsalt's personnel were familiar with the technology of the chemical's use for pulp bleaching; (3) its sales personnel were successfully marketing "companion products" to the pulp and paper industry; (4) Pennsalt had "an assured initial sales base with certain Eastern accounts" (PX 96C, R. 492); (5) the sale of sodium chlorate would provide an opportunity to expand Pennsalt's sales position in the East by extending sales of companion products to territories not then being intensively covered; and (6) Calvert City was an advantageous location from which to serve the pulp and paper market (PX 96C, R. 488).

Thereafter, at a staff meeting to discuss eastern chlorate opportunities, the heads of Pennsalt's eastern and western industrial divisions expressed their view that Pennsalt could capture from 5,000 to 8,000 tons of the then existing sodium chlorate sales to paper manufacturers, 5,000 tons of the agricultural market and, in addition, some portion of the expanding demand. The Little Report estimated that demand would grow at the rate of 12 percent annually, and Pennsalt estimated that by 1962 demand in the Southeast would outstrip supply by 42,000 tons per year (PX 99, pp. 12). The company's chief engineer, on November 19, 1957, advised that a 25,000-ton plant would cost about $7.2 million and return, before taxes, 15.9 to 22.2 percent on total investment (PX 100, R. 502).

In December 1957, a memorandum from Pennsalt's management indicated that management considered the estimated rate of return unattractive and that construction of an eastern sodium chlorate plant was "unlikely" (PX 102, R. 503). In the same memorandum, it was pointed out that Olin would be a "logical partner" in a joint venture (PX 102, R. 504).

However, early in 1958 Pennsalt resumed consideration of independent entry into the Southeast. This time, the staff proposed a combination sodium chlorate-ammonium perchlorate plant; the "primary objective for going into perchlorates * * * [was] to facilitate the justification for [sodium] chlorate manufacture in the South" (PX 122).[7] It was estimated that Pennsalt could successfully market 20,000 tons of sodium chlorate in the Southeast (PX 124), and that demand for ammonium perchlorate would increase by

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[7] There had evidently been previous consideration of manufacturing ammonium perchlorate. Pennsalt had announced in a press release prepared by its president and issued on February 11, 1958, that it planned to build an ammonium perchlorate facility "at a yet unannounced location in the South" (PX 113; Tr. A. 682). At the time of the press release Pennsalt had prepared estimates for construction of a 6,000-ton perchlorate plant in the East (Tr. A. 573-574).

40 percent in 1959 and by 140 percent by 1961 (PX 150, R. 511).[8]

At a high-level meeting of Pennsalt's officers on November 3, 1958, it was agreed that a 100 percent Pennsalt owned chlorate-perchlorate operation at Calvert City was economically attractive, the estimated return on an investment being projected as 31 percent before taxes. The plant, to cost $11.8 million to construct, would produce 30,000 tons of sodium chlorate, 10,000 tons of which would be used internally to manufacture an equal amount of perchlorate (246 F. Supp. at 930). It was resolved at this meeting that Pennsalt's president should apprise the Board of Directors "of the proposed plans for producing and marketing sodium chlorate and ammonium perchlorate in the East" and, if the directors approved, then make a "final decision" to authorize an expenditure of $200,000 to design the plant and for other preliminary steps (246 F. Supp. at 930; Tr. A. 670).

About a week later it was learned that Pennsalt might be unable to sell the 10,000 tons of perchlorate such a plant would produce annually (246 F. Supp. at 933). Cost estimates were then ordered for a plant that would produce 20,000 tons of sodium chlorate for sale and an additional 5,000 tons for the manufacture of perchlorate (*ibid.;* DX 1, R. 661; Tr. A. 757-759). On January 28, 1959, an estimate on the 25,000-ton plant was completed and revealed that a wholly

[8] A representative from AmPot—a producer of perchlorates—testified at the time of trial that he, too, expected further increases in demand for ammonium perchlorate (R. 19).

Pennsalt-financed plant would yield a 26.2 percent return on the combined chlorate-perchlorate operation before taxes, and that if half the capital required was borrowed at 6 percent the combined project would yield a 42.7 percent return (246 F. Supp. at 933 and n. 28; PX 153, R. 519–520; PX 419; Tr. A. 759). Five days before this report was completed, however, the decision had been made by Pennsalt's management that further consideration of independent entry would be postponed until after joint-venture discussions with Olin and that independent production would be reconsidered only if Olin did not desire to proceed further with the joint venture (PX 154, R. 524).

2. Olin

Olin had long-standing contacts with many buyers of sodium chlorate as a result of selling other chemicals to them, and it "enjoyed a unique good will because of having made the Mathieson process available without charge" to the pulp and paper industry (217 F. Supp. at 121). It also had extensive experience in the technical aspects of bleaching pulp and paper (R. 788), and recognized that sodium chlorate was an "essential and integral" part of its chemical business (PX 254, R. 550). The general manager of Olin's chemicals division believed that Olin's "long-standing, concentrated relationship" with many of the customers for sodium chlorate gave Olin an advantage over some of the other sellers of the chemical (R. 652) and that "the sale of chlorate will give help in selling other chemicals to the paper industry" (PX 245, R. 541).

Olin became interested in selling sodium chlorate in the early 1950's, when it realized that sodium chlorite, which it produced, would be replaced in the Mathieson process by the less expensive sodium chlorate (PX 408, p. 19, *supra*, p. 5). At that time, Olin conducted a few "literature studies" as to potential outlets for and growth in demand of sodium chlorate (PX 406, R. 631–632). Between 1955 and 1958 the pace of activity quickened, as Olin conducted numerous studies relating to production and marketing of sodium chlorate.

Moreover, Olin began experiments in 1956 to improve the technology of sodium chlorate manufacture, and by early 1959 it had constructed a new cell using platinized titanium anodes that "operated for more than 100 days with very promising results" (PX 33, p. 4). Its experiments showed that "there was an excellent chance of our producing sodium chlorate at a cost lower than whatever the literature studies revealed * * *" (PX 406, R. 636; see PX 366, R. 564–565). In November 1959, Olin reached tentative agreement with Vickers-Krebs, Ltd., a plant construction company, on a cooperative program for development of a platinized titanium anodes process (PX 51).[9]

By early 1958, Olin's chemical division had launched a "real drive on [its] part to go ahead with the chlorate production on its own" (PX 406, p. 220). In

[9] These negotiations were broken off early in 1960 because of the decision to form Penn-Olin (PX 401, pp. 27–30; PX 406, p. 163).

April of that year, the chemical division issued a "Whither Report" on its objectives for future expansion, which stated, *inter alia* (PX 15, Section 4):

> We have an unparalleled opportunity to move sodium chlorate into the paper industry as the result of our work on the installation of chlorine dioxide generators. We have a captive consumption for sodium chlorate.

Olin's engineering supervisor, in the course of preparing cost estimates for the chemical division, concluded that production of sodium chlorate was "an attractive venture" because (1) it "represents a logical expansion of the product line of the Industrial Chemicals Division"; (2) "[w]ith respect to one of the major markets, pulp and paper bleaching, we have a favorable marketing position, particularly in the southeast"; and (3) production of the chemical offered an attractive potential return (PX 22, R. 446–448).

About one year later, after extensive additional study, the chemical division recommended to management that Olin construct its own sodium chlorate plant in the Southeast (PX 32, R. 454). This recommendation was revised in October 1959 to recommend construction of a 15,000 ton plant at Chattanooga, Tennessee. A return after taxes of 13.1 percent on gross investment was predicted (see PX 32, R. 462). The chemical division argued that total demand for sodium chlorate would outstrip industry capacity by 1962 and had already done so in the Southeast (PX 32, R. 453). It pointed out that Olin's technical service personnel had established valuable goodwill with firms in the pulp and paper industry, and it predicted that Olin would secure about one-third (14,000 tons) of the annual tonnage used by the southeastern paper mills (PX 32, R. 453), in addition to Olin's substantial internal requirements for the chemical (R. 769).

Although Pennsalt had by this time reactivated joint-venture discussions, the manager of the chemical division felt that Olin probably would not proceed with a joint facility and that an independent plant was "definitely more of a possibility than it had been previously * * *" (R. 62–65). However, the recommendations of the revised 1959 report never reached Olin's higher management (R. 823), and were not before them when, in August 1960, Olin decided to proceed with Penn-Olin (PX 402, R. 619; see, also, 217 F. Supp. at 128–129 and n. 22).

3. Other potential entrants into the Southeast

The general sales manager of one of the two existing producers of sodium chlorate in the Southeast when Penn-Olin was formed—AmPot—testified that the companies which might enter the sodium chlorate business were "chlorine and alkali-producing companies, particularly those supplying the paper industry" (Tr. 405). Although he stated that he had no reason to believe that Olin's or Pennsalt's entry into the southeastern market was "imminent," he considered Pennsalt and Olin "more likely entrants than these other companies" (Tr. 435, 443–444).[10] Among

[10] The former general manager of Hooker's Eastern Chemicals Division testified that most of the companies in the chlor-

the other companies in this category which he suggested might be regarded as possible, although less likely, entrants were Allied Chemical Corporation (which had been selling AmPot's output) and "perhaps at that time a company such as Wyandotte Chemical, Diamond Alkali, [and] * * * Monsanto" (Tr. 405).[11]

The contemporaneous documents of those who studied the market between 1956 and 1960 also show that Olin and Pennsalt were regarded as the most likely potential entrants. For example, in July 1958 Diamond Alkali, in its survey of the market, viewed Olin as a likely potential entrant because of its position in chlorine dioxide generating technology, its activities as a reseller of sodium chlorate and the availability of a favorable producing site (DX 61, p. 47). Diamond Alkali was also aware that Pennsalt was "investigating the southeastern part of the U.S. as a possible site for a new plant" and predicted that this plant would have a minimum capacity of 10,000 tons and be located at Calvert City, Kentucky (DX 61, p. 47).[12]

alkali industry—"[p]eople that produce caustic soda and chlorine in electrolytic cells" (Tr. 223)—might have entered the sodium chlorate market in 1960, and he proceeded to list thirteen companies which to his knowledge were in the business of manufacturing chlorine and caustic, including Olin and Pennsalt (Tr. 223–224). He did not say whom he regarded as the more likely potential entrants.

[11] He later added Dow, FMC, and Jefferson Chemical to this list (Tr. 409). However, the likelihood of entry by Monsanto or Jefferson is not further developed in the record.

[12] Others who were studying the market also predicted entry by Pennsalt. As early as January 1956, a study by FMC predicted that Pennsalt would build a sodium chlorate plant at

In contrast, most of the other companies mentioned were remote prospects for entry.

Wyandotte Chemical Corporation prepared its first market survey on sodium chlorate in 1959 (Tr. 264–266; 292). It examined several possibilities, but decided to ask its research people to "continue to work in this general, overall area to see if they could come up with any innovations, or new processes that would allow [Wyandotte to enter] * * * with an advantage" (Tr. 274).[13] It undertook a long range research program in an attempt to find alternative solutions to the pulp bleachers' problems (Tr. 292).

Unlike Pennsalt or Olin, Wyandotte had "no technical (research or production) position" in the sodium chlorate field (DX 56, R. 707); had never previously sold or manufactured sodium chlorate; had made no study assessing its ability to sell the output of a com-

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Calvert City (DX 87, p. 3; see, also, DX 88, p. 4). Wyandotte Chemicals Corporation's market research department lists a sodium chlorate plant for Pennsalt in the Southeast with an estimated capacity of 10,000 tons in a study completed in July 1959 (DX 56, p. 9). Pennsalt considered Olin to be "clearly superior" to other potential sellers of sodium chlorate. When asked at trial the basis of this conclusion, Pennsalt's president answered: "Well you can look at it from a negative standpoint, who else is there?" (PX 392, pp. 56–57).

[13] Wyandotte was not nearly so interested in the manufacture of sodium chlorate as it was in methods of producing chlorine dioxide, and it therefore decided to concentrate its efforts on developing either new chemicals or technologies which would be a substitute for chlorine dioxide. It recognized that entry into the bleaching business via this route would be a "long, hard road to hoe," but felt the advantages would be significantly greater than just following along and being an "amateur in the sodium chlorate business." (Tr. 267.)

mercial sodium chlorate plant in the southeast; and had no chlorine dioxide generating process to aid in selling sodium chlorate (see DX 56, p. 4).

FMC's consideration of entry into the southeastern sodium chlorate market prior to 1961 consisted primarily of a preliminary analysis of the cost of converting excess electrolytic facilities at Charleston, West Virginia to production of sodium chlorate (DX 84, p. 1). Such an operation would have yielded only 2,000 to 5,000 tons per year. Estimates for the 2,000 ton per year plant showed that its production costs would exceed the selling price (DX 84, p. 2); and the return on the 5,000 ton plant was a low 2.5 percent (DX 87, pp. 6–7). The only projection which showed even a marginally acceptable rate of return was a 12,000 ton plant, but FMC's estimates of its marketing capabilities indicated that it would be unable to sell that amount (DX 87, R. 731). Moreover, it appears that FMC's staff had "meager know how" in operating sodium chlorate facilities (DX 85, p. 2); that the crowded South Charleston location was unsuitable for manufacture of sodium chlorate because of the hazardous chlorate dust; that FMC lacked a number of advantages such as cheap power, cheap salt, or a captive market (DX 85, p .2); and that many of its present customers were not users of chlorate (DX 87, R. 733).

Stauffer Chemical Company expressed some interest in sodium chlorate in 1960, but it was "not a very high priority project" (Tr. 382). Unlike Pennsalt or Olin, Stauffer had not previously sold or manufactured sodium chlorate; had only recently become interested in the pulp and paper industry; had no process either for production of sodium chlorate or for conversion of sodium chlorate to chlorine dioxide;[14] had no internal market for sodium chlorate (Tr. 304); and apparently had engaged in no research and development for the production of sodium chlorate.

Diamond Alkali Company had a market survey of the sodium chlorate industry prepared in 1958 (DX 61, R. 711). Later that year a study was made of three processes for the manufacture of sodium chlorate. It was concluded that one—an electrolytic process estimated to yield a return after taxes of 7.6 percent—"should be further studied and developed in the event that Diamond seriously considers entering the sodium chlorate field" (DX 63, R. 727). Apparently no such study was made. The 1958 market study was updated a year later, and concludes with a recommendation that Diamond enter the sodium chlorate business. Again, there is no indication as to what resulted from this recommendation. Diamond had never previously sold or manufactured sodium chlorate, had "no basic technology" (DX 58, R. 710), and had no chlorine dioxide generating process to aid it in making sales to the pulp and paper trade.

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[14] "Besides the normal problems one would expect in beginning to market a commodity type chemical against well established producers, the selling of sodium chlorate to the largest users, the pulp and paper mills, presents an unusual one. All the present producers offer patented processes and know how for conversion of sodium chlorate to chlorine dioxide on a royalty-free basis. While most mills purchase chlorate from more than one producer, they tend to heavily favor the one whose process they employ" (DX 65, p. 3).

Dow Chemical Company had conceived the idea of a plant, adjacent to pulp mills, which would be capable of furnishing all the requirements for bleaching pulp, including sodium chlorate (Tr. 592, 610–611), but, at the time of the second hearing (1965), it had not yet succeeded in obtaining any contracts for building such a facility in the Southeast (Tr. 602). In 1960, Dow had never sold or manufactured sodium chlorate commercially and had no chlorine dioxide generating process to aid it in making sales.

American Cyanamid Company first indicated possible interest in the sodium chlorate market in 1960 (Tr. 850–851). It had (prior to 1960) no technology available for sodium chlorate manufacture (Tr. 851); it had not sold pulp-bleaching materials to the paper industry in any significant quantities (Tr. 865); it had never produced or sold sodium chlorate; and it had no caustic or chlorine plant in the Southeast that would provide a suitable site for construction of a sodium chlorate plant (DX 73, Table I). So far as apepars, it had conducted no studies to ascertain what problems and costs it would encounter manufacturing sodium chlorate. It had no patent, either through ownership or license, on a chlorine dioxide bleaching process.

Virginia Chemicals, Inc., limited any serious consideration of entering the sodium chlorate business to utilizing an old zinc powder plant which had been idle since World War II. Its last estimate, in 1959, indicated that a 4,000-ton plant at West Norfolk, Virginia, would incur high power and other costs and consequently would operate at a loss of $55,000 per year

(DX 110, R. 751; DX 108, R. 748; Tr. 880–881, 885).

Kaiser Aluminum & Chemical Corporation first considered entry into the sodium chlorate field in 1961 (Tr. 450–451). It had a caustic and chlorine plant at Gramercy, Louisiana, but had little marketing experience with the pulp and paper industry (Tr. 462, 465–466). Its sales of other chemicals were rather small (Tr. 468), and it had no chlorine dioxide process available for pulp bleaching, nor any established reputation in the pulp and paper industry.

Chipman Chemical Company has been purchasing sodium chlorate since 1926 for use in making weed killers and for resale to agricultural and industrial users (Tr. 147–148). Its only sales to the paper industry were to the Champion Paper Company, which has a plant adjoining its facility in Pasadena, Texas (Tr. 151–152). Chipman had no knowledge of the chlorine dioxide business in the Southeast because it did "not engage actively in the paper business" (Tr. 192, 203).

Better prospects for entry were Pittsburgh Plate Glass, which announced plans to build a sodium chlorate plant in the Southeast after this suit was brought and, like Pennsalt, already had such a plant in Canada (see Tr. 127–128, 225), and Allied Chemical Company, which owns the Solvay chlorine dioxide generating process (Tr. 768; see p. 9, *supra*), and has been selling, in the southeastern market, the sodium chlorate produced by AmPot (Tr. 766).

II. THE PROCEEDINGS

The government's complaint was filed on January 6, 1961 (R. 9). As amended, it charged that Olin and Pennsalt, in forming a joint venture to produce sodium chlorate, had violated Section 1 of the Sherman Act, 15 U.S.C. 1, and Section 7 of the Clayton Act, 15 U.S.C. 18. The theory of the complaint was that either the independent entry of both Pennsalt and Olin into the sodium chlorate market or the independent entry of one, while the other continued to ponder entry, would result in a more competitive market structure than common entry through the joint venture, and that therefore the effect of the joint venture might be substantially to lessen competition by precluding either possibility.

A. THE DISTRICT COURT'S FIRST DECISION

The district court agreed with the government that the production and sale of sodium chlorate in the southeastern United States constituted a relevant market in which to assay the effects of the joint venture on competition under the standards of Section 7, but dismissed the Section 7 count on the ground that the government had not shown that in the absence of the venture *both* companies would have entered the market independently (217 F. Supp. 110). The court found that the "most favorable assumption that can be made from the Government's standpoint is that either Pennsalt or Olin * * * would have entered" independently (217 F. Supp. at 130), but concluded that there was no reason "to suppose that Penn-Olin will be a less effective competitor than Pennsalt or Olin * * *" (217 F. Supp. at 131).

B. THIS COURT'S DECISION

On appeal by the United States, this Court vacated the judgment of the district court and remanded for further proceedings. *United States* v. *Penn-Olin Chemical Co.,* 378 U.S. 158. It held that competition in the production and sale of sodium chlorate in the southeastern United States might be substantially lessened even if it was not proved that both companies would have entered in the absence of the joint venture, but only that one company would have entered while the other remained an important potential competitor at the edge of the market.[15] Although the Court found on the record before it that "[u]nless we are going to require subjective evidence, this array of probability [that both were potential entrants] certainly reaches the prima facie stage" (378 U.S. at 175), it declined to disturb the district court's finding "that there was not a reasonable probability that both Pennsalt and Olin would have built a plant in the relevant market area" (*ibid.*), and remanded the case to the district court for a finding "as to the rea-

[15] The Court stated: "Certainly the sole test would not be the probability that *both* companies would have entered the market. Nor would the consideration be limited to the probability that one entered alone. There still remained for consideration the fact that Penn-Olin eliminated the potential competition of the corporation that might have remained at the edge of the market, continually threatening to enter. Just as a merger eliminates actual competition, this joint venture may well foreclose any prospect of competition between Olin and Pennsalt in the relevant sodium chlorate market." 378 U.S. at 173.

sonable probability that either one of the corporations would have entered the market by building a plant, while the other would have remained a significant potential competitor." 378 U.S. 175-176.

The Court noted that "[p]otential competition cannot be put to a subjective test" (378 U.S. at 174), and it set forth general criteria relating to the structure of the market which the trial court might take into account in assessing the probability of a substantial lessening of competition (378 U.S. 176-177).

C. THE PROCEEDINGS ON REMAND

On remand the defendants did not adduce any additional evidence on the probability of entry by Olin, and the evidence relating to Pennsalt on this issue (all introduced by defendants) was limited to an up-dating of prior testimony.[16] The government relied on the *prima facie* showing made at the first trial and introduced no new evidence. The district court held that the government had not sustained its burden of proving that independent entry by either Olin or Pennsalt was reasonably probable in the absence of the joint venture. It said that it was "not reasonably probable" that the recommendations of the chemical

[16] See statement of defendant's counsel at Tr. 63. Two kinds of evidence were offered in the hearing on remand with respect to probable entry by Pennsalt. First, defendants introduced evidence concerning Pennsalt's investment policies. This was a repetition of testimony given at the first trial (compare, *e.g.*, Tr. 723-731 with R. 107-109). Second, several witnesses, including Pennsalt's president, Mr. Drake, testified that events occurring since the formation of the joint venture made Pennsalt's independent entry less probable (Tr. 695-704).

division would have been approved by top management of Olin, and, even if they were, "no intelligent forecast can be made as to the likelihood of * * * approval by the Board of Directors who had the final say." (R. 823). With respect to independent entry by Pennsalt, the district court relied on testimony by Pennsalt officials that the proposals for independent entry did not forecast adequate rates of return on capital; on the management decision in 1958 that it was unlikely that Pennsalt would produce chlorate without producing the potentially more profitable perchlorate with it; and on evidence that the interest of Pennsalt's president in perchlorate production "began to wane" upon his discovery that predictions of demand for perchlorate might have been inflated (R. 832–833). The court did not discuss the revised plan for a chlorate-perchlorate facility which corrected the previous error, apparently because it had not been acted upon as a sufficiently high management level.

SUMMARY OF ARGUMENT

In 1960, Pennsalt and Olin, two large chemical manufacturers, formed the Penn-Olin Chemical Company as a joint venture to manufacture and sell sodium chlorate in the southeastern United States. In 1961, the government challenged the joint venture as a violation of Section 7 of the Clayton Act. On appeal from the district court's dismissal of the complaint after trial, this Court, three years ago, held that the government's complaint should not have been dismissed merely because the district court found it unlikely that both Pennsalt and Olin would have essayed independent entry into the relevant market in the absence of the joint venture. The Court pointed out that, if one would have entered while the other remained a potential entrant into the market, the joint venture might still be unlawful in eliminating that potential competition. It remanded for further inquiry into this issue. *United States* v. *Penn-Olin Chemical Co.*, 378 U.S. 158. On remand, the district court found that neither co-venturer would have entered the market on its own, and dismissed the complaint without reaching any other issue. In our view, this finding was erroneous, and the joint venture is illegal.

I

Our primary quarrel with the district court's finding that neither Pennsalt nor Olin were likely entrants is over the correct standard to be applied in determining probability of entry. The court's view was that the issue is to be decided primarily on the basis of evidence of what top management said or thought about independent entry. Thus, to demonstrate that such entry was likely, it must be shown that the officials in control of the company actually expressed an intention or reached a formal decision at a particular time to enter independently if the joint-venture route was not available. We, on the contrary, believe that the absence of such evidence—or even the presence of evidence which shows that they expressly rejected the alternative of independent entry—is far less probative than objective economic evidence relating primarily to the co-venturers' capability and incentive to enter the relevant market on their own.

So saying, we stress our belief that business decisions tend to be rational—to accord with the objective economic circumstances confronting the decision-makers—rather than whimsical. If a firm has the capability and incentive to enter a market (indeed, an incentive confirmed in this case by sustained interest in the market and ultimate actual entry, albeit through a joint venture), it can, we think, reasonably be assumed that sooner or later the firm will enter, whatever the immediate decisions or statements of inclination of its current management. Evidence of those inclinations accordingly is not entitled to decisive weight. *A fortiori,* the absence of proof of an affirmative inclination to enter should not defeat the government's case.

Additional reasons for subordinating such evidence are that, being subjective, it is inherently difficult to verify or evaluate; that it lends itself to fabrication difficult to expose; and that it is most often beside the point altogether. When a joint venture is under consideration, the choice between independent entry and no entry at all is hypothetical. Therefore, a manager's rejection of independent entry may mean only that, given a choice, he prefers joint to independent entry.

If the correct standard, as we urge (and as we believe this Court has already intimated), is one that accords primacy to objective evidence, the government has proved that both Pennsalt and Olin were likely entrants, or, at the least, if they were not simultaneous entrants, that one would have remained a significant potential competitor after the other entered. The district court itself found in its first decision that both had the technical and financial capability for independent entry. In addition, corporate studies whose validity is unimpeached on this record demonstrate that independent entry would have represented a profitable deployment of resources for both companies. Each, moreover, had special reasons for entry beyond the opportunity for a profitable investment. So, also, each was in fact interested in entering the relevant market, as demonstrated both by their actual decision to enter (albeit jointly) and by the fact that both had studied the feasibility of entry intensively for a period of years. Finally, the companies' past experience in sodium chlorate and related fields made the construction of a plant in the Southeast a natural avenue of expansion.

II

Once it is shown that, at the least, one of the coventurers would have entered the market on its own while the other waited in the wings and pondered entry, it is readily demonstrable that the joint venture violated Section 7 by eliminating the latter's potential competition. In a highly concentrated market, the elimination of one of the few important potential competitors is a sufficient adverse competitive effect to bring a transaction within the ban of Section 7. The southeastern sodium chlorate market was highly concentrated—was, indeed, completely dominated by just two firms. The parties to the joint venture were foremost among a very small group of likely entrants. Moreover, it is clear that the entry of one would not have eliminated the continuing interest of the other in entering when conditions were ripe. The joint venture, in eliminating the other's potential competition, thus removed a substantial restraining influence on the market. While the court below did not have occasion to reach this issue, it presents no special difficulties, and we urge that it be decided now to bring to an end this protracted litigation, now in its seventh year.

ARGUMENT

I. TESTED UNDER THE PROPER STANDARD—WHICH GIVES PRIMACY TO OBJECTIVE ECONOMIC EVIDENCE OF CAPABILITY AND SPECIAL INCENTIVE TO ENTER A NEW MARKET, RATHER THAN TO THE DECLARATIONS OF CORPORATE OFFICIALS—IT IS APPARENT THAT EITHER OLIN OR PENNSALT WOULD HAVE ENTERED THE SOUTHEASTERN SODIUM CHLORATE MARKET INDEPENDENTLY, HAD THE JOINT-VENTURE ROUTE BEEN BARRED TO THEM

When this case was last here, the Court held that joint ventures were subject to scrutiny under the standards of Section 7 of the Clayton Act, and provided criteria to guide the decision of such cases. On remand, the district court again dismissed the complaint, finding, this time, that the government had failed to establish a probability that in the absence of the joint venture either of the venturers—Olin or Pennsalt—would have entered the southeastern sodium chlorate market on its own. So ruling, the court, as we elaborate below, applied an erroneous standard: one that emphasizes evidence as to what corporate officials declared were their intentions regarding independent entry, and that slights the objective economic evidence of the firms' capability and special incentive for such entry.

A. CONSIDERATIONS OF SOUND ECONOMICS, EVIDENTIARY RELIABILITY, AND ADMINISTRATIVE FEASIBILITY SUPPORT A STANDARD THAT GIVES PRIMACY TO OBJECTIVE ECONOMIC EVIDENCE IN PREDICTING THE LIKELIHOOD THAT A PARTICULAR FIRM WILL ENTER A GIVEN MARKET ON ITS OWN

The theory upon which the government challenged the Penn-Olin venture, briefly stated, is as follows: Had the joint venture—which foreclosed either party from independent entry into the relevant market—not supervened, it is likely that at least one of the parties would have entered the market while the other—if it did not enter immediately—would, at the least, have remained an important potential entrant. By eliminating that potential competition, the joint venture substantially impaired the competitive structure of the market.

A critical determination in such a case is whether it is ~~possible~~ probable that actual entry by at least one of the parties would have occurred had the joint venture fallen through. A similar question often arises in merger cases, where the elimination of a likely entrant may support the conclusion that Section 7 has been violated. *E.g.*, *Federal Trade Commission* v. *Procter & Gamble Co.*, 386 U.S. 568; *United States* v.

El Paso Natural Gas Co., 376 U.S. 651. We do not suggest that the likelihood of independent entry, whether in the joint venture or merger context, by itself determines illegality; other critical questions must also be considered (see pp. 54–58, *infra*). But the government's case will fail at the threshold if, as here, the district court concludes that neither of the joint venturers would have entered the market on its own. The delineation of sound standards to guide the determination of this question is, accordingly, crucial. We sketch here our view of the essential elements.

We begin by distinguishing two types of evidence which bear upon the likelihood that a particular firm will enter a given market on its own, if prevented from doing so jointly with another firm. The first is "objective," in the sense of being quite independent of what the firm's managers, at the time of the decision to enter the joint venture, thought or said they would do if compelled to decide whether the firm should enter the market alone. It includes evidence relating to the technical and financial capability of the firm to enter independently, its incentive to do so and its prospects for successful entry, and, of lesser importance we think (see p. 39, *infra*), the degree to which it has manifested a sustained and concrete interest in independent entry. The other kind of evidence—which may be described as "subjective"—consists of management's thoughts or words as to whether the firm would have decided to enter on its own if the joint-venture route had been blocked. In our view, this latter type of evidence should be accorded little weight in evaluating the likelihood of independent entry in a Section 7 joint-venture case. The issue should be decided on the basis of objective evidence—this because of its greater probative value as a matter of sound economics; the inherent unreliability of the kind of subjective evidence offered in these cases; and the needs of effective enforcement of the antitrust laws, which would be ill served by a rule according significant weight to subjective evidence in cases of this type.

1. Our fundamental premise in arguing that objective evidence of the likelihood of independent entry should be accorded decisive weight, as compared to management's statements of its intentions, is an economic one: It is that businessmen by and large act rationally—that is, in accordance with the relevant economic conditions. Thus, we assume that if the facts, viewed objectively, indicate that it is in the best interest of Company *A* to enter Market *X*, the company will, in all probability, enter that market, even if company officials initially advise against such a course. If not immediately, then in the foreseeable future, the objective realities of the situation should persuade management to follow the course that will promote the prosperity and growth of their firm.

Perhaps, there are companies which persistently disregard their best interest. Surely, that is relatively rare. And management that consistently ignores objective reality in its decisions is bound eventually to be replaced by the stockholders. We conclude that a rule which presumes that firms will essay entry when that is the course indicated by the weight of the objective economic evidence has general validity and entails little danger of blocking joint ventures which promote competition by providing the only avenue of entry for the co-venturers.

Previous doctrines fashioned by this Court to guide decision in Section 7 cases likewise rest on the assumption that businessmen act in accordance with their best interests, objectively viewed. Thus, for example, it is assumed that sellers in highly concentrated markets tend to refrain from vigorous competition because it is in their best interest to do so, and that such sellers, when aware of potential entrants, tend to lower their prices somewhat to discourage new entry because it is in their best interest to maintain an oligopolistic environment.[17] The same presumption of business rationality should be indulged when the question is whether a firm is likely to enter a market on its own if joint entry is barred to it. In such cases, too, it is reasonable to assume that management—whatever its disclaimers—will not persist in a course that is contrary to the objective economic evidence of the company's needs and opportunities.

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[17] See *Federal Trade Commission* v. *Procter & Gamble Co.*, 386 U.S. 568; *United States* v. *Pabst Brewing Co.*, 384 U.S. 546; *United States* v. *Von's Grocery Co.*, 384 U.S. 270; *Federal Trade Commission* v. *Consolidated Foods Corp.*, 380 U.S. 592; *United States* v. *Continental Can Co.*, 378 U.S. 441; *United States* v. *Penn-Olin Chemical Co.*, 378 U.S. 158; *United States* v. *Aluminum Co. of America*, 377 U.S. 271; *United States* v. *El Paso Natural Gas Co.*, 376 U.S. 651; *United States* v. *Philadelphia National Bank*, 374 U.S. 321; *Brown Shoe Co.* v. *United States*, 370 U.S. 294.

2. Evidence as to managerial intent whether to enter has additional grave infirmities. It is very difficult to verify. The sincerity and depth with which an individual holds a view are not often susceptible of reliable evaluation. More important, rarely will a contemporaneous expression of opinion be found on the only truly relevant question, which is not whether management considered independent entry to be as desirable as the joint venture but whether it considered it preferable to no entry at all. Ordinarily, in these cases, management is called upon to evaluate independent entry in the context of an alternative opportunity for joint entry. The joint venture may be perferred for many reasons—not least, the elimination of competition between the venturers in the relevant market. The decision to reject independent entry in favor of joint entry may, therefore, tell little about the venturers' inclination to enter separately should the joint venture be barred. At the time of trial, to be sure, the companies' officials may testify that had the joint venture fallen through they still would have rejected independent entry. But such testimony, being self-serving and hypothetical, is entitled to little weight.

3. Finally, reliance upon subjective evidence of managerial intent to enter or not to enter independently would frustrate effective antitrust enforcement. Once it is established that such evidence will be received and accorded substantial weight, businessmen who decide upon a joint venture will not fail to accompany their decision with expressions of unwillingness to enter independently; as noted, there is no

ready method for testing the sincerity of such avowals. Moreover, if legality depends on a court's evaluation of the sincerity of official statements or beliefs that independent entry was not a feasible alternative, confident predictions of the validity of joint ventures cannot be made. So uncertain a standard robs the antitrust laws of their predictability, a result harmful to sound business planning no less than to sound law enforcement.

In contrast, determining the objective feasibility of independent entry presents the type of economic issue typically resolved in antitrust litigation. The principal areas of evidentiary inquiry would be two. The first would be each venturer's *capability* for independent entry. Unless a firm has (a) the know-how and (b) the financial ability to enter on its own, it can be ruled out as a likely entrant. The second area of inquiry is the firm's incentive; a firm may be capable of entering Market *X* independently, yet have no cogent reason to deploy its resources thus.

In determining incentive, the focus shifts from the firm's resources (vital to the question of its capability) to the state of the relevant market and the market's special relationship to the firm. The condition of the market may be such that entry would be unduly risky unless the risks were shared with another firm, or the predicted profits of the independent project may be such as to make entry unattractive.

Nor should inquiry stop with the general attractiveness of the market in terms of estimated risk and profit. Large firms may have a variety of attractive investment opportunities. Where that is so, it may be reasonable to require the government to show why the special circumstances of the market in question in relation to the firm's needs or resources make that market a likely choice among the various feasible and attractive alternatives open to the firm.

In this connection, it may be relevant to consider whether the venturers manifested a sustained interest in independent entry by repeated studies of its feasibility and desirability, and whether—considering the past expansion pattern of the firms and the relationship of the new market to others they have entered—the market lay on the natural path of growth of one or both venturers. But such evidence is not, in our view, essential. The existence of economic factors indicating a special incentive, coupled with the fact that the firms launched the joint venture, is persuasive that the market was one they were peculiarly interested in entering.

Channeling inquiry as to the likelihood of independent entry within the areas outlined above would, we believe, permit rational decisions on the question, without need to plumb the depths of managerial intention. Indeed, an even greater simplification of proof could be urged. One could argue that in any case where the joint venturers are capable of independent entry—where, in other words, the joint venture is not necessary to remedy major deficiencies of know-how or funds besetting the partners—it should be presumed that at least one of them would enter independently if the joint-venture route were barred. The venture itself demonstrates the venturers' *incentive* to enter the market; if they are capable of independent entry, is it not likely that at least one of them will elect that course and that neither will renounce its interest in the market? Defendants could rebut this presumption by showing that the venture was necessary because the risks were far too great, or the skills or resources inadequate, to have justified either member's independent entry; but in the absence of such rebuttal the inference that independent entry was likely would stand.

While we believe this a sound approach, the Court need not go so far to decide the present case. As we show below, not only is the district court's finding on remand that neither co-venturer was a likely independent entrant vitiated by its reliance on subjective evidence; this record overwhelmingly demonstrates the capability and special incentive of both firms to enter independently in the event that the joint-venture route was closed.

It remains only to note, in closing this general discussion of standards, that the approach we espouse is fully consonant with such intimations as to the proper standards governing determinations of the likelihood of entry as may be gleaned from previous decisions of this Court. When this case was last before this Court, it reviewed the objective evidence tending to show that both co-venturers were likely entrants [18]

[18] 378 U.S. at 174–175:

"Here the evidence shows beyond question that the industry was rapidly expanding; the relevant southeast market was requiring about one-half of the national production of sodium chlorate; few corporations had the inclination, resources and

and concluded, "Unless we are going to require *subjective* evidence, this array of probability certainly reaches the prima facie stage. As we have indicated, to require more would be to read the statutory requirement of reasonable probability into a requirement of certainty. This we will not do." *United States* v. *Penn-Olin Co.*, 378 U.S. 158, 175 (emphasis added). Clearly, then, the government is not required to establish the subjective intent of management to enter independently; moreover, for the reasons stated, we think such evidence has so little probative weight that, when it contradicts the objective economic evidence, it should not be permitted to sway decision.

Also quite pertinent here is this Court's recent decision in *Federal Trade Commission* v. *Procter & Gamble Co.*, 386 U.S. 568. The Court upheld the

know-how to enter this market; both parent corporations of Penn-Olin had great resources; each had long been identified with the industry, one owning valuable patent rights while the other had engaged in sodium chlorate production for years; each had other chemicals, the production of which required the use of sodium chlorate; right up to the creation of Penn-Olin, each had evidenced a long-sustained and strong interest in entering the relevant market area; each enjoyed good reputation and business connections with the major consumers of sodium chlorate in the relevant market, *i.e.*, the pulp and paper mills; and, finally, each had the know-how and the capacity to enter that market and could have done so individually at a reasonable profit. Moreover, each company had compelling reasons for entering the southeast market. Pennsalt needed to expand its sales to the southeast, which it could not do economically without a plant in that area. Olin was motivated by 'the fact that [it was] already buying and using a fair quantity [of sodium chlorate] for the production of sodium chlorite and that [it was] promoting the Mathieson process of the generation of chlorine dioxide which uses sodium chlorate'."

Commission's finding that Procter had been the most likely entrant into the liquid bleach market, stating: "The Court of Appeals declared that this finding was not supported by evidence because *there was no evidence that Procter's management had ever intended to enter the industry independently* and that Procter had never attempted to enter. The evidence, however, clearly shows that Procter was the most likely entrant" (386 U.S. at 580 (emphasis added))—and the Court then reviewed the various objective indicia of likely entry that the Commission had relied upon (*id.* at 580–581).

In neither case did this Court explicitly decide the precise weight to be accorded subjective evidence, but, clearly, in both it readily perceived the inherent inadequacies of such evidence. We urge, as a sound and needed clarification of antitrust principles in this area, that the Court now confirm that such evidence will not outweigh persuasive objective evidence indicating the likelihood of independent entry.

B. THE DISTRICT COURT ACCORDED CONTROLLING WEIGHT TO THE DECLARED INTENTIONS OF MANAGEMENT VIS-À-VIS INDEPENDENT ENTRY, BUT UNDER THE PROPER STANDARD, GIVING PRIMACY TO OBJECTIVE EVIDENCE, IT IS PLAIN THAT AT LEAST ONE OF THE CO-VENTURERS WOULD HAVE ENTERED ON ITS OWN BUT FOR THE JOINT VENTURE

Ordinarily, this Court will not disturb a district court fact-finding. But this precept is, of course, inapplicable where the finding is made under an improper standard. That, we submit, is the case regarding the district court's finding, on remand, that neither Pennsalt nor Olin would have entered the southeastern sodium chlorate market on its own had the joint venture been blocked. That finding is vitiated by the court's emphasis upon a type of evidence—subjective evidence of managerial intention—that should be accorded little weight in a joint-venture case tried under Section 7 of the Clayton Act.

1. The district court manifested its bias in favor of such evidence in the very first sentence of its discussion of the likelihood that Olin would have entered independently: "In evaluating the evidence to determine what Olin would have done if it had not been a party to the joint venture it is essential to distinguish between the views and actions of those in the Olin organization who were charged with decision making responsibility, and those whose function it was to make preliminary studies and recommendations. Obviously the former are vastly more significant than those of the latter in predicting hypothetically what Olin would have done but for the joint venture" (R. 809).

In our view, management views, at whatever level, should not be the focus of analysis. But, consistently with its opening sentence, the court's discussion of independent entry by Olin is given over largely to review and speculation as to management views on the question at various levels. Thus, the court emphasized the recommendation of one corporate committee that Olin should enter the relevant market neither jointly nor independently (R. 818), and the decision of another not to proceed with the joint venture (*ibid.*; this decision was, of course, later reversed). The court noted that while "Olin, of course, could have built a chlorate plant at Charleston and financed the project in part by borrowing so as to provide a greater return, just as Penn-Olin did", the record contained "no suggestion that Olin would have done so" (R. 821). The court thought significant the "skeptical attitude of Olin's management toward earning estimates submitted by the Chemicals Division" (which had recommended independent entry) (R. 822); the "pessimistic attitude" of other officers who would have had to approve the division's recommendation for independent entry—from which the court inferred that they would not have approved it (R. 823); and "their lack of confidence in projects recommended by the Chemicals Division", as indicated by a certain memorandum (*ibid.*).

Finally, assuming that the chemicals division's proposal for independent entry would have won the approval of the officers, the court remarked that "no intelligent forecast can be made as to the likelihood of its approval by the Board of Directors who had the final say" (R. 823)—this because only two were officers, and the others apparently were "men of broad financial and business experience": "[w]hether these men were hypercritical or easily persuaded to accept management proposals is not disclosed" (*ibid.*); their views about independent entry into chlorate "cannot be conjectured." *Ibid.*

The essence of the court's holding, then, is that Olin cannot be deemed a likely independent entrant because the individuals who controlled the corporation never expressed an intention to essay such entry. Similarly, in finding that Pennsalt was not a likely independent entrant either, the court stressed: the testimony of one official that a projected method of independent entry (*i.e.*, a plant that also produced perchlorate) was unduly risky; the fact that Pennsalt became "less enchanted" with this project (R. 832); that by "the spring of 1959 Pennsalt's thinking had definitely turned away from" a project for independent entry which had received qualified approval earlier (R. 834); that a substitute proposal "never received even the tentative approval of Pennsalt's management" (*ibid.*); and Pennsalt's "serious doubts" about the project (*ibid.*). We do not argue that the court wholly ignored the objective evidence of record; but the court's pervasive reliance on what management thought and said, as compared to what the objective realities showed to be the firms' likely course of action, in our view deprives the district court's finding of the deference otherwise due it.

We stress that if affirmative evidence of management's intention—on the highest level—to enter a market independently is to be required before a joint venturer may be found to have been a likely independent entrant, the purposes of Section 7 will be frustrated. Where a joint venture is proposed and is the preferred alternative, it is most unlikely that higher management or the board of directors will have occasion to consider the wholly hypothetical question whether, if the joint venture is blocked, independent entry should be attempted. Contrary to the view clearly indicated by the court below in its discussion of Olin's entry, the absence of such evidence should not defeat the government's case. Nor do we believe that conjectures as to how the pessimistic attitude of various officials might have influenced their decision on independent entry is entitled to the weight given it by the district court. Not what they thought, but what the objective evidence shows was the course calculated to promote the fortunes of the companies, should be the focus of analysis and the ultimate determinant of decision.

2. Had the district court approached the case as we urge, it would have been bound to conclude that at least one of the co-venturers in this case was a likely independent entrant.

a. To begin with, it is clear that both firms were capable of independent entry. Indeed, we do not understand this fact to be in dispute. As the district court itself found in its first decision, both Pennsalt and Olin possessed the resources and general capability to build a sodium chlorate plant in the Southeast, and to compete in that market with the existing sellers, Hooker and AmPot (R. 789–790):

> At the time when the joint venture was agreed upon Pennsalt and Olin each had an extensive background in sodium chlorate. Pennsalt had years of experience in manufacturing and selling it. Although Olin had never been a commercial manufacturer, it possessed a substantially developed manufacturing technique

> of its own and also had available to it a process developed by Vickers-Krebs with whom it had been negotiating to construct a plant. Olin had contacts among the southeastern pulp and paper mills which Pennsalt lacked, but Pennsalt's own estimates indicated that in a reasonable time it would develop adequate business to support a plant if it decided to build. A suitable location for a plant was available to each company—Calvert City, Kentucky for Pennsalt, and the T.V.A. area around Chattanooga, Tennessee for Olin. The financing required would not have been a problem for either company. * * *

Thus, the district court found that each co-venturer had sufficient technical skill and background, marketing experience and opportunities, and financial resources to enable entry into the relevant market. Nothing in the court's second opinion derogates from this finding. The court did remark that Olin had no actual experience with the manufacture of sodium chlorate on a commercial scale, but the record shows that it had been experimenting with sodium chlorate production technology since 1930, that it was well on its way to developing its own commercially feasible process (see PX 33; PX 401, pp. 8-9), and, most important, that (as the court noted in its first opinion, *supra*, pp. 46-47), it had access to the Vickers-Kreb process. A plant built using this process would probably have cost less than the Penn-Olin plant that was ultimately constructed, and would have had a more favorable location from the standpoint of shipping costs (n. 2, Statement, *supra*, p. 7).

Nor does the district court's remark in its second opinion that the joint venture permitted financing without a guarantee from Olin reflect upon the feasibility of an independent Olin project. Olin's own president made clear in his testimony that, from the standpoint of financing, the only difference between the joint venture and independent entry was that in the former case the debt of the venture would appear in a footnote to, rather than in the body of, Olin's financial statement (R. 619–623). There is no evidence that Olin would have had to seek bank financing for an independent project or that, had such financing been necessary, it could not have been obtained readily (cf. R. 34–35, 621).

In sum, it is clear that both co-venturers had the capability for independent entry. Hence, a finding of illegality here would in no event block the kind of joint venture whose affirmative contribution to competition and efficiency is the most apparent: that which enables the venturers to compete in markets where the resources of each are inadequate. With the venturers' independent capacity thus established, and their interest in entry demonstrated by the joint venture, we could, as mentioned (*supra*, pp. 39–40), rest our affirmative case. We need not, however, in view of the ample evidence showing that the venturers had not merely the capability, but a special incentive, to enter independently—as well as an interest in entering which can be demonstrated quite apart from pointing to the joint venture itself.

b. In terms of incentive to enter, three elements may be isolated: the structure of the southeastern sodium chlorate market; the profits that the firms could expect to obtain from operating there; and the companies' internal needs for establishing a plant in that market.

(1) The structure of the market invited entry. Two companies dominated the market, (Hooker and AmPot), and with concentration so great, it was unlikely that competition would be so aggressive and effective as to prevent profitable operation by additional firms. Moreover, the market was growing rapidly. Even if a new entrant encountered difficulty in making inroads into the existing companies' business, there were strong prospects of winning a fair share of the new sales.

(2) Corporate studies showed that profitable independent operation was indeed wholly feasible. Olin's studies projected a 13.1 percent return on gross investment after taxes from a sodium chlorate plant with an annual capacity of 15,000 tons to be located at Chattanooga, Tennessee (see PX 32, R. 462; PX 33). Pennsalt's studies initially focused on a plant that would produce 10,000 tons of perchlorate as well as 20,000 tons of sodium chlorate. However, when it was discovered that Pennsalt probably could not sell so much perchlorate, this plan had to be abandoned. Cost estimates on a plant producing only 5,000 tons of perchlorate (besides 20,000 tons of sodium chlorate) were then requested, and they showed that such a plant would yield a return of 26.2 percent before taxes if all of its capital was supplied from Pennsalt funds and 42.7 percent

if half of the capital was borrowed (PX 153, R. 519–520). Defendants have produced no evidence showing that these estimates—which were made, we stress, not by government witnesses, but by the defendants themselves—are distorted.

(3) Conceivably, other investment possibilities may have been as promising; but both companies had special reasons for building a sodium chlorate plant to serve the southeastern market if, as the record plainly shows, that was a feasible and remunerative use of corporate funds. Pennsalt was already selling sodium chlorate in that market, and without a plant facility in a convenient location it could not hope to keep pace with its rivals. In addition, there was reason to believe that expansion of its sales there—which required that it construct a plant—would enable it to break into the market with its other chemical products (PX 63, p. 1). It also had an assured market for at least 5,000 tons per year (PX 96C, R. 492). As for Olin, it was itself a substantial purchaser of sodium chlorate, and thus had a guaranteed market for the product. In addition, it had spent millions of dollars promoting the Mathieson process. It could not exploit that process fully unless it manufactured sodium chlorate itself, since that chemical had displaced the sodium chlorite which Olin manufactured as the preferred base for the production of chlorine dioxide (see PX 406, p. 143; PX 408, p. 43).

c. The companies' interest in entering the relevant market need not be left to inference. The fact that they ultimately did enter (albeit jointly), expending some $7.5 million to construct a 26,500 ton plant expected to return only 10.1 percent on investment after taxes, is a persuasive indication. Beyond that, it is relevant to note that both companies, when they decided upon the joint venture, were far advanced in the formulation of independent projects. Studies indicating the feasibility of such ventures had been conducted within both companies and had been subjected to intensive scrutiny. Finally, in view of the companies' past experience in the sodium chlorate and related fields, expansion into a new and growing market for that product clearly represented a natural avenue of growth.

In summary, the objective circumstances disclosed by the record refute the district court's finding—based largely, as we have seen, on the absence of evidence showing that the responsible officials of the two companies actually declared their intention to essay independent entry if the joint-venture route were barred—that neither Pennsalt nor Olin would have entered the relevant market had the joint venture not been formed.[19] Although both were likely entrants, it does

[19] We intimate no objection to this Court's undertaking to review the issue of the likelihood of entry afresh, quite independently of what it said in its prior decision in this case. But we do point out that the district court's finding that entry by neither co-venturer was likely could well be viewed as inconsistent with the terms of this Court's remand. In the prior appeal, this Court, after reviewing the evidence which had theretofore been presented below, concluded: "Unless we are going to require subjective evidence, this array of probability certainly reaches the prima facie stage. As we have indicated,

not necessarily follow that both would actually have entered imminently; the entry of one might have been viewed by the other as altering circumstances

to require more would be to read the statutory requirement of reasonable probability into a requirement of certainty. This we will not do." 378 U.S. at 175. The case was remanded to the district court, notwithstanding this "array of probability," for a finding "as to the reasonable probability that either one of the corporations would have entered the market by building a plant, while the other would have remained a significant potential competitor." 378 U.S. at 175–176. Implicit in the terms of the remand, it would seem, was a holding that if the defendants could introduce no additional evidence to overcome the proof that independent entry was probable, the district court would be obliged to find that the government had satisfied its burden of proof. The terms of the remand may have permitted the district court to consider all the evidence then in the record and determine from it whether, if one of the corporations had built a plant, the other would still have remained interested enough to be "a significant potential competitor." 378 U.S. at 176. It did not, however, authorize a full re-examination, on no additional evidence, of the question whether *either* Pennsalt or Olin would have entered independently. The government acquiesced in the district court's formulation of the issues before it on remand—which included the question whether there was a reasonable probability that either Pennsalt or Olin "would have constructed a sodium chlorate plant in the Southeast" (R. 808). But that agreement was based on the assumption that additional evidence introduced on remand would bear on that question. It was not intended to suggest that the district court could make the finding it did solely on the evidence which had been before this Court. Yet, the district court based its finding that neither Olin nor Pennsalt would have entered independently on evidence which had been before this Court or merely duplicated such evidence. The only additional evidence bearing upon this issue offered on remand was either repetitive or related to events occurring *after* the joint venture was agreed upon.

and diminishing the attractiveness of promptly constructing its own plant.[20] On that assumption, the adverse effect of the joint venture was to eliminate the *potential* competition of the co-venturer who would not have entered immediately but instead would have "remained at the edge of the market continually threatening to enter." 378 U.S. at 173. As next we show, the elimination of that potential competition renders this joint venture illegal under the standards of Section 7.

[20] This, perhaps, is why the Court in its previous opinion in this case stated without explanation that it was "not disposed to disturb the [district] court's finding that there was not a reasonable probability that both Pennsalt and Olin would have built a plant in the relevant market." *United States* v. *Penn-Olin Chemical Co.*, 378 U.S. 158, 175.

Actually, the record shows that the entry of one would not, in all probability, have deterred the other from promptly entering. Sodium chlorate capacity in the Southeast had increased continuously and substantially between 1954 and 1960 (the year of the joint venture), without deterring either Olin or Pennsalt from seriously contemplating independent entry, for demand was clearly outpacing supply, and, the construction of the 26,500 ton Pen-Olin facility (a larger plant than either would have constructed independently, Statement, supra, pp. 14, 17) did not deter Pittsburgh Plate Glass from thereafter deciding to construct a 15,000 ton plant "because an appraisal of market conditions convinced it that regardless of the outcome of the present litigation, additional sodium chlorate capacity was needed in the southeast and that after its plant was built, it would be able to obtain a fair share of the market for itself" (R. 786).

The point is not essential. It is at all events perfectly clear that at least one would have entered while the other remained a strong potential entrant. As urged *infra*, pp. 54–88, the joint venture is plainly illegal even if the only competition eliminated was the potential competition of the firm that would not have entered immediatelly.

II. IN ELIMINATING THE POTENTIAL COMPETITION OF THE CO-VENTURER WHO, HAD THE OTHER ENTERED THE RELEVANT MARKET INDEPENDENTLY, WOULD HAVE REMAINED IN THE WINGS AWAITING AN OPPORTUNE OCCASION FOR ENTRY, THE PENN-OLIN JOINT VENTURE CLEARLY VIOLATED THE STANDARDS OF SECTION 7

Thus far, we have been discussing the threshold question whether, but for the joint venture, at least one of the co-venturers would have entered on its own. To answer this question affirmatively, as we have urged this Court to do, does not end the case. Assuming that it is established that one of the parties to the joint venture would have entered independently, it remains to consider whether the other would have remained a potential competitor whose elimination so seriously affected the structure of the relevant market as to warrant condemnation of the joint venture. The court below did not reach this question, since it found that the government had failed to establish the likelihood that either party would have entered independently. Ordinarily, in such a situation, a remand would be warranted if this Court agreed that the government had proved the likelihood of independent entry. However, we urge a different course in the present circumstances. Considering the age of this protracted litigation, that the case has already been once remanded and that the remaining issue presents few difficulties, we believe it would be appropriate for the Court to decide the case in its entirety and rule the transaction unlawful under Section 7. Cf. *O'Leary* v. *Brown-Pacific-Maxon,* 340 U.S. 504, 508.

We view as settled the proposition that the elimination of important potential competition in a highly concentrated market meets the standard of adverse competitive effect prescribed by Section 7. *Federal Trade Commission* v. *Procter & Gamble Co.*, 386 U.S. 568; *United States* v. *El Paso Natural Gas Co.*, 376 U.S. 651; *United States* v. *Continental Can Co.*, 378 U.S. 441. Indeed, this Court expressly so held when this case was last before it. *United States* v. *Penn-Olin Chemical Co.*, 378 U.S. 158, 173–174. It remains only to consider whether the relevant market was highly concentrated and whether the potential competition of the firm that might not have entered immediately represented a sufficiently important restraint on the behavior of the existing sellers in the market that its removal brings the joint venture within the ban of the statute. Cf. *Penn-Olin, supra,* at 176–177.

At the time of the joint venture (1960), two firms, Hooker and AmPot, completely dominated the southeastern sodium chlorate market. Together, they accounted for 90 percent of the sodium chlorate sales in that region. The only other seller was Pennsalt and in view of its lack of a manufacturing facility convenient to the area the competition it provided was, at best, marginal. Essentially, then, the market was a duopoly. After the entry of Olin or Pennsalt on an effective scale, it would still have had only three significant sellers—a situation far more concentrated than that prevailing in most of the markets that this Court has deemed highly oligopolistic and anti-competitive in structure (see cases cited n. 17, *supra*, p. 36). The importance of preserving potential competition in a market so lacking in actual competitors need not be labored.

If, as the appellees contended below, Pennsalt and Olin were but two among many potential entrants of equal significance in terms of capacity and incentive to enter, the elimination of the potential competition of one would not substantially change the competitive picture. That, however, is not the case. It is manifest from the record (see Statement, *supra*, pp. 18–24) that there were at most four firms (Pennsalt, Olin, Pittsburgh Plate Glass, and Allied) that could be viewed as serious potential entrants; the prospects for entry by the others were entirely remote and conjectural, and their restraining influence on the firms in the market correspondingly slight.

Clearly, the elimination of even one of this small group of likely entrants would be exceedingly harmful to the competitive structure of the southeastern market. In a market of only three actual sellers, three potential competitors are, plainly, very few; even if all entered the market, there would still be only six sellers and that is not enough to assure fully effective competition.[21]

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[21] In such a market, even if all the sellers were of equal size, three would together account for 50 percent of total sales. That, of course, would be an unusually high level of concentration.

Certainly to Hooker or AmPot (or, after entry, to either Pennsalt or Olin),[22] faced with having to decide whether to forgo a price increase because it might evoke the entry of a new competitor, Pennsalt or Olin—whichever remained outside of the market—would be a firm whose probable reactions would have to be reckoned most carefully, for each of these firms was a likely future entrant on a successful scale. So saying, we assume, of course, that the entry of one would not have so reduced the attractiveness of the market to the other that it would have ceased to be a potential entrant. The record shows this and more. In all probability, but for the joint venture one would have entered immediately after the other, so close were both to independent entry when the formation of the joint venture closed that avenue (see n. 20, *supra,* p. 53). Whether both had entered, or one had entered and the other remained in the wings ready to enter should the behavior of the existing firms in the market invite entry, the joint venture seriously retarded the emergence of a more competitive structure. It thus offended Section 7 of the Clayton Act.

[22] Indeed, the cooperation of Pennsalt and Olin prior to entry (see Statement, supra, p. 7) would render the one that actually entered peculiarly sensitive to the other's presence at the edge of the market.

CONCLUSION

For the foregoing reasons, the judgment of the district court should be reversed, and the case remanded for the fashioning of an appropriate decree dissolving the joint venture.

Respectfully submitted.

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OCTOBER 1967.

APPENDIX

The exhibits were admitted into evidence as follows:

A. Proceedings in the district court October 30, 1961, through November 22, 1961.

PX 1–375, inclusive, were offered into evidence at Tr. A138–157. See Tr. A129. They were received by the Court at Tr. A189.

PX 376 was offered and received into evidence at Tr. A188.

The parts of PX 377–411 which have been printed were offered into evidence at Tr. A165–184 and were received at Tr. A189.

The unprinted parts of PX 398, pp. 12–15, 29–30, 60–61, PX 400, p. 146, PX 408, pp. 195–196, referred to in the brief, were offered into evidence at Tr. A176, 177, and 182, respectively. They were received at Tr. A189.

PX 412–414 were offered and received into evidence at Tr. A190–196.

PX 415 was offered and received into evidence at Tr. A419–425.

PX 416–428, inclusive, were offered into evidence at Tr. A822. They were received at Tr. A824. See Tr. A795, 844.

DX 45 was offered into evidence at Tr. A822, and was received at Tr. A824.

B. Proceedings in the district court April 26, 1965, through May 5, 1965.

Defendants' Exhibits

No.	*In evidence*	*No.*	*In evidence*	*No.*	*In evidence*
50	Tr. 710	71	Tr. 527	92	Tr. 677
51	Tr. 710	72	Tr. 538	93	Tr. 677
52	Tr. 231	73	Tr. 581	94	Tr. 755
53	Tr. 720	74	Tr. 615	95	Tr. 786
54	Tr. 720	75	Tr. 615	96	Tr. 786
55	Tr. 711	76	Tr. 615	97	Tr. 786
56	Tr. 265	77	Tr. 615	98	Tr. 786
57	Tr. 283	78	Tr. 615	99	Tr. 786
58	Tr. 303	79	Tr. 620	100	Tr. 786
59	Tr. 303	80	Tr. 625	101	Tr. 786
60	Tr. 303	81	Tr. 629	102	Tr. 786
61	Tr. 372	82	Tr. 633	103	Tr. 786
62	Tr. 372	83	Tr. 648	104	Tr. 786
63	Tr. 374	84	Tr. 648	105	Tr. 879
64	Tr. 383	85	Tr. 648	106	Tr. 879
65	Tr. 384	86	Tr. 648	107	Tr. 879
66	Tr. 390	87	Tr. 648	108	Tr. 883
67	Tr. 390	88	Tr. 648	109	Tr. 886
68	Tr. 390	89	Tr. 661	110	Tr. 891
69	Tr. 392	90	Tr. 661	111	Tr. 953
70	Tr. 393	91	Tr. 661		

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