

Complaint

88 F.T.C.

IN THE MATTER OF

RSR CORPORATION

ORDER, OPINION, ETC., IN REGARD TO ALLEGED VIOLATION OF SEC.
7 OF THE CLAYTON ACT

Docket 8959. Complaint, Apr. 1, 1974 — Final Order, Dec. 2, 1976*

Order requiring a Dallas, Texas, producer of secondary lead products, among other things, to divest itself, within one (1) year, of the assets of Quemetco, Inc., excluding the acquired facility located in Seattle, Washington, and the capital derived from the sale of its acquired interest in the facility located in the Republic of Mexico. Further, the order prohibits respondent from acquiring any domestic lead producing company for a period of ten (10) years without prior F.T.C. approval.

Appearances

For the Commission: *K. Keith Thurman, Anuthalia Lingos, and James C. Egan, Jr.*

For the respondent: *Robert L. Wald, Wald, Harkrader & Ross, Washington, D.C.; and Merrill L. Hartman, Hewett, Johnson, Swanson & Barbee, Dallas, Tex.*

COMPLAINT

The Federal Trade Commission having reason to believe that RSR Corporation, a corporation subject to the jurisdiction of the Commission, has acquired the stock of Quemetco, Inc., a corporation, in violation of Section 7 of the Clayton Act, as amended, (15 U.S.C. 18), hereby issues this complaint, pursuant to Section 11 of that Act (15 U.S.C. 21), stating its charges in that respect as follows:

I. DEFINITIONS

1. For the purpose of this complaint, the following definitions shall apply:

(a) "The U.S. lead market" consists of all primary lead and secondary lead produced in the United States and all imports of lead pigs and bars.

(b) "Secondary lead" is lead recovered from scrap sources, such as scrap lead-acid type batteries.

(c) "Primary lead" is refined lead and antimonial lead produced by the smelting and refining of ores and base bullion.

(d) "Refineries" include smelters in addition to refining facilities.

* Reported as corrected by Order of the Commission dated Jan. 7, 1977.

II. RSR CORPORATION

2. Respondent, RSR Corporation (hereinafter "RSR"), is now, and was at the time of the acquisition a Delaware corporation with its principal office and place of business located at 2727 North Westmoreland, Dallas, Texas.

3. Effective October 1, 1971, RSR acquired substantially all of the common stock of Revere Smelting and Refining Corp. (hereinafter "Revere") and acquired all of the capital stock of Murph Metals Incorporated (hereinafter "Murph"). Prior to October 1, 1971, Revere was controlled by the same principals as RSR and operated a secondary lead smelter and refinery located in Newark, New Jersey. Murph, prior to October 1, 1971, operated a secondary lead smelter and refinery located in Dallas, Texas.

4. Murph and Revere had combined sales in 1970 of \$26,198,141. In 1971, RSR had total sales of \$27,727,027 and assets of \$11,620,583. For the first nine months of 1972, RSR had sales of \$24,000,000 and assets for the first six months of 1972 of \$12,665,507.

5. Murph and Revere had combined shipments of 56,000 short tons of secondary lead in 1970. Total shipments by RSR totalled 61,000 short tons in 1971 and 75,000 short tons in 1972.

6. In both 1971 and 1972, RSR was the second largest domestic producer of secondary lead with refineries located in Dallas, Texas and Newark, New Jersey.

7. At all times relevant herein, RSR sold and shipped its products throughout the United States and was and is now engaged in commerce as "commerce" is defined in the Clayton Act.

III. THE ACQUISITION

8. On or about October 26, 1972, RSR acquired all of the then issued and outstanding capital stock of Quemetco, Inc. (hereinafter "Quemetco"), a subsidiary of St. Joe Minerals Corporation (hereinafter "St. Joe"), for \$22 million.

IV. QUEMETCO

9. Quemetco was at all times relevant herein and is now a California corporation with its principal office and place of business located at 720 South Seventh Ave., City of Industry, California.

10. Quemetco was founded in 1947 as Western Lead Products Co. In 1969, Western Lead Products Co. acquired the Pacific Division of Bunker Hill Company, which operated a secondary lead smelter located in Seattle, Washington. In July of 1970, Western Lead Products Co. changed its corporate name to Quemetco, Inc. On December 29, 1970,

Quemetco was acquired by St. Joe for \$7.8 million and continued its operation as a St. Joe subsidiary until October 26, 1972, when RSR acquired Quemetco from St. Joe.

11. In 1971 and prior to its acquisition by RSR in 1972, Quemetco was the Nation's fourth largest producer of secondary lead and a producer of lead and zinc oxides and alloys, with operating facilities located in the States of Washington, Indiana, Texas, California, and the Republic of Mexico. During 1971, Quemetco operated secondary lead refineries in City of Industry, California; Indianapolis, Indiana; and Seattle, Washington. In 1972, in addition to the above facilities Quemetco commenced secondary lead smelting and refining at its newly constructed Wallkill, New York plant.

12. In 1965, Quemetco had sales of \$10,892,696 and assets of \$4,358,276; in 1968, sales had risen to \$12,936,575 and assets to \$5,288,035; and in 1971, sales were \$32,127,415 and assets were \$20,132,422. For the first nine months of 1972, Quemetco had sales of \$30.4 million and assets of \$26,243,890.

13. In 1968, Quemetco had shipments of 17,464 short tons of secondary lead. In 1971, Quemetco's shipments of secondary lead had risen to 39,558 short tons and were 43,281 short tons in 1972.

14. At all times relevant herein, Quemetco sold and shipped its products throughout the United States and engaged in commerce as "commerce" is defined in the Clayton Act.

V. TRADE AND COMMERCE

15. The relevant geographic market involved in this complaint is the United States as a whole.

A. *The U.S. Lead Market*

16. In 1971, the U.S. lead market consisted of 1,409,200 short tons of lead produced by domestic primary and secondary lead refiners, or imported as lead pigs and bars; its value was approximately \$389 million. In 1972, the U.S. lead market consisted of 1,551,604 short tons with a value of approximately \$467 million.

17. Prices in the U.S. lead market are posted in New York City by the leading primary lead producers. Such prices reflect the supply of lead from primary and secondary refineries and imports of lead pigs and bars. The New York price of lead has increased over the last two years, going from an average price of 13.815 cents per pound in 1971 to 16.0 cents per pound in April 1973.

18. The U.S. lead market is highly concentrated, with the top four firms accounting for over 62 percent of total shipments in 1971 and

1972 by weight and the top eight firms accounting for over 70 percent of total shipments by weight in those years.

19. The number of firms smelting and refining lead in the U. S. declined from 1962 to 1972.

20. The barriers to entry into lead smelting and refining have increased significantly between 1962 and 1972.

21. In 1971, RSR accounted for 4.3 percent of total shipments by weight in the U.S. lead market, and for 4.9 percent of such shipments by weight in 1972.

22. In 1971, Quemetco accounted for 2.8 percent of total shipments by weight in the U.S. lead market, and for 2.7 percent of such shipments by weight in 1972.

B. *The U. S. Secondary Lead Market*

23. In order to meet U.S. lead consumption requirements, it is necessary and economical to produce secondary as well as primary lead. Most secondary lead is produced from recycled scrap, such as scrap lead-acid type batteries.

24. The refineries used for the production of secondary lead differ substantially from those involved in refining primary lead. Secondary refineries cannot be used to refine primary lead. The only U. S. firm producing both secondary and primary lead uses separate facilities for the production of each.

25. Subsequent to the acquisition of Quemetco by RSR, only ASARCO produced and sold both primary and secondary lead. N L Industries, Inc. sells both primary and secondary lead although it only produces secondary lead.

26. There are certain distinct customers for secondary lead. The antimonial lead used to produce the grids of lead-acid type storage batteries is produced almost entirely by secondary refineries.

27. In 1971, the U.S. secondary lead market consisted of 572,800 short tons with a total value of approximately \$152 million. In 1972, the U.S. secondary lead market consisted of 577,870 short tons with a total value of approximately \$174 million.

28. Concentration is extremely high in the smelting and refining of secondary lead. Three firms accounted for approximately 54 percent of 1971 secondary lead production and accounted for over 56 percent of such production in 1972.

29. In 1971, RSR accounted for 10.6 percent of shipments by weight in the secondary lead market. The value of this 1971 production was approximately \$17 million. In 1972, RSR accounted for 13.0 percent of shipments by weight of secondary lead. The value of this 1972 production was approximately \$23 million.

30. In 1971, Quemetco accounted for 6.9 percent of shipments by weight in the secondary lead market. The value of this 1971 production was approximately \$11 million. In 1972, Quemetco accounted for 7.5 percent of shipments by weight of secondary lead. The value of this 1972 production was approximately \$13 million.

31. Prior to its acquisition of Quemetco, RSR planned to construct a new smelting and refining facility to replace its Newark, New Jersey plant which was to be closed permanently in 1973. Concurrent to its acquisition of Quemetco, RSR abandoned its plans for the new construction because of the existence of Quemetco's new plant in Wallkill, New York.

32. Prior to its acquisition of Quemetco, RSR planned to construct or acquire a secondary lead smelter and refinery in the Midwest. Concurrent to its acquisition of Quemetco, RSR abandoned its plans for this facility because of the existence of Quemetco's plant in Indianapolis, Indiana.

33. The number of secondary lead smelters and refineries in the U.S. has declined from 1962 to 1972.

34. The barriers to entry into secondary lead smelting and refining have increased significantly between 1962 and 1972.

VI. EFFECTS OF THE ACQUISITION

35. The effects of the acquisition of Quemetco by RSR may be substantially to lessen competition or to tend to create a monopoly in the production and sale of lead in the U.S. lead market and of secondary lead in the U.S. secondary lead market, in violation of Section 7 of the Clayton Act, as amended, in the following ways among others:

(a) Substantial actual competition in the U.S. lead market between Quemetco and RSR and between Quemetco and other firms in that market has been eliminated.

(b) Substantial actual competition between two of the leading firms, *i.e.*, RSR and Quemetco, in the production of secondary lead in the United States has been eliminated and, also, substantial actual competition in the secondary lead market between Quemetco and other firms in that market has been eliminated.

(c) The position of RSR in the U.S. lead market and the U.S. secondary lead market has been strengthened.

(d) The already high barriers to entry into the U.S. lead market and into the U.S. secondary lead market have been raised.

(e) The high levels of concentration in the U.S. lead market and in the U.S. secondary lead market have been significantly increased.

VII. THE VIOLATION CHARGED

36. The acquisition of Quemetco, Inc., by RSR Corporation constitutes a violation of Section 7 of the Clayton Act, as amended (15 U.S.C. §18).

INITIAL DECISION BY MONTGOMERY K. HYUN, ADMINISTRATIVE
LAW JUDGE

APRIL 20, 1976

[1] PRELIMINARY STATEMENT

On April 1, 1974, the Federal Trade Commission ("Commission") issued the complaint herein, charging RSR Corporation ("RSR") with violation of Section 7 of the Clayton Act, as amended (15 U.S.C. §18), by its October 1972 acquisition of substantially all of the stock of Quemetco, Inc. ("Quemetco"), a wholly-owned subsidiary of St. Joe Minerals Corporation ("St. Joe"), [2] for about \$22 million. The complaint alleges that the effect of RSR's acquisition of Quemetco may be to lessen competition substantially or tend to create a monopoly in the "U.S. lead market" and the "U.S. secondary lead market" by (1) eliminating substantial actual competition between Quemetco and RSR and between Quemetco and other firms in the relevant markets, (2) strengthening the position of RSR in the relevant markets, (3) raising entry barriers into the relevant markets, and (4) significantly increasing concentration levels in the relevant markets.

On May 13, 1974, RSR duly filed its answer to the complaint, admitting certain allegations and denying others. By order of July 3, 1974, RSR's answer was amended. RSR denied that the "U.S. lead market" and "U.S. secondary lead market" are relevant markets in which to assess the effects of the challenged acquisition. It also denied that the acquisition had any of the effects alleged in the complaint.

On July 2, 1974, RSR filed a Motion for Severance of Geographic Market Issue and Separate Trial Thereon Before Disposition of Other Issues. The motion was denied by order of July 3, 1974. On March 10, 1975, RSR filed a Motion for Summary Decision on the Geographic Market Issue and for Order Dismissing Complaint, with supporting affidavits. The motion was denied by order of March 24, 1975. On June 23, 1975, RSR filed a Motion for Adjudication of the Issue of Liability Prior to Hearings on Relief. The motion was denied by order of July 8, 1975.

Prehearing conferences were held in Washington, D.C. on July 2, 1974 and April 28, 1975 and several informal conferences were held with counsel for the purpose of resolving outstanding procedural

Initial Decision

88 F.T.C.

problems. Both parties were permitted substantial prehearing discovery and prehearing documents, including document lists, witness lists, copies of proposed exhibits and trial briefs, were exchanged. Presentation of complaint counsel's case-in-chief began in Washington, D.C. on July 21, 1975 and ended on July 31, 1975. Defense hearings began on September 3, 1975 and ended on September 19, 1975. Rebuttal hearings were held on October 6, 7 and 17, 1975. The evidentiary record was closed on January 20, 1976 after reception of "certain stipulations of anticipated testimony in lieu of hearing and reception of further documentary evidence on December 18, [3] 1975 and January 19, 1976.¹ Counsel for the parties filed proposed findings of fact, conclusions of law and order, together with supporting briefs, on March 1, 1976 and answers on March 12, 1976. The record contains some 2400 pages of transcript, numerous documentary exhibits and several physical exhibits.

This case is before me upon the complaint, answer, testimony and other evidence, proposed findings of fact and conclusions of law and order and briefs filed by the parties. These submissions have been given careful consideration and, to the extent not adopted herein in the form proposed or in substance, are rejected as not supported by the record or as immaterial. Any motions not heretofore or herein specifically ruled upon, either directly or by the necessary effect of the conclusions in this initial decision, are denied.

Having heard and observed the witnesses and having carefully reviewed the entire record in this proceeding, together with the proposed findings and conclusions submitted by the parties, the administrative law judge makes the findings set forth below.²

[4] FINDINGS OF FACT

I. DEFINITIONS

1. For the purpose of these findings, the following definitions shall apply:

¹ The intervals were necessary in order to accord the parties reasonable opportunity to prepare and negotiate the terms of stipulations, coincident with complaint counsel's engagement in the trial of another Section 7 proceeding before the Commission (Dkt. 8972) and the year-end holidays.

² References to the record are made in parentheses, and the following abbreviations are used:

F—Findings in this initial decision.

CFP—Proposed findings of fact, conclusions of law and order of complaint counsel.

CRB—Complaint counsel's reply brief.

RFP—Respondent's proposed findings of fact, conclusions of law and proposed order.

RB—Respondent's brief in support of its proposed findings of fact, conclusions of law and order.

RRB—Respondent's reply brief.

CX—Complaint counsel exhibits.

RX—Respondent's exhibits.

Transcript is referred to with the last name of the witness and page number.

- a. "Secondary lead" is lead recovered from scrap sources, such as scrap lead-acid type batteries. (Complaint and Answer, Par. 1(b).)
- b. "Primary lead" is lead produced by smelting and refining of ores and base bullion. (Complaint and Answer, Par. 1(c); Blair 33.)
- c. "Alloyed lead" is lead containing one or more alloying minerals. (Lospinosa 750.)
- d. "Soft lead" or "pure lead" is lead other than alloyed lead, containing at least 99.97 percent lead by weight. (Blair 31, 35; Ray 168; Mardick 278-79.)
- e. "Hard lead" is alloyed lead containing antimony or calcium as at least one of the alloying minerals. Such lead has the characteristic of hardness or strength, and is non-malleable. (Blair 31; Ray 167-68, 171; Kenny 241; Lospinosa 750-51.) [5]
- f. "Antimonial lead" is alloyed lead containing antimony as the primary alloying mineral, but often containing lesser percentages of tin, arsenic and various other minerals in the form of impurities. (Kenny 241; Mardick 277; Lospinosa 738, 752.)
- g. "Battery groups" are the inside components of a battery that has been decaised and drained of acid. (Blair 46.)
- h. "TEL" (tetraethyl lead) is a gasoline antiknock additive. (Pren-gaman 1014.)

II. IDENTITY AND BUSINESS OF RESPONDENT RSR CORPORATION

2. Respondent RSR Corporation (RSR) is now, and was at the time of its acquisition of Quemetco, Inc. (Quemetco), a Delaware corporation. Its principal office and place of business at the time of the acquisition was at 2727 North Westmoreland, Dallas, Texas. (Complaint and Answer, Par. 2.) Its principal office and place of business today is at 1111 West Mockingbird Lane, Dallas, Texas. (Lospinosa 713-14.)

3. RSR was founded in 1970 for the purpose of acquiring and operating a lead smelting and refining plant in Newark, New Jersey, originally under the name "Revere Smelting & Refining Corporation" (Revere). (CX 25E.) On October 1, 1971, RSR reorganized and simultaneously acquired Murph Metals Incorporated (Murph), which operated a lead smelting and refining plant in Dallas, Texas. (Complaint and Answer, Par. 3; CX 25E.) The Newark and Dallas plants were recycling operations, that is, they produced secondary pure lead and lead alloys by smelting and refining lead-bearing scrap. (CX 25E.)

4. Murph and Revere had combined sales in 1970 of about \$26,198,000. In 1971, RSR had total sales of about \$27,727,000 and assets of \$11,620,583 as of December 31, 1971. RSR had sales of \$24,000,000 for the first nine months of 1972, and assets of \$12,665,507 as of June 30, 1972. (Complaint and Answer, Par. 4.)

[6] 5. Murph and Revere had combined shipments of 56,000 short tons of secondary lead in 1970. Total shipments by RSR totalled 61,000 short tons in 1971 and 75,000 short tons in 1972. (Complaint and Answer, Par. 5.)

6. In both 1971 and 1972, RSR was the second largest domestic producer of secondary lead in the United States. (Complaint and Answer, Par. 5; CX 64A-C *in camera*.)

7. Prior to October 26, 1972, RSR produced antimonial lead and other lead alloys, lead products and pure lead. (Initial Request for Admissions and Answer, Par. 30.)

8. In 1970 and 1971, approximately 65 percent of RSR's dollar net sales were derived from sales of bulk lead. (Third Request for Admissions and Answer, Pars. 38, 39.) For the first six months of 1972, approximately 73 percent of RSR's dollar net sales were derived from sales of bulk lead. (Third Request for Admissions and Answer, Par. 40.)

9. In 1972, a preponderance of RSR's sales of bulk lead were of antimonial lead alloys. (Answer to Third Request for Admissions, Par. 36.)

10. In 1971, three battery manufacturers accounted for approximately 10 percent each of RSR's total sales and a fourth battery manufacturer accounted for about 7 percent. (Third Request For Admissions and Answer, Par. 41.) During the first six months of 1972 (ended June 30), three major battery manufacturers accounted for approximately 20 percent, 14 percent and 12 percent, respectively, of RSR's total sales. (Third Request for Admissions and Answer, Par. 42.)

11. Since 1972, RSR has been shifting its secondary lead production to a greater proportion of soft lead. By 1975, RSR plants were producing approximately 65 percent soft lead and 35 percent antimonial lead. This change in production was made in response to increased customer demand for soft lead. (Lospinoso 834-35.)

12. In 1974, RSR's soft lead met the standards of the London Metal Exchange for lead and has been traded on that market since 1975. (Kenny 258-59; Kenkel 386; Threlkeld 1453.)

[7] 13. In 1971 and 1972, RSR considered antimonial lead to be a product with a limited future, and desired to become more active in other product areas. (Lospinoso 854-55, 979-80; Hatten 1218-20.) It hoped to become a "low-cost, high volume producer of lead" by acquiring a network of lead recycling plants extending across the country. (Lospinoso 852-53.)

14. During that period, RSR was also faced with the need to replace its existing lead recycling plant in Newark, New Jersey. This plant was located on premises leased on a month-to-month basis from the Newark Housing Authority, and RSR was on notice that the lease would be

terminated and the plant thus closed in 1973. (Complaint and Answer, Par. 31; CX 25B.)

15. On August 24, 1972, RSR made a public offering of 320,000 shares of common stock. It planned to apply the net proceeds of the offering, expected to amount to \$3,003,400, to construction of a new smelting and refining facility to replace the Newark plant. (CX 25C-D.)

16. In 1971, RSR sold either lead alloys or soft lead in at least twenty States. (Initial Request For Admissions and Answer, Par. 31.)

17. Since it was founded in 1970, RSR has been engaged in commerce as "commerce" is defined in the Clayton Act. (Answer, Par. 7.)

III. IDENTITY AND BUSINESS OF QUEMETCO, INC., THE ACQUIRED FIRM

18. Prior to its acquisition by RSR on October 26, 1972, Quemetco, Inc. (Quemetco) was a Delaware corporation organized under the laws of Delaware with its principal office and place of business located at 720 South Seventh Ave., City of Industry, California. (Initial Request for Admissions and Answer, Pars. 1 and 2; Second Request for Admissions and Answer, Par. 1.)

19. Quemetco was founded in 1946 and incorporated the following year under the name "Western Lead Products Co." (Quenell 496) In 1969, it acquired from Bunker Hill Company a secondary lead smelter located in Seattle, [8] Washington. (Initial Request for Admissions and Answer, Par. 4.) Western Lead Products changed its name to "Quemetco, Inc." in 1970. (RSR's Answer to Initial Requests for Admissions 5.) At that time it operated lead recycling plants at three locations: City of Industry, California; Seattle, Washington; and Indianapolis, Indiana. (CX 18B-C; Quenell 497-98.)

20. In the fiscal year ending March 31, 1968, Quemetco had sales of about \$12,936,000 and assets of \$5,288,035 as of March 31, 1968. (Initial Request for Admissions and Answer, Pars. 19 and 20.) In 1971 Quemetco had sales of about \$32,127,000 and assets of \$20,132,422 as of December 31, 1971. (Initial Request for Admissions and Answer, Pars. 21 and 22.) For the first nine months of 1972, Quemetco had sales of about \$30.4 million and assets of \$26,243,890 as of September 30, 1972. (Initial Request for Admissions and Answer, Pars. 23 and 24.)

21. Quemetco produced 39,558 short tons of secondary lead in 1971 and 43,281 short tons in 1972. (Initial Request for Admissions and Answer, Pars. 26 and 27.) In 1971, the value of Quemetco's secondary lead shipments was approximately \$11 million; in 1972, it was

approximately \$13 million. (Initial Request for Admissions and Answer, Pars. 28 and 29.)³

22. At the time of its acquisition by RSR, Quemetco produced lead oxides, antimonial lead alloys, zinc alloys, miscellaneous lead products, special lubricants, and soft lead. (Initial Request for Admissions and Answer, Par. 8.)

23. In 1969, the management of Quemetco attempted to raise money for the purpose of expanding the company's recycling operations. They considered a public offering of stock but found the market not receptive; they sought a private placement but found the cost too high. They were, therefore, receptive when officials of St. Joe Minerals Corporation (St. Joe), a leading producer of [9] primary lead, approached them in 1970 with an interest in the purchase of the company. The purchase was consummated on December 29, 1970, and Quemetco became a wholly-owned subsidiary of St. Joe. (Quenell 499.)

24. In the year following its purchase of Quemetco, St. Joe authorized a Quemetco expansion program involving the construction of a replacement plant for the Indianapolis plant and a new recycling plant in Wallkill, New York.⁴ (RSR's Answers to Initial Request for Admissions 10, 12-14; RSR's Answer to Second Request for Admissions 2.)

25. In July 1971, Quemetco began construction of a new secondary lead smelter and refinery at Indianapolis, Indiana to replace its existing plant there. (Initial Request for Admissions and Answer, Pars. 12 and 13; Blair 60-61, 70.) That plant had just commenced production of oxide and smelting of secondary lead at the time of the acquisition by RSR (CX 14; Blair 61-62, 64) but the battery breaking system was not complete at that time. (Blair 61-64; Quenell 507-08.) This plant had a designed capacity of approximately 30,000-36,000 short tons of secondary lead per year, operating on a three shift, 5-day per week basis. (Blair 70; Quenell 508-09.)

26. In September 1971, Quemetco began construction of a new secondary lead smelter and refinery and oxide plant in Wallkill, New York. (Initial Request for Admissions and Answer, Par. 10; Blair 59-60.) That plant had a designed capacity of approximately 30,000-36,000 short tons of secondary lead per year, operating on a three shift, 5-day per week basis. (Blair 70; Quenell 508-09.) At the time of the acquisition by RSR, the Wallkill plant had its equipment installed and had commenced the production of oxides and was in the final testing stage

³ See also "Answer to Complaint Counsel's Motion to Have Certain Requests for Admissions Deemed Admitted" at 5-6, filed Nov. 27, 1974, and "Order Ruling on Complaint Counsel's Motion to Have Certain Requests for Admissions Deemed Admitted" at 2, filed Feb. 4, 1975.

⁴ The Wallkill plant is referred to as the "Middletown" plant at several places in the record of this proceeding. Wallkill and Middletown are interchangeable names for the same plant.

prior to the commencement of smelting and refining operations within one month. (Initial Request for Admissions and Answer, Par. 11; Blair 60-61, 63-64; Quenell 507-08.)

[10] 27. On April 21, 1972, the Federal Trade Commission announced its intent to issue a complaint challenging St. Joe's acquisition of Quemetco under Section 7 of the Clayton Act and seeking total divestiture of the Quemetco facilities. ([1970-1973 Transfer Binder] Trade Reg. Rep. ¶19,966; Quenell 500.) The complaint (F.T.C. Dkt. 8892) was formally issued on June 29, 1972 [83 F.T.C. 1357]; it alleged that St. Joe's acquisition of Quemetco eliminated actual and potential competition between St. Joe and Quemetco, foreclosed St. Joe's competitors from selling lead to Quemetco, and strengthened St. Joe's dominant market position. ([1970-1973 Transfer Binder] Trade Reg. Rep. ¶¶19,966 and 20,047)

28. In view of the possibility that St. Joe would, as a result of the F.T.C. challenge, ultimately be required to divest itself of Quemetco, RSR's management sought to determine St. Joe's interest in selling Quemetco to RSR. (Quenell 501-02.) RSR's management believed that the combination of Quemetco's plants with their remaining plant in Dallas would provide a good network of lead recycling plants dispersed throughout the country. (Lospinoso 852-53; see also Craig 437.)

29. On October 26, 1972, St. Joe sold all of the outstanding stock of Quemetco to RSR. (Complaint and Answer, Par. 8.) The purchase price was \$22 million, paid in the form of \$20 million in cash and a \$2 million note. The \$20 million in cash was derived from a \$12 million bank loan, a \$5 million note placed with private investors, and the use of approximately \$3 million of the net proceeds from the August 24, 1972 public offering. (CX 14.)

30. Quemetco was at the time of the acquisition and has since been engaged in commerce as "commerce" is defined in the Clayton Act. (Answer, Par. 14.)

IV. THE RELEVANT PRODUCT MARKETS

A. *The U.S. Lead Market*

31. Lead is a heavy metallic element. (Third Request for Admissions and Answer, Par. 2) It is high in density (making it an excellent shield for protection against x-ray and nuclear radiation), heavy, with poor electricity and heat [11] conducting qualities, resistant to certain chemical substances and soft or malleable (unless alloyed with a hardening agent). Lead is adaptable to a wide range of uses. (Third Request for Admissions and Answer, Par. 3; Prengaman 1003.) Because of its unique properties, lead is peculiarly suited to the manufacture of

a wide range of products, including batteries; gasoline antiknock compounds; bearing metals; cable covering; caulking lead; lead pipe, traps and bends; casting metals; collapsible tubes; lead foil (for bottle tops); terne metal; solder; type metal; paint pigments, and for annealing and galvanizing. (Prengaman 1007-08, 1014-15, 1017, 1019-20, 1022-29, 1033-35, 1037-38, 1041-44.)

32. There are substitutes for lead in some uses. (Trozzo 1733, 1736.) For example, plastic may be substituted for lead in pipe and cable covering; iron, brass, copper or steel may be substituted for lead in ammunition; other processing techniques may be used in place of tetraethyl lead in raising the antiknock qualities of gasoline. (Trozzo 1736, 1741-42, 1832.) Respondent does not, however, contend that these products should be included in the relevant market, for they are not interchangeable with lead for most end uses.

33. The record does not contain evidence of effective competition with lead by substitute products for the principal uses of lead. United States consumption of lead increased steadily from 1968 to 1972 despite substantial fluctuations in its price. (CX 19C, Table 1.)

34. "Primary lead" is lead produced by the smelting and refining of lead ores and concentrates. (Blair 33; Ray 168; Kenny 242; Mardick 274; Craig 406-07; Quenell 499; Prengaman 1003; Cassara 1349; Bers 1256; Threlkeld 1446; see also Complaint and Answer, Par. 1(c).) "Secondary lead" is lead produced by the smelting and refining of lead-bearing scrap; it is also referred to as "recycled lead." (Blair 20; Ray 168-69; Kenny 241-42; Mardick 271; Craig 410-11; Quenell 499-500; Prengaman 1004; Bers 1256; Cassara 1349; Threlkeld 1446; see also Complaint and Answer, Par. 1(b).)

35. Lead is used in two different forms, as pure or soft lead and as alloyed lead. Pure lead is a product that is virtually all lead, with only minor traces of impurities; it is also called "soft lead" because of its [12] malleability (Blair 31; Lospinoso 715, 751; Prengaman 1005) and accounts for about two-thirds of total lead consumption in the United States. (RX 61V, Table 14; RX 80; RX 81; see also Barber 2036-38, 2044-50, 2238-39.) Primary soft lead and recycled soft lead, when made to conform to the same specifications, are interchangeable for the principal end uses of soft lead. (Blair 83; Lospinoso 716, 815-17; Prengaman 1004, 1007-45; Bers 1256-57.) "Hard lead" is an alloy of lead and other elements such as antimony, calcium, tin or arsenic; the elements are added to increase the strength of the product. (Blair 31; Lospinoso 750-52; Prengaman 1006.) Hard lead made from primary lead and hard lead made from recycled lead, when made to conform to the same specifications, are interchangeable for the principal end uses of

hard lead. (Lospinoso 815, 817-19; Prengaman 1004, 1009-37; Bers 1257-58.)

36. The Lead Industries Association is an industrywide trade association to which processors of lead and manufacturers of lead products belong. The organization seeks to promote the use of lead. (Mardick 309; Craig 404.)

37. The parties agree that the U.S. lead market comprising primary and secondary lead is an appropriate product market for the purposes of this proceeding.

B. *The U.S. Secondary Lead Market*

38. Within the overall U.S. lead market, there are two distinct submarkets, the production and sale of primary lead and the production and sale of secondary lead. The two submarkets are distinguished by significant differences in production, marketing, end uses, vendors and prices.

39. Industry witnesses and lead purchasers recognized the term "secondary lead" as referring to the smelting and refining of lead from scrap (or recycled) sources. (Blair 20; Warrender 124; Ray 168-69; Kenny 241; Mardick 271; Kenkel 361, 370; Craig 410-11; Quenell 499; Prengaman 1004; Bers 1241, 1256; Cassara 1349; Threlkeld 1446.) Likewise, industry witnesses and lead purchasers recognized the term "primary lead" as referring to the smelting and refining of lead from ores and base bullion. (Blair 33; Warrender 124; Ray 168; Kenny 242; Mardick 274; Kenkel 361, 364; Craig 406; Quenell 499; Prengaman 1003; Bers 1241, 1256; Cassara 1349; Threlkeld 1446.)

[13] 40. These terms are commonly used in the lead industry. (Blair 20, 33; Ray 168-69; Kenny 241-42; Mardick 271; Craig 406, 410-11; Quenell 499; Lospinoso 875.)

41. RSR recognizes that it competes primarily with other secondary smelters and refiners. It stated in filings with the Securities and Exchange Commission on June 7 and August 24, 1972:

The Company competes not only with other independent secondary producers, but also with smelting and refining divisions of integrated manufacturers of lead products, as well as, to a limited extent, with producers of primary lead. (CX 25G; CX 26B.)

42. The industry trade association, the Lead Industries Association, publishes statistics which distinguish between primary and secondary lead. (Mardick 309; Craig 431.)

43. The U.S. Bureau of Mines also publishes several statistical reports which separately state production information for primary and

secondary lead. (CX 19.) However, it provides no similar breakdown in reporting lead consumption or imports. (Ryan 654, 685-86.)

44. The firms engaged in the production and marketing of primary and secondary lead are generally distinct. (Answer to Third Request for Admissions, Par. 21; Craig 428-29; Quenell 536-37, 620.)

45. ASARCO is engaged in the production and marketing of both primary and secondary lead. ASARCO, however, conducts its primary and secondary lead production and marketing operations in two distinct divisions, ASARCO itself and Federated Metals Division. Federated embraces all of the company's secondary lead operations, including both production and marketing. (Kenkel 360-62, 390) Federated represents a small percentage of ASARCO'S overall production and marketing of lead in the U.S. lead market. (CX 64B, *in camera*.)

[14] 46. Several producers formerly smelted both primary and secondary lead but have since ceased their secondary lead smelting activity. (See Craig 429.)

47. In 1969, Bunker Hill Company sold its secondary lead smelter to Quemetco. (Blair 19-20; Craig 429-30; Quenell 498; see also Kenkel 363, 395, 398.)

48. AMAX, in the late 1940's or early 1950's, discontinued secondary lead smelting and sold its equipment. (Lospinoso 956-57.)

49. Eagle Pitcher and Bunker Hill once were in the secondary lead business together but that operation has been sold. (Craig 429-30.)

50. On the other hand, UV Industries, formerly U.S. Smelting, Mining and Refining, produced both primary and secondary lead in 1971 and 1972. (CX 64B, *in camera*.) It has now left the primary smelting business. (Kenkel 393-94.)

51. NL Industries, Inc. (NL) and RSR have re-sold primary lead bought from other sources, but they produce only secondary lead. (Ray 221; Mardick 275, 323.) Phillips Brothers, Co. and other brokers also sell both primary and secondary lead. (Ray 222.)

52. Firms engaged in the recycled lead business are generally not engaged in the smelting and refining of any other metal. In contrast, firms engaged in primary lead smelting generally smelt and refine and sell many nonferrous metals. (CX 2B; Mardick 270-71, 294-95; Craig 405; Cassara 1323-24.)

53. The executive vice president of St. Joe Minerals Corporation, a leading producer of primary lead, stated that his company would not consider de novo entry into the secondary lead business.

We considered it was a very different type of business from a commercial sense than the business that we were in. The feed end of the business is a matter of being able to purchase in one way or another scrap, which is really a business all its own

and very different from the traditional business that we have been in in finding, developing and producing from [ore] bodies.

[15] The talents of people in that business would be expected to be different from those who had gone into our kind of business so that it would be a difficult thing. I think we were aware of the difficulties that companies had had who had tried being basically primary producers to go into the secondary business and to the best of my knowledge, had uniformly failed to make a successful business out of the secondary. (Craig 429.)

54. The production of secondary and primary lead is distinct in numerous respects. (Warrender 125-26.)

55. These two processes start with different raw materials.

56. The production of primary lead utilizes ore from a mine as the basic raw material. (Third Request for Admissions and Answer, Par. 7; Mardick 289; Craig 408-09.)

57. The production of secondary lead utilizes scrap batteries as the principal raw material, with the remaining raw materials consisting of TEL slag, fumes, dust, drosses, residues and miscellaneous lead bearing scrap. (Complaint and Answer, Par. 23; CX 19U, Table 9; Blair 19, 26; Mardick 289-90; Kenkel 362; Quenell 526; Lospinoso 774, 989; Bers 1235, 1242.) Battery scrap constitutes the bulk of the raw material used in the production of secondary lead. (CX 19U, Table 9; Mardick 290; Quenell 526; Lospinoso 989.)

58. Arising from differences in raw materials of primary and secondary lead production are differences in costs and profit margins, the scale of the processing, location of the plants, relative costs of the processing, methods of processing, equipment used in the processing and finally, the output of the two processes.

59. There are different cost structures and profit margins for primary and secondary lead producers. (Mardick 274-75; Prengaman 1098; Cassara 1394.)

60. In the instance of a primary lead smelter, the source of raw materials is generally a wholly-owned mine which has a relatively fixed cost of operating, a cost that is independent of the marketing price of lead. (Answer to Third Request for Admissions, Par. 20; CX 22C; [16] Craig 426, 468; Quenell 600.) Thus, if demand for primary lead lessens significantly, the fixed costs of raw material and processing makes it difficult for the producers to make a profit. (Mardick 274-75.) In the instance of a secondary lead smelter, the source of raw material is scrap which varies in price with the demand for secondary lead. (CX 22C; Kenkel 370-71; Craig 426; Bers 1289-90.) Thus, if demand for secondary lead falls significantly, the secondary producer's profit does not experience a decline comparable to that of the primary producer, as

costs of raw materials fall at the same time as does his demand. (Mardick 274-75.)

61. A primary lead smelter and refinery possesses economies of scale associated with a constant supply of lead ore with the same or similar lead content. (Answer to Third Request for Admissions, Par. 31; Fourth Request for Admissions and Answer, Pars. 9, 11, 12; Craig 414-15.) Generally, primary lead smelters and refineries require fewer adjustments of machinery, to account for different levels of purity in raw materials, than do secondary lead smelters and refineries. (Answer to Third Request for Admissions, Par. 32.)

62. In contrast to the primary smelter, the secondary smelter does not have a constant supply of raw materials of the same or similar lead content. The secondary lead facility's feed contains "a tremendously wide range of impurities." (Prengaman 1048, 1052, 1098.)

63. Secondary lead smelting is done on a much smaller scale than is primary lead smelting. The overall capacity of a secondary smelter is far smaller than that of a primary smelter. (Answer to Third Request for Admissions, Par. 33; Blair 40; Mardick 293-95; Craig 411, 419; Lospinoso 986.)

64. Primary lead facilities must be much larger in scope in order to handle economically the ore generated by the mine and the by-products of the ore. (Blair 40; Mardick 293-96; Kenkel 364.)

65. The largest secondary lead smelters have a yearly capacity of 40,000 short tons of lead, with the typical secondary smelter having a capacity of 20,000-35,000 tons. (Mardick 273; Craig 419; Bers 1243.) The capacity of primary lead smelters is much greater, [17] ranging from 100,000 to 225,000 short tons of lead. (Mardick 295; Craig 413, 419.)

66. Because of these differences in scale between a primary and a secondary smelting operation and the resultant greater complexity of the former, it is not possible to take the supervisory employees of a secondary smelter and put them in charge of a primary smelter. (Craig 418; Cassara 1388.)

67. Differences in scale reflect in part the difference in the locational source of raw materials.

68. Secondary lead smelters are located throughout the United States, generally near or in major industrial cities, the source of the raw materials for a secondary lead smelter. (Blair 40.)

69. In contrast, primary operations are located near the few lead mines or points of importation of foreign ores, concentrates or base bullion, away from cities. (Answer to Third Request for Admissions, Par. 30; Fourth Request for Admissions and Answer, Pars. 4, 5, 6, 7, 8, 15, 16; Blair 40.)

70. In both primary and secondary lead processing, the production

of lead can be divided into four stages, viz., material preparation, smelting, refining, and by-product and waste disposal. (Lospinoso 788.) The basic smelting and refining process is “conceptually similar” for both primary and secondary lead. (Craig 411-12.)

71. The material preparation stages of primary and secondary lead processing are distinct.

72. Ore for a primary lead smelter is crushed at a mill located adjacent to the mine and then sent through a separation process to remove the excess rock and certain other minerals. (Third Request for Admissions and Answer, Par. 7; Blair 44-45; Craig 409; Lospinoso 804.)

73. In the process of separating the lead concentrate from the unprocessed ore, certain other mineral concentrates, *e.g.*, zinc and copper, are also separated. (Third Request for Admissions and Answer, Par. 5; Craig 409.) These other mineral concentrates are then sold or processed by the primary smelter in facilities separate from those used in lead smelting and refining. (Craig 409-10.)

[18] 74. Lead ore typically is a sulfide ore, containing a high sulfur content. (Blair 34; Mardick 289; Craig 412.) To remove this sulfure it is necessary to send the crushed ore through a sintering plant to remove the sulfur content. (Third Request for Admissions and Answer, Par. 8; Blair 34, 44-45; Mardick 293; Craig 409, 412; Quenell 535; Lospinoso 804-05.)

75. To erect a sintering plant for a primary lead smelter requires a “reasonably substantial” expenditure. (Craig 412; Bers 1317.) Such an expenditure is justified only by a large quantity of uniform material, a condition present only at a primary facility. (Bers 1317.)

76. Secondary smelters have to prepare two inputs, scrap batteries and TEL slag. Other materials are simply fed “as is” into the reverberatory or blast furnace. (Lospinoso 790.)

77. Scrap batteries must be drained of their sulfuric acid and decaused to obtain the “battery group” as the first step in preparing them to be smelted. (Blair 46; Mardick 280, 282; Lospinoso 784, 788.) This may be done either by cutting off the top and simply dumping out the battery groups or grinding up the battery and separating the metal bearing materials through a chemical separating system that works on the principle of gravitational differences among the components. (Blair 46-47; Mardick 280, 282; Lospinoso 784, 788.)

78. TEL slag is prepared by washing out the sodium chloride which contaminates it. (Bers 1231-32.)

79. Secondary lead smelters do not possess facilities for processing and upgrading the ore as received from the mines. (Craig 411; Quenell 535.)

80. Secondary lead facilities also do not have sintering plants as do primary facilities. (Mardick 294; Craig 411-13; Quenell 535-36.)

81. The smelting processes of primary and secondary lead are distinct.

82. The smelting process used in secondary lead generally is a two step process, utilizing both reverberatory and blast furnaces. (Craig 410-411; Lospinosa 790-92; Bers 1247-49.)

[19] 83. The feed material, *i.e.*, battery scrap, is first heated in a reverberatory furnace which is basically an oxidizing system. (Blair 28-29; Lospinosa 790-91; Bers 1247-49.)

84. From the reverberatory furnace two valuable products are obtained, *viz.*, relatively pure soft lead and a lead bearing slag high (or rich) in antimony and other alloy content. (Blair 28; Mardick 282-83; Lospinosa 791; Bers 1247-49.)

85. The slag from the reverberatory furnace is then processed in a blast furnace, which is basically a reduction process. (Blair 28-29; Mardick 282-84; Lospinosa 792, 794; Bers 1247-49.)

86. In addition to the slag from the reverberatory furnace, the feed for the secondary blast furnace may consist of some battery groups or other scrap, including TEL slag. (Blair 29-30; Lospinosa 792; Bers 1247-49.)

87. The purpose of adding additional feed materials to the reverberatory slag is to produce an antimonial lead containing a percentage of antimony and other elements close to the specifications of the battery manufacturers. (Blair 30; Bers 1247-49.) If processing the reverberatory slag in a blast furnace results in an antimonial lead output containing 10 percent or more antimony, the addition of other feed materials results in antimonial lead containing from 4 percent to 6 percent antimony which comes close to meeting the battery manufacturers' specifications. (Blair 29-30.)

88. The smelting process used in primary lead is a one step process. (Blair 34.)

89. The feed material, concentrates made from ore, is heated in a large blast furnace, basically a reduction process. (Blair 34; Craig 411; Lospinosa 810.)

90. Only blast furnaces are used to smelt primary lead. (Blair 34; Craig 411.) Primary smelters often possess reverberatory furnaces, but utilize these solely to recover minerals other than lead found in their ore. (Lospinosa 810-11, 984-85.)

[20] 91. The by-product and waste disposal operations of primary and secondary lead smelters are unique in many ways.

92. A primary lead smelter produces sulfur as a by-product of the sintering process used to prepare the raw material for smelting.

(Mardick 293; Craig 411-13; Quenell 535; Lospinoso 804.) The recovered sulfur is present in large quantities; therefore, primary smelters have erected large plants to process this by-product into sulfuric acid and avoid air pollution problems. (Blair 34; Mardick 293; Craig 411, 413; Quenell 535-36; Lospinoso 804-05, 812.) However, in order economically to recover sulfur and convert it to sulfuric acid, one must have a smelter of not less than 100,000 short tons of lead capacity per year. (Mardick 295-96.)

93. The sulfuric acid produced by the primary smelters is marketed as an industrial chemical. (Blair 34-35; Mardick 294; Craig 413; Quenell 535-36; Lospinoso 805, 989.)

94. Other than the sulfur generated as a by-product of sintering, primary lead producers do not have a sulfur pollution problem. (Lospinoso 812.) Thus, a primary lead smelter does not require scrubbers to process its furnace or other smelter fumes. (Lospinoso 812.)

95. Sulfuric acid is involved in the recovery of secondary lead, but as an undesired waste rather than a valuable by-product which can be sold. (Blair 35.)

96. Scrap batteries as delivered to the secondary smelter contain sulfuric acid, usually in a highly contaminated state. (Blair 35; Lospinoso 804.)

97. The liquid sulfuric acid contained in the scrap battery is disposed of by the secondary smelter in a variety of manners, *e.g.*, treatment by some type of neutralizing agent. (Mardick 280; Quenell 536; Lospinoso 788-89.)

98. Secondary lead smelters also recover sulfur through the operation of their air pollution controls. (Blair 35; Lospinoso 798-99.) Formerly this sulfur, produced as sulfur dioxide in the furnaces, was simply emitted into the atmosphere. (Blair 35; Quenell 536.)

[21] 99. Sulfur is recovered in quantities insufficient to make it economical to convert it into a marketable product. (Blair 35.) Therefore, the sulfur recovered by a secondary lead smelter is disposed of as a waste material. (Lospinoso 799.)

100. Secondary lead facilities do not have sulfuric acid plants as do primary facilities. (Mardick 294; Craig 413; Quenell 536.)

101. The method of operating blast furnaces differs between primary and secondary smelters. Primary blast furnaces, due to their much larger size and the costliness of any shutdown, are operated almost continuously, with shutdowns for necessary maintenance being made only every three or four months. (Blair 41; Craig 413-14.) In contrast, the smaller secondary blast furnaces are generally operated five days a week with maintenance being done weekly. (Blair 42.)

102. The production facilities for primary and secondary lead are

not interchangeable. Facilities for the production of one do not possess the necessary equipment to satisfactorily produce the other. Each lacks the material preparation equipment necessary to process the other's product; primaries do not have the equipment necessary to debase batteries and secondaries do not have the equipment necessary to remove sulfur from ore. Likewise each lacks furnaces of a size and type effectively to process the other's raw material.

103. The equipment used to smelt and refine primary and secondary lead differs substantially in scale as well as the smelting process itself. (Warrender 125-26; Kenkel 364; Lospinoso 986.)

104. Although both smelting processes utilize blast furnaces, those used by primaries are far larger than those used by secondaries. (Blair 34, 41; Mardick 293; Kenkel 364; Craig 417-18; Lospinoso 986.)

105. Because of the differences in equipment between primary and secondary lead smelters, it is difficult or impossible for a primary smelter to process a significant amount of lead scrap or other raw materials utilized by a secondary smelter. (Blair 41-42; Kenkel 365, 368; Craig 415-17.)

[22] 106. Primary smelters rarely process scrap. (CX 19T, Table 7.) Only ASARCO used battery scrap at one of its primary smelters. This consisted of very small tonnages of a particular grade of scrap. (Kenkel 366-68.) No other ASARCO primary lead smelter processed any scrap. (Kenkel 368.)

107. Primary smelters generally cannot process antimonial alloy scrap, such as batteries, because antimony would foul up the circuit and primary smelters generally have no means for its removal. (Kenkel 365; Quenell 529.)

108. The raw materials used in a secondary smelter, battery scrap in particular, consist of a substantial amount of finely divided material. (Blair 41.) The processing of finely divided material in the large blast furnaces used by primary smelters would reduce the efficiency and capacity of that furnace and could plug it up and cause it to be shut down, cleaned out and restarted. (Blair 42-43; Craig 415-16, 418, 419-21.) Shutdowns and start-ups of a large blast furnace are extremely difficult and costly. (Blair 42; Craig 413-14.)

109. In contrast to the large blast furnace, a reverberatory furnace such as that used by secondary smelters is very good for using fine material. (Bers 1243.)

110. Primary smelters cannot process TEL slag because "it has chlorine in it and the chlorine ruins their collection equipment. It eats it out." (Bers 1269.)

111. Similarly it is difficult if not impossible for a secondary smelter

to use lead ore as its raw material source. (Blair 42; Mardick 296-97; Kenkel 366; Craig 416.)

112. Secondary smelters do not use lead ore as raw material. (Warrender 125-26; Mardick 396; Kenkel 366; Craig 415; Quenell 534-35; Lospinoso 989-90; Prengaman 1091; Bers 1242, 1316.) This is due in part to the high sulfur content of lead ore. In order to handle such a high sulfur content raw material, the secondary lead smelter would have to employ a new and different smelting procedure. At the very least, the lead ore would have to be sintered before being introduced into a secondary lead smelter. (Mardick 296-97; Craig 418; Quenell 535; Bers 1316-17.)

[23] 113. There are substantial differences in the outputs of primary and secondary smelters resulting from the distinct processes used to produce primary and secondary lead.

114. In 1971 and 1972, the output of primary lead smelters consisted almost entirely of soft lead. (CX 19T, Table 7; CX 19U, Table 8.)

115. In 1971 and 1972, the output of secondary lead smelters consisted of approximately 70 percent antimonial lead and 30 percent soft lead. (CX 19V, Table 11; CX 25E; see Craig 485.) Quemetco's secondary lead production in 1971 and 1972 consisted of approximately two-thirds antimonial lead and one-third soft lead. (Blair 31; Quenell 522-23, 577.) The vast majority of soft lead produced by secondary smelters is consumed internally by the producer rather than sold on the open market. (F. 146.)

116. While it is possible for a primary lead smelter to produce antimonial lead from pure lead through the addition of antimony and other metals to antimony-free lead ores, or if antimony happens to be present in the lead ore, such smelters do so only in very small quantities. (CX 19U, Table 8; Blair 39; Kenkel 393, 397, 399; Craig 422-23, 484.) In 1971 and 1972, such production by primary smelters accounted for less than 3 percent of their lead production. (CX 19T, Table 7; CX 19U, Table 8.)

117. Antimonial lead produced by primary smelters generally is not sold to battery manufacturers, principally for two reasons.

118. It is more economical to use secondary sources to produce antimonial lead than to use primary sources. A secondary smelter's raw material already contains, at no extra charge over the scrap lead price, all the ingredients to produce antimonial lead; in contrast, a primary smelter generally would have to purchase such relatively costly metals as antimony, tin and arsenic to add to its pure lead in order to make antimonial lead. (Third Request for Admissions and Answer, Pars. 12-14; CX 22C; CX 25C, F; Blair 39; Craig 423; Quenell 529-30; Prengaman 1094, 1103-04; Bers 1262-63.)

[24] 119. Antimonial lead made from primary lead is generally unsatisfactory for use in producing battery grids due to its poor castability compared to secondary antimonial lead. Small amounts of certain impurities found in secondary antimonial lead enhance its castability. (Blair 39-40; Kenny 240-41; Mardick 291-92.) Primary lead processors would have to add additional alloying agents to produce a primary antimonial lead satisfactory for the manufacture of battery grids. (Prengaman 1093.) A secondary blast furnace using slag from a reverberatory furnace as its principal feed produces antimonial lead containing approximately 3 percent antimony, .5 percent tin, .015-.2 percent arsenic, and traces of copper, silver, nickel, and bismuth. (Blair 27-28; Mardick 281.)

120. The antimonial lead produced by a secondary smelter, almost without exception, contains each of the various minerals found in the scrap or other raw materials processed. (CX 25F; Blair 28-29; Mardick 281.) Thus, the secondary smelting process does not generally lose or separate minerals contained in the feed. (Blair 28-29; Mardick 294-95; Craig 422; Lospinosa 792-93; Prengaman 1104.)

121. In contrast, the soft lead produced in a primary smelter contains only minute traces of minerals other than lead despite the fact that the lead ore for the primary smelter often contains other metal values, such as zinc, silver, cadmium, cobalt, mercury and bismuth. (Blair 34; Mardick 289; Kenkel 364-65; Craig 409, 421-22.) Some of the minerals other than lead contained in the ore are removed during material preparation while others are removed in the refining process. (Craig 409, 421-22; Lospinosa 839.)

122. In a primary smelter, metal values other than lead are recovered separately and sold either as metal or concentrates. (Blair 34, 40-41; Mardick 294-95; Kenkel 364-65; Craig 409, 421-22; Lospinosa 839.)

123. The ratio between the output of alloyed lead and soft lead by secondary lead smelters is determined by the economics involved in smelting. (Blair 33; Quenell 524.)

[25] 124. One secondary smelter, the Federated Metals Division of ASARCO, did not find it economically feasible to produce any soft lead and thus produced only alloyed lead in 1971 and 1972. (Kenkel 365-66.)

125. The principal product of the secondary smelting process is antimonial lead. If the scrap which constitutes the recycler's raw material does not include sufficient antimony to allow production of only antimonial lead containing the percentage of antimony required, some soft lead is also produced in the course of the smelting process. (Craig 486.) The smelter then has a choice of buying enough antimony from outside sources to produce more antimonial lead or to use or sell

the soft lead. (Craig 487-88.) Additional soft lead can be obtained by further processing of the alloyed lead, but recyclers generally do not do so because antimonial lead is considered a valuable product. (Craig 486-87; see also Mardick 285.)

126. As a secondary lead smelter seeks to increase the percentage of its soft lead as a percentage of its total production, it incurs additional processing costs. (Mardick 276; Lospinoso 994.) In order for a secondary lead smelter to produce increased amounts of soft lead above its normal output, the smelter must rerun the reverberatory slag back through the reverberatory furnace while the blast furnace remains idle. (Lospinoso 820-21, 837, 994.) Each successive run of the slag through the reverberatory furnace yields a diminishing quantity of soft lead and a more highly alloyed antimonial lead slag. (Lospinoso 820-21, 837.) Finally a point is reached where the high antimonial slag can no longer be run through the reverberatory furnace. (Lospinoso 837.) A secondary lead producer such as RSR does not have the equipment to turn such high antimony slag into a saleable by-product. (Lospinoso 837-38, 950-51.)

127. As the blast furnace remains idle while the slag is being rerun, producing more pure lead causes a secondary smelter to incur the high cost of keeping expensive equipment idle and/or continually starting and stopping such equipment. (Lospinoso 995.)

128. It is more economical for a secondary smelter making oxide to purchase the majority of its soft lead needs for oxide production or fabrication rather than [26] attempt to convert a greater percentage of its mixed antimonial lead/soft lead output into soft lead. (Blair 33; Mardick 285-86; Kenkel 365-66, 384-85; Craig 486-88.)

129. In general, it takes a secondary smelter a longer period of time to produce the same number of tons of soft lead than it takes to produce hard lead. (Blair 33.)

130. There are differences in the soft lead produced by primary and secondary smelters, with the product of the former typically containing fewer impurities than the product of the latter. (Blair 35-36; Mardick 290; Lospinoso 990-91; Prengaman 1097-98.) Because of this difference in purity, secondary soft lead can be distinguished spectrographically from primary lead. (Mardick 291.)

131. Secondary soft lead generally contains close to the maximum impurities allowable in order to meet the ASTM specifications of 99.97 percent purity, while primary soft lead generally contains impurities in amounts far below those allowable under the ASTM specifications. (Blair 36; Lospinoso 990-91; Prengaman 1097-98; Bers 1257.) The impurities generally contained in secondary soft lead are antimony, copper, bismuth and silver. (Blair 36; Bers 1257.)

132. There are differences in the marketing of primary and secondary lead. These differences in marketing arise from differences in the production process and products of the two submarkets.

133. Secondary lead producers basically sell to the customers from whom their raw materials are obtained. (Quenell 525.)

134. The principal customers of secondary lead producers are battery manufacturers. (CX 25E; Blair 25, 31-32; Mardick 277-78; Craig 440; Quenell 520, 525.)

135. Secondary producers sell battery manufacturers almost their entire needs for hard or alloyed lead. (Ray 184; Kenny 242; Craig 424-25, 440; Quenell 529; Prengaman 1092-93, 1104-05; Cassara 1378, 1400.) Primary producers "essentially don't compete for" sales of antimonial lead to battery manufacturers. (Craig 424-25; Quenell 505, 528.)

[27] 136. In addition, NL and Quemetco sold oxide to battery manufacturers in 1972. These secondary lead smelters manufactured oxide principally from primary lead but to a limited extent oxide was also made from their own production of secondary soft lead. (Blair 32; Mardick 275-76, 287; Craig 446-47, 459; Quenell 523-24.) Quemetco made its oxide for sale to Globe-Union from a blend of its secondary lead with primary lead in some instances in order to meet Globe-Union's specifications. (Quenell 524-25.)

137. Nonintegrated battery manufacturers who made oxide did so almost entirely from primary lead. (Warrender 129; Ray 183-84; Kenny 244-45; Mardick 322-23.)

138. Battery companies are the principal source of raw materials for secondary lead smelters, either through tolling arrangements or outright sale of scrap and repurchase of recycled lead. (Quenell 525-26.)

139. One of the two largest domestic battery manufacturers, Globe-Union, Inc., derived its antimonial lead requirements through tolling arrangements with various secondary lead smelters. (Warrender 120, 122-23; Quenell 526.) Under these tolling arrangements, Globe-Union furnished junk batteries to selected secondary lead smelters, paid these smelters a conversion fee to smelt and refine antimonial lead to its specifications from the junk batteries it delivered, and received back the lead values of its batteries. At all times Globe-Union retained title to the lead it furnished under the tolling arrangements. Globe-Union delivered batteries to its customers in its trucks, picked up used batteries traded in to those customers, dropped these junk batteries off at the secondary smelters and picked up antimonial lead from these smelters which it transported to its battery manufacturing plants. (CX 25F; Warrender 120, 122-23.)

140. Battery manufacturers other than Globe-Union have also had tolling arrangements or similar types of arrangements with secondary

lead producers, including RSR. (CX 10B; Kenny 254; Craig 426; Quenell 526; Bers 1287.) During the first six months of 1972, 34 percent of RSR's raw materials were obtained on the basis of conversion (tolling) arrangements. (CX 25F.)

[28] 141. In contrast to its tolling arrangement with secondary producers for securing hard lead, Globe-Union purchased its requirements for soft lead from primary producers. (Warrender 129.)

142. In 1972, and for many years prior thereto, two secondary lead smelters who processed TEL slag sold refined soft lead to the TEL producers. (Bers 1230-35, 1241-42, 1279.)

143. Southern Lead (later Murph Metals) also sold some secondary refined lead to TEL manufacturers at least prior to 1962. (Cassara 1325-26.)

144. Aside from purchases from those secondary lead smelters who reprocessed their slag, U.S. TEL producers in 1972 and previously purchased lead from primary producers. (CX 25G; CX 26B; Craig 424, 440; Bers 1253, 1268.) As the leading processor of TEL stated: "If I wanted to I couldn't have supplied du Pont with their requirements [for TEL] no matter what I did because their requirements were so great. All I did was a service for them by being able to convert the by-product back so that they would not have to throw it away, * * *." (Bers 1269.) By 1975, RSR was supplying some secondary soft lead, not made from reprocessed TEL slag, to TEL manufacturers. (Lospinosa 716, 946; Bers 1279.)

145. Sales by secondary smelters, other than to battery companies or TEL producers, have consisted almost entirely of alloyed lead, including antimonial lead, calcium lead and lead-tin alloys. (Blair 31-32; Quenell 520, 577; Lospinosa 753; Bers 1252-53.) Such secondary lead was used for products such as weights, primarily automotive wheel weights, ammunition, tubes, dies, solders, and type metal. (Blair 31; Mardick 277-78; Kenkel 362; Quenell 520; Lospinosa 753; Bers 1252.)

146. Except for soft lead sales to TEL producers (F. 142-144), very little or no secondary soft lead was sold by secondary smelters in 1972 and the years prior thereto. (Blair 32; Mardick 279; Kenkel 366; Craig 482; Quenell 505.) Quemetco "very rarely" sold soft lead on the open market. (Quenell 523.) NL, the largest secondary lead producer in the United States, did not and does not now regularly sell secondary soft lead. (Mardick 279, 323.) [29] However, NL plans to begin producing and selling secondary soft lead in the future. (RX 142B; RX 144J; RX 145G.) By 1975, RSR was selling significant quantities of secondary soft lead. (Lospinosa 834-35.)

147. Soft lead and alloyed lead are generally employed for different end uses.

148. These different uses led the executive vice-president of NL, the leading producer of secondary lead, to consider secondary and primary lead to be "essentially" separate markets. (Craig 439-40.)

149. The largest use of lead is in the manufacture of batteries, accounting for 49 percent of 1972 consumption. (CX 19W; Table 15; Kenny 257.) There are two basic uses for lead in the manufacture of batteries, production of oxide, the "active material" in the battery, and the production of the structural members of the battery, *i.e.*, the grids, posts and connectors. (Answer to Third Request for Admissions, Par. 4; Blair 15-16; Warrender 120-22; Ray 167, 170; Kenny 240-41.) Use for battery oxide accounted for 26 percent of 1972 U.S. lead consumption; use for grids, posts, etc., accounted for 23 percent of 1972 U.S. lead consumption. (CX 19W, Table 13.)

150. Soft lead is used in the manufacture of battery oxide. (Answer to Third Request for Admissions, Par. 4; Warrender 21; Ray 167-68, 170; Kenny 240; Prengaman 1007, 1106.) Alloyed lead, specifically antimonial lead, cannot be used to produce battery oxide, as oxide made therefrom will not perform satisfactorily, if it performs at all. (Blair 36-39; Ray 170-71; Mardick 291; Prengaman 1106.)

151. Alloyed lead in the form of hard lead is used by battery manufacturers to produce grids, posts, straps and connectors. (Answer to Third Request for Admissions, Par. 4; Warrender 121-22; Ray 167-68; Kenny 240; Mardick 277; Prengaman 1062.) Soft lead could not practically be used for the production of grids, posts, straps, and connectors as such lead would be too soft. (Ray 171.)

152. Another major use of lead is in the manufacture of ammunition which accounted for 5.7 percent of 1972 U.S. lead consumption. (CX 19W, Table 13; Lospinoso 753.) Ammunition is made almost entirely from alloyed lead, [30] specifically a low percentage antimonial alloy, sometimes containing arsenic. (Lospinoso 727, 738, 753; Prengaman 1015.)

153. Cable covering in 1972 accounted for 3.1 percent of U.S. lead usage. (CX 19W, Table 13.) Cable covering is often made from alloyed lead, specifically antimonial or calcium lead. (Lospinoso 753, 992; Prengaman 1022.)

154. Weights and ballast in 1972 accounted for 1.4 percent of U.S. lead usage. (CX 19W; Table 13.) Such weights are often made from alloyed lead, specifically a low percentage antimonial alloy. (Lospinoso 753; Prengaman 1046-47.)

155. Solder and terne metal in 1972 accounted for 4.8 percent of U.S. lead usage. (CX 19W, Table 13.) Solder is made from alloyed lead, usually containing tin, or sometimes antimony. (Lospinoso 887, 889;

Prengaman 1034; Bers 1293.) Terne metal is a lead tin alloy with a tin content of between 2 and 10 percent. (Prengaman 1033.)

156. Bearing metals in 1972 accounted for 1.1 percent of U.S. lead usage. (CX 19W, Table 13.) Such products are made from alloyed lead, mainly an alloy with antimony and tin. (Prengaman 1018.)

157. Collapsible tubes, casting metals and foil in 1972 accounted for 1.1 percent of U.S. lead usage. (CX 19W, Table 13.) These products are made from alloyed lead, specifically antimonial lead. (Lospinosa 891, 896; Prengaman 1025-26.)

158. Type metal in 1972 accounted for 1.3 percent of U.S. lead usage. (CX 19W, Table 13) This product is made from alloyed lead, usually containing 10 percent antimony and 3 or 4 percent tin. (Lospinosa 898; Prengaman 1035.)

159. Only soft lead is used to produce the following products: gasoline antiknock compounds; brass and bronze; calking-lead; white lead; red lead and litharge; pigment color; miscellaneous chemicals; annealing, and galvanizing. (Prengaman 1014, 1020, 1024, 1037-38, 1041-44.) Generally soft lead is sold for pipe, lead plating, and for traps and bends. (Prengaman 1028, 1045.) Such uses of soft lead plus battery oxide production accounted for 54.8 percent of U.S. lead usage in 1972. (CX 19W, Table 13.)

[31] 160. Primary and secondary lead are functionally interchangeable for most end uses. (Prengaman 1007-09, 1014-15, 1018, 1022-23, 1025-27, 1029, 1030-31, 1037, 1041-46.)

161. Primary and secondary pure lead are generally competitive with one another for the same end uses. (Blair 83; Quenell 595; Ryan 687-88, 690; Cassara 1325-28, 1356-57.)

162. Pure lead is traded on the London Metal Exchange (LME), the principal world market for lead trading. (Threlkeld 1426.) The minimum standard of purity for lead deliverable on the LME is 99.97 percent. (RX 42A; RX 45A; Threlkeld 1445.) Both primary lead and recycled lead have met this standard. (Kenkel 386; Threlkeld 1446-49; see also Ryan 690.)

163. Primary and secondary alloyed lead, if made to conform to the same specifications, can also both be used for most end uses. (Kenkel 393, 399; Craig 422; Ryan 695; Lospinosa 817-19.)

164. Battery grids and posts constitute the largest end use for alloyed lead. (RX 80; RX 81.) Most grids and posts have been made from secondary antimonial lead. (Warrender 122; Ray 167-68; Kenny 241-43.) However, at least one primary producer, ASARCO, has made and sold some antimonial lead for use in battery grids. (Lospinosa 817-19.) The primary producers compete to some extent with recyclers in the

production and sale of antimonial lead for other end uses. (Kenkel 393, 399; Craig 422, 484; Ryan 694-95; Lospinoso 817-19; Bers 1255.)

165. Some customers have historically preferred or specified only primary lead for certain end uses, although the incidence of this preference is declining due to improved analytical techniques and resulting higher purity of recycled soft lead. (Blair 86; Craig 425; Lospinoso 991.) For example, as of 1971 and 1972, some oxide producers preferred to use primary lead in the manufacture of battery oxide. (Blair 86; Warrender 148-49; Mardick 287; Quenell 991.) On the other hand, ESB will not approve the use of more than 25 percent primary lead in the production of its requirements of antimonial lead. (Kenny 240-41.)

[32] 166. At identical prices, some battery manufacturers would always buy primary lead for use in making oxide. (Mardick 287.) Indeed, for many soft lead uses, if the price of primary and secondary is identical, users will purchase only primary lead. (Mardick 288-89.)

167. However, some secondary soft lead is used in the manufacture of battery oxides. (Ray 184, 206-07; Quenell 524; Lospinoso 747; Cassara 1327.) Some secondary soft lead is also currently used in the production of tetraethyl lead (TEL). (Blair 81-82; Kenny 257; Quenell 594; Lospinoso 716, 816; Bers 1238-39, 1241-42; Cassara 1325-26.)

168. For certain uses customers purchase only primary lead, as secondary lead is not suitable for manufacture of some products. (Blair 87; Kenny 247.) For example, primary lead must be used in the manufacture of certain lead chromate pigments and other lead chemicals, because the presence of certain trace impurities in secondary lead would adversely affect the quality of the product. (Blair 87; Bers 1257.) NL's paint, oxide, industrial and chemical division refused a request by its secondary lead division to alter specifications to permit the use of secondary as well as primary lead. (Mardick 288-89.)

169. Prices of secondary lead and primary lead are not identical. (Mardick 287, 320-32.)

170. Lead prices are published each week in an industry publication known as Metals Week. This published price is based on the prices of the primary lead producers. (Mardick 321; Craig 481; Cassara 1420.) There is no separate published list price for secondary lead. (Craig 481; Cassara 1420.) The published price of lead is not necessarily the price of secondary lead (Mardick 321), but the price of secondary lead is related to the price of primary lead. (Kenkel 370-72; Cassara 1420.)

171. Both primary and secondary sellers discount from published prices. (Mardick 325; Craig 470-71; Quenell 601; Cassara 1348-49.) However, secondary producers tend to discount more than primary producers. (Mardick 325; Cassara 1401.)

