142147

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III

IN THE MATTER OF: **C & R BATTERY COMPANY, INC.** **SUPERFUND SITE** **BELLWOOD ROAD, CHESTERFIELD COUNTY, VIRGINIA** **RESPONDENTS** Proceeding under Section 122(g)(4) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9622(g)(4).	Docket No. III-98-090-DC

ADMINISTRATIVE ORDER BY CONSENT
THIRD DE MINIMIS ORDER

AR000014

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I. JURISDICTION

A. This Administrative Order on Consent ("Consent Order" or "Order") is issued pursuant to the authority vested in the President of the United States by Section 122(g)(4) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("CERCLA"), 42 U.S.C. § 9622(g)(4), to reach De Minimis settlements in actions under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). The authority vested in the President has been delegated to the Administrator of the United States Environmental Protection Agency ("EPA") by Executive Order 12580, 52 Fed. Reg. 2933, January 29, 1987, and further delegated to the EPA Regional Administrators by EPA delegation 14-14-E, September 13, 1987.

B. This Consent Order concerns the reimbursement of response costs and, for some De Minimis Respondents, liability for damages for the injury to, destruction of or loss of natural resources, which have been or which may be incurred by the United States in responding to releases or threatened releases of hazardous substances at the approximately eleven acre C & R Battery Company, Inc. Superfund Site ("the Site") located in Chesterfield County, Virginia. The Site is more particularly identified on the map attached as Appendix **A**.

C. This Consent Order is entered into voluntarily by and between the EPA and four (4) De Minimis potentially responsible parties, who have executed the attached signature pages ("De Minimis Respondents"). See Appendix **B**. Each De Minimis Respondent agrees to undertake all actions required by the terms and conditions of this Order. Each De Minimis Respondent consents to and will not contest EPA's jurisdiction to issue this Order or to

implement or enforce its terms.

D. The De Minimis Respondents further agree and submit that the United States District Court for the Eastern District of Virginia (Richmond Division) has jurisdiction over this Consent Order for the purposes of any subsequent proceedings for implementation or enforcement of this Order because a release or threatened release of hazardous substances occurred at the C & R Battery Company, Inc. Site in Chesterfield County, Virginia.

E. This Consent Order was negotiated and executed by the EPA and the De Minimis Respondents in good faith to avoid the expense and delay of litigation over the matters addressed by this Consent Order.

F. EPA and the De Minimis Respondents agree that this Consent Order is entered into without any admission of liability for any purpose as to any matter arising out of the transactions or occurrences alleged in the Order. The participation of the De Minimis Respondents in this Order shall not be considered an admission of liability and shall not be admissible as evidence against the De Minimis Respondents in any judicial or administrative proceeding other than proceedings to implement or enforce this Order or a judgment relating thereto.

II. STATEMENT OF PURPOSE

A. By entering into this Consent Order, the mutual objectives of the EPA and De Minimis Respondents are:

1. to reach a final settlement between the EPA and the De Minimis

Respondents which allows, each De Minimis Respondent to: (a) make a cash payment, including a premium as specified herein, to settle, in accordance with the terms, conditions, and reservations herein, their respective alleged liability for all Past and Future response costs that EPA has incurred or may incur at or in connection with the Site; and (b) with respect to some De Minimis Respondents, for natural resource damages under the trusteeship of the Department of Interior ("DOI") (as referenced in Column **E** marked "Nat. Res. Share" of Appendix **C**), in exchange for a covenant not to sue respecting further CERCLA civil liabilities as set forth in Section XI, and contribution protection as set forth in Section XIV, thereby avoiding difficult, prolonged and complicated litigation among EPA, the De Minimis Respondents and other potentially responsible parties;

2. to simplify the remaining enforcement activities concerning the Site by eliminating a substantial number of parties from further involvement in connection with the Site;

3. to reimburse the Hazardous Substances Superfund for a portion of the response costs incurred or to be incurred, including but not limited to, direct and indirect costs, that EPA has incurred and paid through March 12, 1997, in connection with the Site without waiving EPA's assertion of joint and several liability against parties other than the De Minimis Respondents.

III. DEFINITIONS

Unless otherwise expressly provided herein, terms used in this Consent Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning

assigned to them in the statute or regulations. Whenever the terms listed below are used in this Order, including the appendices attached hereto, the following definitions shall apply:

A. "Consent Order" or "Order" shall mean this "Administrative Order By Consent" and all appendices attached hereto. In the event of conflict between this Order and any appendix, this Order shall control.

B. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et. seq.

C. "Chesapeake & Potomac Telephone Company, Inc." or "C & P Telephone Company" or "C & P" (now known as Bell Atlantic-Virginia, Inc.) shall refer to the potentially responsible party who has completed the Remedial Action and is currently undertaking Operation and Maintenance at the Site in accordance with the Unilateral Administrative Order signed by the Regional Administrator of EPA Region III on March 27, 1992, and all attachments thereto.

D. "Commonwealth" shall mean the Commonwealth of Virginia.

E. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or federal holiday. In computing any period of time under this Consent Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

F. "De Minimis Respondents shall refer to C & C Cullet Supply Co., J. Solotken & Company, Inc., Tidewater Metals Company, and Virginia Scrap Iron and Metal Company, Inc.

A list of the De Minimis Respondents is attached as Appendix **B**.

G. "DOI" shall mean the United States Department of Interior and any successor departments or agencies of the United States.

H. "DOJ" shall refer to the United States Department of Justice and any successor departments or agencies of the United States.

I. "DOJ Response Costs" shall mean any response costs incurred or to be incurred by DOJ in connection with the Site.

J. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

K. "Future Response Costs" shall mean any oversight costs and any further response costs, including but not limited to direct and indirect costs, and excluding only Past Response Costs, that may be incurred by EPA in connection with the Site and for which the De Minimis Respondents are potentially liable.

L. "Hazardous Substances Superfund" shall mean the Hazardous Substance Superfund established under Subchapter A of Chapter 98 of Title 26 of the United States Code.

M. "Interest" shall mean interest at the rate specified for interest on investments of the Hazardous Substance Superfund established under Subchapter A of Chapter 98 of Title 26 of the United States Code, compounded on October 1 of each year, in accordance with 42 U.S.C. § 9607(a).

N. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of

CERCLA, 42 U.S.C. § 9605, as set forth at 55 Fed. Reg. 8,666 (March 8, 1990), and codified at 40 C.F.R. Part 300, including any amendments thereto.

O. "Natural Resources Damages" shall mean damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from a release of hazardous substances.

P. "NOAA" shall mean the United States National Oceanic and Atmospheric Administration of the Department of Commerce and any successor departments or agencies of the United States.

Q. "Operation and Maintenance" or "O & M" shall mean all activities required to maintain the effectiveness of the Remedial Action (as defined below) as specified in EPA's Unilateral Administrative Order issued on March 27, 1992.

R. "Paragraph" shall mean a portion of this Consent Order identified by an Arabic numeral or an upper case letter.

S. "Parties" shall refer to those non de minimis potentially responsible parties identified by EPA in connection with the C&R Battery Company, Inc. Site.

T. "Past Response Costs" shall mean all response costs, including but not limited to, direct and indirect costs, that EPA has incurred and paid through March 12, 1997, in connection with the Site, plus accrued Interest on all such costs through such date.

U. "Potentially Responsible Parties" shall mean those categories of persons set forth in Section 107 of CERCLA, 42 U.S.C. § 9607. Potentially responsible parties under CERCLA include current and former owners and operators of the Site as well as persons who arranged for

disposal or treatment of hazardous substances sent to the Site, or persons who accepted hazardous substances for transport to the Site.

V. "Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the Site and signed on March 30, 1990, by the Regional Administrator, EPA Region III, and all attachments thereto. The ROD is attached as Appendix **D**.

W. "Remedial Action" shall mean those activities, except for Operation and Maintenance, specified in EPA's Unilateral Administrative Order issued on March 27, 1992.

X. "Section" shall mean a portion of this Consent Order identified by a Roman numeral.

Y. "Site" shall mean the C & R Battery Company, Inc. Superfund Site, including areas defined in 40 C.F.R. § 300.400(e) encompassing approximately eleven acres, located in an industrial area six miles southeast of Richmond, Virginia in Chesterfield County, Virginia and more particularly identified on the map attached as Appendix **A**.

Z. "Unilateral Administrative Order" or "UAO" shall refer to the EPA Unilateral Administrative Order relating to the C & R Battery Company, Inc. Superfund Site, signed by the Regional Administrator of EPA Region III on March 27, 1992, and all attachments thereto. The Unilateral Administrative Order is attached as Appendix **E**.

AA. "United States" shall mean the United States of America, its agencies, departments and instrumentalities.

BB. "Volumetric Ranking Summary" or "VRS" shall mean the list of all parties prepared by EPA in connection with the Site, which specifies the volumetric share, including

cost share and premium attributable to each party. The VRS is attached as Appendix C.

IV. STATEMENT OF FACTS

A. The C & R Battery Company, Inc. Site is located in an industrial area in Chesterfield County, Virginia, approximately 6 miles southeast of Richmond, Virginia. The Site is more particularly identified on the map attached as Appendix A.

B. The Site, which is approximately eleven acres, is rectangular in shape and is bordered on the north, south and west by open fields and woods and on the east by a small fuel-oil distributor. Water supplies, including drinking water, for business, industrial and residential usage within one mile of the Site are provided by groundwater sources. The Site is situated in an area which drains directly into the James River, located approximately 650 feet north of the Site.

C. The C & R Battery Company, Inc., ("C & R") operated a battery processing shredder (breaker) facility within a 4.5 acre tract of land on the Site. The facility operation was designed to separate and recover lead from discarded automobile, truck and other types of batteries. Generally, operations involved receiving bulk shipments of discarded batteries, cutting open the tops of the batteries and draining the battery acids into on-site acid storage-containment ponds located within the central area of the Site, adjacent to the battery breaker. Waste generated by the operation was located throughout the Site and included lead sulfide, lead, plastic battery casing materials, and sulfuric acid.

D. The Virginia State Water Control Board ("VA SWCB" or "Board") began monitoring the Site in the late 1970's. Throughout the years, the Board conducted several rounds

of sampling for lead in soil, surface water, and groundwater. These samples revealed elevated levels of lead in all media. In 1979, the VA SWCB conducted a soil sampling program at the Site. The data indicated that lead was present at concentrations up to 16,000 milligrams per kilogram (mg/kg). The pH of the soils ranged from 3.3 to 6.5. Additional contaminants such as arsenic, chromium, copper, nickel, and mercury were reported. Each of these substances is a hazardous substance as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

E. On February 24, 1986, EPA's Field Investigation Team ("FIT") conducted a Site Investigation of local groundwater, surface water and soil. On site soil samples revealed levels of lead as high as 63,000 mg/kg. In the summer of 1986, EPA conducted a removal action at the Site pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604.

F. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the CERCLA National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on July 22, 1987, 52 Fed. Reg. 27620.

G. On August 29, 1988, in response to a release or a substantial threat of a release of a hazardous substance(s) at or from the Site, EPA commenced a Remedial Investigation/Feasibility Study ("RI/FS") for the Site pursuant to the National Contingency Plan.

H. EPA's RI/FS, completed in January 1990, identified the following major contaminated areas: (1) a sulfuric acid pond, one quarter acre in size, with very high amounts of lead contamination; (2) surface soils contaminated with lead and other heavy metals; (3) lead contaminated subsurface soils; (4) debris piles which consist of nickel/cadmium batteries; and (5)

lead contaminated drainage ditch sediments.

I. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the Feasibility Study ("FS") and of the proposed plan for Remedial Action on January 25, 1990, in the Richmond Times Dispatch. EPA provided an opportunity for written and oral comments from the public on the proposed Remedial Action. A copy of the transcript of the public meeting is available to the public as part of the Administrative Record upon which the Regional Administrator based the selection of the response action.

J. The decision by EPA on the remedial action to be implemented at the Site is embodied in a Final Record of Decision ("ROD"), executed on March 30, 1990, to which the Commonwealth of Virginia had given its concurrence. The ROD includes a summary of responses to the public comments. Notice of the final plan was published in the Federal Register in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

K. The Remedial Action selected by EPA in the ROD includes, but is not limited to, the excavation of surface and subsurface soils containing lead above the 1,000 mg/kg action level, treatment of such soils with a cement/pozzolan-based or similar stabilization process, and disposal of the excavated and treated soils in an offsite landfill.

L. Under the selected alternative, a hybrid closure (soil cover) was implemented by C & P for the residual contamination (soil with lead concentrations between 120 mg/kg and 1000 mg/kg) outside of the acid pond area. Drainage ditch sediments with lead levels above 450 mg/kg were also excavated. The acid pond area underwent a clean closure in accordance with the Virginia Hazardous Waste Management Regulations ("VHWMR").

M. In February 1991, EPA commenced its work on the Remedial Design of the remedy selected by EPA in the ROD dated March 30, 1990. EPA completed the Remedial Design in May 1992.

N. On March 27, 1992, pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), EPA issued a Unilateral Administrative Order ("UAO"), Docket No. III-92-17-DC, to eighteen (18) PRPs who did not qualify under the criteria used for de minimis eligibility under this Consent Order, each of whose known waste contribution to the Site as of March 1992 was above one percent of the total known amount of waste sent to the Site. The UAO directed the PRPs to implement the remedy selected by EPA in its ROD dated March 30, 1990, in accordance with the final Remedial Design prepared by EPA. C & P was the only PRP who agreed to comply with the UAO.

O. On July 8, 1994, both DOI and NOAA assessed damages in the amount of $746,400.00 for injury to, destruction of, or loss of natural resources including past damages associated with habitat loss and habitat degradation; the costs of habitat restoration; habitat values and natural resources, including, but not limited to, administrative costs and past and anticipated assessment costs.

P. On September 24, 1994 EPA and 66 De Minimis parties entered into an Administrative Order by Consent under Section 122(g)(4) of CERCLA, 42 U.S.C. § 9622(g)(4), in connection with the Site. Pursuant to the September 24, 1994 Order, these 66 parties collectively agreed to pay $684,947.58 to the Hazardous Substances Superfund. Out of such amount, 63 of the 66 signatories collectively agreed to pay $89,149.94 to DOI and NOAA in

exchange for a covenant not to sue for natural resources damages[1]. The Order became effective on January 3, 1995.

Q. EPA and 3 De Minimis parties entered into an Administrative Order by Consent under Section 122(g)(4) of CERCLA, 42 U.S.C. § 9622(g)(4), in connection with the Site which became effective on December 21, 1995.

R. In performing the required response actions at the Site, EPA has incurred and will continue to incur response costs. As of March 12, 1997, EPA had incurred $3,262,218.78 in Past Response Costs, including prejudgment Interest, which still remain unreimbursed. DOI has incurred unreimbursed natural resources damages in the amount of $657,250.06. EPA will incur future response costs at the Site. EPA estimates that future response costs will be approximately $3,000.00 for EPA's oversight of performance of the remedy and for operation and maintenance of the remedy.

S. EPA has reviewed records describing the transactions of the PRPs, including the De Minimis Respondents, in relation to activities conducted at the Site. These records include information describing the amount and nature of waste contributed to the Site. Based upon that review, EPA has determined that each De Minimis Respondent arranged for disposal or treatment, or arranged with a transporter for disposal or treatment, of a hazardous substance owned or possessed by such De Minimis Respondent, at the Site, or accepted a hazardous substance for transport to the Site.

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[1] NOAA's natural resources damages claims were fully satisfied against all potentially responsible parties upon receipt of this payment. See letter to EPA Region III from NOAA, dated May 11, 1998 attached as Appendix F.

T. Information currently known to EPA indicates that each De Minimis Respondent contributed less than 0.5% percent of the hazardous substances to the Site, and that the toxic or other hazardous effects of the hazardous substances contributed by each De Minimis Respondent to the Site are minimal compared to the other hazardous substances at the Site. Attached hereto and incorporated by reference is the Volumetric Ranking Summary which is listed as Appendix C and lists the estimated volume of the hazardous substances contributed to the Site by each De Minimis Respondent, as well as the total estimated volume of hazardous substances received and processed at the Site.

U. EPA may incur future response costs if the Remedial Action is not protective of public health, welfare or the environment.

V. EPA has identified persons other than the De Minimis Respondents who owned or operated the Site, or who arranged for disposal or treatment of a hazardous substance owned or possessed by such person, or who accepted a hazardous substance for transport to the Site.

V. DETERMINATIONS BY EPA

A. Based on the Statement of Facts set forth above, and on the Administrative Record for this Site, the EPA has determined that:

(1) The C & R Battery Company, Inc. Superfund Site is a "facility" as that term is defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

(2) Each De Minimis Respondent is a "person" as that term is defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

(3) Each De Minimis Respondent is liable within the meaning of Sections 107(a) and 122(g)(1) of CERCLA, 42 U.S.C. §§ 9607(a) and 9622(g)(1).

(4) The materials shipped to the Site by the De Minimis Respondents include "hazardous substances" within the meaning of Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(5) The past, present or future migration of hazardous substances from the Site constitutes an actual or threatened "release" as that term is defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

(6) The release of hazardous substances from the Site has resulted in injury to, destruction of, and the loss of certain natural resources under Federal trusteeship of the United States Department of the Interior as defined in Section 107(a) and (f) of CERCLA, 42 U.S.C. § 9607(a) and (f).

(7) The Past and Future Response Costs incurred or to be incurred in connection with the Site are removal and remedial response costs within the meaning of Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

(8) Prompt settlement with the De Minimis Respondents is practicable and in the public interest, within the meaning of Section 122(g)(1) of CERCLA, 42 U.S.C. § 9622(g)(1).

(9) As to each De Minimis Respondent, this Consent Order involves only a minor portion of the response costs at the Site pursuant to Section 122(g)(1) of CERCLA, 42 U.S.C. § 9622(g)(1).

(10) Each De Minimis Respondent is eligible for a De Minimis settlement pursuant to Section 122(g)(1)(A) of CERCLA, 42 U.S.C. § 9622(g)(1)(A), since both the amount of hazardous substances contributed to the Site by each De Minimis Respondent and the toxic or other hazardous effects of the hazardous substances contributed to the Site by each De Minimis Respondent are minimal in comparison to other hazardous substances at the Site pursuant to Section 122(g)(1)(A) of CERCLA, 42 U.S.C.§ 9622(g)(1)(A).

VI. ORDER

Based on the foregoing Statement of Facts and Determinations by EPA, in order to reach an expedited De Minimis settlement in connection with the C & R Battery Company, Inc. Superfund Site, in consideration of, and in exchange for, the promises and mutual undertakings and covenants set forth herein, and intending to be legally bound hereby, EPA and the De Minimis Respondents agree, and EPA hereby Orders, as follows:

A. Within sixty (60) calendar days of the effective date of this Order, each De Minimis Respondent shall pay its cost share as set forth below:

1. Such De Minimis Respondent's volumetric share of the cost basis (see Column **C** marked "Cost Share" in Appendix **C**) of $3,265,218.78 (EPA's past costs and total estimated future costs); and

2. A settlement premium equal to 102% of such De Minimis Respondent's volumetric share of $3,265,218.78 (see Column **D** marked "102% Premium" in Appendix **C**).

B. In addition, each De Minimis Respondent wishing to resolve its potential liability

for injury to, destruction of, or loss of natural resources under the trusteeship of DOI and the cost of assessing such injury, destruction or loss, shall, within sixty (60) calendar days of the effective date of this Consent Order, pay its volumetric share of the Federal Natural Resources Damages cost share as set forth in Column E marked "Nat. Res. Share" of Appendix C.

VII. PARTIES BOUND

This Consent Order shall apply to and be binding upon EPA and the De Minimis Respondents and their successors and assigns. Each signatory to this Consent Order represents that he or she is fully authorized to enter into the terms and conditions of this Consent Order and to bind legally the party represented by him or her.

VIII. PAYMENT BY DE MINIMIS RESPONDENTS

A. Within sixty (60) calendar days of the effective date of this Consent Order, each De Minimis Respondent shall pay the amount (add columns C and D for the EPA payment amount **only** or add columns **C, D** and **E** for the EPA and DOI payment amount) specified for that party as set forth in Appendix C to this Consent Order and as specified in Section VI, above. De Minimis Respondents who pay the EPA payment amount shall make such payment in accordance with instructions specified below. Interest shall begin to accrue on the unpaid balance from the date specified above. Each payment shall be made by Electronic Funds Transfer ("EFT" or "wire transfer") to the U.S. EPA Region III lockbox bank at the following address:

Mellon Bank
Pittsburgh, PA
ABA No. 043000261
credit EPA account number 9108552, lockbox number 360515

Such wire transfers shall reference the Site name, EPA Region and Site/Spill # 03P4, and the Docket Number of this Consent Order. Each De Minimis Respondent shall send copies of its EFT notice to the United States to the following:

Docket Clerk (3RC00)
United States Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103

Kyle J. Chelius (3HS12)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103,

and

Yvette Hamilton-Taylor, Esquire (3RC32)
Senior Assistant Regional Counsel
U.S. Environmental Protection Agency
Region III
841 Chestnut Building
Philadelphia, PA 19107

Each De Minimis Respondent who elects to pay its volumetric share of the Natural Resources Damages shall make payment in accordance with the instructions below.

B. All payments to the United States for Natural Resources Damages shall be in the form of a certified check made payable to "U.S. Department of the Interior" and referencing Account Number 14X5198, DOJ case number 90-11-2-692A, the name and location of the Site

and the name of the De Minimis Respondent. De Minimis Respondents shall forward the certified check by certified mail, return receipt requested, to:

Chief, Division of Finance
U.S. Fish and Wildlife Service
4401 North Fairfax Drive, Room 380
Arlington, Virginia 22203

with a copy to:

Mark Barash, Esq.
Office of the Regional Solicitor
U.S. Department of the Interior
One Gateway Center, Suite 612
Newton Corner, MA 02158-2868

C. Amounts due and owing pursuant to the terms of this Consent Order but not paid in accordance with the terms of this Consent Order shall accrue Interest at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

IX. STIPULATED PENALTIES

A. In addition to any other remedies or sanctions available to the United States, any De Minimis Respondent to this Consent Order who fails or refuses to comply with any term or condition of this Order, shall be liable to EPA upon demand for stipulated penalties for each day, or portion thereof, for each violation in the following amounts:

Period of Violation	Penalty Per Violation Per Day
1st through 7th day	$ 500
8th through 15th day	$ 1,000
16th day and beyond	$ 1,500

B. All stipulated penalties owed to EPA under this Section IX shall be due and payable within thirty (30) days of such De Minimis Respondent's receipt from EPA of a demand for payment of stipulated penalties. All payments of stipulated penalties shall be by certified check, cashier's check or money order, made payable to "EPA Hazardous Substances Superfund," and shall be mailed to the following address:

U.S. Environmental Protection Agency
Region III
Attention: Superfund Accounting
P.O. Box 360515
Pittsburgh, PA 15251-6515

All such checks or money orders shall reference the Site name, EPA Region III and CERCLA Site/Spill ID Number #03P4 and the docket number of this Consent Order.

C. When sending the certified check, cashier's check or money order referred to in paragraph B, immediately above, such De Minimis Respondent shall also send a copy of its check or money order to:

EPA Regional Docket Clerk (3RC00)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103

and

Yvette Hamilton-Taylor (3RC32)
Senior Assistant Regional Counsel
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103

D. Stipulated penalty amounts due and owing pursuant to the terms of this Consent

Order but not paid in accordance with the terms of this Consent Order shall accrue Interest at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

E. Nothing in this Consent Order shall be construed as prohibiting, altering, or in any way limiting the ability of the United States to seek any other remedies or sanctions available by virtue of any De Minimis Respondent's violation of this Order or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l).

X. CERTIFICATION OF DE MINIMIS RESPONDENTS

Each De Minimis Respondent certifies individually that, to the best of its knowledge and belief, it has conducted a thorough, comprehensive, and good faith search for documents concerning the Site and has fully and accurately disclosed to EPA all information currently in its possession, or in the possession of its officers, directors or employees, which relates in any way to the generation, treatment, transportation, storage or disposal of hazardous substances at, or in connection with the Site. Each De Minimis Respondent also certifies that it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents, or other information relating to its potential liability regarding the Site after notification of potential liability or the filing of a suit against it regarding the Site. Each De Minimis Respondent to whom EPA has sent an information request under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e), further certifies, that to the best of its knowledge and belief it has complied with any and all EPA requests for information relating to such De Minimis Respondent's potential liability

regarding the Site since notification of potential liability regarding the Site pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e). If this certification is subsequently determined to be false as to any De Minimis Respondent, then this Consent Order shall be null and void and such De Minimis Respondent shall forfeit all payments made pursuant to Section VIII of this Consent Order. Such forfeiture shall not constitute liquidated damages and shall not in any way foreclose the United States' right to pursue any other causes of action arising from such De Minimis Respondent's false certification. Providing false, fictitious, or fraudulent statements or representations to the United States is punishable as a crime under 18 U.S.C. § 1001.

XI. COVENANTS NOT TO SUE BY UNITED STATES

A. Subject to the reservation of rights in Section XII of this Consent Order and upon receipt of payment, pursuant to Section VIII (Payment by De Minimis Respondents), from a De Minimis Respondent of the amount specified in Section VIII (A) and (B) of this Consent Order, for payment of EPA's Past and Future costs and DOI's costs, the United States covenants not to sue or to take any other civil or administrative action against such De Minimis Respondent for civil liability for reimbursement of Past or Future Response Costs, including DOJ response costs and, for damages for injury to, destruction of or loss of natural resources or for injunctive relief pursuant to Sections 106(a), 107(a)(4)(C) and 107(f) of CERCLA, 42 U.S.C. §§ 9606(a), 9607(a)(4)(C) and 9607(f), with regard to the Site.

B. Subject to the reservation of rights in Section XII of this Consent Order and upon

receipt of payment, pursuant to Section VIII, from such De Minimis Respondent of the amount specified in Section VIII (A) of this Consent Order, for payment of EPA's Past and Future response costs and DOJ's response costs only, the United States covenants not to sue or to take any other civil or administrative action against such De Minimis Respondent for civil liability for reimbursement of EPA's Past or Future Response Costs, including DOJ response costs, or for injunctive relief pursuant to Sections 106(a) and 107(a) of CERCLA, 42 U.S.C. §§ 9606(a) and 9607(a), with regard to the Site.

C. With respect to each De Minimis Respondent, individually, these covenants are conditioned upon the complete and satisfactory performance by such De Minimis Respondent of all obligations under this Consent Order, and the veracity and completeness of the information provided to EPA by such De Minimis Respondent relating to such De Minimis Respondent's involvement with the Site. These covenants shall be null and void with respect to any De Minimis Respondent that fails to perform all its obligations under this Consent Order in a timely and complete manner, or has provided materially false, incomplete, or incorrect information in such De Minimis Respondent's Certification under Section X of this Consent Order. These covenants extend only to De Minimis Respondents and do not extend to any other person.

XII. RESERVATION OF RIGHTS

A. The United States expressly reserves, and nothing in this Consent Order is intended to be nor shall it be construed as a release or covenant not to sue for, any claim or cause of action, administrative or judicial, civil or criminal, past or future, at law or in equity, which

the United States, including EPA, may have against any of the De Minimis Respondents for:

(1) Any liability as a result of failure to make the payments required by Section VIII, or otherwise comply with the terms of this Consent Order;

(2) liability arising from the past, present, or future disposal, release or threat of release of hazardous substances outside of the Site;

(3) Any matters not expressly included in XI.A above, including, without limitation, liability for damages for injury to, destruction of or loss of natural resources (unless such De Minimis Respondent pays the amount set forth in Column E of Appendix C as allowed under Section VIII);

(4) liability for costs recoverable pursuant to CERCLA Section 107(a), 42 U.S.C. § 9607(a), that have been or may be incurred by DOI or any other trustees for natural resources which have spent, or may in the future spend, funds relating to the Site (unless such De Minimis Respondent pays the amount set forth in Column E of Appendix C as allowed under Section VIII);

(5) criminal liability; or

(6) liability for violations of federal or state law other than those which are addressed under this Consent Order.

B. Nothing in this Consent Order constitutes a covenant not to sue or to take action or otherwise limits the ability of the United States, including EPA, DOI and NOAA, to seek or obtain further relief from any De Minimis Respondent, and the covenant not to sue set forth above and the contribution protection provided below will become null and void as to any

individual De Minimis Respondent, if:

(1) Such De Minimis Respondent contributed greater than 0.5% of the hazardous substances at the Site or contributed hazardous substances which contributed disproportionately to the cumulative toxic or other hazardous effects of the hazardous substances at the Site, and/or

(2) Such De Minimis Respondent(s)' certification in Section X (Certification of De Minimis Respondents) of this Order is false or materially inaccurate.

C. Nothing in this Consent Order is intended as a release or covenant not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the United States may have against any person, firm, corporation or other entity not a signatory to this Order.

XIII. COVENANTS BY DE MINIMIS RESPONDENTS

The De Minimis Respondents hereby covenant not to sue and agree not to assert any claims or causes of action against the United States, its contractors, employees, and authorized representatives, with respect to the Site or this Consent Order, including, but not limited to, any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 111, 112, or 113, 42 U.S.C, §§ 9606(b)(2), 9611, 9612, or 9613, or any other provision of law, any claim against the United States, including any department, agency, or instrumentality of the United States pursuant to CERCLA Sections 107 and 113, 42 U.S.C. §§ 9607 and 9613, related

to the Past and Future Response Costs, or any claims arising out of response activities at the Site. Nothing in this Consent Order shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

XIV. CONTRIBUTION PROTECTION

A. Nothing in this Consent Order shall be construed to create any rights in, or grant any cause of action to, any person not a party to this Consent Order. Nothing in this Consent Order affects or limits any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action which the United States and the De Minimis Respondents may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a party hereto.

B. Subject to the Reservation of Rights in Section XII of this Order, the United States agrees that each De Minimis Respondent by entering into and complying with the terms of this Consent Order, will have resolved its liability to the United States for matters addressed in this Consent Order pursuant to Section 122(g)(5) of CERCLA, 42 U.S.C. § 9622(g)(5), and is entitled to such protection from contribution actions or claims as is provided by Section 122(g)(5) of CERCLA, 42 U.S.C. § 9622(g)(5). For the purposes of this paragraph, the matters addressed in this Consent Order are EPA's Past and Future Response Costs and DOJ response costs incurred and to be incurred as defined in Section III of this Order and, for those De Minimis Respondents who make the payment of natural resources damages as described in Section VIII.A in connection with the Site, such natural resources damages. This contribution

protection does not extend to any other person other than the De Minimis Respondents.

C. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, De Minimis Respondents shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XI (Covenants Not to Sue by the United States). Each De Minimis Respondent also agrees that, with respect to any suit or claim for contribution brought against such De Minimis Respondent for matters related to this Consent Order, such De Minimis Respondent will provide notification to EPA in writing within 10 days of service of the complaint on such De Minimis Respondent. Each De Minimis Respondent also agrees that, with respect to any suit or claim for contribution initiated by such De Minimis Respondent for matters related to this Consent Order, such De Minimis Respondent will provide notification to EPA in writing at least 10 days prior to service of the complaint. In addition, such De Minimis Respondent shall notify EPA within 10 days of receipt of any order from a court setting any such case for trial.

XV. APPENDICES

The following appendices are attached to and incorporated into this Consent Order:

"Appendix A" is the map of the Site.

"Appendix **B**" is the list of De Minimis Respondents.

"Appendix **C**" is the Volumetric Ranking Summary.

"Appendix **D**" is the Volumetric Ranking for the De Minimis Parties.

"Appendix **E**" is EPA's Record of Decision.

"Appendix **F**" is EPA's Unilateral Administrative Order.

"Appendix **G**" is NOAA's Letter to EPA, dated May 11, 1998.

XVI. OPPORTUNITY FOR PUBLIC COMMENT

This Consent Order shall be subject to a 30-day public comment period pursuant to Section 122(I) of CERCLA, 42 U.S.C. § 9622(I). In accordance with Section 122(I)(3) of CERCLA, 42 U.S.C. § 9622(I)(3), EPA may withdraw its consent to this Consent Order if comments received disclose facts or considerations which indicate that this Consent Order is inappropriate, improper or inadequate.

XVII. ATTORNEY GENERAL APPROVAL

In accordance with CERCLA Section 122(g)(4), 42 U.S.C. § 9622(g)(4), this Consent Order shall not become effective until it is approved by the Attorney General or her designee.

XVIII. COSTS AND FEES

Each De Minimis Respondent shall bear its own costs and attorney's fees regarding this action.

XIX. EFFECTIVE DATE

The effective date of this Consent Order shall be the date upon which EPA issues written notice to the De Minimis Respondents that the Attorney General or her designee has approved the Consent Order in accordance with Section XVII, above, and that the public comment period pursuant to Section XVI of this Consent Order has closed and that comments received, if any, do not require modification of or EPA withdrawal from this Consent Order.

IT IS SO AGREED AND ORDERED:

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:

BY: _____ Date: NOV 12 1998

W. Michael McCabe
Regional Administrator
Region III
U.S. Environmental Protection Agency

U.S. Department of Justice

Environment and Natural Resources Division

JMG:mbc
90-11-2-692A

Environmental Enforcement Section
P.O. Box 7611
Washington, DC 20044-7611

Telephone (202) 514-5271
Facsimile (202) 353-0297

March 19, 1999

W. Michael McCabe
Regional Administrator
United States Environmental Protection Agency
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Re: De Minimis Settlement - C&R Battery, Inc. Superfund Site

Dear Mr. McCabe:

Please be advised that the Department of Justice has reviewed the proposed Administrative Order on Consent, Docket No. III-98-090-DC ("order"), which provides for the resolution of liability for four *de minimis* potentially responsible parties ("PRPs") at the C&R Battery Superfund Site in Chesterfield County, Virginia. The Department finds that the order appropriately contains a detailed description of liability of the settling PRPs, a sufficient total payment of $10,341.37 for the settling parties' shares of past and estimated future costs at the Site, a sufficient premium of 102% of their share of past costs as well as appropriate covenants not to sue and a reservation of rights to protect the interests of the United States. Accordingly, the Department of Justice hereby approves the proposed order pursuant to CERCLA Section 122(g)(4), 42 U.S.C. § 9622(g)(4).

Very truly yours,

Walker B. Smith
Deputy Chief

cc: Yvette Hamilton-Taylor, Esq.
Senior Assistant Regional Counsel
Region III, EPA

Matthew B. Crum, Esq.
Trial Attorney
Department of Justice

C&C Cullet Supply Co.

C & C Cullet Supply -

BY: L. Cohen Date: 9-18-98

J. Solotken & Company, Inc.

Joseph M. Alpert

By: Joseph M. Alpert

Date: September 23, 1998

C & R Battery Company, Inc. Superfund Site
EPA Docket Number III-98-090-DC

Tidewater Metal, ~~Inc.~~ Co.

Joseph Eichelbaum

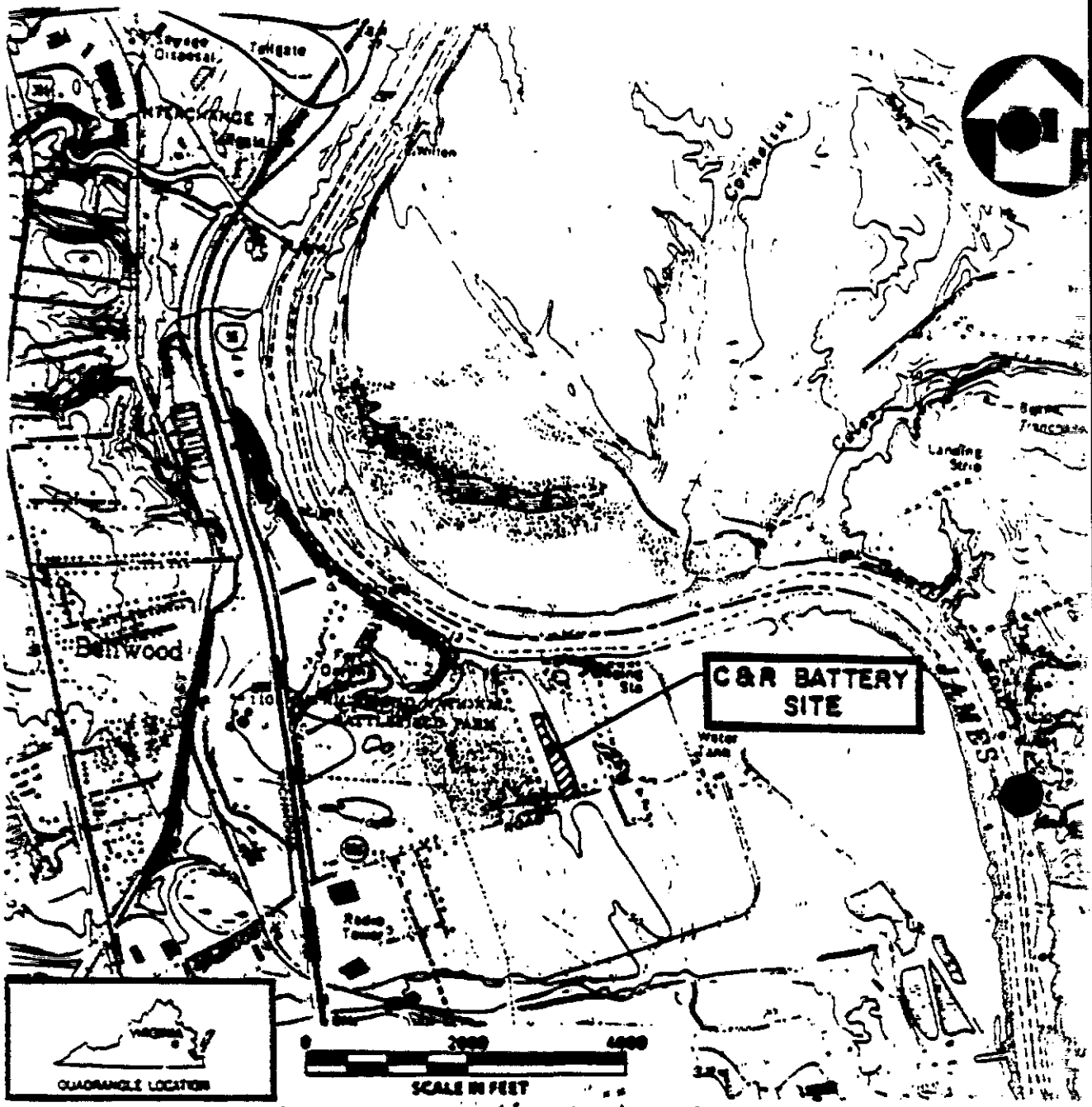
BY: Joseph Eichelbaum Date: 9/3/98

Virginia Scrap Iron & Metal, Incorporated

BY: Sam Golden Date: 9/16/98

APPENDICES

APPENDIX A



BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE DREWRY'S BLUFF, VIRGINIA QUADRANGLE, 1969 PHOTO-REVISED 1980. CONTOUR INTERVAL 10 FEET.

C&R(3)-1070

FIGURE 1
SITE LOCATION MAP
C & R BATTERY SITE, CHESTERFIELD CO., VA

APPENDIX B
LIST OF DE MINIMIS RESPONDENTS

C & C Cullet Supply Co.
J. Solotken & Company, Inc.
Tidewater Metals
Virginia Scrap Iron and Metal Company, Incorporated

APPENDIX C

C&R BATTERY VOLUMETRIC RANKING
OCTOBER 21, 1997

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
Peck Metal Recycling	4,625,532	4.4003	143,547.41	N/A	N/A	N/A
Smith Iron & Metal Company (6)	4,051,982	3.8556	125,767.11	N/A	N/A	N/A
Martin Scrap Recycling	3,815,220	3.6294	118,398.97	N/A	N/A	N/A
Best Battery Company/Hurwitz, Irving	2,783,885	2.6483	86,393.34	N/A	N/A	N/A
Peanut City Iron & Metal Company	2,364,594	2.2494	73,380.35	N/A	N/A	N/A
Cambridge Iron & Metal Company (4)	2,199,469	2.0924	68,258.67	N/A	N/A	N/A
Lawrence Scrap Metals	2,083,964	1.9825	64,673.49	N/A	N/A	N/A
Reserve Trading, Inc. (1)	(1,821,756)	------		N/A	N/A	N/A
Virginia Iron & Metal Co.	1,801,080	1.7134	55,894.86	N/A	N/A	N/A
Battery Shop, The	1,734,706	1.6502	53,833.13	N/A	N/A	N/A
Capell, Donald	1,730,220	1.6460	53,696.12	N/A	N/A	N/A
Guyton Battery Service	1,463,233	1.3920	45,410.09	N/A	N/A	N/A
Goldsboro Iron & Metal Company	1,450,477	1.3798	45,012.10	N/A	N/A	N/A
Helget, Mike	1,425,232	1.3558	44,229.16	N/A	N/A	N/A
Fogg, W.S.	1,422,508	1.3532	44,144.35	N/A	N/A	N/A
Lamb, Otis (Culpeper Recycling Co)	1,420,414	1.3512	44,079.10	N/A	N/A	N/A
Ramsey's Iron & Metal, Inc.	1,407,340	1.3388	44,068.58	N/A	N/A	N/A
Gutterman Iron & Metal Corporation	1,164,688	1.1080	36,145.38	N/A	N/A	N/A
R&R Battery Service, Inc.	1,056,077	1.0046	32,772.25	N/A	N/A	N/A
Bladensburg River Road Iron & Metal	1,043,056	0.9923	32,371.00	N/A	N/A	N/A

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
H&B Battery Co.	1,013,380	0.9640	30,271.42	N/A	N/A	N/A
Arehart, Howard	970,450	0.9070	29,588.32	N/A	N/A	N/A
Joe Decker Company, Inc. (3)	919,022	0.8743	28,521.58	N/A	N/A	N/A
National Metals, Inc.	905,947	0.8618	28,113.80	N/A	N/A	N/A
Stroud, J.C.	892,395	0.8489	27,692.98	N/A	N/A	N/A
Frank N. Nott, Inc.	879,089	0.8363	27,281.94	N/A	N/A	N/A
Ace Battery Company	860,065	0.8182	26,691.47	N/A	N/A	N/A
Alexandria Scrap Corporation	841,536	0.8006	26,117.32	N/A	N/A	N/A
TT&E Iron & Metal Company, Inc.	758,860	0.7219	23,549.96	N/A	N/A	N/A
Master Metals	725,400	0.6901	22,512.57	N/A	N/A	N/A
AJF Industries	720,244	0.6852	22,352.72	N/A	N/A	N/A
Puckett, Randolph	709,527	0.6750	22,019.98	N/A	N/A	N/A
Laurel Paper & Metal, Inc. (AKA: Laurel Metals Company)	691,935	0.6582	21,471.92	N/A	N/A	N/A
Gentry, H.L.	672,461	0.6397	20,868.41	N/A	N/A	N/A
Pekin Iron & Metal Co.	671,089	0.6384	20,826.00	N/A	N/A	N/A
United States on behalf of all potentially liable Federal Agencies	647,810	0.6163	20,105.05	N/A	N/A	N/A
Pocket Money Recycling	637,603	0.6066	20,026.22	N/A	N/A	N/A
Carolina Battery & Tire	542,355	0.5159	16,829.79	N/A	N/A	N/A
Jacobson Metal Company (formerly Union Corporation)	537,492	0.5113	16,679.73	N/A	N/A	N/A

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
Spooner Salvage	519,735	0.4944	16,128.41	N/A	N/A	N/A
Bell Atlantic of Virginia (formerly C&P Telephone Company)	500,275	0.4759	15,524.90	N/A	N/A	N/A
Regency Battery Company, Inc.	495,530	0.4714	15,378.10	N/A	N/A	N/A
Battery Barn of Virginia	493,478	0.4694	15,312.86	N/A	N/A	N/A
United Iron & Metal	467,084	0.4443	14,494.04	N/A	N/A	N/A
L. Gordon Iron & Metal Company	463,718	0.4411	14,389.65	N/A	N/A	N/A
Ricky Wharton t/a Wharton Enterprises	438,138	0.4168	13,596.93	N/A	N/A	N/A
Walls, Bernard L.	438,102	0.4168	13,596.93	N/A	N/A	N/A
CSX Transportation CSX Transportation CSX Transportation/Hyman Viener & Sons (1)	419,025 (42,220) (376,805)	0.3986	13,003.20	N/A	N/A	N/A
Klotz's Inc.	405,832	0.3861	12,595.43	N/A	N/A	N/A
DE MINIMIS PARTIES						
Hyman Viener and Sons (2)	382,023	0.3634	11,854.90	12,092.00	2,388.45	26,335.35
Metal Shippers	373,663	0.3555	11,597.19	11,829.13	2,336.52	25,762.84
Stockbridge Battery Company	345,468	0.3286	10,719.65	10,934.05	2,159.72	23,813.42
Sydnor Industrial Services	344,587	0.3278	10,693.55	10,907.42	2,154.47	23,755.44
Danville Iron & Metal Company	323,153	0.3074	10,028.06	10,228.62	2,020.39	22,274.07
D&T Enterprises/CAMBRIDGE IRON & METAL CO. (4)	320,252	0.3047	9,939.98	10,138.78	2,002.64	22,081.40
S&T Iron & Metal	314,620	0.2993	9,763.82	9,959.09	1,967.15	21,690.06
Midwest Steel Corporation	264,520	0.2516	8,207.74	8,371.90	1,653.64	18,233.28

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
Sam's Scrap Metals	244,070	0.2326	7,587.92	7,739.68	1,528.76	15,327.60
Commodity Metals Corporation	239,518	0.2279	7,434.60	7,583.29	1,497.87	16,515.76
Harris Battery Iron & Metal	232,870	0.2215	7,225.82	7,370.34	1,455.81	16,052.02
Integrated Metals	222,760	0.2119	6,912.64	7,050.89	1,392.71	15,356.24
Kasmar Metals	216,746	0.2062	6,726.70	6,861.24	1,355.25	14,943.19
Hooks, Richard	212,300	0.2020	6,589.68	6,721.47	1,327.65	14,638.80
H.F. Ward	204,560	0.1946	6,348.28	6,475.25	1,279.01	14,102.54
Oceana Salvage	198,494	0.1888	6,159.07	6,282.25	1,240.89	13,682.21
Lett, Warren R.	177,925	0.1693	5,522.94	5,633.40	1,112.72	12,269.06
North State Battery Company	148,860	0.1416	4,619.30	4,711.69	930.67	10,261.66
Grant, George W.	145,252	0.1382	4,508.39	4,598.56	908.32	10,015.27
Frank Williams	141,945	0.1350	4,404.00	4,492.08	887.29	9,783.37
S.S. Belcher Company (5)	140,828	0.1340	4,371.37	4,458.80	880.72	9,710.89
CR&A Company	139,727	0.1329	4,335.49	4,422.20	873.49	9,631.18
Gibson Scrap Metals	139,680	0.1329	4,335.49	4,422.20	873.49	9,631.18
F&R Battery	137,335	0.1306	4,260.46	4,345.67	858.37	9,464.50
Hickman, Eugene	122,170	0.1162	3,325.90	3,392.42	763.73	7,482.05
South-Met Recycling (f.k.a. Greenville Parts and Metals)	119,705	0.1139	3,715.67	3,789.98	748.61	8,254.26
Cash Battery Company	115,200	0.1096	3,575.39	3,646.90	720.35	7,942.64
Walls Auto Supply	107,830	0.1026	3,347.04	3,413.98	674.34	7,435.36
Marion Scrap Metal	106,030	0.1009	3,291.58	3,357.41	663.17	7,312.16
Burton, Charles	103,207	0.0982	3,203.50	3,267.57	645.42	7,116.49

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
Farmville Iron & Metal Company	87,100	0.0829	2,704.38	2,758.47	544.86	6,007.71
Klotz Brothers	85,837	0.0817	2,665.23	2,718.53	536.97	5,920.73
Laburnum Battery Shop.	85,133	0.0810	2,642.40	2,695.25	532.37	5,870.02
Loftin's	84,600	0.0805	2,626.10	2,678.62	529.09	5,833.81
Peninsula Metals	84,280	0.0802	2,616.30	2,668.63	527.12	5,812.05
Atlas Waste Material/RESERVE TRADING, INC.	83,060	0.0790	2,577.15	2,628.69	519.23	5,725.07
J.Solotken & Company	82,260	0.0783	2,554.32	2,605.40	514.63	5,674.35
Electro-Lite Battery Mfg. Company	81,580	0.0776	2,531.48	2,582.11	510.03	5,623.62
J.J. Salvage	80,760	0.0768	2,505.38	2,511.52	504.77	5,565.63
Industrial Battery Supply, Inc./RESERVE TRADING, INC.	75,260	0.0716	2,335.75	2,382.47	470.59	4,738.96
Hunicut, Coy	71,250	0.0678	2,211.78	2,256.01	445.62	4,913.41
Goodman Battery Service	69,490	0.0661	2,145.33	2,199.46	434.44	4,790.23
Williams Scrap Metal Company	64,034	0.0610	1,989.95	2,029.75	400.92	4,430.62
Alexandria Battery Company	59,555	0.0567	1,849.68	1,886.68	372.66	4,108.99
Adelstein Metal Company/RESERVE TRADING, INC.	48,620	0.0463	1,510.41	1,540.61	304.31	3,355.33
Wilson, L.E.	46,660	0.0444	1,448.43	1,477.40	291.82	3,218.65
Keyway Transport	45,450	0.0432	1,409.28	1,437.47	283.93	3,130.68
Commercial Salvage & Recycling/RESERVE TRADING, INC.	45,240	0.0430	1,402.75	1,430.81	282.62	3,116.18
Battery Post/RESERVE TRADING, INC.	44,420	0.0423	1,379.92	1,407.51	278.02	3,065.45
Norfolk Junk Company	44,072	0.0419	1,366.87	1,394.21	275.39	3,036.47

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
Cox Armature Works, Inc.	43,900	0.0418	1,363.61	1,390.88	274.73	3,029.22
Reallocated Volume (3)	43,900	0.0418	1,363.61	1,390.88	274.73	3,029.22
Foil's, Inc.	43,150	0.0410	1,337.52	1,364.27	269.47	2,971.26
Powermaster of Virginia	43,120	0.0410	1,337.52	1,364.27	269.47	2,971.26
Guarantee Battery	42,760	0.0407	1,327.72	1,354.29	267.50	2,949.51
Vivo Iron & Metal, Inc./RESERVE TRADING, INC.	41,090	0.0391	1,275.53	1,301.04	256.98	2,833.55
Virginia Scrap Iron and Metal Co.	39,520	0.0376	1,226.59	1,251.12	247.13	2,724.84
Battery House	39,260	0.0373	1,216.81	1,241.14	245.15	2,703.10
Childress, Danny	38,875	0.0370	1,207.02	1,231.16	243.18	2,681.36
Guyton, Randy	37,029	0.0352	1,148.30	1,171.27	231.35	2,550.92
Fairfield Enterprises	36,820	0.0350	1,141.78	1,164.62	230.04	2,536.44
Wood, Ed	35,747	0.0340	1,109.15	1,131.33	223.47	2,463.95
Wood, A.E.	35,435	0.0337	1,099.37	1,121.36	221.49	2,442.22
Culpeper Salvage	35,210	0.0335	1,092.84	1,114.70	220.18	2,427.72
Bebco Battery	34,200	0.0325	1,060.22	1,081.42	213.61	2,355.25
United Scrap, Inc.	32,820	0.0312	1,017.81	1,038.17	205.06	2,261.04
Dynametrics, Inc. t/a Presto Power Battery	32,670	0.0311	1,014.55	1,034.84	204.41	2,253.80
Power Components	32,500	0.0309	1,007.86	1,031.08	203.09	2,242.03
Key Parts, Inc.	32,140	0.0306	998.24	1,018.21	201.12	2,217.57
Hubbard, H.E.	30,000	0.0285	929.73	948.33	187.32	2,065.38
Continental Iron & Metal	29,032	0.0276	900.37	918.38	181.40	2,000.15
Golden Wheel Used Auto & Truck Parts	25,960	0.0247	805.77	821.89	162.34	1,790.00

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
Maurice, James	25,540	0.0243	792.72	808.57	159.71	1,761.10
Tidewater Metals	22,560	0.0214	698.12	712.08	140.65	1,550.85
Tidewater Regional Transit Commission/ Joe Decker Company, Inc. (6)	(22,560)	0.0214	698.12	712.08	140.65	1,550.85
Dunford, Johnny	22,379	0.0213	694.85	708.74	139.99	1,543.58
Guyton, Milton	21,300	0.0203	662.23	675.47	133.42	1,471.12
Virginia Battery Service	21,020	0.0200	652.44	665.49	131.45	1,449.38
City of Norfolk/Joe Decker Company, Inc. (6)	(20,832)	0.0198	645.92	658.83	130.14	1,434.89
Ratliff, Bill	20,639	0.0196	639.40	652.19	128.82	1,420.41
Childress, Theodore	*20,375*	*0.0194*	632.87	645.53	127.51	1,405.91
Foggs, R.T.	*19,160*	*0.0182*	593.72	605.60	119.62	1,318.94
Tigue S. Day	17,412	0.0166	541.53	553.36	109.10	1,202.99
Fogg, W.A.	17,065	0.0162	528.48	539.05	106.48	1,174.01
Annis, Ronald	16,811	0.0160	521.96	532.40	105.16	1,159.52
C&G	16,636	0.0158	515.43	525.74	103.85	1,145.02
Rice & Sons	16,450	0.0157	512.17	522.42	103.19	1,137.78
Shipman, Lacy	15,431	0.0147	479.55	489.15	96.62	1,065.32
Heckman, F.	14,622	0.0139	453.45	462.52	91.36	1,007.33
Chenault, Richard	13,868	0.0132	430.61	439.23	86.76	956.60
Fogg, R.A.	13,790	0.0131	427.35	435.90	86.10	949.35
Polston, Marvin	13,425	0.0128	417.56	424.91	84.13	926.60
Smith, Harvey S.	12,960	0.0123	401.25	409.27	80.84	891.36

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
Ploch, Mirko	12,872	0.0123	401.25	409.27	80.84	891.36
Thomas, Alan	12,497	0.0119	388.20	395.96	78.21	862.37
Childress, Raymond	12,448	0.0118	384.94	392.64	77.56	855.14
Haven, Bill	11,480	0.0109	355.58	362.69	71.64	789.91
Perkins, Robert	9,234	0.0088	287.08	292.82	57.84	637.74
Guyton, Charles	7,062	0.0067	218.57	N/A	N/A	N/A
Car, Roy	6,687	0.0064	208.78	212.95	42.06	463.79
Burgess, John W.	6,500	0.0062	202.26	206.34	40.75	449.32
R&B	6,162	0.0059	192.47	196.32	38.78	427.57
Moore, A.T.	6,075	0.0058	189.21	192.99	38.12	420.32
Cooke, L.E.	6,050	0.0058	189.21	192.99	38.12	420.32
Rudd, David	5,956	0.0057	185.95	189.67	37.46	413.08
Lett, William	5,941	0.0057	185.95	189.67	37.46	413.08
Houff, James	5,937	0.0057	185.95	189.67	37.46	413.08
Palmer, John	5,937	0.0057	185.95	189.67	37.46	413.08
Reams, L.A.	5,937	0.0057	185.95	189.67	37.46	413.08
Warden, James T.	5,937	0.0057	185.95	189.67	37.46	413.08
Sanford, Percy L.	5,860	0.0056	182.68	186.34	36.81	405.83
Berry, John L.	5,812	0.0055	179.42	183.01	36.15	398.58
Fogg, W.M.	5,812	0.0055	179.42	183.01	36.15	398.58
C&C Cullet Supply	5,680	0.0054	176.16	179.68	35.49	391.33
Griffith, L.W.	5,310	0.0051	166.37	169.70	33.52	369.59
White, Herman R.	5,240	0.0050	163.11	166.37	32.86	362.34

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
Allen, Sid	4,981	0.0047	153.32	156.39	30.89	340.60
McBrown, Johnny	4,818	0.0046	150.06	153.06	30.23	333.35
Immell, Tommy	4,237	0.0040	160.49	163.70	26.29	350.48
Coles, C.C., Jr.	4,162	0.0040	160.49	163.70	26.29	350.48
Mason, Raymond	3,800	0.0036	117.44	119.79	23.66	260.89
Smith, Robert	3,750	0.0036	117.44	119.79	23.66	260.89
Williams, Delbert	3,512	0.0033	107.65	109.46	21.69	239.14
Williams, Don	2,985	0.0028	91.34	93.16	18.40	202.90
Canton Metal Alloys	1,620	0.0015	48.78	49.76	9.86	108.40
Woodard, Allen	1,600	0.0015	48.78	49.76	9.86	108.40
Thornton, J.W.	1,100	0.0011	35.88	36.60	7.23	79.71
Stevens, R.D.	1,000	0.0010	32.62	33.27	6.57	72.46
Bennett, Hubert	516	0.0005	16.31	16.64	3.29	36.24
Ford, Elbert	418	0.0004	13.05	13.31	2.63	28.99
King, John	375	0.0004	13.05	13.31	2.63	28.99
Trent, Kenneth	256	0.0002	6.52	6.65	1.32	14.49
The Zachariases (William, Carol, Edward, Mary, The Zacharias Brothers)	-------	10.3000	294,808.53	N/A	N/A	N/A
William & Jo Ann Cole	-----	1.3000	37,208.84	N/A	N/A	N/A
Guyton, Charles (as operator)	-------	23.4000	669,759.19	N/A		N/A

TOTAL VOLUME used for the calculations was 68,327,198. This number was calculated by removing the volume for each de minimis party from the Total Volume that was calculated in EPA's earlier Volumetric Ranking. The new percentages were calculated as follows: the PRP's volume was divided by the total volume. The result was then multiplied by 100 to determine a percent. That result was then multiplied by 0.65 (i.e., 6102%). (6102% comes from: the Owner/Operator share is 3102%; the remaining PRPs must split the remaining 6102%.
The formulae used look like this:

$$\%_O = (VOL_P \div VOL_T) * 100$$
$$\%_N = (\%_O) * (0.65)$$

Where: VOL_P = The original volume as listed on the EPA Volumetric Ranking
VOL_T = The total volume after removal of settled de minimis parties' volumes
$\%_N$ = The PRP's new percentage which is recorded in this table
$\%_O$ = The PRP's percentage prior to Owner/Operator share allotment (but after removal of settled de minimis parties' volumes

Sample calculation using Peck Metal Recycling's share:

$VOL_P = 4,625,532$
$VOL_T = 68,327,198$

$\%_O = (VOL_P \div VOL_T) * 100$
$\%_O = (4,625,532 \div 68,327,198) * 100$
$\%_O = 6.770\%$

$\%_N = (\%_O) * (0.65)$
$\%_N = 6.770\% * 0.65$
$\%_N = 4.4005$

Total percentage is 99.908%. It does not equal 100% due to rounding of numbers.

* Volume estimated in pounds, based upon documentation available to EPA

@ Percent is has been recalculated by removing volumes of DE MINIMIS parties that have settled with the United States and by introducing an Owner/Operator share of 35%.

\+ Cost Share was calculated by multiplying the figure in the Percent column by $ 3,262,218.78.
++ 102% Premium was calculated by multipling the figure in the Cost Share column by 0.05.

\# Natural Resources share was calculated by multiplying the outstanding Natural Resources Cost ($657,250.96) by the PERCENT column.

+++ Total Share was calculated by adding the 102% Premium to the Cost Share.

(1) Reserve Trading's volume, as listed in the Volumetric Ranking Summary, is not calculated in the Site Totals. Reserve brokered batteries for the following companies: Adelstein Metal Company; All-Scrap Salvage, Inc.; Annaco, Inc. (f/k/a Annadale Scrap Co.); Arcon Equipment Company; Atlas Waste Material; The Battery Post; Bedford Recycling; Commercial Salvage & Recycling Co.; Cook's Scrap Metal; D.C. Systems; Industrial Battery Supply; Kirk Battery Co.; Omnisource Corporation; Lake City Metals; Metallics Recycling, Inc.; National Waste Paper Company; New Castle Battery Manufacturing Co.; Reserve Iron & Metal, Inc.; St. Mary's Iron & Steel Corp.; United Salvage Co.; Vivo Iron & Metal, Inc.; and Willoughby Iron & Waste Materials.

(2) Hyman Viener & Sons' total volume is 758,828 pounds. See entry under CSX Transportation/Hyman Viener & Sons (at 376,805 pounds).

(3) This entry for "Reallocated Volume" is based on batteries that were sent to the Site, however, the volume is not attributable to any one PRP.

(4) Cambridge Iron & Metal Company's total volume is 2,519,721 pounds. See entries for D&T Enterprises/Cambrige Iron & Metal Co. (at 320,252 pounds).

(5) S.S. Belcher Company's total volume is 187,098 pounds. See entry for Stump's Scrap Yard (at 46,270).

(6) Joe Decker Company, Inc.'s volume, as listed in the Volumetric Ranking Summary, is calculated in the Site Totals. Joe Decker brokered batteries for the following companies: Tidewater Regional Transit Commission and the City of Norfolk. These companies' volumes are not included in the Site Totals and are designated with parentheses ().

APPENDIX D

ATTACHMENT B

C & R VOLUMETRIC RANKING FOR DE MINIMIS PARTIES - JANUARY 8, 1998

GENERATOR	(A) VOLUME *	(B) PERCENT@	(C) COST + SHARE ($)	(D) 102% ++ PREMIUM($)	(E) NAT. RES. SHARE ($)#	(F) TOTAL +++ SHARE ($)
C&C Cullet Supply	5,680	0.0054	176.16	179.68	35.49	391.33
Cash Battery Company	115,200	0.1096	3,575.39	3,646.90	720.35	7,942.64
Cox Armature Works, Inc.	43,900	0.0418	1,363.61	1,390.88	274.73	3,029.22
Electro-Lite Battery Mfg. Company	81,580	0.0776	2,531.48	2,582.11	510.03	5,623.62
Foil's, Inc.	43,150	0.0410	1,337.52	1,364.27	269.47	2,971.26
Frank Williams	141,945	0.1350	4,404.00	4,492.08	887.29	9,783.37
F&R Battery	137,335	0.1306	4,260.46	4,345.67	858.37	9,464.50
Industrial Battery Supply, Inc./RESERVE TRADING, INC.	75,260	0.0716	2,335.75	2,382.47	470.59	4,738.96
J.Solotken & Company	82,260	0.0783	2,554.32	2,605.40	514.63	5,674.35
Loftin's	84,600	0.0805	2,626.10	2,678.62	529.09	5,833.81
Polston, Marvin	13,425	0.0128	417.56	424.91	84.13	926.60
Midwest Steel Corporation	264,520	0.2516	8,207.74	8,371.90	1,653.64	18,233.28
Norfolk Junk Company	44,072	0.0419	1,366.87	1,394.21	275.39	3,036.47
North State Battery Company	148,860	0.1416	4,619.30	4,711.69	930.67	10,261.66
Oceana Salvage	198,494	0.1888	6,159.07	6,282.25	1,240.89	13,682.21
S.S. Belcher Company	140,828	0.1340	4,371.37	4,458.80	880.72	9,710.89
Sam's Scrap Metals	244,070	0.2326	7,587.92	7,739.68	1,528.76	15,327.60
Tidewater Metals	22,560	0.0214	698.12	712.08	140.65	1,550.85
United Scrap, Inc.	32,820	0.0312	1,017.81	1,038.17	205.06	2,261.04
Virginia Scrap Iron and Metal Co.	39,520	0.0376	1,226.59	1,251.12	247.13	2,724.84

Vivo Iron & Metal, Inc./RESERVE TRADING,	41,090	0.0361	1,275.53	1,301.04	256.98	2,833.55

TOTAL VOLUME used for the calculations was 68,327,198. This number was calculated by removing the volume for each de minimis party from the Total Volume that was calculated in EPA's earlier Volumetric Ranking. The new percentages were calculated as follows: the PRP's volume was divided by the total volume. The result was then multiplied by 100 to determine a percent. That result was then multiplied by 0.65 (i.e., 6102%). (6102% comes from: the Owner/Operator share is 3102%; the remaining PRPs must split the remaining 6102%.
The formulae used look like this:

$$\%_O = (VOL_P + VOL_T) * 100$$
$$\%_N = (\%_O) * (0.65)$$

Where: VOL_P = The original volume as listed on the EPA Volumetric Ranking
VOL_T = The total volume after removal of settled de minimis parties' volumes
$\%_N$ = The PRP's new percentage which is recorded in this table
$\%_O$ = The PRP's percentage prior to Owner/Operator share allotment (but after removal of settled de minimis parties' volumes

Sample calculation using C&C Cullet Supply's share:

$VOL_P = 5680$
$VOL_T = 68,327,198$

$\%_O = (VOL_P + VOL_T) * 100$
$\%_O = (5680 + 68,327,198) * 100$
$\%_O = 0.00831\%$

$\%_N = (\%_O) * (0.65)$
$\%_N = 0.00831\% * 0.65$
$\%_N = 0.0054\%$

Total percentage is 99.908%. It does not equal 100% due to rounding of numbers.

* Volume estimated in pounds, based upon documentation available to EPA

@ Percent is has been recalculated by removing volumes of settled DE MINIMIS parties that have settled with the United States and by introducing an Owner/Operator share of 35%.

\+ Cost Share was calculated by multiplying the figure in the Percent column by $ 3,262,218.78.

++ 102% Premium was calculated by multipling the figure in the Cost Share column by 0.05.

\# Natural Resources share was calculated by multiplying the outstanding Natural Resources Cost ($657,250.96) by

the PERCENT column.

+++ Total Share was calculated by adding the 102% Premium and Natural Resources share to the Cost Share.

APPENDIX E

RECORD OF DECISION
C&R BATTERY COMPANY, INC. SITE

DECISION SUMMARY

I. SITE NAME, LOCATION AND DESCRIPTION

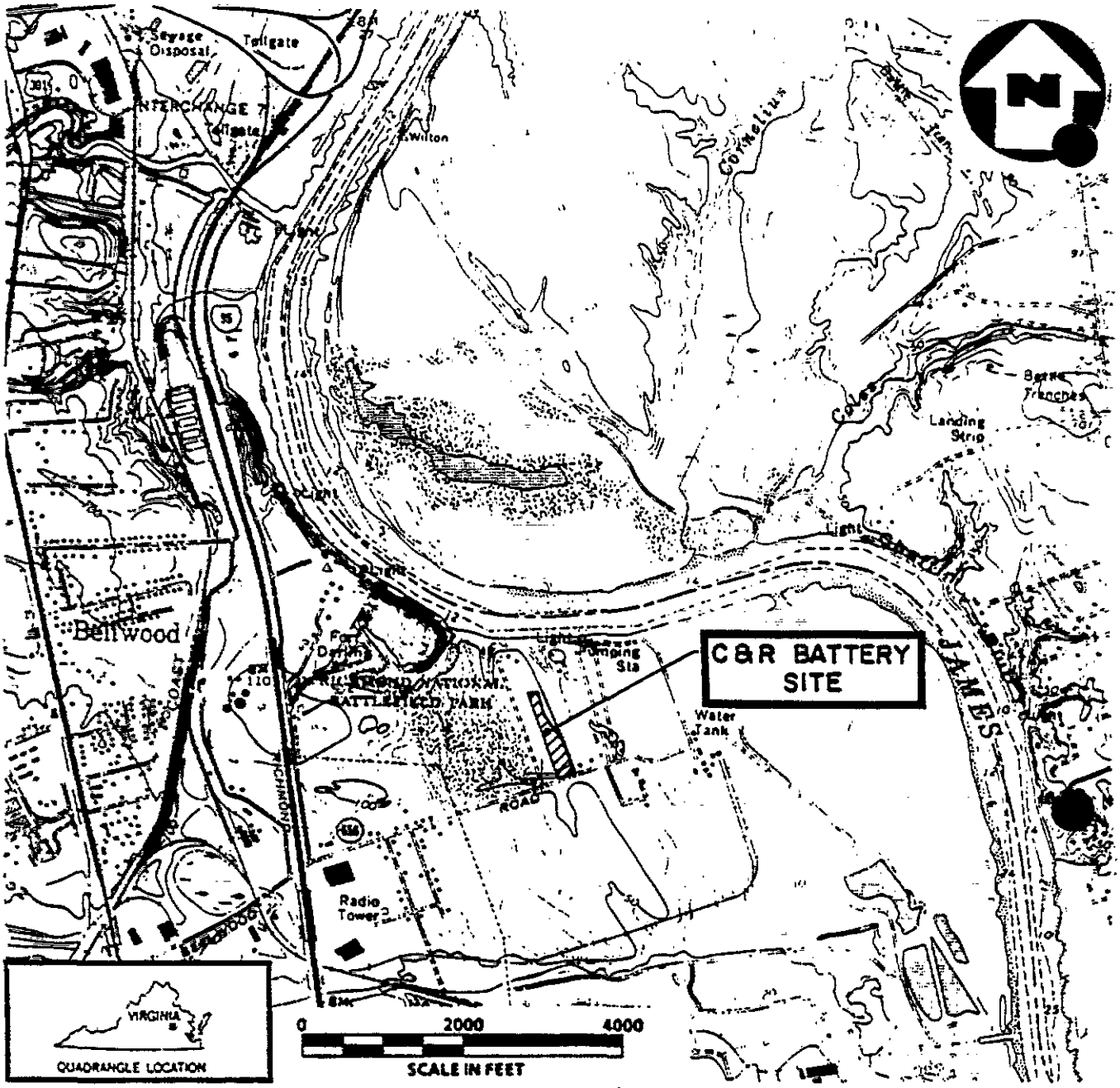
The C&R Battery Company, Inc., Site (C&R Battery Site or Site) is located in an industrial area in Chesterfield County, Virginia approximately 6 miles southeast of Richmond, Virginia(see Figure 1). The Site (approximately 11 acres) is rectangular in shape and is bordered on the north, south, and west by open fields and woods. A small fuel-oil distributor, Capitol Oil Company, borders the Site on the east. The James River is located approximately 650 feet north of the Site.

Groundwater beneath the Site is classified as a class 2A aquifer, a current and potential source of drinking water, and flows in a northwesterly direction towards the James River.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The C&R Battery Site was a battery-sawing and shredding facility designed to recover lead from discarded auto and truck batteries. It operated from the early 1970s until 1985. The battery breaker was a mobile unit, and operations were moved throughout the Site.

The Site received bulk shipments of discarded batteries. The first step in recycling was to cut the batteries open and drain the battery acids into onsite ponds. The batteries were then broken open and the lead and lead compounds were recovered and stockpiled for later shipment. The battery casings were subsequently shredded and stockpiled on the Site. Crushed battery casings have been observed on the Site surface and buried throughout the Site. No other activities that may have produced



BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE DREWRY'S BLUFF, VIRGINIA QUADRANGLE, 1969 PHOTO-REVISED 1980. CONTOUR INTERVAL 10 FEET.

C&R(5)-13175

FIGURE 1

SITE LOCATION MAP

C & R BATTERY SITE, CHESTERFIELD CO., VA

AR000072

additional contaminants are known to have occurred on the Site.

The Virginia State Water Control Board began monitoring the Site in the late 1970s. The Board conducted several rounds of sampling for lead in soil, surface water, and groundwater. These samplings revealed elevated levels of lead in all media. Several reclamation plans were proposed and permit applications were made by the operator, but state approval was never authorized for such plans or permits.

Virginia Occupational Safety and Health Administration (OSHA) first inspected the Site in 1983 while the battery processing facility was still in operation. Air monitoring of the breathing zone at several work stations measured lead at concentrations up to 112 $\mu g/m^3$, well above the existing OSHA standard of 50 $\mu g/m^3$. Employees were found to have elevated levels of lead in their blood.

In response to potential public health concerns, EPA conducted a removal action at the Site under Section 104 of CERCLA, 42 U.S.C. Section 9604, in the summer of 1986. After verifying the presence of elevated metals in the soils and sediments at the Site, EPA removed the acidic liquid from onsite lagoons, raised its pH, and discharged the neutralized liquid into ditches on Site. The lagoon sludge was blended with hydrated lime and returned to the lagoon. Soils were dusked and mixed with lime to a depth of 2 feet. However, when intact batteries were found in the northern potion of the Site, a decision was made to apply lime only to the soil surface in this area. At the same time, a large amount of shredded battery casing material was found east of the drainage ditch. The shredded battery casings, soil, and debris were brought back onto the Site and remain on Site in the debris piles (refer to Figure 2), whereas the excavated area was subsequently backfilled to reduce hazards to Capitol Oil Company employees. The drainage ditch was graded, and riprap channels and dams were installed to reduce erosion. A 6-foot-tall, chain link fence was installed inside the tree line to minimize the

DESCRIPTION OF THE REMEDY

EPA has selected, and the Commonwealth of Virginia has concurred on the selection of the following Remedial Action for the C&R Battery Site. The major components of the Selected Remedial Action are as follows:

Selected Remedial Action: Alternative 4(a)

- Excavation of surface and subsurface soils containing lead above the 1,000 mg/kg action level (approximately 36,800 cubic yards).

- Excavation of drainage ditch sediments containing lead above the 450 mg/kg action level.

- Stabilization of the excavated 36,800 cubic yards of soil, sediments, and debris piles using a cement/pozzolan-based or other similar stabilization process that provides equivalent protection.

- Disposal of the stabilized material in an approved industrial or sanitary landfill.

- Clean closure of the former acid pond area, according to RCRA closure requirements.

- Backfilling of all excavated areas with soil and placement of a layer of topsoil (approximately 6 inches) followed by revegetation over all areas having lead levels above 120 mg/kg (background).

- Removal, treatment, and disposal of the onsite nickel/cadmium batteries in an approved RCRA facility.

- Implementation of an environmental monitoring plan to ensure the effectiveness of the Remedial Action and to be protective of the environment, particularly the environmental receptors in the James River.

- Removal and offsite treatment of any contaminated surface water in the drainage ditch.

- Dismantlement and removal of storage shed and removal of discarded tires for offsite disposal at an approved landfill.

- No remedial action for groundwater is necessary, however, monitoring will continue at the Site at least until the first 5-year review of the Site required under Section 121(c) of CERCLA, 42 U.S.C. Section 9621 (c), is completed.

- Appropriate Site use restrictions will be placed for future use scenarios to ensure protection of public health and the environment.

STATUTORY DETERMINATIONS

The Selected Remedial Action (Alternative 4a) is protective of human health and the environment, complies with Federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective.

The Remedial Action utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable and satisfies the statutory preference for a remedy to employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because this remedy will leave hazardous substances on Site, a 5-year review under Section 121(c) of CERCLA, 42 U.S.C. 9621(c), will be conducted for the Site to ensure that the remedy continues to provide adequate protection of human health and the environment.

3-30-90

Edwin B. Erickson
Regional Administrator

Date

RECORD OF DECISION
C&R BATTERY COMPANY, INC. SITE

DECISION SUMMARY

I. SITE NAME, LOCATION AND DESCRIPTION

The C&R Battery Company, Inc., Site (C&R Battery Site or Site) is located in an industrial area in Chesterfield County, Virginia approximately 6 miles southeast of Richmond, Virginia(see Figure 1). The Site (approximately 11 acres) is rectangular in shape and is bordered on the north, south, and west by open fields and woods. A small fuel-oil distributor, Capitol Oil Company, borders the Site on the east. The James River is located approximately 650 feet north of the Site.

Groundwater beneath the Site is classified as a class 2A aquifer, a current and potential source of drinking water, and flows in a northwesterly direction towards the James River.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The C&R Battery Site was a battery-sawing and shredding facility designed to recover lead from discarded auto and truck batteries. It operated from the early 1970s until 1985. The battery breaker was a mobile unit, and operations were moved throughout the Site.

The Site received bulk shipments of discarded batteries. The first step in recycling was to cut the batteries open and drain the battery acids into onsite ponds. The batteries were then broken open and the lead and lead compounds were recovered and stockpiled for later shipment. The battery casings were subsequently shredded and stockpiled on the Site. Crushed battery casings have been observed on the Site surface and buried throughout the Site. No other activities that may have produced

DESCRIPTION OF THE REMEDY

EPA has selected, and the Commonwealth of Virginia has concurred on the selection of the following Remedial Action for the C&R Battery Site. The major components of the Selected Remedial Action are as follows:

Selected Remedial Action: Alternative 4(a)

- Excavation of surface and subsurface soils containing lead above the 1,000 mg/kg action level (approximately 36,800 cubic yards).

- Excavation of drainage ditch sediments containing lead above the 450 mg/kg action level.

- Stabilization of the excavated 36,800 cubic yards of soil, sediments, and debris piles using a cement/pozzolan-based or other similar stabilization process that provides equivalent protection.

- Disposal of the stabilized material in an approved industrial or sanitary landfill.

- Clean closure of the former acid pond area, according to RCRA closure requirements.

- Backfilling of all excavated areas with soil and placement of a layer of topsoil (approximately 6 inches) followed by revegetation over all areas having lead levels above 120 mg/kg (background).

- Removal, treatment, and disposal of the onsite nickel/cadmium batteries in an approved RCRA facility.

- Implementation of an environmental monitoring plan to ensure the effectiveness of the Remedial Action and to be protective of the environment, particularly the environmental receptors in the James River.

- Removal and offsite treatment of any contaminated surface water in the drainage ditch.

- Dismantlement and removal of storage shed and removal of discarded tires for offsite disposal at an approved landfill.

- No remedial action for groundwater is necessary, however, monitoring will continue at the Site at least until the first 5-year review of the Site required under Section 121(c) of CERCLA, 42 U.S.C. Section 9621 (c), is completed.

- Appropriate Site use restrictions will be placed for future use scenarios to ensure protection of public health and the environment.

STATUTORY DETERMINATIONS

The Selected Remedial Action (Alternative 4a) is protective of human health and the environment, complies with Federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective.

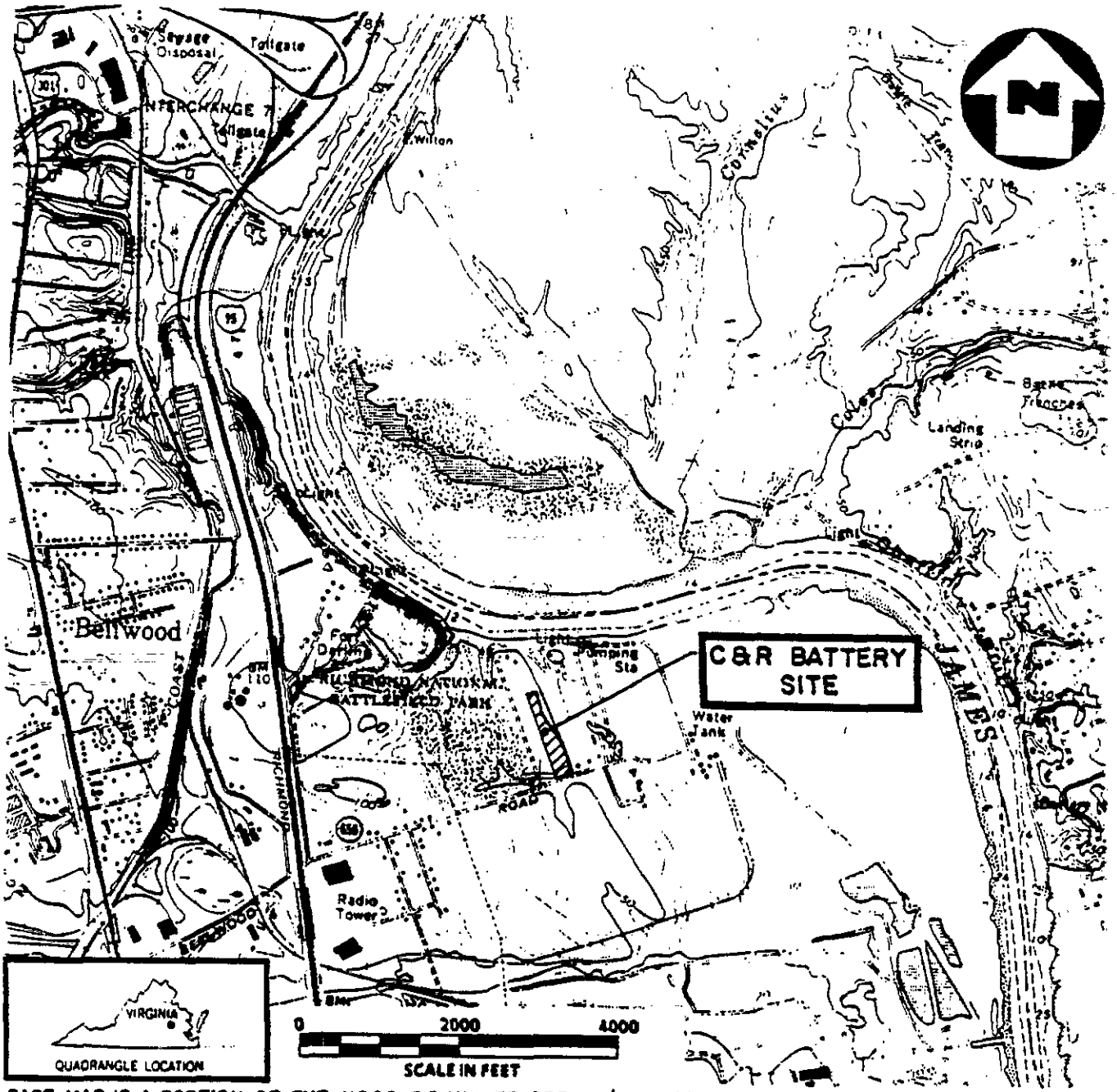
The Remedial Action utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable and satisfies the statutory preference for a remedy to employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because this remedy will leave hazardous substances on Site, a 5-year review under Section 121(c) of CERCLA, 42 U.S.C. 9621(c), will be conducted for the Site to ensure that the remedy continues to provide adequate protection of human health and the environment.

3-30-90

Edwin B. Erickson
Regional Administrator

Date



BASE MAP IS A PORTION OF THE USGS 7.5 MINUTE DREWRY'S BLUFF, VIRGINIA QUADRANGLE, 1969 PHOTO-REVISED 1980. CONTOUR INTERVAL 10 FEET.

FIGURE 1

C&R(5)-13184

SITE LOCATION MAP

C & R BATTERY SITE, CHESTERFIELD CO., VA

AR000081

additional contaminants are known to have occurred on the Site.

The Virginia State Water Control Board began monitoring the Site in the late 1970s. The Board conducted several rounds of sampling for lead in soil, surface water, and groundwater. These samplings revealed elevated levels of lead in all media. Several reclamation plans were proposed and permit applications were made by the operator, but state approval was never authorized for such plans or permits.

Virginia Occupational Safety and Health Administration (OSHA) first inspected the Site in 1983 while the battery processing facility was still in operation. Air monitoring of the breathing zone at several work stations measured lead at concentrations up to 112 $\mu g/m^3$, well above the existing OSHA standard of 50 $\mu g/m^3$. Employees were found to have elevated levels of lead in their blood.

In response to potential public health concerns, EPA conducted a removal action at the Site under Section 104 of CERCLA, 42 U.S.C. Section 9604, in the summer of 1986. After verifying the presence of elevated metals in the soils and sediments at the Site, EPA removed the acidic liquid from onsite lagoons, raised its pH, and discharged the neutralized liquid into ditches on Site. The lagoon sludge was blended with hydrated lime and returned to the lagoon. Soils were dusked and mixed with lime to a depth of 2 feet. However, when intact batteries were found in the northern potion of the Site, a decision was made to apply lime only to the soil surface in this area. At the same time, a large amount of shredded battery casing material was found east of the drainage ditch. The shredded battery casings, soil, and debris were brought back onto the Site and remain on Site in the debris piles (refer to Figure 2), whereas the excavated area was subsequently backfilled to reduce hazards to Capitol Oil Company employees. The drainage ditch was graded, and riprap channels and dams were installed to reduce erosion. A 6-foot-tall, chain link fence was installed inside the tree line to minimize the

potential for direct contact with contaminated materials on Site.

From the time of the EPA removal action until present, EPA has identified several PRPs, all of whom, until present, have declined to participate in any of EPA's actions.

III. COMMUNITY RELATIONS HISTORY

In accordance with Sections 113 and 117 of CERCLA, 42 U.S.C. Sections 9613 and 9617, EPA held a public comment period from January 25, 1990 through February 23, 1990 for the Remedial Actions described in the Remedial Investigation/Feasibility Study (RI/FS) (released January 1990). The notice of availability was published in the Richmond Times Dispatch on January 25, 1990. The RI/FS and Proposed Plan were made available to the public in the Administrative Record maintained in the Region III office and at the Chesterfield County Public Library. A public meeting was held on February 7, 1990 to outline the Preferred Remedial Action and to accept comments from the attendees. A transcript of the public meeting was maintained in accordance with Section 117(a)(2) of CERCLA, U.S.C. Section 9617(a)(2). Written comments were received and are addressed in the Responsiveness Summary which is attached.

All documents supporting the remedy selection decisions contained in this Record of Decision are included in the Administrative Record for this Site and can be reviewed or referred to for additional information.

IV. SCOPE AND ROLE OF RESPONSE ACTION

This Record of Decision selects a Remedial Action for the C&R Battery Site. The January 1990 RI/FS for the Site documents the release/threatened release of hazardous substances into the environment and the endangerment posed by the Site. Surface soil and sediment were determined to be a principal threat because of

the potential for direct dermal contact and ingestion of soil, sediments, and surface water. The potential for the inhalation of fugitive dust also poses a threat to human health and the environment. Lead poses the largest threat at the Site. According to the Centers for Disease Control, lead and soil containing lead dust generally appear to be responsible for elevated blood levels in children when the lead concentration in the soil exceeds a range of 500 to 1,000 mg/kg. EPA has adopted this recommendation to establish the 1,000 mg/kg in an OSWER directive memo dated September 7, 1989 level as being protective of human health for areas which will not be frequented by children. The remedial action objectives for the Site were developed to protect human health and the environment. These objectives are:

1. Prevent exposure (inhalation, ingestion) to soil having a lead concentration greater than 1,000 mg/kg and concentrations of the other indicator chemicals greater than their respective action levels (See Table 1).

2. Prevent migration of lead that would result in groundwater contamination in excess of 0.05 mg/l (MCL) and the migration of the other indicator chemicals in excess of their respective MCL levels.

3. Prevent migration of lead that would result in drainage ditch sediment contamination in excess of 450 mg/kg, and the migration of the other indicator chemicals in excess of their respective action levels (See Table 1).

Based on data available in the Remedial Investigation (January 1990), a total of approximately 36,800 cubic yards of contaminated material will need to be excavated and remediated.

V. SITE CHARACTERISTICS

The contaminants of concern for the C&R Battery Site are lead,

TABLE 1

REMEDIAL ACTION LEVELS
C&R BATTERY SITE
CHESTERFIELD COUNTY, VIRGINIA

Contaminant	Medium	
	Surface Soil (mg/kg)	Sediment (mg/kg)
Antimony	77.4	**
Arsenic	10*	57
Cadmium	84*	5
Lead	1,000	450
Nickel	600*	**

* 10^{-6} Cancer Risk Level
** Levels already within acceptable risk range

cadmium, arsenic, antimony, nickel, silver, and zinc. Lead was present in high concentrations (orders of magnitude higher) compared to the other contaminants. Arsenic is a carcinogen while the other contaminants are systemic toxicants. The affected media are soil, sediments, and onsite surface water. See Figure 2 for the general site layout.

The areas of the Site to be remediated are described as follows:

Former Acid Pond Area

The acid pond area is approximately 1/4 acre in size and was used during the operation of the C&R Battery Company to hold the discharged sulfuric acid from the batteries. Chemical analysis of the soils in this area revealed the highest concentrations of lead (>12 percent) and lead concentrations exceeding the remedial action level to the furthest depth (15 feet).

Debris Piles

There are two debris piles located on Site which consist of soil and battery pieces. These piles were placed within the fenced area of the Site during the removal action in 1986.

Contaminated Soils

The entire area of the C&R Battery Site has been contaminated with lead at concentrations which exceed the remedial action level (1,000 mg/kg). The depth of contamination at the Site varies, with the south portion of the Site having the deepest contamination and the north portion of the Site the shallowest. Figure 3 through Figure 6 and Table 2 show how the extent of contamination decreases with depth.

Drainage Ditch Surface Water/Sediments

Sediments in the drainage ditch along the Site were found to

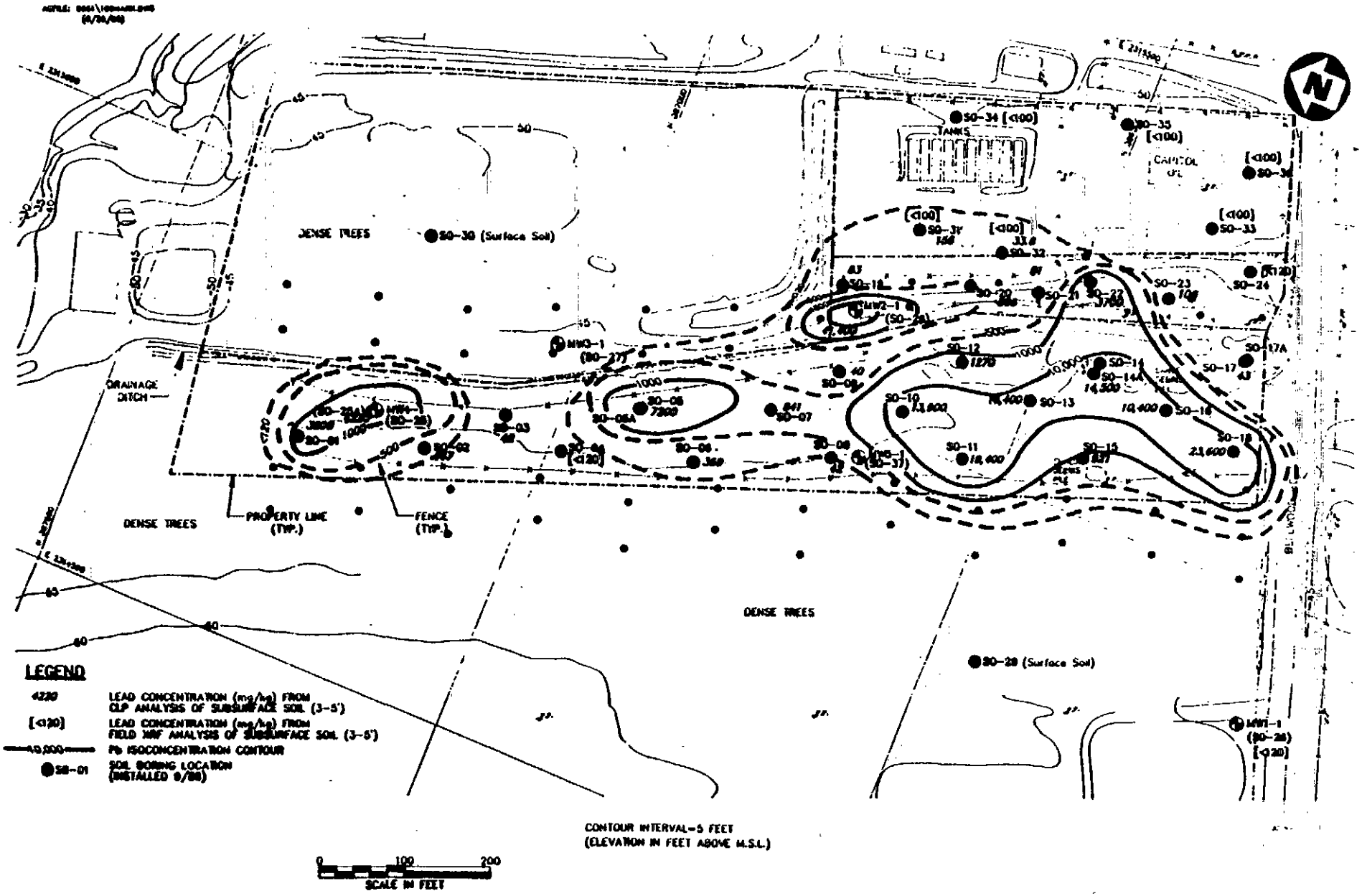


FIGURE 3

LEAD ISOCONCENTRATION MAP FOR SUBSURFACE SOILS (3'-5')

C & R BATTERY SITE, CHESTERFIELD COUNTY, VIRGINIA

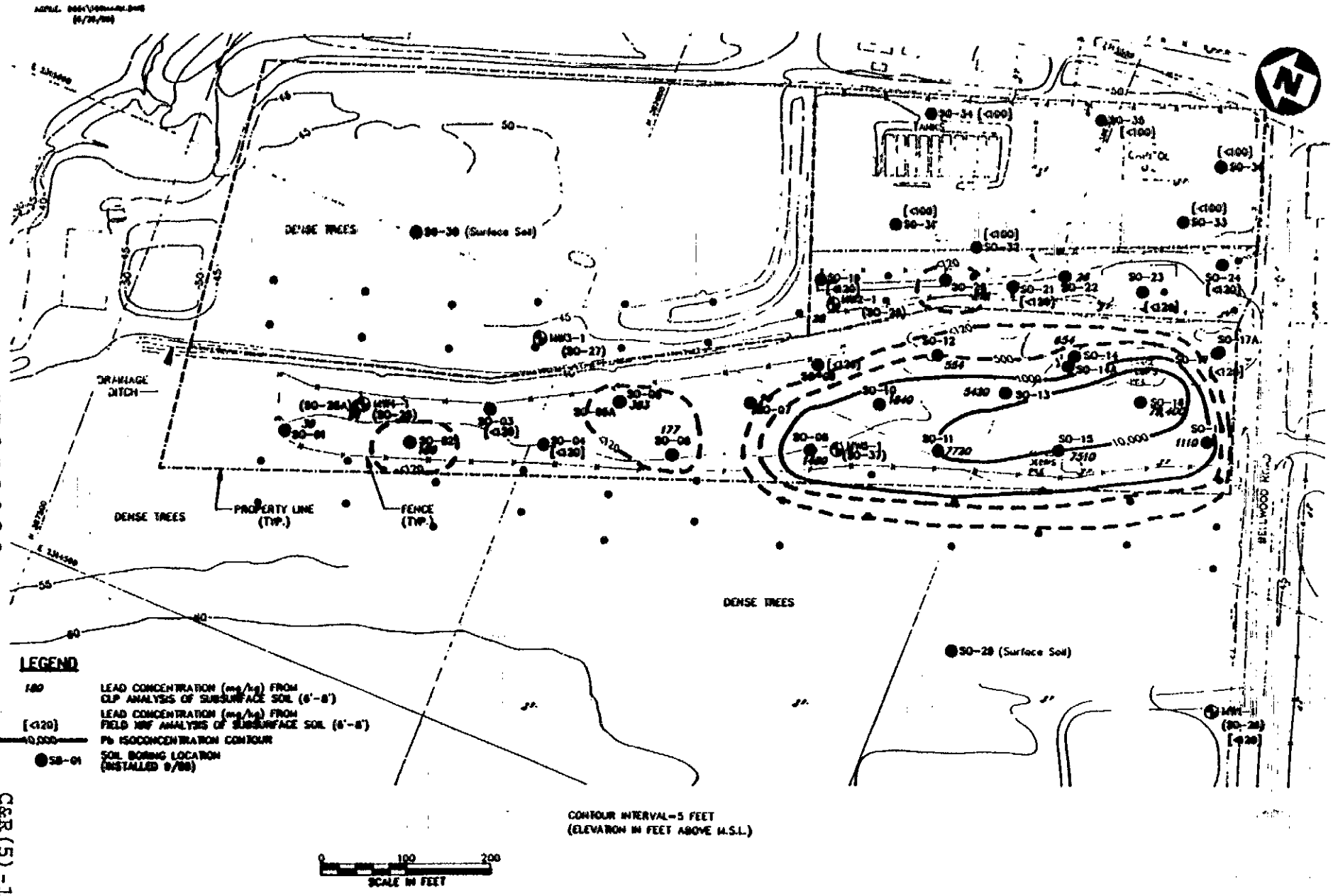


FIGURE 4

LEAD ISOCONCENTRATION MAP FOR SUBSURFACE SOILS (6'-8')

C & R BATTERY SITE, CHESTERFIELD COUNTY, VIRGINIA

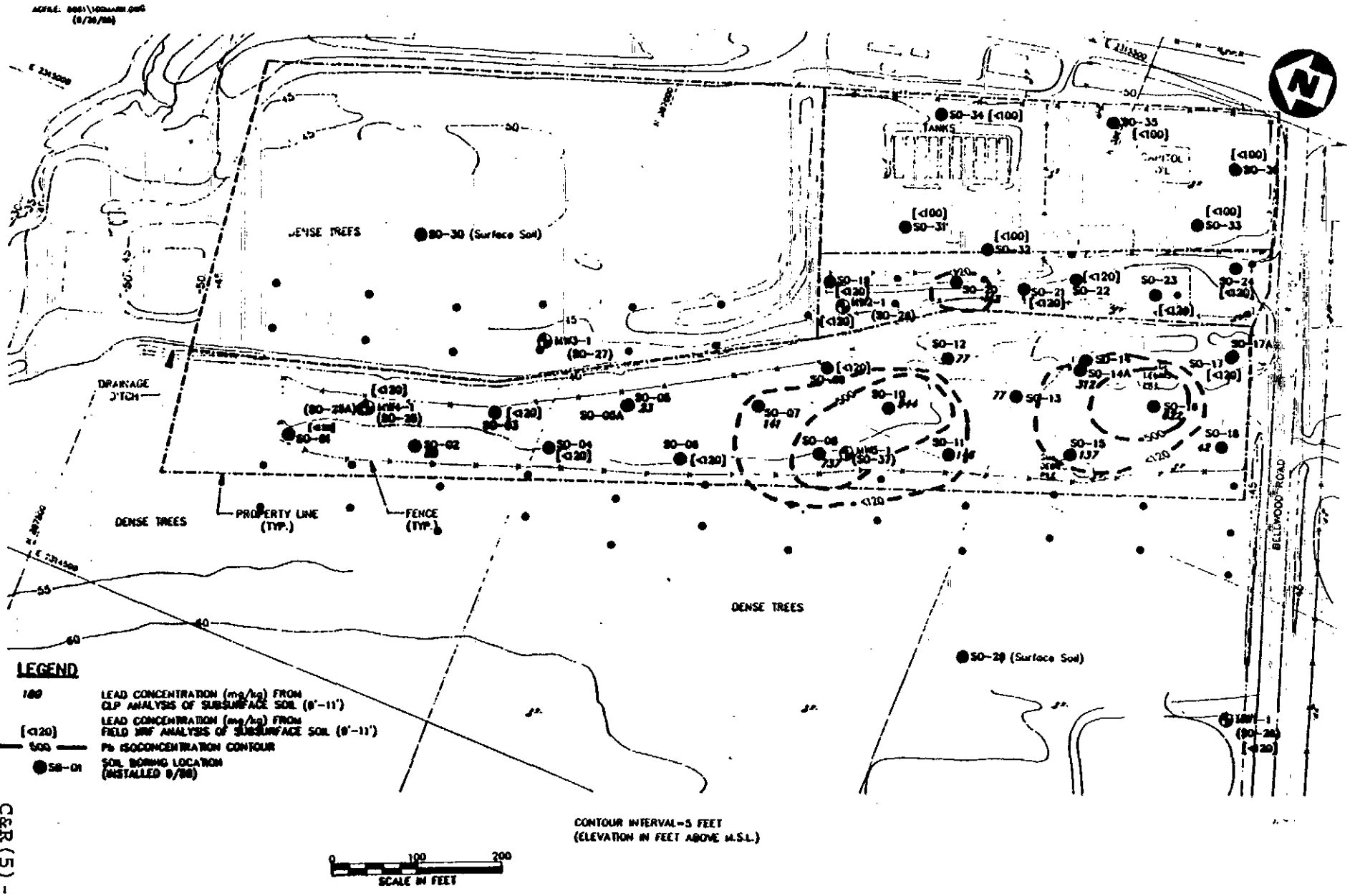


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FIGURE 5

LEAD ISOCONCENTRATION MAP FOR SUBSURFACE SOILS (9'-11')

C & R BATTERY SITE, CHESTERFIELD COUNTY, VIRGINIA

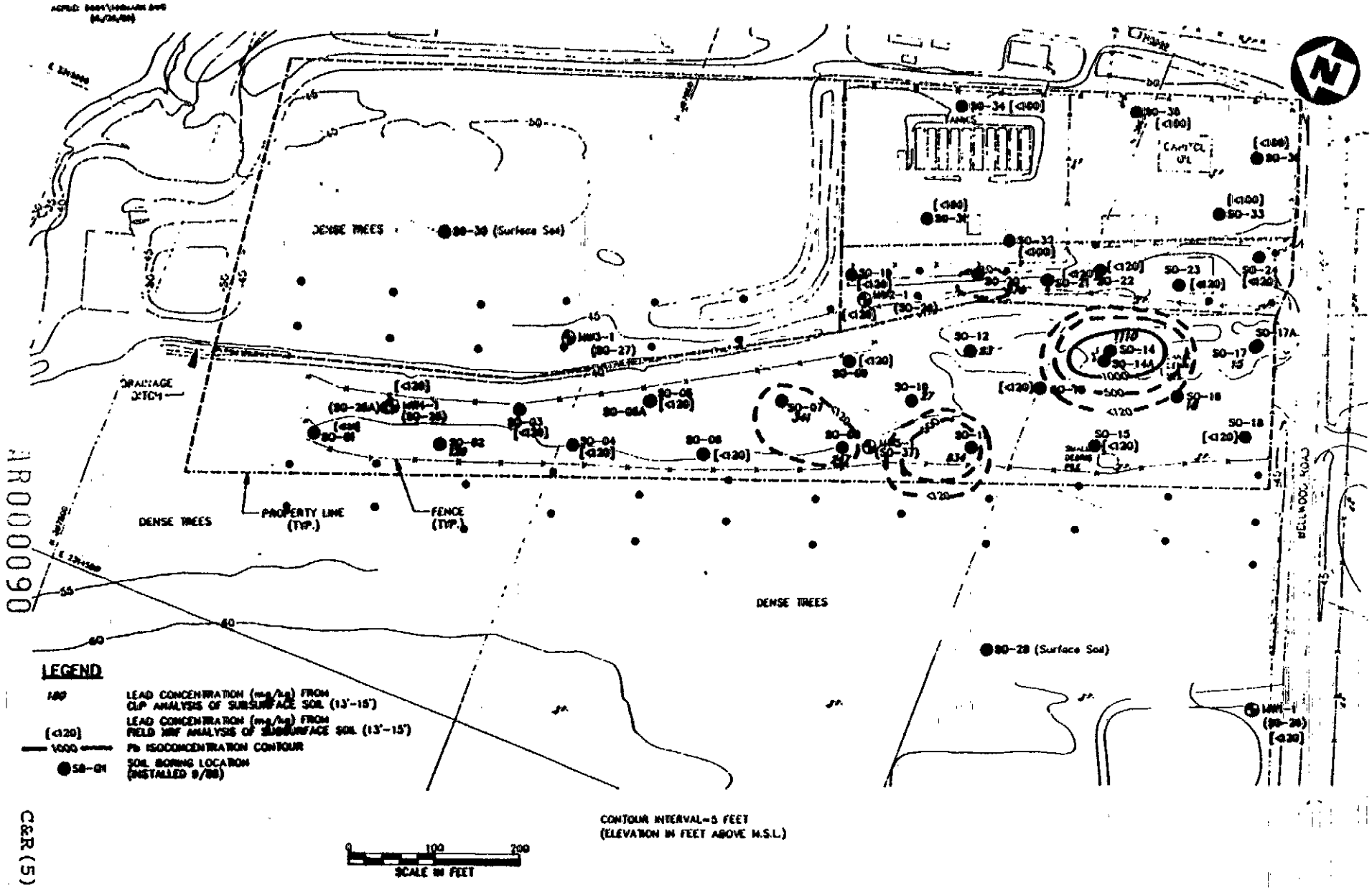

FIGURE 6

LEAD ISOCONCENTRATION MAP FOR SUBSURFACE SOILS (13'-15')

C & R BATTERY SITE, CHESTERFIELD COUNTY, VIRGINIA

TABLE 2

VERTICAL DISTRIBUTION OF LEAD CONTAMINATION IN SOILS[1]
(ONSITE AND OFFSITE)
C&R BATTERY SITE
CHESTERFIELD COUNTY, VIRGINIA

Interval Depth (feet)	Percent of Total Lead in Interval	Cumulative Percent of Total Lead	Percent of Total Volume in Interval	Cumulative Percent of Total Volume in Interval
0 - 2.5[2]	80.5	80.5	46.5	46.5
2.5 - 5.5	12.6	93.1	28.6	75.2
5.5 - 8.5	6.4	99.5	16.1	91.2
8.5 - 12	0.3	99.8	5.5	96.7
12 - 15	0.2	100	3.3	100

(1) Based on soil containing lead above 500 mg/kg. Percentages based on 120 mg/kg level should be similar.
(2) Does not include sediments and debris piles.

contain high concentrations of lead exceeding the action level. Surface water in this drainage ditch is a potential transport mechanism to the James River for the sediments and contained slightly elevated levels of contamination.

Groundwater

Groundwater at the Site is located at a depth of between 40 and 50 feet. The subsurface soils are rich in clay. Sampling of the wells which were placed during the RI field investigation revealed no concentrations of contaminants above primary drinking water standards. In a further effort to define the possible transport of contamination from soils to groundwater, an EPA-developed multi-media transport model was run in conjunction with a metal speciation model. The results of this modeling effort indicate that transport of contamination from the soils to groundwater would take thousands of years under the no action scenario. Therefore, only continued monitoring of the groundwater is required under this Record of Decision.

VI. SUMMARY OF SITE RISKS

The objective of this section is to estimate the potential incidence of adverse health or environmental effects under the exposure scenarios present at the Site. EPA guidelines for the use of dose-additive models are used to combine the risks for individual chemicals to estimate cumulative risks for the mixtures found on Site, assuming that the toxicologic endpoints (effects) are the same. This section characterizes the potential noncarcinogenic, carcinogenic, and environmental risks associated with the C&R Battery Site.

Noncarcinogenic Effects

The potential for health effects resulting from exposure to noncarcinogenic compounds is estimated by comparing a time-weighted daily dose to an acceptable level such as a Chronic

Reference Dose (RfD). If the ratio exceeds one, there is a potential health risk associated with exposure to that particular chemical. The ratios can be summed for exposures to multiple contaminants. This sum, known as a Hazard Index, is not a mathematical prediction of the severity of toxic effects; it is simply a numerical indicator of the transition from acceptable to unacceptable levels. Table 3 presents a summary of the total potential Hazard Indices. EPA considers any Hazard Index which is greater than one to present an unacceptable risk to human health and the environment.

Air -- Fugitive Dust

Noncarcinogenic health effects would not be expected to result from the exposure to lead in fugitive dust emissions from the Site. The Hazard Index determined for children is 0.003 and that for adults is 0.0008, using the annual average lead concentrations determined during modeling.

Soil -- Accidental Ingestion

Lead is the major contributor to the Hazard Index for this exposure scenario for both the soil and the debris piles. Total Hazard Indices range from 3.3 to 120, using a range of soil ingestion rates (0.05 and 0.25 g/day) and the average and maximum soil concentrations. The Hazard Indices for the debris piles show a similar range in values, from 12 to 73.

Carcinogenic Health Risks

The following discussion contains the calculated carcinogenic risk for each exposure scenario for the Site and its associated media. A summary of total potential carcinogenic health risks is presented in Table 4.

It should be noted that EPA now considers lead to be a probable

TABLE 3

SUMMARY OF TOTAL POTENTIAL HAZARD INDICES
C&R BATTERY SITE
CHESTERFIELD COUNTY, VIRGINIA

Source Area	Concentration	Fugitive Dust Emissions	Accidental Ingestion of Soil
Soil	Average		3.3 (0.05 g/day) to 17 (0.25 g/day)
	Maximum	0.003	24 (0.05 g/day) to 120 (0.25 g/day)
Debris Piles	Average		12 (0.05 g/day) to 59 (0.25 g/day)
	Maximum	0.003	17 (0.05 g/day) to 75 (0.25 g/day)

The maximum fugitive dust emission rates were calculated for both annual average and seasonal maxima. Emission rates were based on isoconcentration contours for surface soils, therefore, results are shown only for one set of input concentrations.

TABLE 4

SUMMARY OF TOTAL POTENTIAL CARCINOGENIC RISKS
C&R BATTERY SITE
CHESTERFIELD COUNTY, VIRGINIA

Source Area	Concentration	Fugitive Dust Emissions	Accidental Ingestion of Soil
Soil	Average		9.0×10^{-7} (0.05 g/day) to 4.5×10^{-6} (0.25 g/day)
	Maximum	5.1×10^{-5}	3.3×10^{-6} (0.05 g/day) to 1.6×10^{-5} (0.25 g/day)
Debris Piles	Average		1.8×10^{-6} (0.05 g/day) to 9.3×10^{-6} (0.25 g/day)
	Maximum	5.1×10^{-5}	3.4×10^{-6} (0.05 g/day) to 1.7×10^{-5} (0.25 g/day)

The maximum fugitive dust emission rates were calculated for both annual average and seasonal maxima. Emission rates were based on isoconcentration contours for surface soils, therefore, results are shown only for one set of input concentrations.

human carcinogen via the oral route of exposure. At this time, a carcinogenic potency factor has not been established for lead so a cancer risk calculation is impossible to perform. For purposes of this Record of Decision only the non-carcinogenic risks associated with lead will be used.

Air -- Fugitive Dust

Erosion of contaminated surface soils by the wind and transport to a downwind receptor susceptible to the maximum annual average concentrations will result in an average potential incremental risk of 5.1×10^{-5}. This risk was calculated for only arsenic, which is the primary carcinogen present in Site soils. Arsenic has a very high carcinogenic potency factor via inhalation exposure. EPA has classified lead as a probable human carcinogen via the inhalation route of exposure. However, because a potency factor is not yet available, the carcinogenic risk for lead can not be quantified.

Soil -- Accidental Ingestion

As with fugitive dust exposures, all the estimated risks fall within the established risk range (10^{-4} to 10^{-6}).

Of all the metals found in the soils, only arsenic is carcinogenic via oral exposures. With the high potency factor, even the offsite concentrations of arsenic will result in a risk greater than 10^{-6} via the accidental ingestion route. Using a range of ingestion rates (0.05 and 0.25 g/day) and both the maximum and average soil concentrations, the estimated risks ranged from 9.0×10^{-7} to 1.6×10^{-5}.

Environmental Risks

Concentrations of lead, cadmium, and zinc in the surface water samples from the drainage ditch exceeded acute and chronic Ambient Water Quality Criteria.

Concentrations of lead and cadmium exceeded the range of sediment quality values used for the protection of aquatic and benthic life. Results of sediment elutriate bioassays conducted on sediments from the surface water pathway indicated toxicity which correlated to elevated levels of trace metals, particularly of lead, in the drainage ditch sediments. There is a potential for transport of toxic contaminants in both sediments and surface water from the site to the environmental receptors in the James River via the drainage ditch. The presence of the rip rap dams have minimized the transport during low flow periods. However, the potential for transport of contaminants in sediment and surface water to the James River exists during high flow periods.

Since lead is present in such high concentrations and causes the most threat to public health and the environment, the discussion throughout the ROD will speak only about lead. The other contaminants and their respective action levels also were incorporated in the decision-making process.

Action Levels

Aside from lead, the indicator contaminants for the C&R Battery Site are antimony, arsenic, cadmium, and nickel. These contaminants were found to be present in soils and sediments at elevated levels. For this reason, action levels were developed for each of these contaminants based on risk assessment modeling. The soil action levels were developed using the 10^{-6} risk scenario. The sediment action levels were derived from the Puget Sound Estuary Program which conducted a study to establish the effects of contaminants on the environment and recommend levels of concern which would cause adverse effects to the environment. These levels were considered in establishing sediment action levels for the C&R Battery Site. Both the soil and sediment action levels are listed in Table 1.

VII. DOCUMENTATION OF SIGNIFICANT CHANGES FROM PROPOSED PLAN

The Proposed Plan for the C&R Battery Site was released for comment in January, 1990. The Proposed Plan identified Alternative 4 (a), from the Feasibility Study as the preferred alternative. EPA reviewed all written and verbal comments submitted during the public comment period. Upon review of these comments, it was determined that no significant changes to the remedy as it was originally identified in the Proposed Plan, were necessary.

VIII. DESCRIPTION OF ALTERNATIVES

In the FS, several soil action levels were evaluated. An action level of 1,000 mg/kg lead was determined to be appropriate for this Site. This level is in accordance with EPA guidance of September 7, 1989 for cleaning soils in residential areas and is based on a recommendation from the Centers for Disease Control. Although several action levels were evaluated as separate alternatives in the FS, only the alternatives applicable to the 1,000 mg/kg action level will be presented in this ROD(alternatives 3 and 6 have been screened out since they do not incorporate the 1000 mg/kg level). To reach this goal, EPA has identified eight Alternatives. A description of these alternatives follows. Based on sampling performed at the Site, a 120 mg/kg value for lead will be used to represent background levels. Several of the alternatives listed below include a soil and vegetative cover over areas of the Site which contain lead concentrations between 120 mg/kg and 1000 mg/kg.

In an effort to support our decision-making and to define treatment alternatives as early as possible, several treatability studies were conducted during the RI/FS in order to evaluate the applicability of treatment technologies to the soils and sediments at the site. The results of these treatability studies showed that either stabilization or soil washing could achieve

all remedial action goals. These studies also gave good cost data for each of these technologies. The results of these studies are outlined in the RI/FS.

Alternative 1: No Action

This alternative is considered in the detailed analysis to provide a baseline to which the other remedial alternatives can be compared. This alternative involves taking no action at the C&R Battery Site to remove, remediate, or contain the contaminated soils, Ni/Cd batteries, and other debris. Under the "no action" scenario, periodic groundwater monitoring would be conducted throughout the area of potential groundwater contamination. In addition to groundwater sampling, periodic surface water/sediment sampling would be conducted to monitor offsite transport of contaminants via surface water runoff and erosion. This action will not reduce the risks to the public health and the environment outlined in Section VI.

Alternative 2: RCRA Cap

This alternative involves containment of the surface and subsurface soils under a low-permeability synthetic membrane cap. Under this alternative, a RCRA landfill closure would be implemented for the Site. The cap would cover an area of approximately 3 acres. The surface and subsurface soils containing lead above the 1,000 mg/kg target action level for this ROD (approximately 11,700 C.Y.) and the drainage ditch sediments (approximately 350 C.Y.) would be excavated and placed in the area to be capped. In addition, the onsite soils (9,400 C.Y.), above the 120 mg/kg level (used to represent Site background levels) and located outside of the area to be capped, would be consolidated with the other soils in the area to be capped. The design objectives of the cap would be to minimize migration of water through the cap into the contaminated materials and to prevent direct exposure to the soils. This alternative would reduce the risks outlined in Section VI to

below the established risk range (10^{-4} to 10^{-6}). The cap would take approximately 3 months to implement.

Alternative 4: Onsite Treatment - 1,000 mg/kg Action Level, Soil Cover Over Residual Contamination. Removal and Treatment of Ni-Cad Batteries.

Alternative 4a: Stabilization - 1,000 mg/kg Action Level, Offsite Disposal in Sanitary/Industrial Waste Landfill, Soil Cover Over Residual Contamination

This alternative involves excavating the surface and subsurface soils, containing lead above the 1,000 mg/kg action level, and sediments above their action levels, treating them with a stabilization process, and then disposing of the soils in an offsite landfill. Approximately 36,800 cubic yards of soil (includes surface and subsurface soils, sediments, and debris piles) would be excavated and stabilized using a cement/pozzolan-based or similar stabilization technology. A local industrial waste (or sanitary) landfill or an offsite RCRA-approved hazardous waste landfill would be used to dispose of the treated soil. Under this alternative, a RCRA clean closure would be implemented for the former acid pond area. For the residual contaminated soil between 120 mg/kg(Site background) and 1,000 mg/kg lead, located outside of the former acid pond area, a hybrid closure would be implemented which would consist of placement of a layer of topsoil (approximately 6 inch) after backfilling with clean fill followed by revegetation. These soils would not be disturbed during implementation of the hybrid closure. This alternative will reduce the risks at the site to below 10^{-4} to 10^{-6} risk (the established risk range). This alternative would take 6 to 18 months to implement.

Alternative 4b: Soil Washing - 1,000 mg/kg Action Level, Onsite Nonhazardous Disposal, Soil Cover Over Residual Contamination

This alternative involves excavating and treating the surface and subsurface soils, which contain lead above the 1,000 mg/kg action

level, and sediments above their action levels, using a soil washing technology and disposing them on site into their respective excavated areas. Approximately 36,800 cubic yards of soil (includes surface and subsurface soils, sediments, and debris piles) would be excavated and treated to the 120 mg/kg level (as a minimum) in a soil washing unit using an acid solution. Under this alternative, a RCRA clean closure would be implemented for the former acid pond area. For the residual contaminated soil, located outside of the former acid pond area, a hybrid closure would be implemented which would consist of placement of a layer of topsoil (approximately 6 inch) after backfilling with clean fill followed by revegetation. These soils would not be disturbed during implementation of the hybrid closure. This alternative will reduce risks to below the established risk range and would take 6 to 18 months to implement. (excluding pilot-scale testing)

Alternative 4c: In situ Vitrification - 1,000 mg/kg Action Level, Soil Cover Over Residual Contamination

Approximately 36,800 cubic yards of soil and sediment above action levels (includes surface and subsurface soils, sediments, and debris piles) would be vitrified in-situ. The soils would be vitrified using a grid of electrodes placed into the ground. After one area is vitrified, the electrodes are moved to the next grid to repeat the process. To achieve efficient vitrification, some staging and consolidation of the soils would be required. This would involve excavation of contaminated surface and subsurface soils in some of the outer areas (approximately 6,900 C.Y.) followed by placement of the soils on top of the soil areas to be vitrified. Under this alternative, a RCRA clean closure would be implemented for the former acid pond area. For the residual contaminated soil, located outside of the former acid pond area, a hybrid closure would be implemented which would consist of placement of a layer of topsoil (approximately 6 inch) after backfilling with clean fill followed by revegetation. These soils would not be disturbed during implementation of the

hybrid closure. This alternative will reduce risks from the Site to below the established risk range and is estimated to take 8 to 30 months to implement.

Alternative 5: Onsite Treatment - 1,000 mg/kg Action Level, Offsite Disposal of Residual Contamination in Sanitary/Industrial Waste Landfill, Removal and Treatment of Ni-Cad Batteries.

Alternatives 5a, 5b, and 5c are identical to Alternatives 4a, 4b, and 4c, respectively, except for the manner in which the residual contaminated soils are handled. Under Alternative 5, the residual contaminated soils, containing lead above the 120 mg/kg level and below the 1,000 mg/kg action level, would be transported to a local sanitary or industrial waste landfill for disposal rather than contained on site under a cover, as included in Alternative 4. Thus, under Alternative 5, a clean closure would be implemented for the C&R Battery Site, rather than a landfill closure as included in Alternative 4. These alternatives will reduce Site risks to below the established range of 10^{-4} to 10^{-6} risks.

Alternative 5a: Stabilization - 1,000 mg/kg Action Level, Offsite Disposal in Sanitary/Industrial Waste Landfill, Offsite Disposal of Residual Contamination in Sanitary/Industrial Waste Landfill

This alternative involves excavating the surface and subsurface soils, containing lead above the 120 mg/kg level, treating the soils which contain lead above the 1,000 mg/kg action level and the sediments above action levels with a stabilization process, and then disposing all of the soils in an offsite landfill. Approximately 36,800 cubic yards of soil (includes surface and subsurface soils, sediments, and debris piles) would be excavated and stabilized using a cement/pozzolan-based or similar stabilization technology. An industrial waste (or sanitary) landfill or an offsite RCRA-approved hazardous waste landfill would be used to dispose of both treated and untreated soil. Under this alternative, a RCRA clean closure would be implemented

for the Site. this alternative would take approximately 6 to 18 months to implement.

Alternative 5b: Soil Washing - 1,000 mg/kg Action Level, Onsite Nonhazardous Disposal, Offsite Disposal of Residual Contamination in Sanitary/Industrial Waste Landfill

This alternative involves excavating the surface and subsurface soils which contain lead above the 1,000 mg/kg action level, and sediments above thier action levels, treating them using a soil washing technology, and disposing them on Site into their respective excavated areas. Approximately 80,300 cubic yards of soil (includes surface and subsurface soils, sediments, and debris piles) would be excavated and treated to the 120 mg/kg level (as a minimum) in a soil washing unit using an acid solution. The residual contaminated soil (approximately 43,500 C.Y.), which contains lead above the 120 mg/kg level (background) and below the 1,000 mg/kg action level, would be excavated and transported to a local sanitary or industrial waste landfill for disposal. Under this alternative, a RCRA clean closure would be implemented for the Site. This alternative would take 6to 18 months to implement. (excluding pilot-scale testing)

Alternative 5c: In situ Vitrification - 1,000 mg/kg Action Level, Offsite Disposal of Residual Contamination in Sanitary/Industrial Waste Landfill

Approximately 36,800 cubic yards (1,000 mg/kg action level) of soil (includes surface and subsurface soils, sediments above their action levels, and debris piles) would be vitrified in-situ. Under this alternative, a RCRA landfill closure would be implemented for the Site. The vitrified material would serve as an impermeable cap for the RCRA unit. The residual contaminated soil (approximately 43,500 C.Y.), which contains lead above the 120 mg/kg level and below the 1,000 mg/kg action level, would be

excavated and transported to a local sanitary or industrial waste landfill.

The soils would be vitrified using a grid of electrodes placed into the ground. After one area is vitrified, the electrodes are moved to the next grid to repeat the process. To achieve efficient vitrification, some staging and consolidation of soils would be required. This would involve excavation of contaminated surface and subsurface soils in some of the outer areas (approximately 6,900 C.Y.) followed by placement of the soils on top of the soil areas to be vitrified. The excavated areas would be filled in using clean fill. This alternative would take 8 to 30 months to implement.

IX. COMPARATIVE ANALYSIS OF ALTERNATIVES

The eight remedial action alternatives described above were evaluated under the nine evaluation criteria in the NCP 40 C.F.R. Part 300.430(e)(9) as set forth in "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (EPA, October 1988), EPA Directive 9355.3-02 "Draft Guidance on Preparing Superfund Decision Documents: The Proposed Plan and Record of Decision," and "Guidance on Preparing Superfund Decision Documents: The Proposed Plan, The Record of Decision, Explanation of Significant Differences, and the Record of Decision Amendment" (EPA/540/6-89/007), July 1989 Interim Final. These nine criteria can be further categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria.

Threshold Criteria

- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirements (ARARs)

Primary Balancing Criteria

- Reduction of toxicity, mobility, or volume through treatment
- Implementability
- Short-term effectiveness
- Long-term effectiveness
- Cost

Modifying Criteria

- Community acceptance
- State acceptance

These evaluation criteria relate directly to requirements in Section 121 of CERCLA, 42 U.S.C. Section 9621, which measure the overall feasibility and acceptability of the remedy. Threshold criteria must be satisfied in order for a remedy to be eligible for selection. Primary balancing criteria are used to weigh major trade-offs between remedies. State and community acceptance are modifying criteria formally taken into account after public comment is received on the Proposed Plan. The evaluations are as follows:

1) **Protection of the Human Health and the Environment**

A primary requirement of CERCLA is that the selected remedial action be protective of human health and the environment. A remedy is protective if it reduces current and potential risks to acceptable levels under the established risk range posed by each exposure pathway at the Site.

Stabilization, Soil Washing, and In-Situ Vitrification

The remedies which employ either soil washing, stabilization, or in-situ vitrification would achieve all remedial action

objectives. Public and environmental risks from inhalation, ingestion, and dermal contact would be mitigated. Excavation and treatment could potentially present short-term public health risks from dust generation. These risks would be evaluated using an air monitoring program. Appropriate Site use restriction will be placed to ensure protection of the public health and the environment.

No Action

The no-action alternative does not achieve any of the three remedial action goals and, therefore, would continue to present an unacceptable risk to human health and the environment. No provisions would be made to treat wastes or to control offsite migration of soils and sediments. Based on this determination, the no-action alternative will not be subjected to further evaluation.

RCRA Capping

Although the RCRA capping alternative would achieve all three remedial action objectives, it would not comply with the goal of Section 121 of CERCLA, 42 U.S.C. Section 9621, to permanently reduce the volume, toxicity, or mobility of the contaminants at the Site.

2) Compliance with Applicable or Relevant and Appropriate Requirements

Under Section 121(d) of CERCLA, 42 U.S.C. Section 9621(d), and EPA guidance, remedial actions at CERCLA sites must attain legally applicable or relevant and appropriate Federal and state environmental standards, requirements, criteria, and limitations (which are collectively referred to as "ARARs"). Applicable requirements are those substantive environmental protection requirements, criteria, or limitations promulgated under Federal

or state law that specifically address hazardous material found at the Site, the remedial action to be implemented at the Site, the location of the Site, or other circumstances at the Site. Relevant and appropriate requirements are those substantive environmental protection requirements, criteria, or limitations promulgated under Federal or state law which, while not applicable to the hazardous materials at the Site, the remedial action, site location, or other circumstances, nevertheless address problems or situations sufficiently similar to those encountered at the site that their use is well suited to that site.

The ARARs and other nonpromulgated advisories and guidances issued by Federal, state, and local governments ("To-Be-Considered") for the Remedial Action are discussed below.

Resource Conservation and Recovery Act (40 CFR Parts 261-270)

RCRA regulates the generation, transportation, treatment, storage, and disposal of hazardous wastes. Hazardous substances, pollutants, and contaminants found at CERCLA sites may be hazardous wastes as defined by RCRA and may trigger RCRA requirements if they are RCRA-listed wastes (40 CFR Part 261, Subpart D) or if such substances exhibit certain physical characteristics (40 CFR Part 261, Subpart C). EPA has determined that some of the soils and sediments found during the Remedial Investigation are characteristic hazardous wastes by use of the Extraction Procedure Toxicity (EP Tox) test for lead. As a result, RCRA is applicable to the former acid pond area where the wastes were actively managed. Portions of RCRA may be relevant and appropriate to the soils and sediments located outside of this area and are further discussed below.

RCRA Subtitle C Closure Requirements

Excavation, consolidation, or other active management actions that move RCRA hazardous wastes so as to constitute disposal of

such wastes will trigger closure requirements for the unit into which the wastes are placed. RCRA closure requirements 40 CFR Part 264, Subpart G will be achieved for the former acid pond area by removing all soils whose leachate exceeds the appropriate leaching procedure (i.e., EP Tox). For the residual contamination located outside the former acid pond area, EPA has determined that RCRA (40 CFR Part 264, Subpart G) is relevant and appropriate, and a hybrid closure (soil cover) will be implemented to satisfy closure requirements.

Land Disposal Restrictions

The 1984 amendments to RCRA (HSWA), 40 CFR 268 establish schedules for promulgation of regulations restricting land disposal of hazardous wastes. Treatment standards for characteristic wastes will be established in May 1990. All of the excavated soils which are subsequently treated will attainn these standards. If these standards cannot be met, a soil and debris treatability variance will be considered. The Treatability Variance levels for site contaminants are listed in Table 5.

Clean Water Act

The Clean Water Act (and Virginia) require a National Pollutant Discharge Elimination System (NPDES) permit for any discharge from a point source to navigable waters of the United States. The Clean Water Act also requires that any discharge to a publicly owned treatment works (POTW) meet Federal pretreatment standards. Only the soil washing alternative would generate a waste water stream. The water generated would be of sufficient quality (i.e., would meet any NPDES standards) to be discharged directly to the James River via a drainage ditch. Any onsite surface water discharge will comply with the substantive requirements of both the Clean Water Act and Virginia NPDES Standards (NPDES requirements 40 CFR Part 122 and Virginia Water Quality Standards VR 680-21-00.)

TABLE 5

ALTERNATE TREATABILITY VARIANCE LEVELS FOR SOIL/DEBRIS[1]
C&R BATTERY SITE
CHESTERFIELD COUNTY, VIRGINIA

Indicator Contaminants	Concentration Range[2]	Threshold Concentration (ppm)[3]	Percent Reduction Range[3]
Antimony	0.1-0.2	2	90-99
Arsenic	0.27-1	16	90-99.9
Cadmium	0.2-2	40	95-99.9
Lead	0.1-3	300	99-99.9
Nickel	0.5-1	20	95-99.9

(1) From: Superfund LDR Guide #6A, Directive 9347.3-06FS.
(2) Concentration in TCLP extract
(3) if the contaminant concentration in the untreated soil/debris is greater than the threshold concentration, then the soil/debris need only be treated to the minimum of the percent reduction range.

Clean Air Act/Virginia Air Pollution Regulations

The Federal Clean Air Act National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) and New Source Performance Standards (40 CFR Part 60) and the Virginia Air Pollution Regulations (Chapter 120, Parts I-VIII) identify and regulate pollutants that could possibly be released during the course of remediation. For alternatives involving the excavation of soils and sediments, air monitoring will be required to ensure compliance with Federal and Virginia air emission regulations.

Occupational Safety and Health Administration Act (OSHA)

During remedial action a health and safety program for onsite workers will be implemented to comply with OSHA requirements (29 CFR Parts 1910, 1926, and 1904).

Virginia Erosion and Sediment Control Law

Alternatives which involve excavation must comply with the Virginia Erosion and Sediment Control Law, Virginia Code Section 21-89.1 et. seq..

Criteria for Offsite Disposal

Alternatives involving stabilization will involve offsite disposal of the stabilized material. This disposal will be performed in accordance with the requirements of RCRA (40 CFR Part 241) and state regulations (VR 672-20-10) for sanitary/industrial waste landfills. EPA's offsite disposal policy (outlined in a 11-13-87 OSWER memo) will also be followed for hazardous wastes and hazardous substances. This disposal must also comply with the requirements for RCRA hazardous waste generator and transportation regulations (40 CFR Parts 262 and 263) and with Federal (49 CFR Parts 107, 171-179) and state Department of Transportation regulations. If untreated soils are

transported to a treatment facility for stabilization, the facility must comply with RCRA (40 CFR Parts 264, 265, and 270) and State treatment, storage, and disposal facility (TSDF) operating standards.

Onsite Treatment

Alternatives 4 (a), (b), (c) and 5 (a), (b), (c) may involve onsite treatment of contaminated material. This treatment will comply with RCRA and state TSDF operating standards.

Endangered Species Act of 1978, Fish and Wildlife Coordination Act, Fish and Wildlife Improvement Act of 1978, and Fish and Wildlife Conservation Act of 1980

Alternatives which involve excavation and/or surface water discharge must comply with the standards set forth in these four acts.

Criteria, Advisories, or Guidance to be Considered

The action levels for contaminants in soil and sediments were obtained from the following advisory levels.

- EPA-established cleanup level of 500-1,000 mg/kg for lead for residential areas. The 1,000 mg/kg lead level was chosen as the action level since the Site is located in an industrial area and is not frequented by children.

- EPA-established Reference Doses (RFDs) used to develop risk-based cleanup levels for inorganics.

- EPA-established carcinogenic potency factors used to develop risk-based cleanup levels for arsenic.

3) **Reduction of Toxicity, Mobility, or Volume**

This evaluation criteria addresses the degree to which a technology or remedial alternative reduces toxicity, mobility, or volume of hazardous substance. Section 121 (b) of CERCLA, 42 U.S.C. Section 9621 (b), establishes a preference for remedial actions that permanently and significantly reduce the toxicity, mobility, or volume of hazardous substances over remedial actions which will not result in such reduction.

Stabilization, Soil Washing, In-situ Vitrification

All three technologies would significantly and permanently reduce the mobility of the contaminants. Soil washing would also permanently reduce the toxicity of the contaminants by removing the contaminants from the matrix. Vitrification would achieve a higher reduction in mobility and toxicity of contaminants than would stabilization. Both soil washing and vitrification would reduce the volume (10-30 percent) of the contaminated material while solidification would increase the volume of the material by approximately 100 percent.

RCRA Capping

The RCRA capping alternative would not reduce the mobility, toxicity, or volume of the contamination.

4) **Implementability**

Stabilization, Soil Washing, In-situ Vitrification

The stabilization technology has been the most widely implemented process of the three technologies. It also utilizes equipment which is widely available and simplest to operate. The offgas and effluent treatment requirements for stabilization are not as extensive as with the other technologies. Vitrification is considered to be an innovative technology and may require more

sophisticated equipment and highly skilled operators. Since vitrification would be done in situ, much less material handling would be required with this technology than with the others. Soil washing would require very complex equipment. Since there are no mobile soil washing systems available that can handle strong acids, a treatment plant would most likely have to be constructed at the Site. Both soil washing and vitrification would also require pilot scale treatability testing to better assess implementability.

RCRA Capping

The technologies associated with RCRA capping are well demonstrated and can be implemented readily.

5) **Short-Term Effectiveness**

Short-term effectiveness addresses the period of time needed to achieve protection of human health and the environment and any adverse impacts that may be posed during the construction and operation period until cleanup goals are achieved.

Alternatives involving excavation and subsequent management of contaminated soils through treatment would present the greatest opportunity for exposure to contaminants by onsite workers. Protective measures including use of protective clothing for Site workers, dust control, and air monitoring will minimize the impact to Site workers and surrounding areas. Groundwater monitoring will be included in all alternatives.

Stabilization, Soil Washing, In-situ Vitrification

Stabilization could be implemented in the shortest period of time. Soil washing could also be implemented in a similar time frame as solidification but would necessitate an additional period of approximately 6 months for pilot-scale testing prior to actual implementation. Vitrification would take the longest

amount of time to implement with regard to the protection of workers, community, and the environment during remedial activities. Stabilization would present the lowest risk to these receptors as the amount of hazardous chemicals and the quantity of effluent discharged would be the lowest of the three treatment alternatives. The soil washing alternative uses strong acids which are dangerous to handle and could potentially release toxic substances to the air and surface water if a spill occurred or the equipment malfunctioned. The vitrification process generates aqueous and gaseous effluents and could present a danger if the system fails.

RCRA Capping

RCRA capping could be implemented in a relatively short period of time but would not utilize any treatment.

6) Long-Term Effectiveness

Long-term effectiveness and permanence addresses the long-term protection of human health and the environment once remedial action cleanup goals have been achieved, and focuses on residual risk that will remain after completion of the remedial action.

RCRA Capping

The RCRA capping alternative provides a low degree of long-term effectiveness, permanence, and risk reduction, since wastes will be contained. Frequent inspection and maintenance of the cap would be required. Long-term groundwater monitoring would be necessary to verify that groundwater is not contaminated by the wastes which are left in place. Deed restrictions would be necessary to prevent disturbance of the cap.

Stabilization, Soil Washing, In-situ Vitrification

Soil washing will permanently remove the contaminants from the soil and sediments. Vitrification would create a glass-like product which would be more resistant to physical/chemical deteriorization than the matrix created by stabilization.

7) Cost

CERCLA requires selection of a cost-effective remedy (not merely the lowest cost) that protects human health and the environment and meets the other requirements of the Statute. Project costs include all construction and operation and maintenance costs incurred over the life of the project. An analysis of the present-worth value of these costs has been completed for each alternative described in this Record of Decision and is summarized in Table 6. Capital costs include those expenditures necessary to implement a remedial action. Annual operating costs are included in the present-worth cost.

The costs of the eight alternatives range from $265,000 to $35,720,000. The degree of protection provided by the alternatives also varies. Comparison of different levels of costs for different levels of protectiveness and permanence of treatment is a primary decision criteria in the cost-effectiveness evaluation.

The RCRA capping alternative, although low in cost, is less protective and does not provide permanent treatment as does other alternatives, and is therefore not considered cost effective. The stabilization alternative is the next lowest in cost and provides 97 percent removal of contaminants treated. The remaining alternatives would increase cost significantly while providing a similar level of protection (for example, alternatives involving soil washing would increase costs by approximately 100 percent, when compared to stabilization, while also providing 97 percent removal of contaminants treated).

TABLE 6

COST SUMMARY FOR REMEDIAL ALTERNATIVES
C&R BATTERY SITE
CHESTERFIELD COUNTY, VIRGINIA

Alternative Number	Alternative Title	Capital Cost ($1,000s)	O&M Cost ($1,000s)	Present-Worth Cost ($1,000s)
1	No Action	0	13.6 annually 20 every 5 years	265
2	RCRA Cap - 120 mg/kg Action Level	2,357	18.6 annually 20 every 5 years	2,698
4	Onsite Treatment - 1,000 mg/kg Action Level, Soil Cover Over Residual Contamination (untreated soil > 120 mg/kg)			
4a	Stabilization, Offsite Disposal in Sanitary/Industrial Waste Landfill	15,292	14.6 annually 20 every 5 years	15,572
4b	Soil Washing, Onsite Nonhazardous Disposal	30,380	14.6 annually 20 every 5 years	30,660
4c	In-situ Vitrification	22,777	14.6 annually 20 every 5 years	23,057
5	Onsite Treatment - 1,000 mg/kg Action Level, Offsite Disposal of Residual Contamination (untreated soil > 120 mg/kg) in Sanitary/Industrial Waste Landfill			
5a	Stabilization, Offsite Disposal in Sanitary/Industrial Waste Landfill	20,642	20 every 5 years(1)	20,697
5b	Soil Washing, Onsite Nonhazardous Disposal	35,665	20 every 5 years(1)	35,720
5c	In-situ Vitrification	29,058	14.6 annually 20 every 5 years	29,339

(1) May not be required because a clean closure would be implemented.

8) Community Acceptance

A public meeting on the Proposed Plan was held February 7, 1990 in Chesterfield County, Virginia. Comments received from the public at that meeting and during the comment period are referenced in the Responsiveness Summary attached to this Record of Decision.

9) State Acceptance

The Commonwealth of Virginia has concurred with this selected Remedial Action.

X. SELECTED REMEDY

Alternative 4a: Stabilization - 1,000 mg/kg Action Level, Offsite Disposal in Sanitary/Industrial Waste Landfill, Soil Cover Over Residual Contamination

Based on the findings in the RI/FS and the nine criteria listed above, the USEPA has selected Alternative 4(a). In the judgement of EPA, Alternative 4(a) represents the best balance among the evaluation criteria and satisfies the statutory requirements of protectiveness, compliance with ARARs, cost effectiveness, and the utilization of permanent solutions and treatment to the maximum extent possible.

This alternative involves excavating the surface and subsurface soils containing lead above the 1,000 mg/kg action level, treating them with a cement/pozzolan-based or similar stabilization process, and then disposing of the soils in an offsite landfill. A local industrial waste (or sanitary) landfill or an offsite RCRA-approved hazardous waste landfill would be used to dispose of the treated soil. Under this alternative, a hybrid closure (soil cover) would be implemented for the residual contamination (soil above 120 mg/kg lead)

outside of the acid pond area. For the acid pond area, a RCRA clean closure would be implemented. Analyses of the seven evaluation criteria for the two disposal options (sanitary and hazardous waste landfill disposal) are very similar and to avoid redundancy, only factors which differ between the two options will be highlighted.

Approximately 36,800 cubic yards of soil (includes surface and subsurface soils, sediments, and debris piles) would be excavated and stabilized using a cement/pozzolan-based or similar stabilization technology. Based on the results of the treatability study conducted by Hazcon, 1989, the stabilization mixture that meets the EP toxicity criteria and produces the smallest percent volume increase consists of a 1:0.6:0.03 soil/cement/sodium silicate ratio (by weight). The stabilization blend ratio could be optimized further during the remedial design. The use of sodium silicate, and other soluble silicates, in the stabilization process is currently patented (U.S. Patent 3,837,872) by Chemfix Technologies, Inc. until September, 1991.

Excavation of the subsurface soil in the area located adjacent to the southeast corner of the former facility will require dismantling the existing storage shed located in that area. Dismantled material would be transported to a local sanitary or construction/demolition/debris landfill. Excavation of onsite surface and subsurface soil will require demolition/excavation of the existing concrete pad (approximately 150 feet by 150 feet) in the southern portion of the Site. The demolished concrete slabs (833 C.Y.) would then be transported to a local sanitary or construction/demolition/debris landfill for disposal. In addition to the concrete pad, the old tires present on Site and in adjacent offsite areas, as well as any other miscellaneous debris, would be disposed in a sanitary landfill prior to excavation of the soils.

The Ni/Cd batteries present at the Site (approximately 350) could potentially be transported to an offsite recycling facility where

they would then be shipped offsite and recycled into their nickel and cadmium components. However, for costing purposes, it is assumed that the Ni/Cd batteries would be treated at an offsite RCRA-approved hazardous waste treatment facility prior to disposal in an offsite RCRA-approved hazardous waste disposal facility. The cost of this option is slightly higher than the recycling option. The batteries would not need to be drained but would most likely need to be packed in drums prior to shipment. At the treatment facility, the Ni/Cd batteries would be broken open and drained. The battery fluid would be treated using a hydrolysis process. The Ni/Cd plates would be transported to a RCRA-approved hazardous waste disposal facility. The plastic battery casings would be either sent to a recycling facility or disposed along with the Ni/Cd plates.

Any surface water present on Site in the drainage ditch would be drained prior to excavation of the sediments. The drained water could possibly be pumped onto the Site and allowed to evaporate (if it complies with Land Disposal Restrictions) or could be pumped into tanker trucks and transported to an offsite RCRA-approved treatment facility if necessary. For costing purposes, it will be assumed that any surface water will be pumped into tanker trucks and transported to a RCRA-permitted hazardous waste treatment facility. Following excavation of the sediments, the onsite drainage ditch (1,250 feet) would be left in place to allow water that collects in the roadside ditch, along the southern boundary of the Site, to flow through the Site to the James River.

A pug mill would most likely be used to mix the stabilizing reagents with the contaminated soil in a continuous or batch operation. Prior to the addition and mixing of the stabilizing reagents, the soil would be screened first to remove any large rocks, soil clumps, battery casing fragments, and any other debris. The oversized material would then be fed to a crusher/shredder chamber followed by another screening stage. This pretreatment stage would ensure optimal contact of the

contaminants with the stabilizing reagents and better product uniformity. For this alternative, it is assumed that the shredded battery casing fragments would be mixed in and stabilized with the soil, which would be the most cost-effective remedial action for the casings.

Other remedial options for the screened battery casings include offsite incineration and acid washing in an offsite RCRA treatment facility followed by offsite disposal. An analysis will be completed during Remedial Design to identify the most appropriate and cost-effective option.

The soil would be stabilized either on Site or at a landfill. Since a sanitary landfill cannot accept a hazardous waste, material going to a sanitary landfill would require onsite treatment to eliminate the characteristic prior to transportation to the sanitary landfill. The volume of soils for hauling and disposal would increase approximately 100 percent; 20 percent due to excavation and 80 percent due to the stabilization process, thus increasing the total soil volume to 73,600 cubic yards. Because a RCRA-approved hazardous waste landfill can accept hazardous wastes, untreated soils could potentially be loaded onto trucks, hauled in bulk shipments to an offsite hazardous waste landfill, and then stabilized at the landfill prior to disposal. The volume of subsurface soils for hauling would increase by 20 percent due to swelling during excavation, and another 80 percent upon stabilization. Stabilization of the soils at the landfill would most likely be the more cost-effective approach because less material would be transported. For costing purposes, however, the onsite treatment scenario will be used.

Once the area of the former acid pond has been excavated to 1,000 mg/kg, a representative number of samples of the remaining soil will be tested using an appropriate leach test (TCLP) to satisfy regulatory requirements. If the soil still exhibits characteristics of hazardous waste the area will be further

evaluated to determine the appropriate additional actions to be taken in order that a clean closure may be implemented for the area.

For the residual contaminated soil containing lead between the 120 mg/kg and the 1,000 mg/kg action level, a hybrid closure would be implemented, which would consist ofbackfilling with clean soil and placement of a layer of topsoil (approximately 6 inches) followed by revegetation. These soils would not be disturbed during implementation of the hybrid closure.

As in Alternative 1, periodic groundwater monitoring would be conducted throughout the area of potential groundwater contamination for this alternative. As required by Virginia (VR 672-10-1, Part X) and RCRA (40 CFR Part 264, Subparts G,F), four new monitoring wells would be installed (one upgradient and three downgradient) to evaluate migration of contaminants from subsurface soils to groundwater. A quarterly sampling frequency is required for the first year and semi-annual sampling for the following years. This sampling will continue until at least the first 5-year review of the Site. A monitoring program including chemistry and toxicity testing will be implemented to monitor short- and long-term impacts of the remedial action on the surface water and sediments in the drainage ditch as well as to evaluate offsite transport of contaminants via the drainage ditch to the James River. The monitoring will assure that the remedy will be effective in controlling releases and will be protective of the aquatic environment. Appropriate Site use restrictions will be placed to ensure protection of human health and the environment in the future.

Short-term Effectiveness

Dust may be generated during excavation and handling activities. Dust control procedures would be required. Perimeter air monitoring may be needed to determine whether steps are needed to protect the community from adverse air emissions.

Workers will be required to wear protective respiratory equipment (i.e., dust mask) during activities where they may be exposed to hazardous materials. Air monitoring could be performed in work areas to monitor the breathing zone if required.

Because this alternative may involve offsite transportation of untreated soils, there is a potential exposure risk to the community if a spill occurred as a result of a transportation accident. The major exposure route associated with the soils is ingestion, however. Thus, there would be minimal health risks posed by a spill of this material through dermal contact or inhalation, which are the most likely exposure routes associated with a spill. Furthermore, any spilled material could be relatively easily controlled and cleaned up compared to a spill of liquid or gaseous wastes.

Once the onsite remedial activities begin, stabilization and transportation of the treated soils to the sanitary/industrial waste landfill and covering of the residual contamination would take approximately 1 year, during which time the risks previously identified would be present at the Site.

Long-term Effectiveness

Because soils containing lead above the risk-based 1,000 mg/kg action level would be stabilized and removed from the Site, there would be no remaining long-term risks at the Site, associated with these soils, to human health or to the environment upon completion of remedial actions. Furthermore, installation of the soil cover would eliminate the direct exposure route to residual contamination (soil containing lead above 120 mg/kg but below 1,000 mg/kg). Therefore, no risks would be anticipated if long-term management, considerations mainly include periodic inspection and maintenance of the soil cover, is maintained.

If the disposal facility receiving the soils is properly designed

and operated according to RCRA and state regulations for industrial waste/sanitary or hazardous waste disposal facilities, the long-term risks posed by disposal of these items in an offsite landfill should be minimized.

Since the leachate generated by a sanitary landfill is typically acidic (pH of about 5.0), if the stabilized soils are placed in a sanitary landfill and are allowed to come into contact with the other municipal waste, the acidic environment would accelerate the breakdown of the stabilized material which would in turn increase the mobility of the contaminants. Degradation of the stabilized material could be minimized by placing it in a separate cell in the landfill (preferably a top cell) where the material would be fully enclosed by a clay/soil liner. The environment in an industrial waste or hazardous waste landfill could also be acidic, depending on the type of wastes placed in the cell, and therefore the use of a separate cell would also maximize long-term effectiveness.

Reduction of Toxicity, Mobility, or Volume

With respect to the C&R Battery Site, this alternative provides a permanent remedial action which reduces the overall toxicity and volume of contamination at the Site by completely removing the soils, which contain lead above the 1,000 mg/kg action level, and sediments containing levels of contaminants exceeding their action level, from the Site (approximately 36,800 cubic yards). Approximately 97 percent of the total lead (above background levels) would be removed from the Site. In addition, the mobility of the contaminants in the soil would be substantially reduced by the stabilization process as well as by placement in a lined landfill with a leachate detection and collection/treatment system. With regard to the volume of contaminated soils, this alternative would not reduce the volume of soils and would actually increase the volume of material by approximately 100 percent. If the landfill is properly maintained over time, stabilization of the soils followed by disposal in an offsite

landfill would provide a permanent, irreversible form of treatment.

Residuals remaining on Site mainly include the residual contaminated soils, which contain lead above the 120 mg/kg but below the 1,000 mg/kg action level. Installation of the soil cover would reduce the mobility of the residual contaminants by controlling erosion due to wind and surface water runoff. Other residuals remaining after remedial activities include decontamination fluids. For costing purposes, it will be assumed that all contaminated water, generated during onsite activities, will be collected and transported to an offsite facility for treatment and disposal.

Implementability

The technologies proposed for excavation, material handling, stabilization, and offsite landfilling are demonstrated and commercially available. There are currently no RCRA-permitted hazardous waste landfills in the Commonwealth of Virginia. Because some states may restrict the importation of hazardous waste for disposal, the availability of RCRA-permitted hazardous waste landfills may be limited. Two landfills have indicated that they could potentially stabilize and dispose of the soils at their facility. A RCRA-permitted hazardous waste landfill that could potentially accept the soil is located approximately 460 miles away in Model City, New York. The nearest industrial waste/sanitary landfill that could potentially accept the treated soil is located about 15 miles away but within Chesterfield County, Virginia. Typically, in the Commonwealth of Virginia, a sanitary landfill will only accept waste from the county in which it is located. Therefore, if a landfill in Chesterfield County is unable to accept the treated soil, the material may have to be transported to either an industrial/sanitary or hazardous waste landfill out of state. An industrial/sanitary landfill in the Commonwealth of Virginia may receive the stabilized soil only with specific approval of the Executive Director or by specific

provisions within the facility permit.

A staging area would be required to set up any equipment and store any supplies needed to treat the soils as well as to stockpile both treated and untreated soils. All or part of the staging area would need to be located in an adjacent area (approximately 4 acres), as space at the C&R Battery Site is limited, due to its narrow geometry. Implementation of the staging area would require access to this land, clearing of trees and brush, and installation of temporary diversion ditches and fencing. Site topography should not interfere with remedial activities and all areas of the site are accessible.

Five-year Site reviews, pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621 (c), would be required to monitor the effectiveness of this alternative. Hazardous waste generator status for the Site must be obtained, and the waste and treatment residuals must be manifested and transported by a licensed hazardous waste transporter. The receiving disposal facility must be also be RCRA permitted.

Cost

The estimated capital and annual operation and maintenance costs for this alternative are summarized below. The present-worth cost estimate is $15,572,000 for disposal of the treated soils in an industrial waste/sanitary landfill.

Capital Cost ($1,000s)	O&M Cost ($1,000s)	Present-Worth Cost ($1,000s)
15,292[1]	14.6 (annually) 20 (every 5 years)	15,572[1]

[1]For disposal of treated soils in a local industrial waste/sanitary landfill.

A more detailed breakdown of costs is presented in Table 7.

TABLE 7

ESTIMATED COSTS OF SELECTED REMEDY
C&R BATTERY SITE
CHESTERFIELD COUNTY, VIRGINIA

CAPITAL COSTS

Construction Component	Quantity	Unit Cost	Estimated Cost
1. Excavation, Site Clearing	---	---	$155,300
2. Building Dismantlement, Debris Disposal	---	---	157,000
3. Waste Soil Stabilization	$44,113 cy(1)	$71.67 $/cy	3,161,400
4. Stabilized Soil Disposal	117,635 tons	38.03 $/ton	4,473,100
5. Site Reclamation	---	---	1,112,500
6. Ni/Cd Battery Disposal	---	---	37,100
7. Burden, Labor, Material	---	---	881,000
8. Indirects, Profit, Health and Safety Monitoring	---	---	1,969,400
9. Contingency @ 20%	---	---	2,389,400
10. Engineering @ 8%	---	---	955,800
Total Capital Costs	---	---	**$15,292,000**

OPERATION AND MAINTENANCE COSTS

Operation and Maintenance Component	Estimated Cost
1. Sampling and Analysis, Report (annual)	$12,550
2. Site Maintenance (annual)	2,000
3. Analysis Review (every 5 years)	20,000

TOTAL COST

Net Present Worth calculated using a 5% discount value	$15,572,000

(1) Includes volume increase during excavation

Compliance with ARARs

For the acid pond area, this alternative must comply with the RCRA (40 CFR Part 264, Subpart G) and Virginia (VR 672-10-1, Part 10.6) standards for clean closure. General performance standards for clean closure (removal) require elimination of the need for further maintenance and control. The closure must eliminate post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated run-off, or hazardous waste decomposition products.

For the soils not located in the former acid pond area, for which RCRA closure requirements are relevant and appropriate, a hybrid closure will be implemented.

Post-closure use of the property must be restricted, as necessary to prevent damage to the soil cover, to comply with VR 672-10-1, Part X and 40 CFR Part 264, Subpart G. Groundwater monitoring for at least 5-years will be done, to satisfy these regulations (40 CFR Subpart F).

During Site work, Clean Air Act and Virginia air emission requirements (Virginia Air Pollution Regulations Chapter 120 Parts I to VIII) must be considered. The air standards most applicable to the soils are National Ambient Air Quality (NAAQ) standards (40 CFR Parts 50) for lead (lead emissions would be in the form of particulate matter) and particulate matter. If these limits are exceeded, dust suppressants must be applied to control fugitive dust emissions.

Offsite transportation of untreated soils must be done in compliance with RCRA regulations applicable to generators and transporters of hazardous wastes (40 CFR Parts 262 and 263) as well as with Virginia regulations (VR 672-20-10, Part VII). In addition, offsite transportation of the untreated soil must comply with Federal (49 CFR Parts 107, 171-179) and Virginia Hazardous Waste Management Regulations (VHWMR) pertaining to

transportation of hazardous materials.

If untreated soil, which is a RCRA hazardous waste, is transported to a hazardous waste landfill for treatment and disposal, the facility receiving the soil must be in compliance with RCRA (40 CFR Part 264) and VHWMR for owners and operators of hazardous waste treatment, storage, and disposal facilities and must be properly permitted (40 CFR Parts 265 and 270).

If treated soil (or untreated soil which is not a hazardous waste) is shipped to a sanitary or industrial waste landfill, the facility receiving the soil must be in compliance with RCRA (40 CFR Part 241) and Virginia Solid Waste Management Regulations (VR 672-20-10) for sanitary and industrial waste landfills.

During the Remedial Design, an evaluation of the most cost-effective method for stabilizing the soils (either on or off Site) will be determined and the appropriate requirements outlined above will be followed.

OSHA standards (29 CFR, Parts 1910, 1926, and 1904), especially standards governing worker safety during hazardous waste operations (29 CFR Part 1910), would have to be followed during all Site work.

Overall Protection

This alternative would achieve remedial action objective number 1 by protecting the public health from current and future exposure risks (ingestion and inhalation) associated with the soils. This alternative would virtually eliminate the potential for migration of lead and other indicator contaminants to groundwater (remedial action objective number 2) and would eliminate migration of contaminants to surface water and sediment (remedial action objective number 3). This alternative complies with one of the goals of CERCLA to utilize treatment that permanently reduces the volume, toxicity, or mobility of the contaminants at the Site.

XI. RATIONALE FOR REMEDY SELECTION

This analysis focuses on EPA's rationale for selecting the Remedial Action over other alternatives.

Alternative 1: No Action

Alternative 1 does not achieve threshold criteria for adequate protection of human health and the environment, and does not comply with applicable or relevant and appropriate Federal and state standards, requirements, criteria, or limitations. Current and future risks would still exist from Site runoff, direct exposure to the soils on Site and inhalation of fugitive dust. The cleanup levels based on EPA guidance and criteria would not be met since contaminants would receive no treatment. The no action alternative would not permanently reduce the volume, toxicity, or mobility of hazardous waste at the Site, and does not utilize permanent treatment technologies to the maximum extent practicable as mandated by CERCLA. The Selected Remedial Action satisfies all of the above criteria.

Alternative 2: RCRA Cap

Alternative 2 includes installation of a RCRA Cap over contaminated areas. This alternative does not permanently and significantly reduce the volume, toxicity, or mobility of hazardous waste present at the Site, and does not utilize permanent treatment technologies to the maximum extent practicable. Containment using a cap for the entire Site provides a low degree of protection of human health and the environment, permanence, and long-term effectiveness. Since wastes will be contained, Alternative 2 will not afford the high level of long-term projection provided by Alternative 4(a), which utilizes a more permanent treatment remedy.

Alternative 4(b): Soil Washing

Alternative 4(b) involves the excavation of contaminated soil with subsequent soil washing with a strong acid solution to remove the contamination from the soil. This alternative would require extensive pilot scale testing which would result in a significantly longer implementation time than the selected remedy. This alternative would require highly skilled operators. No mobile soil washing systems that can handle strong acids are available, and therefore, a treatment plant would most likely have to be constructed at the Site. This alternative has not been utilized in full scale operation, whereas stabilization has been utilized. The cost for Alternative 4(b) is significantly higher (approximately 100 percent) than for stabilization.

Alternative 4(c): In-situ Vitrification

This alternative involves a process in which electricity is passed through electrodes placed in the ground, heating and melting the soil, and forming an inert, glass-like product. This alternative would take the longest period of time to implement of the three treatment alternatives and would cost significantly more (approximately 32 percent) than stabilization. A limitation of in-situ vitrification is the capacity of the off-gas system to handle the combustion products of the battery casing fragments. This technology would require pilot-scale testing prior to full scale operation since this technology has not been typically applied to soils with high inorganic contamination. The vitrification process would require approximately 4 megawatts of power to generate the high temperatures needed to melt the soils which creates another safety concern.

Alternative 5(a) Stabilization; 5(b) Soil Washing; and 5(c) In-situ Vitrification with Offsite Disposal of Residual Contamination above 120 mg/kg Lead in Sanitary/Industrial Waste Landfill

The three treatment alternatives listed under Alternative 5 involve the same respective treatment processes associated with Alternative 4 with the additional removal and offsite disposal of soils which have lead values between 120 mg/kg and 1,000 mg/kg.

These alternatives would not involve any additional treatment of the soils in this range and would not afford any significant increase of protection to human health and the environment than would Alternative 4(a). Alternative 5 would also cause a significant increase in cost for each of the treatment alternatives.

XII. STATUTORY DETERMINATIONS

The Selected Remedial Action which was previously outlined satisfies the remedy selection requirements of CERCLA and the NCP. The remedy provides protection of human health and the environment, achieves compliance with applicable or relevant and appropriate requirements, utilizes permanent solutions to the maximum extent practicable, is cost effective, and satisfies the statutory preference for treatment as a principal element.

Protection of Human Health and the Environment

The Selected Remedial Action protects human health and the environment through the treatment of contaminated soils and sediments in the drainage ditch with offsite disposal of stabilized material. The soils and sediments will be stabilized in order to eliminate the threat of exposure from direct contact, ingestion or inhalation. In addition, no risks are anticipated from the soils left onsite containing lead between 120 mg/kg and

1000 mg/kg since these soils will be covered with a soil and vegetative cap. This cap will eliminate all routes of exposure to the lead. There are no short-term threats associated with the selected remedy that cannot be readily controlled using established construction methods. Evaluation of alternatives for land use restrictions will be accomplished during remedial design and remedial action.

Compliance with Applicable or Relevant and Appropriate Requirements

The selected remedy will comply with all applicable or relevant and appropriate chemical-, action-, and location-specific ARARs as described below and shown in Table 8.

- Action-Specific ARARs - RCRA Subtitle C closure requirements (40 CFR Part 264 Subpart G) will be met for the former acid pond area. Materials transported off Site will meet EPA offsite disposal policy and comply with DOT regulations (40 CFR Parts 262 and 263, 49 CFR Part 107, 171-179) and VHWMR (VR 672-10-1) for material transport. During Site excavation and treatment, air monitoring will be performed to ensure that any air emissions comply with Federal and state air pollution control laws and regulations, and OSHA (29 CFR Parts 1910, 1926, and 1904) requirements will be met for workers engaged in remedial activities. Wastes treated by stabilization will be tested to confirm that the treated waste is not hazardous and meets BDAT requirements to be established in May 1990, before being disposed of at an approved facility. Excavation activities shall be in compliance with the Virginia Erosion and Sediment Control Law, Virginia Code Section 21-89.1 et. seq.

- Chemical-Specific ARARs - Air emissions during remedial activities will be monitored for compliance with Clean Air Act (40 CFR Parts 50 and 60) and Virginia rules and

TABLE 8

SUMMARY MATRIX FOR ALTERNATIVE COMPARISON
C&R BATTERY SITE, CHESTERFIELD COUNTY, VIRGINIA

Alternative 1 No Action	Alternative 2 RCRA Cap-120 mg/kg Action Level	Alternative 4 Onsite Treatment-1,000 mg/kg Action Level, Soil Cover Over Residual Contamination(1)	Alternative 5 Onsite Treatment-1,000 mg/kg Action Level, Offsite Disposal of Residual Contamination (1) in Industrial (2) Waste Landfill
COMPLIANCE WITH ARARs: CONTAMINANT-SPECIFIC			
None applicable.	Fugitive emissions during remedial action must comply with: • Clean Air Act • Virginia Air Pollution Regulations	Fugitive emissions during remedial action must comply with: • Clean Air Act • Virginia Air Pollution Regulations Discharges to surface waters must comply with: • Virginia Water Quality Standards	Fugitive emissions during remedial action must comply with: • Clean Air Act • Virginia Air Pollution Regulations Discharges to surface waters must comply with: • Virginia Water Quality Standards
COMPLIANCE WITH ARARs: LOCATION-SPECIFIC			
None applicable.	None applicable.	Air emissions and surface water discharge must comply with: • Endangered Species Act of 1978 • Fish and Wildlife Coordination Act • Fish and Wildlife Improvement Act of 1978 • Fish and Wildlife Conservation Act of 1980	Air emissions and surface water discharge must comply with: • Endangered Species Act of 1978 • Fish and Wildlife Coordination Act • Fish and Wildlife Improvement Act of 1978 • Fish and Wildlife Conservation Act of 1980

TABLE 8
SUMMARY MATRIX FOR ALTERNATIVE COMPARISON
C&R BATTERY SITE, CHESTERFIELD COUNTY, VIRGINIA
PAGE TWO

Alternative 1 No Action	Alternative 2 RCRA Cap-120 mg/kg Action Level	Alternative 4 Onsite Treatment-1,000 mg/kg Action Level, Soil Cover Over Residual Contamination(1)	Alternative 5 Onsite Treatment-1,000 mg/kg Action Level, Offsite Disposal of Residual Contamination (1) in Industrial (2) Waste Landfill
COMPLIANCE WITH ARARs: ACTION-SPECIFIC			
Does not comply with RCRA clean closure or landfill closure requirements (40 CFR Part 264, Subpart G).	Complies with RCRA landfill closure requirement (40CFR Part 264, Subpart G). Worker protection during onsite activities must comply with OSHA health and safety requirements. Offsite transportation must comply with: • RCRA hazardous waste generator and transportation regulations. • Federal and state DOT transportation regulations.	Complies with RCRA clean closure requirement (40CFR Part 264, Subpart G) for acid pond area. Hybrid (soil cover) closure for residual contamination outside acid pond area. Worker protection during onsite activities must comply with OSHA health and safety requirements. Offsite transportation must comply with: • RCRA hazardous waste generator and transportation regulations. • Federal and state DOT transportation regulations. Onsite treatment must comply with RCRA and state TSDF operating standards.	Complies with RCRA clean closure requirement (40 CFR Part 264, Subpart G) (Alternatives 5a and 5b). Complies with RCRA landfill closure requirements (40 CFR Part 264, Subpart G) (Alternative 5c). Worker protection during onsite activities must comply with OSHA health and safety requirements. Offsite transportation must comply with: • RCRA hazardous waste generator and transportation regulations. • Federal and state DOT transportation regulations. Onsite treatment must comply with RCRA and state TSDF operating standards.

Alternative 1 No Action	Alternative 2 RCRA Cap-120 mg/kg Action Level	Alternative 4 Onsite Treatment-1,000 mg/kg Action Level, Soil Cover Over Residual Contamination(1)	Alternative 5 Onsite Treatment-1,000 mg/kg Action Level, Offsite Disposal of Residual Contamination (1) in Industrial (2) Waste Landfill
COMPLIANCE WITH ARARs: ACTION-SPECIFIC (Continued)			
		Onsite surface water discharge must comply with: • Clean Water Act NPDES discharge regulations. • Virginia NPDES discharge regulations. Excavated soil that is "placed" must comply with RCRA Land Disposal Restrictions (40 CFR Part 268). Treatment/disposal facilities must comply with RCRA and state TSDF operating standards if untreated soil is transported to a hazardous waste landfill for treatment and disposal. If treated soil is shipped to a sanitary/industrial waste landfill, the facility must comply with RCRA and state regulations for sanitary/industrial waste landfills.	Onsite surface water discharge must comply with: • Clean Water Act NPDES discharge regulations. • Virginia NPDES discharge regulations. Excavated soil that is "placed" must comply with RCRA Land Disposal Restrictions (40 CFR Part 268). Treatment/disposal facilities must comply with RCRA and state TSDF operating standards if untreated soil is transported to a hazardous waste landfill for treatment and disposal. If treated soil is shipped to a sanitary/industrial waste landfill, the facility must comply with RCRA and state regulations for sanitary/industrial waste landfills.

regulations (Virginia Air Pollution Regulations Chapter 120, Parts I-VIII). The air standards most applicable to the soils are NAAQ standards for lead and particulate matter. If these limits are exceeded, dust suppressants must be applied to control fugitive dust emissions.

- Location-Specific ARARs - None.

- Other Criteria, Advisories, or Guidance to be Considered - In developing risk-based cleanup levels, EPA has used advisory levels and guidelines that are "to be considered" for the remedial actions. These are:

  - EPA-established action level of 500 to 1,000 mg/kg for lead (OSWER Directive Memorandum 09-07-89)
  - EPA carcinogenic potency factors to develop a risk-based cleanup level for arsenic

Cost Effectiveness

The present worth cost of Alternative 4(a) is $15,292,000. The selected remedy is cost effective because it provides overall protection in proportion to cost and meets all other requirements of CERCLA. Stabilization is 32 percent less than the cost of in-situ vitrification and is 49 percent less than the cost of soil washing which are the other treatment technologies available for this Site. The no-action alternative and the RCRA capping alternative can be implemented at lower costs but do not provide for permanent treatment and do not provide as effective a level of protection of human health and the environment. In addition, the no-action alternative does not meet ARARs.

Preference for Treatment as a Principal Element

The selected remedy satisfies the statutory preference for remedies that employ treatment as a principal element to

permanently reduce the volume, toxicity, or mobility of hazardous substances. By treating soils and sediments contaminated with lead and other inorganic metals using stabilization, the remedy addresses the principal threats posed by the Site through use of treatment technologies.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the selected remedial action represents the maximum extent to which permanent solutions and treatment technologies can be utilized while providing the best balance among the other evaluation criteria. Of these alternatives that are protective of human health and the environment and meet ARARs, the selected remedy provides the best balance of trade-offs in terms of long-term and short-term effectiveness and permanence; cost; implementability; reduction in toxicity, mobility, or volume through treatment; state and community acceptance, and preference for treatment of soils and sediments by using stabilization.

Stabilization addresses the principal threats posed by contaminants in soil and sediments, achieving a significant reduction in lead (97 percent). The remedy is protective of human health and the environment and is more cost effective than soil washing or in-situ vitrification.

RESPONSIVENESS SUMMARY
C&R BATTERY COMPANY, INC. SITE

1.0 OVERVIEW

As set forth in the Proposed Plan and newspaper notice issued in accordance with Section 117 of CERCLA, 42 U.S.C. Section 9617, in January 1990, the EPA identified a preferred alternative for the remediation of contaminated soils and sediments at the C&R Battery Company, Inc. Site (C&R Battery Site or Site) in Chesterfield County, Virginia. The preferred alternative specified in the Proposed Plan called for stabilization of contaminated soil and sediment and offsite disposal of the stabilized material in a sanitary/industrial waste landfill. Residual soil contamination would be covered with a soil cap. The EPA and the Commonwealth of Virginia have decided that no remedial actions are necessary for groundwater at this time.

Limited comments were received during the public comments period. One commenter expressed a preference for capping the soils in place, or if stabilization was implemented, disposal in a construction/demolition/debris landfill. No other comments regarding the preferred alternative were received. The Virginia Department of Waste Management and the Chesterfield County Planning Commission concur with the selected alternative. No comments were received from Potentially Responsible Parties (PRPs).

2.0 BACKGROUND ON COMMUNITY INVOLVEMENT

According to the information available from the files, from interviews with industrial neighbors of the C&R Battery Site, and from public input during the public comment period, there has been little community interest in the Site. This may be because the Site is located in an industrial area, and there are few nearby residences.

The only apparent community interest in the C&R Battery Site reflected in the files prior to remedial planning activities occurred in late 1979. According to letters in the files, the county was considering a C&R Battery request to rezone the Site. An out-of-state resident whose mother lived behind the Site contacted the county and expressed her concerns. During a visit

to her mother, she had noticed activities at the site and was concerned about contaminants migrating to the James River or washing into the river during flooding and about chemical- smelling smoke from fires on the site. Earlier, the family well and other wells in the area had been sampled; however, results of the sampling are unknown. At the time, one family whose well was sampled reported that the water was dark and stained the sink. Sampling conducted by EPA during the RI showed that residential wells are not affected by site contamination.

Except for this past concern, local and state officials reported that community awareness of the site is "virtually nonexistant." Further, there has been little public interest in the site. Although several environmental groups are active in the Richmond area, they have not registered concern at this time.

The media, however, have followed the site closely in the past. Details of the operations at C&R Battery were published during enforcement actions, and the actual levels of lead in the soil were announced when the emergency removal plans were made public. Media coverage has continued intermittently during the conduct of remedial planning activities.

3.0 SUMMARY OF COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD

Comments received during the C&R Battery Site public comment period on the Proposed Plan and during public meeting held February 7, 1990 are listed below. The comment period was held from January 25, 1990 to February 23, 1990.

1. One commentor at the public meeting inquired about future site ownership and long-term responsibility for the site.

   EPA RESPONSE: EPA's enforcement activities are ongoing, therefore responsibility for future maintenance has not yet been determined. During the enforcement process, EPA tries to identify PRPs and offers them the opportunity to perform the remedial action, including future maintenance. EPA can seek to have PRPs perform the work, or EPA can perform the work itself. EPA also tries to recover costs from the Potentially Responsible Parties.

2. One commentor asked whether dust suppression and air monitoring would be implemented during remedial action.

EPA Response: Both dust suppression and air monitoring will be implemented during construction and will continue through the conduct of the remedial action

3. One commenter inquired about groundwater contamination, while another commenter asked about residential well contamination.

EPA Response: Monitoring wells installed on Site show no levels of contaminants that cause concern. Likewise, residential well sampling showed no contamination. Ground water monitoring will continue during remedial action and at least until the first five-year review is conducted in accordance with Section 12 (c) of CERCLA, 42 U.S.C. 9621 (c).

4. Another commenter requested clarification of the type of landfill in which the stabilized soil will be disposed. In later correspondence, this commenter expressed a preference for disposal in construction/demolition/debris landfill, whereas the selected alternative calls for disposal in a sanitary/industrial waste or hazardous waste landfill. Another commenter strongly opposed disposal of the stabilized soil in a specified local landfill.

EPA Response: The disposal of the stabilized soil is governed by Federal and state regulations. The Commonwealth of Virginia has indicated that treated soils from a CERCLA site would not be permitted to be disposed in a construction/demolition/debris landfill. However, because the stabilization process will render the soil nonhazardous, disposal in a local sanitary/industrial waste landfill may be permitted. Any landfill chosen for disposal of the Site's stabilized soil must be in compliance with all appropriate Federal and state design and operating requirements.

APPENDIX F

Original (Red)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III

IN THE MATTER OF:	
C & R BATTERY COMPANY SUPERFUND SITE; BELLWOOD ROAD, CHESTERFIELD COUNTY, VIRGINIA	
BATTERY BARN OF VIRGINIA, INC., CAROLINA TIRE & BATTERY, INC., CAROLINA BATTERY & TIRE AND STEVE PALAMARIS, SOLE PROPRIETOR, CHESAPEAKE AND POTOMAC TELEPHONE COMPANY OF VIRGINIA, INC., GUTTERMAN IRON & METAL, INC., JOE DECKER COMPANY, INC., MASTER METALS, INC., MIDWEST CORPORATION, MOTT ENTERPRISES, INC. formerly FRANK H. MOTT COMPANY, PEANUT CITY IRON & METAL, INC., PECK METAL & RECYCLING, INC., POCKET MONEY RECYCLING COMPANY, RAMSEY IRON & METAL, INC., REGENCY BATTERY COMPANY, AND JAMES W. HOBBS, II, SOLE PROPRIETOR, SMITH IRON & METAL COMPANY, INC., TT & E IRON & METAL COMPANY, INC., VIRGINIA IRON & METAL, INC., ZACHARIAS BROTHERS, A VIRGINIA GENERAL PARTNERSHIP, EDWARD A. ZACHARIAS, WILLIAM K. ZACHARIAS Respondents	Docket No. III-92-17-DC
Proceeding Under Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9606, as amended by the Superfund Amendments and Reauthorization Act of 1986.	I hereby certify that the within is a true and correct copy of the original Administrative Order filed in this matter. Lydia Chabot Attorney for EPA, Region III

ADMINISTRATIVE ORDER

(Red)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III

IN THE MATTER OF:	:	
	:	
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SUPERFUND SITE; BELLWOOD ROAD,	:	
CHESTERFIELD COUNTY, VIRGINIA	:	
	:	
BATTERY BARN OF VIRGINIA, INC.,	:	Docket No. III-92-17-DC
CAROLINA TIRE & BATTERY, INC.,	:	
CAROLINA BATTERY TIRE AND STEVE	:	
PALAMARIS, SOLE PROPRIETOR,	:	
CHESAPEAKE AND POTOMAC TELEPHONE	:	
COMPANY OF VIRGINIA, INC.,	:	
GUTTERMAN IRON & METAL, INC.,	:	
JOE DECKER COMPANY, INC.,	:	
MASTER METALS, INC.,	:	
MIDWEST CORPORATION,	:	
MOTT ENTERPRISES, INC. formerly	:	
FRANK H. MOTT COMPANY,	:	
PEANUT CITY IRON & METAL, INC.,	:	
PECK METAL & RECYCLING, INC.,	:	
POCKET MONEY RECYCLING COMPANY,	:	
RAMSEY IRON & METAL, INC.,	:	
REGENCY BATTERY COMPANY, AND JAMES	:	
W. ROBBS, II, SOLE PROPRIETOR,	:	
SMITH IRON & METAL COMPANY, INC.,	:	
TT & E IRON & METAL COMPANY, INC.,	:	
VIRGINIA IRON & METAL, INC.,	:	
ZACHARIAS BROTHERS, A VIRGINIA	:	
GENERAL PARTNERSHIP,	:	
EDWARD A. ZACHARIAS,	:	
WILLIAM K. ZACHARIAS	:	
Respondents	:	
	:	
Proceeding Under Section 106 of	:	
the Comprehensive Environmental	:	
Response, Compensation, and	:	
Liability Act of 1980, 42 U.S.C.	:	
§ 9606, as amended by the Super-	:	
fund Amendments and Reauthoriza-	:	
tion Act of 1986.	:	

ADMINISTRATIVE ORDER

Having determined the necessity for implementation of remedial response activities at the C & R Battery Company Superfund Site located in Chesterfield County, Virginia,

["Site"], the United States Environmental Protection Agency ["EPA"] hereby Orders as follows:

I. JURISDICTION

A. This Administrative Order ["Order"] is issued pursuant to the authority vested in the President of the United States by section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9606, as amended ["CERCLA"], and delegated to the Administrator of EPA by Executive Order No. 12580 [52 Fed. Reg. 2923 (January 29, 1987)], and further delegated to the Regional Administrators of EPA by EPA Delegation No. 14-14-B (September 13, 1987).

B. Prior notice of issuance of this Order has been given to the Commonwealth of Virginia pursuant to section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

II. PARTIES BOUND

A. This Order is issued to Battery Barn of Virginia, Inc., Carolina Tire & Battery, Inc., Chesapeake and Potomac Telephone Company of Virginia, Inc., Gutterman Iron & Metal, Inc., Joe Decker Company, Inc., Master Metals, Inc., Midwest Corporation, Nott Enterprises, Inc. formerly Frank H. Nott, Inc., Peanut City Iron & Metal, Inc., Peck Metal & Recycling, Inc., Pocket Money Recycling Company, Ramsey Iron & Metal, Inc., James W. Hobbs, II trading as, Regency Battery Company, Smith Iron & Metal Company,

Inc., TT & E Iron & Metal Company, Inc., Virginia Iron & Metal, Inc., Zacharias Brothers, a Virginia general partnership, Edward A. Zacharias and William K. Zacharias, ["Respondents"].

B. This Order shall apply to and be binding upon the Respondents and their agents, successors, and assigns.

C. No change in ownership of any property covered by this Order, or in corporate or partnership status of any Respondent, shall in any way alter, diminish, or otherwise affect Respondents' obligations and responsibilities under this Order.

D. In the event of any change in ownership or control of any Respondent, such Respondent shall notify EPA, in writing, no later than thirty (30) days after such change, of the nature and effective date of such change. Such Respondent shall provide a copy of this Order to its successor(s) before any change becomes irrevocable.

E. Respondents shall provide a copy of this Order to each contractor hired to perform the Work (as defined below) required by this Order and to each person representing Respondents with respect to the Site or the Work and shall condition all contracts regarding Work under this Order upon performance of the Work in conformity with the terms of this Order. Respondents shall require that its contractor(s) provide written notice of this Order to all subcontractors hired to perform any portion of the Work required by this Order. Respondents shall remain responsible for ensuring that their contractors and

subcontractors perform the Work contemplated herein in accordance with this Order. Unacceptable performance by Respondents' contractors or subcontractors shall not excuse Respondents from any obligations of this Order. With regard to the activities undertaken pursuant to this Order, each contractor and subcontractor shall be deemed to be in a contractual relationship with the Respondents within the meaning of section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

F. Respondents are jointly and severally responsible for implementing all of the requirements of this Order. The success or failure by any one of the Respondents to comply with all or any part of this Order shall not in any way excuse or justify noncompliance by the other Respondents.

IV. FINDINGS OF FACT

A. Description of the C & R Battery Site

1. The C & R Battery site is located in an industrial area in Chesterfield County, Virginia, approximately 6 miles southeast of Richmond, Virginia. The Site is further described in a Record of Decision ["ROD"] (attached hereto as Appendix A) issued by EPA on March 30, 1990.

2. The site, which is approximately 11 acres, is rectangular in shape and is bordered on the north, south and west by open fields and woods. The C & R Battery Company, Inc., business was located on a 4.5 acre tract of land on the north

side of Bellwood Road, approximately 3,800 feet east of Interstate 95. A small fuel-oil distributor, Capitol Oil Company, borders the site on the east. Water supplies for business, industrial and residential usage within one mile of the site are provided by groundwater sources. The site is situated in an area which drains directly into the James River, located approximately 630 feet north of the Site.

3. Physiographically, the site is situated at the western edge of the Atlantic Coastal Plain within the reworked flood plain of the James River. Sediments which have been deposited in this area are comprised of clays, sand, and gravel. Surficial materials at the Site consist of varying depths (1 to 10 inches) of crushed stone, plastic battery casing materials, sandy clay, and, in the central portion of the Site, a 6 inch thick concrete slab. The site is underlain by mottled clay, glauconitic sands, and marl, followed by a thick basal quartz sand indentified as the Cretaceous Age Potomac Formation.

4. The site housed a battery processing shredder (breaker) designed to separate and recover lead from discarded automobile and truck batteries (C & R Battery Company, Inc.). The battery breaker, located within the south central portion of the lot, was a mobile unit. Operations were moved throughout the site.

B. <u>History of Operations at the Site</u>

1. The 4.5 acre parcel on which the battery breaker was

situated is currently under the ownership of the Zacharias Brothers, a Virginia general partnership in Richmond, Virginia. From as early as 1973 to 1985, Mr. Charles Guyton leased the property from Capitol Oil Company, which is owned by Edward A. and William K. Zacharias, and ran a battery recycling operation at the Site under the name of C & R Battery Company, Inc. Prior to 1970, the site had no specific use and was described by the owners as a wooded vacant lot.

2. The C&R Battery Company, Inc. was a battery-sawing and shredding facility designed to recover lead from discarded automobile and truck batteries. The site received bulk shipments of discarded batteries. The first step in recycling was to cut the tops of the batteries open and drain the battery acids into on-site acid storage/containment ponds located within the central area of the site, adjacent to the battery breaker. The batteries were then broken open and the lead and lead compounds were recovered and stockpiled on the site. Typically, the plates were removed and the battery hulls and tops were placed into a crusher. Crushed battery casings have been observed on the site and buried throughout the site. Several hundred nickel/cadmium (Ni/Cd) batteries are stacked on pallets in the southeast corner of the site. Stockpile areas are located just west and north of the battery breaker. Product and waste generated by the operation included lead sulfide, lead, plastic battery casing materials, and sulfuric acid. The battery breaker, reclaimed

materials and all other related activities and equipment were confined to a single area of approximately 4.5 acres.

C. Response Actions Performed at the Site

1. The Virginia State Water Control Board (VA SWCB) began monitoring the site in the late 1970's. The VA SWCB conducted several rounds of sampling for lead in soil, surface water, and groundwater. Results of theses sampling events revealed elevated levels of lead in all media. Several reclamation plans were proposed and permit applications were submitted by the site operator, but Commonwealth of Virginia approval was never granted for such plans or permit applications.

2. In 1979, VA SWCB conducted a soil sampling program at the site. The data indicated that lead was present at concentrations up to 16,000 milligrams per kilogram (mg/kg or ppm). The pH of the soils ranged from 3.3 to 6.5. Additional contaminants such as arsenic, chromium, copper, nickel, and mercury were reported. Between 1980 and 1986, VA SWCB periodically collected surface water samples from standing water in the on-site drainage ditch and from an upstream location along Bellwood Road. During concurrent surface water sampling events, lead concentrations in the on-site drainage ditch were greater than those in the upstream sample. Between 1980 and 1986, lead in the upstream samples ranged from 0.117 to 1.899 milligrams per liter (mg/L or ppm), with a pH range of 5.5 to 6.2. Lead in the on-site drainage ditch samples ranged from 1.0 to 3.5 mg/l, with

a pH range of 0.4 to 6.0. These concentrations exceed the chronic and acute Federal Ambient Water Quality Criteria (fresh water) for lead of 3.2 micrograms per liter (ug/l) and 83 ug/l, respectively.

3. The Virginia Occupational Safety and Health Administration (VA OSHA) first inspected the site in 1983 while the battery processing facility was still in operation. Air monitoring by VA OSHA of the breathing zone at several work stations within the facility measured lead at concentrations up to 112 ug/m^3, well above the existing OSHA standard of 50 ug/m^3. Between 1978 and 1983, several cases of lead intoxication had been reported by physicians of site employees. VA OSHA physicians detected elevated levels of lead in site employees' blood.

4. On February 24, 1986, EPA's Field Investigation Team ("FIT") conducted a Site Investigation of local groundwater, surface water and soil contamination. On-site soil samples revealed levels of lead as high as 63,000 mg/kg.

5. In response to potential health concerns, EPA conducted a removal action at the site pursuant to section 104 of CERCLA, 42 U.S.C. § 9604, in the summer of 1986. After verifying the presence of elevated concentrations of several metals in the soils and sediments at the site, the following actions were taken:

a. EPA removed acidic liquid from on-site

lagoon(s), neutralized the liquid and discharged it into ditches on site.

b. Lagoon sludge was blended with lime and subsequently returned to the lagoon.

c. Contaminated soils were disked and mixed with lime to a depth of approximately 2 feet. When intact batteries were found in the northern portion of the site, lime was applied only to surface soils in this area.

d. Shredded battery casings, contaminated soil, and debris encountered east of the drainage ditch was brought back on-site and remain on site in debris piles. The excavated area was backfilled to reduce hazards to Capitol Oil Company employees.

e. The drainage ditch was graded and rock riprap channels and dams were installed to reduce erosion.

f. A six-foot-high, chain link fence was installed inside the tree line to minimize the potential for direct contact with contaminated materials onsite.

6. Pursuant to section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the site on the CERCLA National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register at 52 Fed. Reg. 27620 (July 22, 1987).

7. EPA began a Remedial Investigation/Feasibility Study (RI/FS) for the C & R Battery site in August 1988. Media, including soils, sediment and surface water, which contain

hazardous substances and present a potential threat to human health and the environment include:

(a) Former Acid Pond Area. The acid pond area is approximately 1/4 acre in size and was used during the operation of the site to hold the discharged sulfuric acid from the batteries. Chemical analysis of the soils in this area revealed the highest concentrations of lead found at the site, (greater than 12%) and lead concentrations exceeding the remedial action level of 1,000 mg/kg to the depth of 15 feet.

(b) Surface Soils. Inorganic compounds detected include high concentrations of lead and lesser concentrations of arsenic, cadmium and nickel.

(c) Subsurface Soils. During the RI/FS, the volume of subsurface soils (from depths of 0 to 15 feet) containing lead above background was estimated at 76,000 cubic yards. This soil contains approximately 990 tons of lead.

(d) Nickel/Cadmium Batteries. The nickel/cadmium (Ni/Cd) batteries present at the site consisted of a stack of industrial type Ni/Cd batteries. The stack contained an estimated 350 batteries with an estimated weight of approximately 7,000 pounds.

(e) Drainage Ditch/Sediments. Sediments in the drainage ditch along the site were found to contain high concentrations of lead exceeding the action level of 450 mg/kg as described in the ROD which is set forth at Appendix A. The estimated volume of contaminated sediment exceeding the action level of 450 mg/kg and

assuming an average depth of contamination of 6 inches is 350 cubic yards. The average lead concentration in the on-site sediments is 3,618 mg/kg, and the estimated total amount of lead contained in the sediments is 1.8 tons. Antimony and nickel were detected in lesser concentrations within a range that poses only minimal risk.

D. The Record of Decision

1. Pursuant to section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice in the Richmond Times Dispatch of the proposed plan for remedial action on January 25, 1990 and provided an opportunity for written and oral comments from the public on the proposed remedial action. The major components of the Proposed Remedial Action Plan include:

(a) Excavation of surface and subsurface soil containing lead above the 1,000 mg/kg action level and sediments above the 450 mg/kg action levels, treating them with a stabilization process, and then disposing of the soils in an off-site RCRA approved landfill;

(b) Excavation of drainage ditch sediments containing lead above the 450 mg/kg action level;

(c) Excavation of surface and subsurface soils in the former acid pond area containing lead above background to meet Resource Conservation and Recovery Act Clean Closure requirements set forth at 40 C.F.R. Part 264, Subpart G.

(d) Stabilization of an estimated 36,800 cubic yards of

excavated soil, sediments, and debris piles;

(e) Treating soils, sediment and debris pile material with a stabilization process, and then disposing of the stabilized material in a Commonwealth of Virginia approved industrial/sanitary waste landfill;

(f) Hybrid closure of the excavated areas by backfilling with soil and placement of a layer of topsoil (approximately 6 inches) followed by revegitation over all areas having lead levels above background and below the 1,000 mg/kg level;

(g) Removal, treatment and disposal of the on-site nickel/cadmium batteries in an approved RCRA facility.

2. The decision by EPA on the remedial action to be implemented at the site is embodied in a Final Record of Decision ("ROD"), executed on March 30, 1990, on which the Commonwealth of Virginia had given its concurrence. The ROD includes a summary of responses to the public comments. Notice of the final ROD was published in accordance with section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

E. Hazardous Substances Identified in the ROD

1. The following substances, among others, were found in the former acid pond area, surface soils, subsurface soils, sediments, and drainage ditch/surface waters, at the site and are "hazardous substances" within the meaning of section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and can be found at 40 C.F.R. Part 302, Table 302.4:

(a) Arsenic. Arsenic has been implicated in the existence of skin cancer in humans. There is evidence that inhalation of arsenic compounds causes lung cancer in workers. It has been reported to be teratogenic, fetotoxic, and embryotoxic in several animal species, and an increased incidence of multiple malformations has been reported among children born to women occupationally exposed to arsenic.

(b) Antimony. Antimony production has been associated with an increase in lung cancer among exposed workers. Among the effects on reproduction reported for humans are impairments to the female reproductive system. Cardiovascular changes associated with exposure to antimony represent a serious health effect. Exposure to either trivalent or pentavalent antimonial compounds can produce electrocardiogram (ECG) changes in humans. Histopathological evidence of cardiac edema, myocardial fibrosis, and other signs of myocardial structural damage indicates that antimony may produce even more severe, possibly permanent myocardial damage in humans.

(c) Cadmium. There is evidence linking cadmium with cancer of the prostate in humans. In animal studies, inhalation exposure to cadmium caused lung tumors in rats, and exposure by injection produced injection-site sarcoma and/or Leydig-cell tumors. Cadmium is a known animal teratogen and reproductive toxin. It has been shown to cause renal dysfunction in both humans and animals. Other toxic effects attributed to cadmium

include immunosuppression (in animals), anemia (in humans), pulmonary disease (in humans), possible effects on the endocrine system, defects in sensory function, and bone damage in humans.

(d) Lead. There is evidence that several lead salts (lead chloride is used to test the effect of lead in laboratory animals) are carcinogenic in mice or rats causing tumors of the kidneys after either oral or parenteral administration. Exposure of humans or experimental animals to lead can result in toxic effects in the brain and central nervous system, the peripheral nervous system, the kidneys, and the hematopoietic system. Chronic exposure to inorganic lead by ingestion or inhalation can cause lead encephalopathy, and severe cases can result in permanent brain damage. Lead poisoning may cause peripheral neuropathy in adults and children, and permanent learning disabilities that are clinically undetectable in children may be caused by exposure to relatively low levels of lead.

(e) Nickel. The nickel compounds that have been implicated as having carcinogenic potential are insoluble dusts of nickel subsulfide and nickel oxides, the vapor of nickel carbonyl, and soluble aerosols of nickel sulfate, nitrate, or chloride. Inhalation studies with experimental animals suggest that nickel subsulfide and nickel carbonyl are carcinogenic in rats. Studies with experimental animals indicate that nickel compounds can also produce various types of malignant tumors in experimental animals after administration by other routes,

including subcutaneous, intramuscular, implantation, intravenous, intrarenal, and intrapleural.

(f) Zinc. Zinc is an essential trace element that is involved in enzyme functions, protein synthesis, and carbohydrate metabolism. Ingestion of excessive amounts of zinc, however, may cause fever, vomiting, stomach cramps, and diarrhea. Fumes of freshly formed zinc oxide can penetrate deep into the alveoli and cause metal fume fever. Inhalation of mists or fumes may irritate the respiratory and gastrointestinal tracts. Zinc in excess of 0.25 percent in the diet of rats causes growth retardation, hypochromic anemia, and defective mineralization of bone. No zinc toxicity is observed at dietary levels below 0.25 percent.

F. Description of Respondents

1. Battery Barn of Virginia, Inc.

(a) Respondent Battery Barn of Virginia, Inc. is a corporation incorporated under the laws of the Commonwealth of Virginia on June 12, 1987. The business started in 1981 as a sole proprietorship owned by David Cunningham.

(b) Between 1981 and 1985, Respondent Battery Barn of Virginia, Inc. sent approximately 494,120 pounds of batteries to the site.

(c) The C & R Battery Company, Inc. was a battery breaking, sawing and shredding facility designed to recover lead from discarded auto and truck batteries. The company received

ORIGINAL (Red)

bulk shipments of discarded batteries. The first step in recycling was to cut the tops of the batteries open and drain the battery acids into on-site acid storage/containment ponds located within the central area of the site, adjacent to the battery breaker. The batteries were then broken open and the lead and lead compounds were recovered and stockpiled on the site. Typically, the plates were removed and the battery hulls and tops were placed into a crusher. Crushed battery casings were buried throughout the site. Several hundred industrial nickel/cadmium (Ni/Cd) batteries were stacked on pallets in the southeast corner of the site. Stockpile areas are located just west and north of the battery breaker. Product and waste generated by the operation included lead sulfide, lead, plastic battery casing materials, and sulfuric acid.

(d) A lead acid storage battery consists of positive and negative electrodes, or plates, dipped into partly diluted sulfuric acid. The electrodes, or plates, consist of two parts: (1) an inactive lead grid, which provides mechanical support for the active portion (the plate) and a conductive path for the electrical current, and (2) a lead oxide sulfate paste, which is applied and bonded to the grids.

The positive electrode, or cathode, consists of pure lead dioxide and the negative electrode, or anode, is a grid of metallic lead containing various elemental additives including antimony, arsenic, cadmium, nickel, and zinc. Both the anode and

the cathode are converted to lead sulfate when the battery is discharging. The primary function of these additives in the lead anode is to increase anode hardness.

The active materials for the positive (lead dioxide) and negative plates (lead) are prepared from lead oxides in combination with finely divided metallic lead. The desired effect of the lead oxide is to enhance battery capacity and life. In some instances, nickel or cobalt may be added as charge voltage depressants for certain types of automotive batteries. Car, truck and industrial types of batteries contain lead, antimony, arsenic, cadmium, zinc and nickel.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Battery Barn of Virginia, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

2. <u>Carolina Tire & Battery, Inc.</u>

(a) Respondent Carolina Tire & Batttery, Inc. is a corporation incorporated under the laws of North Carolina on May 1, 1991. The business started in 1975 under the name Carolina Battery & Tire as a sole proprietorship and was owned by Steve Palamaris. Respondent Carolina Tire & Battery, Inc. is liable as

a successor to Carolina Battery & tire. In addition, a sole proprietor bears the liability attributed to his business. H. Henn, Laws of Corporation, and Other Business Enterprises, pp. 57-58 (1983). Thus, Steve Palamaris also bears the liability of Carolina Battery & Tire.

(b) Between 1975 and 1985, Respondent Carolina Tire & Battery, Inc. or its predecessor sent approximately 535,480 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous subetances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Carolina Tire & Battery, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

3. Chesapeake and Potomac Telephone Company of Virginia, Inc.

a) Respondent Chesapeake and Potomac Telephone Company of Virginia, Inc. is a corporation incorporated under the laws of

the Commonwealth of Virginia on February 11, 1905.

(b) Between 1970 and 1985, Respondent Chesapeake and Potomac Telephone Company of Virginia, Inc. sent approximately 719,690 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Chesapeake and Potomac Telephone Company of Virginia, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

4. Gutterman Iron & Metal, Inc.

(a) Respondent Gutterman Iron & Metal, Inc. is a corporation incorporated under the laws of the Commonwealth of Virginia on March 20, 1956.

(b) Between 1970 and 1985, Respondent Gutterman Iron & Metal, Inc. sent approximately 956,790 pounds of batteries to th

site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Gutterman Iron & Metal, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

5. <u>Joe Decker Company, Inc.</u>

(a) Respondent Joe Decker Company, Inc. is a corporation incorporated under the laws of the Commonwealth of Virginia on July 14, 1959.

(b) Between 1970 and 1985, Respondent Joe Decker Company, Inc. sent approximately 678,170 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

ORIGINAL (Red).

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Joe Decker Company, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

6. Master Metals, Inc.

(a) Respondent Master Metals, Inc. is a corporation incorporated under the laws of the State of Ohio on June 25, 1979.

(b) Between 1970 and 1985, Respondent Master Metals, Inc. sent approximately 821,014 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous subetances as defined by section 101(14) of CERCL

42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Master Metals, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

7. Midwest Corporation.

(a) Respondent Midwest Corporation is a corporation incorporated under the laws of the State of West Virginia on March 17, 1947.

(b) Between 1970 and 1985, Respondent Midwest Corporation sent approximately 667,030 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Midwest Corporation's batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

8. Nott Enterprises, Inc. formerly Frank H. Nott, Inc.

(a) Respondent Nott Enterprises, Inc. is a corporation incorporated under the laws of the Commonwealth of Virginia on April 27, 1940.

(b) Between 1970 and 1985, Respondent Nott Enterprises, Inc. sent approximately 845,602 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Nott Enterprises, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

9. Peanut City Iron & Metal, Inc.

(a) Respondent Peanut City Iron & Metal, Inc. is a corporation incorporated under the laws of the Commonwealth of Virginia on May 28, 1948.

(b) Between 1970 and 1985, Respondent Peanut City Iron & Metal, Inc. sent approximately 810,310 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Peanut City Iron & Metal, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

10. Peck Metal & Recycling, Inc.

(a) Respondent Peck Metal & Recycling, Inc. is a corporation incorporated under the laws of the Commonwealth of Virginia on August 23, 1946.

(b) Between 1970 and 1985, Respondent Peck Metal &

Recycling, Inc. sent approximately 4,537,884 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Peck Metal & Recycling, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

11. Pocket Money Recycling Company.

(a) Respondent Pocket Money Recycling Company is a corporation incorporated under the laws of the Commonwealth of Virginia on May 15, 1981.

(b) Between 1981 and 1985, Respondent Pocket Money Recycling Company sent approximately 523,940 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully s

forth in this subpart.

(d) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Pocket Money Recycling Company's batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

12. Ramsey Iron & Metal, Inc.

(a) Respondent Ramsey Iron & Metal, Inc. is a corporation incorporated under the laws of the Commonwealth of Virginia on January 11, 1977.

(b) Between 1977 and 1985, Respondent Ramsey Iron & Metal, Inc. sent approximately 664,900 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Ramsey Iron & Metal, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

13. Regency Battery Company and James W. Hobbs II, Sole Proprietor.

(a) Respondent Regency Battery Company is a sole proprietorship owned by James W. ("Bill") Hobbs, II. The business was started by James W. Hobbs, II in 1972 in Columbia, South Carolina. A sole proprietor bears the liability attributed to his business. H. Henn, Laws of Corporation, and Other Business Enterprises, pp. 57-58 (1983).

(b) Between 1970 and 1985, Respondent Regency Batteries Company sent approximately 495,530 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel

are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Regency Battery Company's batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

14. Smith Iron & Metal Company, Inc.

(a) Respondent Smith Iron & Metal Company, Inc. is a corporation incorporated under the laws of the Commonwealth of Virginia on March 1, 1965.

(b) Between 1970 and 1985, Respondent Smith Iron & Metal Company, Inc. sent approximately 2,174,700 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Smith Iron & Metal Company, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

15. TT & E Iron & Metal Company, Inc.

(a) Respondent TT & E Iron & Metal Company, Inc. is a corporation incorporated under the laws of North Carolina on May 2, 1975.

(b) Between 1975 and 1985, Respondent TT & E Iron & Metal Company, Inc. sent approximately 768,380 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the TT & E Iron & Metal Company, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

16. Virginia Iron & Metal, Inc.

(a) Respondent Virginia Iron & Metal, Inc. is a corporation incorporated under the laws of the Commonwealth of Virginia on January 9, 1968.

(b) Between 1970 and 1985, Respondent Virginia Iron & Metal, Inc. sent approximately 1,430,600 pounds of batteries to the site.

(c) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(d) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(e) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(f) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(g) EPA concludes, based on these facts, that the Virginia Iron & Metal, Inc.'s batteries disposed of at the site contained lead, antimony, arsenic, cadmium, zinc and nickel.

17. Zacharias Brothers, A Virginia General Partnership, Edward A. Zacharias and William K. Zacharias.

(a) Respondent Zacharias Brothers is a Virginia general partnership owned by Edward A. Zacharias and William K. Zacharias. The partnership began July 8, 1970 in the Commonwealth of Virginia.

(b) On October 1, 1973, the Zacharias Brothers purchased the site from William Doug Cole.

(c) From the end of 1973 until the middle of 1985, the Zacharias Brothers leased the site to Charles Guyton, the former operator of the C & R Battery Company, Inc.

(d) Pursuant to the Uniform Partnership Act, Title 50, Code of Virginia Section 50-15 of that Act, all partners are liable jointly and severally for everything chargeable to the partnership. Title 50 of the Uniform Partnership Act, does not specify whether it is essential to name the partnership as a defendant in a suit against the partners. Therefore, the rules of law and equity shall govern, and the common law rule prevails in Virginia which provides that when a suit was brought on a contract entered into with the firm, all of the parties must be joined either as plaintiffs or defendants, McCormack v. Romans, 214 Va. 144, 198 SE 2d. 651 (1973).

(e) The facts as set forth in subpart 1(c) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(f) The facts as set forth in subpart 1(d) of this Part III. F. are incorporated herein by reference as if fully set forth in this subpart.

(g) Lead, antimony, arsenic, cadmium, zinc and nickel are hazardous substances as defined by section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

(h) Lead, antimony, arsenic, cadmium, zinc and nickel were found at the site.

(i) EPA concludes, based on these facts, that the Zacharias Brothers, a Virginia general partnership, and Edward A. Zacharias and William K. Zacharias are owners within the meaning of section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1), and were owners at the time of disposal of hazardous substances within the meaning of section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2).

IV. CONCLUSIONS OF LAW AND DETERMINATIONS

A. The C & R Battery Company site is a "facility" as defined in section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

B. "Hazardous substances", as that term is defined in section 101(14) of CERCLA, 42 U.S.C. § 9601(14), have been disposed of, deposited, stored, placed, or otherwise come to be located on and remain at the site.

C. The hazardous substances at the site are being released, and threaten to be released, from the site into the environment and may present an imminent and substantial endangerment to the public health or welfare or the environment.

D. Each Respondent is a "person" within the meaning of section 101(21) of CERCLA, 42 U.S.C. § 9601(21), and is liable under section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

E. EPA has determined that in order to protect the public health and welfare and the environment, the actions described in

the Statement of Work (as defined below) must be undertaken to reduce or prevent the likelihood of current and future exposure to hazardous substances.

V. DEFINITIONS

Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meanings assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Order or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

1. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.

2. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

3. "Duly Authorized Representative" shall mean a person designated in accordance with the procedures set forth in 40 C.F.R. § 270.11(b).

4. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of

the United States.

5. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including, but not limited to, any amendments thereto.

6. "Operation and Maintenance" or "O & M" shall mean all activities required to maintain the effectiveness of the Remedial Action (as defined below) as required under the Operation and Maintenance Plan approved or developed by EPA pursuant to this Order.

7. "Order" shall mean this Order and all appendices attached hereto. In the event of conflict between the Order and any appendix, the Order shall control.

8. "Performance Standards" shall mean those cleanup standards, standards of control, and other substantive requirements, criteria or limitations that are used to determine whether the objectives of the ROD and this Order are being achieved and that are attached hereto as Appendix D.

9. "Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the C & R Battery Company, Inc. Superfund Site, signed by the Regional Administrator of EPA Region III on March 30, 1990 and set forth in Appendix A hereto, and all attachments thereto.

10. "Remedial Action" shall mean all activities, as defined

Certified

by section 101(24) of CERCLA, 42 U.S.C. § 9601(24), except for Remedial Design and Operation and Maintenance, that shall be undertaken by Respondents to implement both the Performance Standards and the Remedial Design Specifications developed by EPA for this site.

11. "Remedial Action Work Plan" shall mean a plan for Remedial Action, including a schedule for implementation of Remedial Action, that shall be submitted by Respondents and approved by EPA pursuant to section XIII (Plans and Reports Requiring EPA Approval) of this Order.

12. "Remedial Design Specifications" shall mean the document setting forth the specifications for Remedial Action for this site developed by EPA and set forth as Appendix C.

13. "Respondents" shall mean Battery Barn of Virginia, Inc., Carolina Tire & Battery, Inc., Chesapeake and Potomac Telephone Company of Virginia, Inc., Gutterman Iron & Metal, Inc., Joe Decker Company, Inc., Master Metals, Inc., Midwest Corporation, Nott Enterprises, Inc. formerly Frank E. Nott Company, Peanut City Iron & Metal, Inc., Peck Metal & Recycling, Inc., Pocket Money Recycling Company, Ramsey Iron & Metal, Inc., James W. Hobbs, II trading as, Regency Battery Company, Smith Iron & Metal Company, Inc., TT & E Iron & Metal Company, Inc., Virginia Iron & Metal, Inc., Zacharias Brothers, a Virginia general partnership, Edward A. Zacharias, and William K. Zacharias.

14. "Section" shall mean a portion of this Order identified

by a Roman numeral.

15. "Site" shall mean the C & R Battery Superfund Site, encompassing approximately 11 acres, located in an industrial area 6 miles southeast of Richmond, Virginia in Chesterfield County, Virginia and depicted more particularly on the map attached as Appendix B. Notwithstanding the site boundaries depicted in Appendix B, "Site" shall include all areas in which Waste Materials released from the site have migrated, and all suitable areas in very close proximity to the above areas necessary for the implementation of the Remedial Action.

16. "Supervising Contractor" shall mean the contractor retained by the Respondent to carry out the Work under this Order and accepted by EPA pursuant to Section VI.D of this Order.

17. "VA DWM" shall mean the Virginia Department of Waste Management and any successor departments or agencies of the Commonwealth.

18. "Waste Material" shall mean (1) any "hazardous substance" under section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under section 101(33) of CERCLA, 42 U.S.C. § 9601(33); or (3) any "solid waste" under section 1004(27) of the Resource Conservation and Recovery Act, 42 U.S.C. § 6903(27).

19. "Work" shall mean all activities Respondents are required to perform under this Order.

ORIGINAL (Red)

VI. WORK TO BE PERFORMED

A. General Statement of Requirements/Permits

1. Based on the foregoing, and the Administrative Record supporting the Order, it is hereby ordered that Respondents implement the work described in the Remedial Design Specifications attached hereto as Appendix C in accordance with that document; the ROD attached hereto as Appendix A in accordance with that document, CERCLA, the NCP and the requirements and schedules specified in this Order including, but not limited to, the Performance Standards (Appendix D). Nothing in this Order, the Remedial Design Specifications, or Remedial Action Work Plan constitutes a warranty or representation of any kind by EPA that compliance with this Order will achieve the Performance Standards or that such compliance will foreclose EPA from seeking compliance with all terms and conditions of this Order including, but not limited to, the Performance Standards.

2. All actions and activities carried out by Respondents pursuant to this Order shall be performed in compliance with all applicable Federal and state laws and with applicable EPA regulations, requirements and guidance documents (and any applicable amendments to such laws, regulations, requirements, and guidance documents which take effect during the pendency of the Order).

3. In the event EPA determines that Respondents have failed to implement any provision(s) of the Work in an adequate

or timely manner, or have otherwise violated this Order, EPA may exercise any and all rights it may have including but not limited to those expressly reserved in Section XIV (Reservation of Rights) of this Order.

4. Respondents shall obtain all permits and authorizations necessary for any off-site work and shall timely submit complete applications and requests for any such permits and authorizations. This Order is not, and shall not be construed to be, a permit issued pursuant to any Federal, State or local statute or regulation.

B. Notice of Order in Property Records

1. Within fifteen (15) days after the effective date of this Order, the Respondents shall record a certified copy of this Order with the Registry of Deeds, or other office where land ownership and transfer records are maintained, in such manner as shall be effective to bring this Order to the attention of any person examining or researching the state and/or quality of the title to the real property constituting the site or searching for any encumbrances, covenants, easements, liens, restrictions, or other limitations relating to said property.

2. Respondents shall, at least thirty (30) days prior to the conveyance of any interest in the property, give written notice of this Order to the grantee and written notice to EPA and the Commonwealth of Virginia of the proposed conveyance, including the name and address of the grantee, and the date on

which notice of the Order was given to the grantee. In the event of any such conveyance, the Respondents' obligations under this Order shall continue to be met by the Respondents. In addition, if EPA approves, the grantee may perform some or all of the Work under this Order. In no event shall the conveyance of an interest in property that includes, or is a portion of, the site release or otherwise affect the liability of the Respondent to comply with this Order.

C. Assurance of Ability to Complete Work/Insurance

1. Within thirty (30) days of the effective date of this Order, Respondents shall establish and maintain financial security in the amount of $ 15,600,000 in one of the following forms:

a. A surety bond guaranteeing performance of the Work;

b. One or more letters of credit;

c. A trust fund;

d. A guarantee to perform the Work by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with the Respondent; or

e. A demonstration that the Respondent satisfies the requirements of 40 C.F.R. § 264.143(f).

2. If the Respondents seeks to demonstrate the ability to complete the Work through a guarantee by a third party

pursuant to Section VI.C(1)(d) of this Order, Respondents shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. § 264.143(f). If Respondents seeks to demonstrate its ability to complete the Work by means of the financial test or the corporate guarantee, Respondents shall resubmit sworn statements conveying the information required by 40 C.F.R. § 264.143(f) annually, on the anniversary of the effective date of this Order. In the event that EPA, after a reasonable opportunity for review and comment by the Commonwealth of Virginia, determines at any time that the financial assurances provided pursuant to this Paragraph are inadequate, Respondents shall, within thirty days of receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance identified in Section VI.C(1) of this Order. Respondents' inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Order.

2. No later than fifteen (15) days before commencing any on-site Work, Respondents shall secure and maintain, or shall ensure that its Supervising Contractor, contractors, and subcontractors secure and maintain, until the first anniversary of EPA's certification of completion of the Remedial Action pursuant to Section XVII.A of this Order, comprehensive general liability insurance with limits of at least five million dollars, combined single limit, naming as additional insured the United

States. No later than fifteen (15) days after the effective date of this Order, Respondents shall secure automobile liability insurance with limits of $500,000 and shall maintain such insurance until the first anniversary of EPA's certification of completion of the Remedial Action pursuant to Section XVII.A of this Order. In addition, during the pendency of this Order, Respondents shall satisfy, and shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons retained to perform Work pursuant to this Order. Prior to commencement of on-site Work under this Order, Respondents shall provide to EPA certificates of comprehensive general liability and automobile insurance and a copy of each insurance policy. Respondents shall resubmit such certificates and copies of policies each year on the anniversary of the effective date of this Order. If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor retained to perform Work pursuant to this Order maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to matters so insured by that contractor or subcontractor, Respondents need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor. Respondents may satisfy the provisions of this Paragraph if Respondents submit to EPA for

approval one of the financial assurance mechanisms of Section VI.C(1) of this Order in at least the amounts stated in this Paragraph demonstrating that Respondents are able to pay any claims arising out of Respondents' performance of its obligations under this Order. Such financial assurance mechanism shall meet all of the requirements of Section VI.C(1) of this Order. If Respondents seek to provide financial assurances pursuant to Section VI.C(1) of this Order to satisfy the provisions of this Paragraph, Respondents must demonstrate an ability to pay above and beyond that required by the obligations of Section VI.C(1) of this Order.

D. Selection of Contractor(s).

1. All aspects of the Work to be performed by Respondents pursuant to this Order shall be under the direction and supervision of qualified personnel, the selection of which shall be subject to acceptance or disapproval by EPA.

2. Within ten (10) days after the effective date of this Order, Respondents shall notify EPA in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor. If at any time after acceptance by EPA of the Supervising Contractor, Respondents propose to change a Supervising Contractor, Respondents shall give notice of such proposed change to EPA and shall obtain acceptance of the selection from EPA before the new Supervising Contractor performs, directs, or supervises any Work under this Order.

3. EPA will notify Respondents in writing of its acceptance or disapproval of the selection of a proposed Supervising Contractor. If EPA disapproves of the selection of any contractor as Supervising Contractor, Respondents shall submit to EPA the names and qualifications of at least three contractors that would be acceptable to Respondents within thirty (30) days of receipt of EPA's disapproval of the selection of the contractor previously selected. EPA will provide written notice of the names of the contractor(s) that EPA accepts. Respondents may select any accepted contractor from that list and shall notify EPA of the name of the contractor selected within twenty-one (21) days of EPA's designation of accepted contractors.

1. Remedial Action Contractor(s).

(a) Within thirty (30) after the effective date of this Order, Respondents shall notify EPA in writing of the name, title, and qualifications of any contractor(s) and subcontractor(s) proposed to be used in carrying out the Remedial Action activities required by this Order. If at any time thereafter Respondents propose to change any such contractor(s) or subcontractor(s), Respondents shall give written notice to EPA and the Commonwealth of Virginia and shall obtain acceptance of the proposed change from EPA before the new contractor(s) or subcontractor(s) perform, direct, or supervise any Work under this Order.

(b) EPA will notify Respondents in writing of its

acceptance or disapproval of the proposed contractor(s) including subcontractor(s). If EPA disapproves of the selection of Respondents' proposed contractors, Respondents shall submit to EPA and the Commonwealth of Virginia the names and qualifications of at least three (3) contractors that would be acceptable to Respondents within fourteen (14) days of receipt of EPA's disapproval of the contractor(s) previously proposed. Except as provided below, EPA will provide written notice of the name of the contractor(s) that EPA accepts. Respondents may select any accepted contractor(s) from that list and shall notify EPA and the Commonwealth of Virginia of the name of the contractor(s) selected within fourteen (14) days of EPA's designation of accepted contractors. Within fourteen (14) days of receipt of EPA acceptance of the Respondents' contractor(s), Respondents shall enter into an agreement with such contractor(s) selected by Respondents to perform the Work for which such contractor(s) were approved by EPA. In the event EPA does not accept any of the contractor(s) proposed in the Respondents' list, Respondents shall be in violation of this Order. EPA may in such event direct Respondents to submit to EPA and the Commonwealth of Virginia the names and qualifications of at least three (3) additional contractors that would be acceptable to Respondents within fourteen (14) days of receipt of EPA's disapproval of the contractors proposed by Respondents.

(c) EPA retains the right to disapprove at any time

the contractor(s), including subcontractor(s), supervisory personnel, or other persons retained to conduct any of the Work required by this Order. In such event, Respondents shall propose replacements in accordance with the requirements of this Section.

(d) Neither the United States nor EPA shall be considered a party to any contract between or among Respondents to conduct Work required by this Order.

E. Remedial Action Work Plan.

1. Within 30 days of the effective date of this Order Respondents shall submit three (3) copies of a Remedial Action Work Plan to EPA for review and approval. The Remedial Action Work Plan shall be developed in accordance with the Performance Standards (Appendix D), shall be consistent with the Remedial Design Specifications, (Appendix C) and shall provide for implementation of the Performance Standards and all aspects of the remedy selected in the ROD. The Remedial Action Work Plan shall include methodologies, plans, and schedules for completion of the work required by this Order, including, at a minimum: (1) implementation of the Remedial Design Specifications; (2) implementation of the Construction Quality Assurance Plan ["CQAP"]; (3) identification of and satisfactory compliance with applicable permitting requirements; (4) implementation of the Operation and Maintenance Plan; (5) implementation of the Contingency Plan; and (6) the Site Health and Safety Plan. The Remedial Action Work Plan shall also include a schedule for

implementing all Remedial Action tasks identified in the Remedial Design Specifications and the Performance Standards (Appendices C and D). The Health and Safety Plan for field activities required by the Remedial Action Work Plan shall conform to applicable Occupational Safety and Health Administration and EPA regulations including, but not limited to, the regulations at 29 C.F.R. § 1910.120. Upon approval by EPA, the Remedial Action Work Plan should be incorporated into this Order as a requirement of the Order.

2. Not later than twenty-one (21) days after EPA's acceptance of Respondents' construction contractor in accordance with Section VI.D. of this Order, Respondents shall submit to EPA and the Commonwealth, for approval by EPA, a Construction Management Plan. The Construction Management Plan shall identify key personnel, their experience, their qualifications, and their responsibilities for construction activities, and shall include a detailed schedule for completing all construction activities. Upon approval by EPA, the Construction Management Plan shall be incorporated in, and become an enforceable part of, this Order.

3. Within forty-five (45) days after EPA approves the Construction Management Plan, Respondents shall begin on-site implementation of the Remedial Action. Upon approval of the Construction Management Plan, Respondents shall implement and comply with the schedules and terms of all requirements relating to Remedial Action including the Remedial Action Work Plan and

the Construction Management Plan.

F. Remedial Action.

1. Upon approval of the Remedial Action Work Plan by EPA, Respondents shall implement the Remedial Action Work Plan according to the schedules and methodologies contained therein. Unless otherwise directed by EPA or required under the Remedial Design Work Plan, the Respondents shall not commence physical on-site activities at the site prior to the date for commencement set forth in the approved schedule in the Remedial Action Work Plan.

2. Not later than twenty-one (21) days after EPA's acceptance of Respondents' construction contractor in accordance with Section VI.D of this Order, Respondents shall submit three (3) copies of a Construction Management Plan to EPA for review and approval. The Construction Management Plan shall identify key personnel, their experience, their qualifications, and their responsibilities for construction activities, and shall include a detailed schedule for completing all construction activities. Upon approval by EPA, the Construction Management Plan shall be incorporated into this Order.

3. Within fourteen (14) days after EPA approves the Construction Management Plan, Respondents shall begin on-site implementation of the Remedial Action. Upon approval by EPA of the Construction Management Plan, Respondents shall implement and comply with the schedules and terms of all requirements relating

to Remedial Action including the Remedial Action Work Plan and the Construction Management Plan.

4. The Work performed by Respondents pursuant to this Order shall, at a minimum, be consistent with the ROD, shall provide for implementation of the Remedial Design Specifications (Appendix C) and shall attain the Performance Standards set forth in Appendix D.

G. Additional Response Actions.

1. In the event that EPA or Respondents determine(s) that additional response actions are necessary to carry out the requirements of the Remedial Design Specifications or the Remedial Action Work Plan, notification of such additional response actions shall be provided by EPA to Respondents' Project Coordinator or by Respondents to the EPA Remedial Project Manager.

2. Within thirty (30) days of receipt of notice from EPA pursuant to Paragraph 1 of this Subsection that additional response actions are necessary (or such longer time as may be specified by EPA), Respondents shall submit to EPA and the Commonwealth of Virginia, for approval by EPA, a work plan for the additional response actions. Upon approval of the plan by EPA, Respondents shall implement the plan for additional response actions in accordance with the schedule contained therein.

3. Any additional response actions that Respondents determine are necessary to carry out the requirements of the ROD,

the Remedial Design Specifications, or to achieve the Performance Standards shall be subject to approval by EPA, and, if authorized by EPA, shall be completed by Respondents in accordance with plans, specifications, and schedules approved by EPA.

4. If required by sections 113(k)(2) or 117 of CERCLA, 42 U.S.C. §§ 9613(k)(2) or 9617, or the NCP, Respondents and the public will be provided with an opportunity to comment on any additional response actions proposed pursuant to this Subsection and to submit written comments for the record during the public comment period. After the expiration of any such statutorily prescribed comment period, the Regional Administrator, EPA Region III, or his/her delegate will determine in writing whether additional response actions are appropriate.

H. Reporting Requirements.

1. In addition to any other requirement of this Order, Respondents shall submit to EPA four (4) copies, and to the Commonwealth of Virginia two (2) copies, of a written monthly progress report that: (a) describes the actions which have been taken toward achieving compliance with this Order during the previous month; (b) includes all results of sampling and tests and all other data related to the Site received or generated by Respondents or their contractors or agents in the previous month; (c) identifies all work plans, plans and other deliverables required by this Order completed and submitted during the previous month; (d) describes all actions, including, but not

limited to, data collection and implementation of work plans, which are scheduled for the next month and provides other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts and Pert charts; (e) includes information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays; and (f) includes any modifications to the work plans or other schedules that Respondents have proposed to EPA or that have been approved by EPA; and (g) describes all activities, as approved by EPA under Section XX (Community Relations) undertaken in support of the Community Relations Plan during the previous month and those to be undertaken in the next month. Respondents shall submit these progress reports to EPA and the Commonwealth of Virginia by the tenth day of every month immediately following the effective date of this Order until EPA notifies the Respondents pursuant to Section XVII.B(2) of this Order that the Work has been fully performed in accordance with this Order. If requested by EPA, Respondents shall also provide briefings for EPA and the Commonwealth of Virginia to discuss the progress of the Work.

2. Except as provided in this Section VI.G(2), Respondent shall notify EPA of any anticipated change to the EPA-approved schedule for performance of any activity including, but

not limited to, implementation of work plans, no later than fourteen (14) days prior to the scheduled performance of the activity. Notwithstanding the foregoing, Respondent shall notify EPA of any anticipated change to the EPA-approved schedule for the performance of data collection no later than thirty (30) days prior to the performance of such activity, unless otherwise directed by EPA. All modifications to the EPA-approved schedule must be approved by the EPA Remedial Project Manager.

3. In addition to the reporting required by section 103 of CERCLA, 42 U.S.C. § 9603, or section 304 of the Emergency Planning and Community Right-to-Know Act ["EPCRA"] section 304, 42 U.S.C. § 11004, upon the occurrence of any event during performance of the Work that Respondents are required to report pursuant to section 103 of CERCLA, 42 U.S.C. § 9603, or section 304 of EPCRA, 42 U.S.C. § 11004, Respondents shall, within twenty-four (24) hours of the onset of such event, orally notify the EPA Remedial Project Manager or the Chief, Virginia/West Virginia Remedial Section, EPA Region III ["Section Chief"] (in the event of the unavailability of the EPA Remedial Project Manager); or, in the event that neither the EPA Remedial Project Manager nor the Section Chief is available, the EPA Region III Hotline at (215) 597-9898. Within ten (10) days of the onset of such an event, Respondents shall furnish to EPA and the Commonwealth of Virginia a written report, signed by the Respondents' Project Coordinator, setting forth the events which

occurred and the measures taken, and to be taken, in response thereto. Within thirty (30) days of the conclusion of such an event, Respondents shall submit a report setting forth all actions taken in response thereto.

4. Respondents shall submit to EPA two (2) copies, and the Commonwealth of Virginia two (2) copies, each year within thirty (30) days of the anniversary of the effective date of this Order, a report setting forth the status of the Work, which shall at a minimum include a statement of major milestones accomplished in the preceding year, a statement of tasks remaining to be accomplished, and a schedule for implementation of the remaining Work.

I. EPA Periodic Review.

1. Respondents shall conduct any studies and investigations deemed necessary by EPA in order to permit EPA to conduct reviews at least every five (5) years required by section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations.

2. If required by sections 113(k)(2) or 117 of CERCLA, 42 U.S.C. §§ 9613(k)(2) or 9617, or the NCP, Respondents and the public will be provided with an opportunity to comment on any additional response actions proposed by EPA as a result of the review conducted pursuant to section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and to submit written comments for the record during the public comment period. After the period for submission of

written comments is closed, the Regional Administrator, EPA Region III, or his/her delegate will determine in writing whether additional response actions are appropriate.

3. If the Regional Administrator, EPA Region III, or his/her delegate determines that information received, in whole or in part, during the review conducted pursuant to section 121(c) of CERCLA, 42 U.S.C. § 9621(c), indicates that the Remedial Action is not protective of human health and the environment, the Respondents shall undertake any additional response actions EPA has determined are appropriate.

4. Within thirty (30) days after notice of EPA's determination that additional response actions are necessary (or such longer time as may be specified by EPA), Respondents shall submit to EPA and the Commonwealth of Virginia, for approval by EPA, a work plan for the additional response actions. Upon approval of the plan by EPA, Respondents shall implement the plan for the additional response actions in accordance with the schedule contained therein.

J. Off-Site Shipment of Waste Materials.

1. Respondents shall, prior to any off-site shipment of Waste Material from the site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving facility's state and to the EPA Remedial Project Manager of each shipment of Waste Material. However, the requirement of

notification to EPA shall not apply to any off-site shipment when the total volume of all shipments will not exceed ten (10) cubic yards. Notification to receiving state officials shall then be governed by applicable state law.

2. The Respondents shall include in the written notification the following information, where available: (a) the name and location of the facility to which the Waste Materials are to be shipped; (b) the type and quantity of the Waste Materials to be shipped; (c) the expected schedule for the shipment of the Waste Materials; and (d) the method of transportation. The Respondents shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Materials to another facility within the same state, or to a facility in another state or a significant change in volume or shipment schedule.

3. The identity of the receiving facility and state will be determined by the Respondents following the award of the contract for Remedial Action construction. The Respondents shall provide written notification required by this Section VI.I, including the information required by Paragraph I.1, as soon as practicable after the award of the contract, but in no case less than fourteen (14) days before the Waste Materials are actually shipped.

VII. FAILURE TO PERFORM/PERFORMANCE EVENTS

A. In the event of an inability or anticipated inability on the part of Respondents to perform any of the actions required by this Order in the time and manner required herein, the Respondents' Project Coordinator (as defined in Section VIII, below) shall notify EPA orally within twenty-four (24) hours of such event and in writing as soon as possible, but in no event more than ten (10) days after such event. Such notice shall set forth the reason(s) for, and the expected duration of, the inability to perform; the actions taken and to be taken by Respondents to avoid and mitigate the impact of such inability to perform; and the proposed schedule for completing such actions. Such notification shall not relieve Respondents of any obligati of this Order. Respondents shall take all reasonable actions to prevent and minimize any delay.

B. Failure of Respondents to carry out any requirement of this Order in accordance with the terms and conditions specified herein may result in the unilateral performance of the required actions by EPA pursuant to applicable authorities, an action to recover treble damages pursuant to CERCLA, and/or the initiation of an enforcement action against Respondents to require Respondents to perform such actions, in addition to any other relief that may be available to EPA pursuant to applicable law.

C. Nothing in this Section or any other provision of this Order shall be construed to limit any powers EPA may have under CERCLA, the NCP, or any other law or regulation.

VIII. DESIGNATED PROJECT COORDINATOR/REMEDIAL PROJECT MANAGER

A. Respondents' Project Coordinator

(1) Within ten (10) days after the effective date of this Order, Respondents shall designate a Project Coordinator and shall submit the name and qualifications of such person to EPA for review and acceptance. Respondents' Project Coordinator shall be a technical and/or managerial representative of Respondents and may be a contractor and/or consultant; provided, however, the Respondents' Project Coordinator shall not be its legal representative in this matter.

(2) Respondents' designation of a Project Coordinator shall be subject to acceptance by EPA. In the event EPA does not accept Respondents' designation of a Project Coordinator, Respondents shall, within fourteen (14) days after receipt of EPA's notice not to accept Respondents' designation of a Project Coordinator, submit to EPA a list identifying proposed Project Coordinators, including support persons and staff, who would be acceptable to Respondents. EPA shall then provide Respondents with notice identifying each proposed Project Coordinator on the list whose designation would be accepted by EPA. Respondents shall, within ten (10) days of receipt of EPA's notice identifying acceptable replacement Project Coordinators, select any accepted Project Coordinator from the list and notify EPA of such selection.

(3) EPA may at any time disapprove Respondents'

selection of Project Coordinator. In such event, Respondents shall follow the procedures set forth in Section VIII.A (2) in selecting a replacement Project Coordinator.

(4) In the event Respondents wish to change their Project Coordinator, Respondents shall designate a new Project Coordinator in accordance with the procedures set forth in Section VIII.A (1), above. The designation of a new Project Coordinator must be accepted by EPA in accordance with the procedures set forth in Section VIII.A (2) prior to the effective date of any such replacement.

B. <u>EPA's Remedial Project Manager</u>

1. EPA's Remedial Project Manager is:

Philip Rotstein (3HW24)
Virginia/West Virginia Remedial Section
U.S. Environmental Protection Agency
841 Chestnut Building
Philadelphia, PA 19107
(215) 597-9023

2. EPA has the right to change its Remedial Project Manager at any time. In the event EPA makes such a change, EPA will inform Respondents' Project Coordinator of the name, address, and telephone number of the new EPA Remedial Project Manager.

3. EPA's Remedial Project Manager shall have the authority vested in a Remedial Project Manager and an On-Scene Coordinator by the NCP. In addition, EPA's Remedial Project Manager shall have the authority, consistent with the NCP, to halt, conduct, or modify any work required by this Order, and to take any necessary

response action when the EPA Remedial Project Manager or other EPA official determines that conditions at the site may present a threat to the public health or welfare or the environment.

4. Unless otherwise directed by the EPA Remedial Project Manager, all communications, whether written or oral, from Respondents to EPA shall be directed to the EPA Remedial Project Manager.

5. No informal advice or guidance from the EPA Remedial Project Manager shall relieve Respondents from any obligations under this Order.

IX. SITE ACCESS

A. As of the effective date of this Order, and pursuant to section 106(a) of CERCLA, 42 U.S.C. § 9606(a), Zacharias Brothers, a Virginia general partnership, Edward A. Zacharias and William K. Zacharias shall provide access to its property upon which Work shall be performed pursuant to this Order to EPA and its employees, agents, consultants, contractors, and other designated and/or authorized representatives for the purposes of conducting any activity required by or related to this Order. Such access shall permit EPA and its employees, agents, consultants, contractors, and other designated representatives to conduct all activities described in Paragraph C of this Section IX.

B. To the extent that the site or any other property to

which access is required for the implementation of this Order is owned or controlled by persons other than one of the Respondents, and to the extent that Work required by this Order must be performed on property not presently owned or controlled by any Respondent, Respondents shall use best efforts to obtain access agreements from the present owners of such property within thirty (30) days of the effective date of this Order. Respondents shall use best efforts to secure from such persons access for themselves, as well as for EPA, VA DWM, and their representatives, as necessary to implement this Order. At a minimum, best efforts shall include, but shall not be limited to, a certified letter from Respondents to the present owners of such property requesting access agreements which provide that Respondents may perform all Work required by this Order which must be performed on such property and which fulfill the requirements of Paragraphs A and C of this Section IX. Best efforts shall include agreement to reasonable conditions for access and/or the payment of reasonable fees. In the event that the property owners refuse to provide such access or access agreements are not obtained within thirty (30) days of the effective date of this Consent Order, whichever occurs sooner, the Respondents shall immediately notify EPA, in writing, of all efforts to obtain access and the circumstances of their failure to secure access agreements. EPA may, in its discretion, thereafter assist Respondents in obtaining access.

C. EPA and its employees, agents, consultants, contractors, and other designated representatives shall have the authority to enter and freely move about all property subject to this Order at all reasonable times for the purposes of, inter alia, inspecting records, operating logs, and contracts related to the site; reviewing the progress of the Respondents in carrying out the terms of this Order; conducting such tests and taking such samples as EPA deems necessary; using a camera, sound recording, or other documentary type equipment; and verifying the data submitted to EPA by the Respondents. In addition, EPA and its employees, agents, consultants, contractors, and other authorized representatives shall have authority to enter, at all reasonable times, all areas in which records related to the performance of the Work required by this Order are retained. Respondents shall permit such persons to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, in any way pertaining to Work undertaken pursuant to this Order. Nothing herein shall be interpreted as limiting the inspection or information gathering authorities of EPA under Federal law.

D. Notwithstanding any provision of this Order, EPA retains all access authorities and rights under CERCLA and any other applicable statute and regulation.

X. SAMPLING AND DATA/DOCUMENT AVAILABILITY

A. Unless otherwise directed by EPA, Respondent shall notify EPA in writing not less than thirty (30) days in advance of any sample collection activity undertaken pursuant to this Order.

B.1. Subject to the limitations contained in Section X.B(2) of this Order, EPA and its designated representatives shall have full access to all information maintained or created by, or on behalf of, Respondents in connection with activities conducted pursuant to this Order including, but not limited to, contractual documents, sampling data, and field notes. Except as otherwise provided in this Order, all such information requested by EPA and maintained by Respondents and/or Respondents' contractors, agents, or assigns (and, where appropriate, information required by Section X.B(2) of this Order) shall be made available to EPA or its designated representative within ten (10) days of receipt of any such request.

2. Respondents' obligation to disclose information required by EPA pursuant to Section X.B(1) of this Order is subject to applicable privileges recognized under Federal law, provided that no sample results or analytical or monitoring data shall be claimed as privileged. Where a claim of privilege is invoked as to information, Respondents shall identify such information and state the basis of any privilege claimed. In the event Respondents withhold a document as privileged, Respondents shall provide EPA with the date, title, author, and

addressee/recipient of the document; a description of the nature of the document; and the identity and basis of each privilege asserted.

C. Upon reasonable notice, Respondents and/or its contractors or subcontractors shall make themselves available for such meetings, conferences, and/or inspections with EPA, or its representatives, as may be necessary for EPA to oversee the performance of Work required by this Order.

D. At the request of EPA, Respondents shall provide EPA or its designated representatives with split or duplicate samples of any material sampled in connection with the implementation of this Order and/or shall permit EPA or its authorized representative to take such split or duplicate samples of any sample taken.

E. Confidential Business Information

1. Respondents may assert a claim of business confidentiality covering part or all of the information or documentation required by or provided under this Order in the manner described in 40 C.F.R. § 2.203(b). Such an assertion shall be substantiated in accordance with 40 C.F.R. § 2.204(e)(4) at the time the assertion is made. Information subject to such a claim will be handled in accordance with the procedures set forth in 40 C.F.R. Part 2, Subpart B. If no claim of business confidentiality accompanies the information or documentation when it is submitted or made available to EPA, it may be made

available to the public by EPA without further notice to Respondents.

2. Respondents shall not assert confidentiality claims with respect to any data related to site conditions or any sampling, analytical, or monitoring data.

XI. QUALITY ASSURANCE

A. While conducting all sample collection and analysis activities required by this Order, the Respondents shall implement quality assurance, quality control and chain of custody procedures in accordance with "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA", 1988 (OSWER Directive 9355.3-01); "EPA NEIC Policies and Procedures Manual, May 1978, revised May 1986 (EPA 330/978-001-R); "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans", December 1980 (QAMS 005/80); "A Compendium of Superfund Field Operations Methods", December 1987 (OSWER Directive 9355-0-14); Data Quality Objectives for Remedial Response Activities", March 1987 (OSWER Directive 9355.0-7B); EPA's "Guidelines and Specifications for Preparing Quality Assurance Program Documentation, June 1, 1987; "Preparing Perfect Project Plans," October 1989 (EPA/600/9-89-087); and amendments to these guidelines.

B. The Respondents shall consult with EPA in planning for, and prior to, all sampling and analysis required by this Order, and by any subsequent EPA-approved plans prepared as part of this

Order. Unless otherwise directed by the EPA Remedial Project Manager, Respondent shall not commence sampling until EPA approves the Remedial Action Work Plan and the Sampling and Analysis Plan ["SAP"].

C. In order to provide quality assurance and maintain quality control regarding all samples collected pursuant to this Order, the Respondents shall:

1. Use only laboratories that have a documented Quality Assurance Program that complies with EPA guidance document QAMS-005/80.

2. Submit to the EPA Remedial Project Manager the selected laboratory's(ies') Quality Assurance Program Plan ["QAPP"] and their qualifications, which shall include, at a minimum, previous certifications, PE performance results, equipment lists and personnel resumes. The SAP must state that all protocols described therein take precedence over protocols listed in the Laboratory QAPP.

3. Ensure that EPA personnel and/or its authorized representatives are allowed reasonable access to the laboratory(ies), records and personnel utilized by the Respondent in implementing this Order.

4. Prepare a SAP, consisting of a Quality Assurance Project Plan ["QAPjP"] and a Field Sampling Plan ["FSP"], for sample collection, transportation, analysis, validation and reporting to be conducted pursuant to this Order. The SAP shall

be submitted as part of the Remedial Action Work Plan to the EPA Remedial Project Manager for review and approval prior to commencing sampling and analysis. Each plan shall specify, for the phase of activity addressed, the data quality objectives ["DQOs"], sample collection and transportation procedures, data analysis methods, data reduction, data review, and reporting procedures. The FSP shall also include the types, locations, analytical parameters, and frequency of samples. Selection of analytical methods shall be justified in conjunction with the DQOs. The guidelines referenced in Paragraph A, above, shall be followed in the preparation of the SAP; additional guidance may be provided by EPA when applicable and/or requested by the Respondents.

5. Ensure that the laboratory(ies) analyzing samples pursuant to this Order use the methods described by, and submit deliverables delineated in, the current "Statement of Work of the EPA Contract Lab Program." All constituents and physical parameters to be analyzed for which CLP methods will not be used will be described in the QAPjP. This description shall include, at a minimum, the matrix, calibration, Quality Control ["QC"] samples (type and frequency), corrective measures, and deliverables. Non-CLP methods shall be approved by the EPA Remedial Project Manager prior to sampling and analysis.

6. Ensure that the laboratory(ies) analyzing samples pursuant to this Order agrees to demonstrate its capability to

perform the selected analyses by analyzing Performance Evaluation ["PE"] samples, supplied by EPA. Analysis of PE samples may be waived by EPA if the laboratory(ies) satisfactorily analyzed PE samples using the selected methods within the six (6) months prior to analysis conducted pursuant to this Order. Documentation of such PE sample analysis shall be submitted to the EPA Remedial Project Manager for verification.

7. At the request of EPA, conduct one or more independent audits of the selected laboratory(ies) to verify analytical capability and compliance with the SAP. Auditors shall conduct lab audits at sometime during the time the laboratory(ies) are analyzing samples collected pursuant to this Order. The lab audit shall be conducted according to procedures available from the EPA Environmental Services Division Quality Assurance Branch ["QA Branch"]. Audit reports shall be submitted to the EPA Remedial Project Manager within fifteen (15) days of completion of the audit. The Respondents shall report serious deficiencies, including all those which adversely affect data quality, reliability or accuracy, and take action to correct such deficiencies within twenty-four (24) hours of the time the Respondents knows or should have known of the deficiency.

8. Conduct at least one independent field audit (to be described in the QAPjP) during initial sampling activities to verify that field samplers are correctly following sampling procedures described in the SAP. A report of the field audit

shall be submitted to the EPA Remedial Project Manager within fifteen (15) days of completion of the audit. Respondents shall report the scope of the audit and the deficiencies noted, and take action to correct such deficiencies within twenty-four (24) hours of the time the Respondents knows or should have known of the deficiency. EPA shall have the option to audit any stage of the field activities.

9. Provide data validation of analyses completed by the laboratory(ies), to determine data usability. If the data are derived by CLP methods, the data validation shall be performed in accordance with the most recent National Functional Guidelines for Data Review and Region III Modifications (available from EPA's QA Branch). For non-CLP methods, the data validation shall be performed as described in the SAP and in accordance with the QC data validation criteria set forth in that method. The quality assurance data validation reports shall be prepared using EPA Region III format (available from the QA Branch) and shall be submitted, along with the validated data summary sheets and the laboratory sample results, to the EPA Remedial Project Manager.

D. At the request of EPA, Respondents shall allow split or duplicate samples to be taken by EPA and/or its authorized representatives, of any samples collected by the Respondents pursuant to this Order. Unless otherwise directed by EPA, the Respondents shall notify EPA not less than thirty (30) days in

advance of any such sample collection activity. In addition, EPA shall have the right to take any additional samples that EPA deems necessary.

E. In addition to other obligations contained in this Order requiring Respondents to submit data, Respondents shall, within ten (10) days of Respondents' receipt of a request by EPA, submit to EPA the results of all sampling and/or tests or other data obtained or generated by or on behalf of Respondents with respect to the site and/or implementation of this Order.

F. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering and inspection authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statute and regulation.

XII. RECORD PRESERVATION

A. Respondents shall preserve and retain, during the pendency of this Order and for a minimum of ten (10) years after its termination, all records and documents now in their possession or control or which come into their possession or control that relate in any manner to implementation of this Order, despite any corporate document retention policy to the contrary.

B. Respondents shall use their best efforts to obtain copies of all documents relating in any way to the site and which

are in the possession of their employees, agents, accountants, contractors, or attorneys. After expiration of the ten (10) year document retention period, Respondents shall notify EPA at least ninety (90) days prior to the destruction of any documents relating to the site. Upon request by EPA and subject to Sections X.B and X.E of this Order, Respondents shall make available to EPA such records or copies of any such records. In no event shall Respondent destroy such records or documents until EPA responds in writing approving such destruction.

C. Respondents shall ensure that any agreement between Respondents and any agent, contractor, consultant, or other person retained to perform or oversee Work pursuant to this Order shall explicitly require said agent, contractor, consultant, or other person to maintain and preserve, during the pendancy of this Order and for a minimum of ten (10) years after termination of this Order, all data, records, and documents within their respective possession or control which relate in any manner to this Order or to hazardous substance management and disposal at the site.

XIII. PLANS AND REPORTS REQUIRING EPA APPROVAL

A. Unless otherwise specified, four (4) copies of all documents, including plans, reports, and other items required to be submitted to EPA for approval pursuant to this Order, shall be submitted to the EPA Remedial Project Manager designated pursuant to Section VIII of this Order in accordance with the requirements

of this Section. Two (2) copies of each such document shall simultaneously be submitted to the Commonwealth of Virginia (to provide the Commonwealth of Virginia an opportunity to review and comment to EPA) at the following address:

Mr. Khoa Nguyen, Project Officer
VA Department of Waste Management
Monroe Building, 18th Floor
101 N. 14th Street
Richmond, VA 23219

The following documents shall be signed by a Duly Authorized Representative of Respondents certifying the information contained in the foregoing document as set forth below: the Remedial Action Work Plan required by Section VI.E of this Order; the Construction Management Plan required by Section VI.E(3) of this Order; any work plan submitted pursuant to Section VI.G (Additional Response Actions) of this Order; any written notification of anticipated inability to perform submitted pursuant to Section VII.A (Failure to Perform/ Performance Events) of this Order; and the written reports required by Section XVII (Certification of Completion) of the Order. The certification statement accompanying the document shall state the following:

> "I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified portion(s) of this document for which I cannot personally verify its (their) truth and accuracy, I certify as the company official having supervisory responsibility for the person(s) who, acting under my direct instructions, made the verification, that this information is true, accurate, and complete."

B. Following review of any document submitted to EPA pursuant to Section XIII.A of this Order, EPA may:

(1) approve the document in full;

(2) approve portions of the document, and

(a) modify non-approved portions of the document and require Respondents to implement such document as modified by EPA; and/or

(b) direct Respondents to fully respond to EPA's comments regarding non-approved portions of the document and submit a modified document, or portions thereof, for EPA approval;

(3) disapprove the document, and

(a) modify the document and require Respondents to implement such document as modified by EPA; and/or

(b) direct Respondents to submit a modified document for EPA approval that fully responds to EPA's comments; or

(4) disapprove the document and perform all or any part of the response action.

C. Unless otherwise specified by EPA, Respondents shall undertake all actions required by documents, or portions of documents, approved by EPA.

D. Upon receipt of a notice of disapproval of all or any portion of any document submitted hereunder, Respondents shall, within fifteen (15) days or such other time as may be specified

by EPA in its notice of disapproval, submit a modified document which is responsive to all directions contained in EPA's notice of disapproval.

E. Modified documents required pursuant to Section XIII.D of this Order shall be submitted, and subject to, EPA approval in accordance with this Section.

F. In the event EPA disapproves all or any portion of any document submitted for EPA approval, Respondents shall be deemed to be in violation of this Order.

G. EPA shall make all decisions regarding the sufficiency or acceptability of all documents and of any activities performed pursuant to this Order.

H. No failure by EPA to approve, disapprove, or otherwise respond to a document submitted to EPA for approval shall be construed as an approval of such document.

I. All plans, reports, and other items required to be submitted to EPA under this Order shall, upon modification by EPA and/or approval by EPA, be deemed to be incorporated in and an enforceable part of this Order. In the event EPA approves a portion of a plan, report, or other item required to be submitted to EPA under this Order, the approved portion shall be deemed to be incorporated in and enforceable as part of this Order.

J. To the maximum extent possible, communications from the Respondents to EPA and all documents including, but not limited to, plans, reports, and other correspondence concerning Work

performed pursuant to this Order, shall be directed to the EPA Remedial Project Manager by overnight mail or equivalent delivery.

XIV. RESERVATION OF RIGHTS

A. EPA reserves all rights, claims, interests, and defenses it has under CERCLA or any other law or in equity.

B. Nothing herein shall be construed to prevent EPA from seeking legal or equitable relief to enforce the terms of this Order, to seek injunctive relief, and/or to seek the imposition of statutory penalties.

C. EPA reserves the right to demand payment by Respondents of all of EPA's oversight costs, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, costs of receiving or developing plans, reports, and other items pursuant to this Order, and costs associated with verifying the Work.

C. EPA reserves the right to disapprove of Work performed by Respondents pursuant to this Order, to require that Respondents correct and/or re-perform any and all Work disapproved by EPA, and to require that Respondents perform response actions in addition to those required by this Order.

D. EPA reserves the right to take enforcement actions, including actions for monetary penalties, for any violation of law, regulation, or of this Order. Failure to comply with this

Order may subject Respondents to the assessment of civil penalties of up to $25,000 per day and/or punitive damages in an amount up to three times the amount of any costs incurred by EPA as a result of such failure pursuant to sections 106(b) and 107(c) of CERCLA, 42 U.S.C. §§ 9606(b) and 9607(c). EPA may also undertake other actions as it may deem necessary or appropriate for any purpose, including, but not limited to, actions pursuant to sections 104 and/or 106 of CERCLA, 42 U.S.C. §§ 9604 and/or 9606.

E. EPA reserves the right to undertake removal and/or remedial actions, including all actions required by this Order, at any time such actions are appropriate under CERCLA and the NCP and to seek reimbursement from Respondents for any costs incurred. Performance by EPA of any portion of the Work required by this Order shall not release Respondents of their obligation to comply with all other requirements of this Order and shall not release Respondents from liability for penalties and/or damages for any violations of this Order.

F. EPA reserves the right to bring an action against Respondents pursuant to section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of all response costs incurred by the United States in connection with this Order and not reimbursed by Respondents, as well as any other costs incurred by the United States in connection with response actions conducted pursuant to CERCLA at the site.

G. Without limitation of any other provision in this Order, EPA reserves the right to bring actions against, and/or issue orders to, Respondents pursuant to applicable authorities for any purpose including, but not limited to, performance of response actions other than those performed by Respondents pursuant to this Order.

XV. GENERAL PROVISIONS

A. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any person, firm, partnership, or corporation not bound by this Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any Waste Materials found at, taken to, or taken from the site.

B. This Order does not constitute any decision on preauthorization of funds under section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).

C. Nothing herein shall constitute or be construed as a satisfaction or release from liability of Respondents or any other person.

D. Invalidation of any provision or requirement of this Order shall not affect the validity of any other provision or requirement of this Order.

XVI. EFFECTIVE DATE, OPPORTUNITY TO CONFER, AND NOTICE OF INTENT TO COMPLY

A. Not later than twenty (20) days from the date of issuance of this Order, Respondents may confer with EPA to discuss the scope and applicability of this Order, the findings upon which this Order is based, the appropriateness of any action or activity required to be undertaken hereby, or other issues directly relevant to issuance of this Order. Such a conference is not, and shall not be deemed to be, an adversarial hearing or part of a proceeding to challenge this Order, and no official stenographic record of such proceeding shall be kept. Any request for a conference within the prescribed timeframe shall be made to:

Yvette Hamilton-Taylor (3RC23)
Assistant Regional Counsel
U.S. Environmental Protection Agency
841 Chestnut Building
Philadelphia, PA 19107
(215) 597-3233

B. This Order is deemed "issued" on the date it is signed by the Regional Administrator of EPA Region III. This Order shall become effective thirty (30) days following the date on which it is issued.

C. No later than two (2) days after the effective date of this Order, each Respondent shall provide notice in writing to the individual identified in Section XVI.A of this Order stating whether such Respondent intends to comply with the terms of this Order. Failure by Respondents to provide such notice shall be a

violation of this Order and deemed to be a decision by Respondents not to comply with the terms of this Order. In the event any Respondent elects not to comply with this Order, such Respondent shall identify all reasons supporting such decision Respondents claims as "sufficient cause" within the meaning of section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3).

XVII. CERTIFICATION OF COMPLETION AND TERMINATION

A. Completion of the Remedial Action

1. Within ninety (90) days after Respondents conclude that the Remedial Action has been fully performed, Respondents shall so certify to EPA and the Commonwealth of Virginia and shall schedule and conduct a pre-certification inspection to be attended by Respondents, EPA, and the Commonwealth of Virginia. If, after the pre-certification inspection, the Respondents still believe that the Remedial Action has been fully performed, Respondents shall submit a written report to EPA and the Commonwealth of Virginia, for approval by EPA, within thirty (30) days of the inspection. In the report, a registered professional engineer ["RPE"] and a Duly Authorized Representative of the Respondents shall certify, pursuant to Section XIII (Plans and Reports Requiring EPA Approval) of this Order, that the Remedial Action has been completed in full satisfaction of the requirements of this Order. The written report shall include a

built drawings signed and stamped by an RPE and certified as required by Section XIII (Plans and Reports Requiring EPA Approval) of this Order. If, after completion of the pre-certification inspection and receipt and review of the written report as described above, EPA determines that the Remedial Action or any portion thereof has not been completed in accordance with this Order, EPA will notify Respondents in writing of the activities that must be undertaken to complete the Remedial Action. EPA will set forth in the notice a schedule for performance of such activities consistent with the Order or require the Respondents to submit a schedule for approval by EPA. Respondents shall perform all activities described in the notice in accordance with the specifications and schedules established pursuant to this Paragraph.

2. If EPA concludes, based on the initial or any subsequent Certification of Completion by Respondents, that the Remedial Action has been fully performed in accordance with this Order, EPA will so certify in writing to Respondents. This certification shall constitute the Certification of Completion of the Remedial Action for purposes of this Order. Certification of Completion of the Remedial Action shall not affect Respondents' obligations under this Order that continue beyond the Certification of Completion, including, but not limited to, access, operation and maintenance, record retention, insurance, and any work to be conducted under Section VI.G of this Order.

B. Completion of the Work

1. Within ninety (90) days after Respondents conclude that all phases of the Work, including O & M, have been fully performed, Respondents shall so certify to the United States and the Commonwealth of Virginia by submitting a written report by an RPE certifying that the Work has been completed in full satisfaction of the requirements of this Order. The report shall also contain the certification required by Section XIII (Plans and Reports Requiring EPA Approval) of this Order. If, after review of the written report, EPA determines that any portion of the Work has not been completed in accordance with this Order, EPA will notify Respondents in writing of the activities that must be undertaken to complete the Work. EPA will set forth in the notice a schedule for performance of such activities consistent with the Order or require the Respondents to submit a schedule for approval by EPA. Respondents shall perform all activities described in the notice in accordance with the specifications and schedules established therein.

2. If EPA concludes, based on the initial or any subsequent Certification of Completion by Respondents, that the Work has been fully performed in accordance with this Order, EPA will so notify the Respondents in writing.

C. Termination

1. This Order shall terminate upon Respondents' receipt of written notice from EPA pursuant to Section XVII.B(2)

that the Work has been fully performed in accordance with this Order.

2. Notwithstanding Section XVII.C(1) of this Order, this Order may be terminated at any time in writing by the EPA Region III Regional Administrator.

3. EPA reserves all rights under applicable laws and regulations and termination of this Order shall not alter or in any way affect such rights.

XVIII. ADMINISTRATIVE RECORD

The Administrative Record compiled in support of this Order is available for review at the EPA Region III offices and may be seen after contacting the EPA Remedial Project Manager.

XIX. LIABILITY OF THE UNITED STATES

Neither EPA nor the United States, by issuance of this Order, assumes any liability for any acts or omissions by Respondents or by Respondents' employees, agents, contractors, or consultants in carrying out any action or activity pursuant to this Order, nor shall EPA or the United States be held as a party to any contract entered into by Respondents, Respondents' employees, agents, contractors, or consultants in carrying out activities pursuant to this Order.

XX. COMMUNITY RELATIONS

As requested by EPA, Respondents shall participate in the

preparation of all appropriate information to be disseminated to the public and in public meetings which may be held or sponsored by EPA to explain activities at or concerning the site.

XXI. MODIFICATIONS

A. Except as provided in Section XXI.B of this Order, the provisions of this Order may be modified at any time, in writing, solely by the EPA Region III Regional Administrator.

B. Modification to any document submitted to, and approved or accepted by EPA pursuant to this Order, may be made in writing by EPA. The effective date of such modifications shall be the date on which Respondent receives notice of such modification.

IT IS SO ORDERED.

3/27/92
DATE

LEWIS D. MORGAN
Regional Administrator
U.S. Environmental Protection Agency
Region III

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III

IN THE MATTER OF:	:	
	:	
C & R BATTERY COMPANY	:	
SUPERFUND SITE; BELLWOOD ROAD,	:	
CHESTERFIELD COUNTY, VIRGINIA	:	
	:	
BATTERY BARN OF VIRGINIA, INC.,	:	Docket No. III-92-17-DC
CAROLINA TIRE & BATTERY, INC.,	:	
CAROLINA BATTERY & TIRE AND STEVE	:	
PALAMARIS, SOLE PROPRIETOR,	:	
CHESAPEAKE AND POTOMAC TELEPHONE	:	
COMPANY OF VIRGINIA, INC.,	:	
GUTTERMAN IRON & METAL, INC.,	:	
JOE DECKER COMPANY, INC.,	:	
MASTER METALS, INC.,	:	
MIDWEST CORPORATION,	:	
MOTT ENTERPRISES, INC. formerly	:	
FRANK E. MOTT COMPANY,	:	
PEANUT CITY IRON & METAL, INC.,	:	
PECK METAL & RECYCLING, INC.,	:	
POCKET MONEY RECYCLING COMPANY,	:	
RAMSEY IRON & METAL, INC.,	:	
REGENCY BATTERY COMPANY, AND JAMES	:	
W. HOBBS, II, SOLE PROPRIETOR,	:	
SMITH IRON & METAL COMPANY, INC.,	:	
TT & E IRON & METAL COMPANY, INC.,	:	
VIRGINIA IRON & METAL, INC.,	:	
ZACHARIAS BROTHERS, A VIRGINIA	:	
GENERAL PARTNERSHIP,	:	
EDWARD A. ZACHARIAS,	:	
WILLIAM K. ZACHARIAS	:	
Respondents	:	

ESTABLISHMENT OF ADMINISTRATIVE RECORD

Pursuant to authority vested in the President of the United States under Section 113(k) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9613(k); delegated to the Administrator of EPA by Executive Order No. 12580 [52 Fed. Reg. 2923 (January 19, 1987)]; further delegated to the Regional Administrators by EPA Delegations No. 14-22 (September 13, 1987), I hereby establish

the documents attached as the administrative record supporting issuance of the Administrative Order corresponding to EPA Docket No. III-92-17-DC.

3/27/92
Date

Edwin B. Erickson
Regional Administrator

C&R BATTERY CO., INC.
ADMINISTRATIVE RECORD FILE
FOR THE UNILATERAL ADMINISTRATIVE ORDER
INDEX OF DOCUMENTS

I. DOCUMENTS SUPPORTING THE UNILATERAL ADMINISTRATIVE ORDER

1. Report: Specifications (For Final Review), C&R Battery, Inc. Superfund Site, Chesterfield County, Virginia, prepared by the U.S. Army Corps of Engineers-Omaha District, December 1991.

2. Drawings: Plans For C&R Battery, Inc. Superfund Site, Chesterfield County, Virginia, prepared by the U.S. Army Corps of Engineers-Omaha District, Final Design, December 1991.

3. Report: Final Design Analysis, C&R Battery, Inc. Superfund Site, Chesterfield County, Virginia, prepared by the U.S. Army Corps of Engineers-Omaha District, January 1992.

4. Report: Monitoring Well Integrity, C&R Battery, Inc. Superfund Site, Chesterfield County, Virginia, prepared by Woodward-Clyde Consultants for the U.S. Army Corps of Engineers-Omaha District, January 1992.

5. Report: Background Soil Characterization, C&R Battery, Inc. Superfund Site, Chesterfield County, Virginia, prepared by Woodward-Clyde Consultants for the U.S. Army Corps of Engineers-Omaha District, January 1992.

6. Work Plan: Treatability Study, C&R Battery, Inc. Superfund Site, Chesterfield County, Virginia, prepared by Woodward-Clyde Consultants for the U.S. Army Corps of Engineers-Omaha District, March 1991.

7. Addendum to Work Plan: Treatability Study, C&R Battery, Inc. Superfund Site, Chesterfield County, Virginia, prepared by Woodward-Clyde Consultants for the U.S. Army Corps of Engineers-Omaha District, May 1991.

8. Report: Comments on the RI/FS and ROD for the C&R Battery Superfund Site, prepared by Environ Corp. for the C&R Battery Superfund Site PRP Group, January 1991.

9. Report: Treatability Study and Site Characterization, C&R Battery Co. Superfund Site, Chesterfield County, Virginia, prepared by Woodward-Clyde Consultants for the U.S. Army Corps of Engineers-Omaha District, September 1991.

10. Report: Petrographic and X-Ray Diffraction Analysis of Soil Samples, C&R Battery Co. Superfund Site, Chesterfield County, Virginia, prepared by the U.S. Army Corps of Engineers-Omaha District, June 1991.

11. Letter to Jon J. Jewett, Esq. from Mr. Philip Rotstein, U.S. EPA Re: Response to Comments on RI/FS and ROD made by Environ Corp. for the C&R Battery Superfund Site PRP Group, June 1991.

II. ENFORCEMENT DOCUMENTS

1. PRP List: C&R Battery Co., Inc. Superfund Site, prepared by U.S. EPA, August 1991, amended March 1992.

* 2. Letter to Mr. Charles A. Smith, Jr of Smith Iron & Metal Co. from Abraham Ferdas, U.S. EPA, Re: General Notice Letter and Notice of Decision not to use Special Notice Procedures sent certified mail August 15, 1991.

3. Waste-In List: C&R Battery Co., Inc. Superfund Site, prepared by U.S. EPA, October 1991, amended March 1992.

** 4. Letter to Mr. Philip Rotstein, U.S. EPA from Mr. Charles A. Smith, Jr of Smith Iron & Metal Co. Re: Response to General Notice Letter and Notification of "Special Notice" Waiver dated September 5, 1991.

5. Letter to Mr. Charles A. Smith, Jr. Chairman, C&R Battery Site PRP Group from Abraham Ferdas, U.S. EPA Re: Response to letter from C&R Battery Site PRP Group dated October 2, 1991..

* Example of letter sent to all PRPs listed under item (1) of Section II.

** Example of response to letter sent to all PRPs listed under item (2) of Section II.

APPENDIX G

UNITED STATES DEPARTMENT OF COMMERC
National Oceanic and Atmospheric Administrati
Washington, D.C. 20230

OFFICE OF THE GENERAL COUNSEL

MAY 11 1998

Yvette Hamilton-Taylor, Esq.
3RC32
Office of Regional Counsel
U.S. EPA
841 Chestnut Building
Philadelphia, PA 19107

RECEIVED

MAY 1 5 1998

[illegible] III, [illegible]
[illegible] PA/[illegible] [illegible]

Re: C&R Battery

Dear Yvette,

I understand that you are preparing an Administrative Order on Consent for the third set of de minimus settlors with 22 PRPs for the C&R Battery site, and request NOAA's position regarding additional natural resource damage claims. The C&R Battery settlement, published in the Federal Register on November 15, 1994, for approximately $90,000 to NOAA and the Department of Interior resolves all of NOAA's natural resource damage claims for the C&R Battery site. If you have any further questions, please give me a call at 301 713-1220.

Sincerely,

Sharon Shutler

Sharon K. Shutler,
Attoney, Office of General Counsel

cc: Peter Knight

AR000230