

IN THE UNITED STATES DISTRICT COURT FOR THE
WESTERN DISTRICT OF LOUISIANA
LAFAYETTE DIVISION

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U.S. DISTRICT COURT
EAST DISTRICT OF
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LORETTA G. WHYTE
CLERK

UNITED STATES OF AMERICA and)
STATE OF LOUISIANA,)
Plaintiffs,)
)
v.)
)
MARINE SHALE PROCESSORS, INC.)
and RECYCLING PARK, INC.,)
)
Defendants,)
)
and)
)
SOUTHERN WOOD PIEDMONT COMPANY,)
Intervenor-Defendant,)
)
and)
)
GTX, Inc.,)
Intervenor.)
)
And Counterclaims.)

Civil Action No.
CV90-1240

Judge Duplantier
Magistrate Judge Knowles

CONSENT DECREE AMONG THE UNITED STATES, STATE OF LOUISIANA
SOUTHERN WOOD PIEDMONT COMPANY AND RAYONIER INC.

TABLE OF CONTENTS

I. DEFINITIONS 8

II. JURISDICTION AND VENUE 13

III. PARTIES BOUND AND NOTICE OF TRANSFER 14

IV. OBJECTIVES 16

V. GENERAL PROVISIONS 16

VI. REMEDIAL MEASURES 17

VII. AGENCY REVIEW AND APPROVAL OF PLANS AND OTHER SUBMISSIONS 20

VIII. ACCESS 22

IX. PAYMENT OF RESPONSE COSTS 24

X. STIPULATED PENALTIES 25

XI. FORCE MAJEURE 29

XII. DISPUTE RESOLUTION 30

XIII. INDEMNIFICATION 32

XIV. COVENANT OF PLAINTIFFS 33

XV. COVENANT OF SETTLING DEFENDANTS 35

XVI. EFFECT OF SETTLEMENT/ CONTRIBUTION PROTECTION 37

XVII. COSTS 39

XVIII. NOTICE 39

XIX. EFFECTIVE DATE 41

XX. RETENTION OF JURISDICTION 41

XXI. MODIFICATION 41

XXII. TERMINATION	42
XXIII. PUBLIC PARTICIPATION	43
XXIV. SIGNATORIES/SERVICE	43
XXV. INTEGRATION	44
XXVI. FINAL JUDGMENT	44
XXVI. APPENDICES	44

A. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), filed a Complaint on June 14, 1990, Civil Action No. CV90-1240, pursuant to Section 3008(a) and (g) of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 ("RCRA") and the Hazardous and Solid Waste Amendments of 1984 ("HSW"), 42 U.S.C. §6928(a) and (g) (hereinafter collectively referred to as ("RCRA")), and Section 309 of the Clean Water Act, 33 U.S.C. §1319 ("CWA"), against defendant, Marine Shale Processors, Inc. ("MSP"), with respect to its facility in Amelia, Louisiana, which is the subject of this Civil Action No. CV90-1240 (this "action").

B. The United States filed an Amended Complaint on September 8, 1992, alleging that, in addition to the claims set forth in the Complaint, MSP violated the Clean Air Act ("CAA"), 42 U.S.C. §§7401, et seq., alleging an alternative claim under the CWA, 33 U.S.C. §1311, and seeking recovery of response costs incurred and to be incurred by the United States pursuant to the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. §9601 et seq., in connection with MSP's activities.

C. Pursuant to the authority of Section 3008(a) and (g) of RCRA, 42 U.S.C. § 6928(a) and (g), and Section 309 of the CWA, 33 U.S.C. §1319, and Section 113(b) of the CAA, 42 U.S.C. §7413(b), the United States' Amended Complaint sought injunctive relief and the imposition of civil penalties.

D. MSP filed an Answer and Counterclaims in this action.

E. The State of Louisiana, by and through the Louisiana Department of Environmental Quality ("LDEQ"), has intervened as a party plaintiff in this action.

F. Recycling Park, Inc. ("RPI") has intervened as party defendant in this action.

G. On January 7, 1992, MSP filed a Complaint against the United States in this action.

H. On July 12, 1993, Southern Wood Piedmont ("SWP") filed a Complaint in Intervention in this action. The United States counterclaimed against SWP in this action. These actions were consolidated with the Plaintiffs' claims against MSP and RPI.

J. The RCRA claims were tried to a jury for five weeks in April and May 1994 before Judge Adrian Duplantier, who granted a mistrial as to MSP and rendered a judgment in favor of SWP under Rule 54(b).

K. This Court granted summary judgment in favor of the United States on certain CAA, CWA and RCRA penalty claims tried in June and July 1994; and on August 30, 1994, entered a Judgment imposing an \$8 million penalty against MSP for these violations. This Court also granted judgment in favor of the United States on its counterclaim against SWP in the amount of \$25,000, which judgment has been paid and satisfied in full by SWP.

L. The United States Court of Appeals for the Fifth Circuit affirmed that portion of the Court's August 30, 1994, judgment awarding \$4 million in penalties against MSP, to be apportioned \$1.75 million to the State of Louisiana and \$2.25 million to the United States.

M. The remaining \$4 million of the August 30, 1994, Judgment was vacated by the Court of Appeals, and the matter of further penalties was remanded to this Court for further proceedings.

N. The Court of Appeals reversed and remanded the Rule 54(b) judgment of SWP for further findings by this Court.

O. GTX, Inc. ("GTX") thereafter obtained an option to purchase the assets and liabilities of MSP. To facilitate a settlement, GTX intervened in this action.

P. GTX and all parties to the litigation agreed to the terms set forth in a consent decree that was entered in this action on February 20, 1998 (the "Original Consent Decree").

Q. The LDEQ issued the following permits to GTX on or about February 19, 1999: (i) Hazardous Waste Operating Permit No. LAD 981 057 706 HW; (ii) Air Quality Part 70 Operating Permit No. 2660-00002-VO; and (iii) LPDES Permit No. LA0105988.

R. GTX merged into Earthlock Technologies, L.L.C. ("Earthlock") effective December 28, 2001, and, in connection with that merger, the said permits were transferred, with the prior approval of the LDEQ, to Earthlock.

S. A Vacating Order was issued effective on or about May 21, 2002, rendering the terms of the Original Consent Decree null, void, and without further legal effect as to any Party, except the stipulations set forth in Section XXI of the Original Consent Decree, which survived the issuance of the Vacating Order, and returning each party to the status quo ante, without prejudice to any rights, claims, counterclaims, causes of action, applications, motions or obligations, as if the Original Consent Decree had never been issued. Such stipulations are not affected by this Consent Decree.

T. Earthlock surrendered the aforesaid permits to LDEQ on December 23, 2002, and has advised the United States and LDEQ (collectively the "Plaintiffs") that it has abandoned its efforts to reopen the MSP Facility.

U. In March 2006, the Court granted the United States' motion for leave to file a counterclaim against SWP seeking recovery of response costs incurred and to be incurred by the United States pursuant to CERCLA at the MSP Facility and at the RPI Facility (as defined below). The State of Louisiana also has asserted a CERCLA counterclaim against SWP.

V. The Plaintiffs contend that as a result of the release or threatened release of hazardous substances, they have undertaken response actions at or in connection with the Sites (as defined below), and/or will undertake response actions in the future, and that in performing these response actions, the Plaintiffs have incurred and/or will continue to incur response costs at or in connection with those Sites.

W. The Settling Defendants (as defined below) do not admit any liability to the Plaintiffs arising out of any release or threatened release of hazardous substances at the Sites, or otherwise.

X. The Parties (as defined below) agree that settlement without further litigation is the most appropriate means of resolving this action with respect to the Settling Defendants.

Y. In furtherance of its responsibilities and duties, the LDEQ has reviewed this Consent Decree. After reviewing alternative projects and mitigative measures, the LDEQ has found that the potential adverse environmental impact and risks have been minimized or avoided as much as possible. Further, after balancing the possible environmental costs and benefits with social, economic and other factors, the LDEQ has found that the benefits outweigh the costs and that it is reasonable to enter into this Consent Decree consistent with the health, safety and welfare of the people of Louisiana.

Z. The Parties, without the necessity of trial or adjudication of any issues of fact or law and without precluding potential future enforcement of this Consent Decree, and without any admission of liability by any Party, consent to entry of this Consent Decree.

AA. The parties agree and the Court finds that this Consent Decree has been negotiated by the Parties in good faith, that the implementation of this Consent Decree will avoid prolonged

and complicated litigation and will provide for remediation, and that this Consent Decree is fair, reasonable and in the public interest.

NOW, THEREFORE, IT IS ORDERED, ADJUDGED AND DECREED AS FOLLOWS:

I. DEFINITIONS

1. Unless otherwise expressly stated, the terms used in this Consent Decree that are defined in the Resource Conservation and Recovery Act, 42 U.S.C. § 6901, et seq.; the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601, et seq.; the Louisiana Environmental Quality Act, La. R. S. 30:2001, et seq., or in regulations promulgated thereunder shall have the meanings set forth in such definitions. The term "hereafter" as used herein shall mean after the date upon which this Consent Decree is entered by the Court.

2. Whenever the terms listed below are used in this Consent Decree or any Appendices hereto, the following definitions shall apply:

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. § 9601 et seq.

"Consent Decree" shall mean this Consent Decree and all appendices hereto, and all modifications thereof, executed and delivered by all Parties.

"Day" shall mean a calendar day unless expressly stated to be a business day. "Business Day" shall mean a day other than a Saturday, Sunday or federal holiday. In computing any period of time prescribed or allowed under this Consent Decree, the provisions of Rule 6, Federal Rules of Civil Procedure, shall apply.

"Disputed Material" shall mean the material generated prior to the entry of this Consent Decree by combustion units located at the MSP Facility (e.g., the rotary kiln incinerator, oxidizers, waste combustion units and vitrification units (slag boxes)), which the United States has alleged in this litigation is a hazardous waste.

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

"Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States or the State incur at or in connection with the Sites, after the date of entry of this Consent Decree, including in reviewing or developing plans, reports and other items pursuant to this Consent Decree, verifying the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the cost of attorney time and monies paid to secure access and/or to secure or implement institutional controls, all costs incurred in monitoring, assessing and evaluating any release or threat of release of any hazardous substance to the environment (including the water, sediments or plant or animal life in Bayou Boeuf), and all other costs recoverable under § 9607(a) of CERCLA and LEQA and incurred by the Plaintiffs.

"LEQA" shall mean the Louisiana Environmental Quality Act, La. R. S. 30:2001, et seq.

"LDEQ" shall mean the Louisiana Department of Environmental Quality and any successor departments or agencies of the State of Louisiana.

"Mixed SWP Disputed Material" shall mean (I) Disputed Material generated from materials delivered to MSP from SWP which was mixed with non-SWP waste materials before or during processing by MSP, and (ii) Disputed Material generated from the processing of materials delivered to MSP from SWP only, but which was mixed with non-SWP waste materials, or mixed

with Disputed Material generated from the processing of non-SWP waste materials, after being processed by MSP.

“MSP Facility” shall mean the property and improvements in or near Amelia, Louisiana that are described in and are or were subject to Hazardous Waste Operating Permit No. LAD 981 057 706 HW, issued by the LDEQ on or about February 19, 1999, and any other area where a hazardous substance, Waste Material or Disputed Material originating therefrom has been or is hereafter deposited, stored, disposed of, or placed or otherwise comes to be located other than at the RPI Facility. (A description of the MSP Facility real property is attached hereto as Appendix A).

“Non-SWP Disputed Material” shall mean all Disputed Material which was generated from the processing of non-SWP waste material and generally was not mixed with SWP Disputed Material after being processed by MSP.

“Notify” and “submit” and other terms signifying an obligation to transmit or communicate documents or information mean, unless otherwise specifically provided in this Consent Decree, to deposit in the United States mail not later than the day that such transmission or communication is required by this Consent Decree. In lieu of depositing such documents or information in the U.S. mail, these items may also be delivered in person or dispatched by express courier not later than the day that such transmission or communication is required by this Consent Decree. Should such day be a weekend day or a federal or State holiday, the delivery, deposit, or dispatch shall be due on the next business day.

“Off-Site Locations” shall mean all locations, other than the MSP Facility and the RPI Facility, where Disputed Material or Waste Material that has been or is hereafter removed from the MSP Facility or the RPI Facility, has been or is hereafter placed or disposed of (including, but

not limited to, the locations referenced in Section VIII.B of the Original Consent Decree, namely the Lowlands Construction (a/k/a Robichaux subdivision) site, the Crankshaft Company (a/k/a ABC Bait) site, the Schriever Auto Parts site, the M.B.J. Construction site, the Southern Scrap site, and the Domino Estate site).

“Original Consent Decree” shall mean the consent decree entered in this matter on February 20, 1998, which was vacated effective on or about May 21, 2002, except that the stipulations set forth in Section XXI of the said consent decree expressly survived the vacating of the said consent decree, and are binding upon the parties to that consent decree in any future litigation.

“Parties” shall mean the United States, on behalf of the EPA; the LDEQ on behalf of the State of Louisiana; Southern Wood Piedmont Company; and Rayonier Inc.

“Past Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, that the United States or the State incurred or paid at or in connection with the Sites prior to and including the date of entry of this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the cost of attorney time, and all other costs recoverable under § 9607(a) of CERCLA or the LEQA, plus Interest on all such costs which has accrued pursuant to 42 U.S.C. § 9607(a) or the LEQA through such date.

“Person” shall mean an individual, firm, corporation, association, partnership, consortium, joint venture, limited liability company, commercial or other entity, United States Government, State, municipality, commission, political subdivision of a State, or any interstate body.

“Plaintiffs” shall mean the United States, on behalf of the EPA; and the LDEQ on behalf of the State of Louisiana.

FOUNDED PAN AMERICAN REFINERY SITE RI/FF
 JAMES H. MORTIMER CONSULTING ENGINEERS, INC.

Page : 5A
 Date : 03/04/91

VOLATILE ORGANICS (VOCs)
 FILTER : MATRIX = 'GW' OR MATRIX = 'SU' OR MATRIX = 'CU'

DATE SAMPLED	06/22/88		06/23/88		02/10/89		03/13/89		02/15/89		02/10/89		02/09/89		02/09/89		02/09/89		02/10/89		02/10/89		02/27/89		05/01/90	
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BROMOBENZENE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRICHLOROETHYLENE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VINYL CHLORIDE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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BENZENE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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2-CHLOROETHYL VINYL ETHER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BROMOFORM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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1,1,2,2-TETRACHLOROETHANE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOLUENE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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ETHYL BENZENE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ACRYLONITRILE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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Note: - Indicates BELOW DETECTION LIMIT
 N/A Indicates NOT ANALYZED

"Settling Defendants" shall mean SWP and Rayonier, as well as the current and former shareholders, officers, directors and employees of those entities, respectively, acting in their official capacities for such entities.

"Sites" shall mean the MSP Facility, the RPI Facility, and the Off-Site Locations.

"State" or "State of Louisiana" shall mean the State of Louisiana and its agencies and departments, including the Louisiana Department of Environmental Quality.

"SWP" shall mean Southern Wood Piedmont Company.

"SWP Disputed Material" shall mean, and consists of (i) all Unmixed SWP Disputed Material, and (ii) all Mixed SWP Disputed Material.

"United States" shall mean the United States of America, and its agencies and departments, including the United States Environmental Protection Agency.

"Unmixed SWP Disputed Material" shall mean all Disputed Material generated from the processing of material sent to MSP from SWP, and which was processed separately from any other materials, and was not mixed with any Non-SWP Disputed Material after being processed by MSP.

"Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 1004(27) of RCRA, 42 U.S.C. § 6903(27); any "solid waste" or "hazardous waste" under the regulations promulgated under RCRA; and any "hazardous substance," "solid waste," "hazardous waste," pollutant or contaminant under the LEQA and the regulations promulgated under LEQA.

“Work” shall mean all activities SWP is required to perform under this Consent Decree, except those required under Paragraph 32 of this Consent Decree (regarding preservation of records).

“Work Plan” shall mean the document developed to implement the Remedial Measures set forth in Section VI of the Consent Decree approved by the Parties and attached hereto as Appendix C.

II. JURISDICTION AND VENUE

3. This Court has jurisdiction over the subject matter of Civil Action No. CV90-1240 pursuant to 28 U.S.C. §§ 1331, 1345 and 1355; Sections 3008(a) and (h) of RCRA, 42 U.S.C. §§ 6928(a) and (h); Section 113(b) of CERCLA, 42 U.S.C. § 9613(b); Section 309 of the CWA, 33 U.S.C. § 1319; Section 113 of the CAA, 42 U.S.C. § 7413(b); and over the Parties to this action. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391(b) and (c), 42 U.S.C. §§ 6928(a) and (h), 9613(c), and 7413(b).

4. Solely for the purposes of this Consent Decree and the underlying complaints, the Parties waive all objections and defenses that they may have to the jurisdiction of the Court or to venue in this District. The Parties shall not challenge the terms of this Consent Decree or this Court’s jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND AND NOTICE OF TRANSFER

5. This Consent Decree shall apply to and be binding upon the United States, the State of Louisiana, and the Settling Defendants and their successors and assigns. Any change in ownership or corporate status of a Settling Defendant including, but not limited to, any transfer of assets or real or personal property, shall in no way alter such Settling Defendant’s responsibilities under this Consent Decree.

6. Unless otherwise agreed to by Plaintiffs, no change in ownership, corporate, or partnership status relating to or conveyance of title, easement, or other interest in the MSP Facility or the RPI Facility, including but not limited to any lease or transfer of assets or real or personal property, will alter SWP's obligation to comply with the requirements of this Consent Decree or SWP's liability for compliance by any successor or assign of SWP in the event such successor or assign fails to perform obligations required by the Consent Decree.

7. All aspects of the Work to be performed by Settling Defendants pursuant to Section VI (Remedial Measures) of this Consent Decree shall be under the direction and supervision of a Supervising Contractor, the selection of which shall be subject to disapproval for good cause by EPA after a reasonable opportunity for review and comment by the State. Within 30 days after the lodging of this Consent Decree, the Settling Defendants shall notify EPA and the State in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor. EPA will issue to the Settling Defendants a written notice of disapproval or an authorization to proceed within 60 business days of its receipt of such notification from the Settling Defendants. If EPA issues a notice of disapproval, SWP shall either submit within 45 business days after receipt of such notice the name, title, and qualifications of another contractor proposed to be the Supervising Contractor, or invoke Dispute Resolution (Section XII). If EPA fails to provide written notice of its authorization to proceed or disapproval as provided in this Paragraph within 60 business days of its receipt of such notification from the Settling Defendants, the Supervising Contractor selected by Settling Defendants shall be deemed approved by EPA and the State.

8. At least ten (10) days prior to the commencement of any Work (other than work commenced or completed on the date of entry of this Consent Decree), SWP shall provide to each

contractor hired to perform or monitor any of the Work required by this Consent Decree or its Appendices, and to each Person representing SWP with respect to the MSP Facility, RPI Property, or the Work, a copy of all sections of this Consent Decree or Appendices relevant to the contractor's employment, and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree and its Appendices. SWP or its contractors shall provide written notice of this Consent Decree to all subcontractors hired to perform any portion of the Work required by this Consent Decree.

9. Notwithstanding any retention of contractors, subcontractors or agents to perform or monitor any Work required under this Consent Decree, SWP shall be responsible for ensuring that all Work is performed in accordance with the requirements of this Consent Decree. In any action to enforce this Consent Decree or obtain stipulated penalties hereunder, SWP shall not assert as a defense the failure of its employees, servants, agents, contractors or subcontractors to take actions necessary to comply with this Consent Decree, unless SWP establishes that such failure resulted from a "force majeure" event as defined in Section XI of this Consent Decree.

IV. OBJECTIVES

10. The objectives of the Parties in entering into this Consent Decree are to protect public health and welfare and the environment by the implementation of remedial measures by SWP at the RPI Facility, to be financed by Rayonier, to reimburse response costs of the Plaintiffs as set forth herein, and to resolve the claims of Plaintiffs against the Settling Defendants as provided in this Consent Decree.

V. GENERAL PROVISIONS

11. Rayonier shall finance and SWP shall perform the Work in accordance with this Consent Decree, and all plans, standards, specifications, and schedules set forth herein or

developed by the Settling Defendants and approved by EPA pursuant to this Consent Decree. Rayonier also shall reimburse the United States and the State for Past Response Costs and Future Response Costs as provided in Paragraph 36 of this Consent Decree.

12. In the event of the insolvency or other failure of SWP or Rayonier to implement the requirements of or pay amounts owed under this Consent Decree as set forth in Paragraph 11, the other shall complete all such requirements and pay any such amounts owed.

13. All activities undertaken by SWP and Rayonier pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and regulations. The activities conducted in accordance with this Consent Decree, if approved by EPA, shall be considered to be consistent with the National Contingency Plan ("NCP"), 40 C.F.R. Part 300.

14. No permit shall be required for any portion of the Work conducted entirely on-site (i.e. within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work).

15. SWP may seek, and the Plaintiffs will not oppose, relief under the provisions of Section XI (Force Majeure) of this Consent Decree for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any governmental approval required before commencement of the Work, provided that SWP has applied for any such approvals in a timely and complete manner.

16. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal, state or local statute or regulation.

VI. REMEDIAL MEASURES

17. In December 2004, SWP submitted a Human Health Risk Assessment: Recycling Park, Inc. Facility prepared for SWP by Chemrisk, Inc ("RPI Risk Assessment"). See Appendix D. After reviewing the previous history of the RPI Property and the sampling results and analysis contained in the RPI Risk Assessment, EPA and LDEQ have determined that the Remedial Measures set forth in the attached Work Plan will be protective of human health and the environment at the RPI Property and has authorized SWP to implement such Remedial Measures. See Appendix C.

18. Within 90 days after the Effective Date of the Consent Decree, SWP shall commence the clearing and grubbing of Area A of the RPI Site. Within 24 months thereafter, SWP shall complete the Remedial Measures described in the attached Work Plan for Area A of the RPI Facility.

19. Within 150 days after the Effective Date of the Consent Decree, SWP shall commence the clearing and grubbing of Area B of the RPI Site. Within 24 months thereafter, SWP shall complete the Remedial Measures described in attached Work Plan for Area B of the RPI Facility.

20. Within 210 days after the Effective Date of the Consent Decree, SWP shall commence the clearing and grubbing of Area C of the RPI Site. Within 24 months thereafter, SWP shall complete the Remedial Measures described in attached Work Plan for Area C of the RPI Facility.

21. SWP may seek, and the Plaintiffs will not oppose, relief under the provisions of Section XI (Force Majeure) of this Consent Decree for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining access to the RPI facility for SWP for performance of the Remedial Measures in accordance with Section VIII.

22. Material to be utilized for cap material must have permeability less than 1×10^{-7} cm/sec per ASTM 5084. Cap material will be placed in maximum six inches compacted lifts and compacted to 90% standard proctor per ASTM D698 maintaining moisture at 2%-8% above optimum.

23. Upon satisfactory testing of the cap material to verify that it meets the requirements of Paragraph 22, an additional six inches of loose topsoil will be placed and spread over the entire pile area. This topsoil will then be seeded and fertilized to allow for expedient growth of grass. Topsoil must consist of available material complying with LADOTD specifications. Generally, the material must have less than 20% organics, no rocks or cobbles larger than two inches, and minimal silt content. Topsoil must be well graded, free of lumps, and placed and spread while maintaining a compaction less than 85% standard proctor. Topsoil must be free of pesticides or other contaminants that will inhibit the growth of grass and vegetation.

24. The entire disturbed area will be seeded and fertilized. Seeding must be accomplished by spreading 45 pounds of Bermuda/rye grass per acre. Seed shall be broadcast or spread in two perpendicular passes to ensure adequate coverage. Immediately after seeding, the seed must be thoroughly watered and fertilized to promote growth of grass on the topsoil. All disturbed areas (piles, side slopes, on-site borrow areas, etc) must be watered and maintained until the site has been 85% established.

25. An accredited geo-technical testing services company must be retained to maintain a certified technician on site at all times during the performance of the Remedial Measures required in this Section, except during seeding, fertilizing, and watering.

26. Within sixty (60) days after SWP concludes that the Remedial Measures have been fully performed, SWP shall schedule and conduct an inspection to be attended by SWP and the

Plaintiffs. If, after the inspection, SWP still believes that the Remedial Measures have been fully performed, it shall submit a written report requesting certification to EPA and LDEQ for review and approval, pursuant to Section VII (Agency Review and Approval of Plans and Other Submissions), within 30 days of the inspection. EPA, after a reasonable opportunity for review and comment by LDEQ, shall issue written notice of approval or denial of the request for certification of completion within 60 days of receipt of the request from SWP.

27. After the EPA and LDEQ certify that the Remedial Measures have been fully performed, SWP shall be responsible for maintaining the effectiveness of the Remedial Measures performed for a period of 12 months after such certification by the EPA and LDEQ.

28. The Plaintiffs shall seek an agreement from the owner of the RPI Facility or an order from the Court applying the following institutional controls to the RPI Facility:

(a). The RPI Facility shall only be used for industrial/commercial land uses as described in LDEQ's Risk Evaluation/Corrective Action Program ("RECAP"), Section 2.9;

(b). The cap placed over the Disputed Material shall not be disturbed or removed;

(c). If any cap material is disturbed or removed in violation of Subparagraph B above, the Person who disturbs or removes the material shall immediately repair and restore the same;

(d). In accordance with Paragraph 17, if any Disputed Material is removed and transported from the RPI Facility, it shall be managed and transported as solid waste and disposed of in a Type I Industrial Solid Waste Landfill under Louisiana Administrative Code ("LAC") 33 Part VII, or in an equivalent RCRA Subtitle D Landfill if to be disposed of outside Louisiana, in a segregated cell containing no material other than the removed Disputed Material, unless the total

volume of the Disputed Material removed from the RPI Facility is less than 100 tons, in which case a segregated cell is not required; and

(e). The execution of any and all documents, including but not limited to any conveyance notices, easements, covenants, restrictions, servitudes, or future act of sale, deemed appropriate by LDEQ or EPA to implement the above institutional controls, and upon request by LDEQ or EPA, the filing of such documents for record in the official real property records of the Clerk of Court of St. Mary Parish, Louisiana. The contemplated forms of the Conveyance Notification and Transfer Provision are set forth in Appendices E and F hereto.

VII. AGENCY REVIEW AND APPROVAL OF DOCUMENT SUBMITTALS

29. As provided for in this Consent Decree, EPA and LDEQ shall review all reports and other documents submitted to EPA and LDEQ and, if required, approval pursuant to this Consent Decree, including reports and documents concerning the proposed Supervising Contractor, request for certification of completion of the Remedial Measures, and request for termination of the Consent Decree. If approval is required, EPA and LDEQ shall notify SWP in writing of their approval, disapproval or modification of such reports or other documents, or any part thereof within the time periods set forth in this Consent Decree. In the event of any disapproval, EPA and LDEQ's written notice shall explain the reasons for the disapproval and provide the data, if any, upon which they rely for such disapproval. In addition, they shall specify and provide reasoning for the modifications or additions which they believe must be made prior to approval of any such reports or other documents. Whenever both EPA and LDEQ are required to review and approve any submittals under this Consent Decree, approval shall be determined by EPA after a reasonable opportunity for review and comment by LDEQ.

30. Within forty five (45) days of receipt of EPA's and LDEQ's disapproval of any report or other document required to be submitted under this Consent Decree, or within such other time as provided in this Consent Decree, SWP shall amend and submit a revised report or other document to EPA and LDEQ. If EPA and LDEQ issue a notice of disapproval or modification, SWP shall attempt to comply with the action specified by EPA and LDEQ or invoke its right to Dispute Resolution (Section XII). If EPA fails to provide written certification of completion or notice of disapproval as provided in this Paragraph and this failure prevents the Settling Defendants from meeting one or more deadlines approved by the EPA pursuant to this Consent Decree, Settling Defendants may seek, and the Plaintiffs will not oppose, relief under the provisions of Section XI (Force Majeure).

31. The written report requesting certification of completion of the Remedial Measures (under Paragraph 26), the request for termination of this Consent Decree (under Section XXII), and all other documents submitted by SWP to EPA and LDEQ for review and approval pursuant to this Consent Decree shall be signed by a responsible agent of SWP, or his duly authorized representative, and shall include the following certification statement:

"I certify under penalty of law that this document and all appendices were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify, to the best of my knowledge and belief, that this document meets the objectives and requirements of the Consent Decree entered among LDEQ, EPA and SWP in connection with Civil Action No. 90-1240 in United States District Court for the Western District of Louisiana. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

32. The Parties agree to preserve and make available to each other during the pendency of this Consent Decree, and for a minimum of three (3) years after its termination, all

records and documents in their possession which relate to the performance of obligations under this Consent Decree.

VIII. ACCESS

33. The RPI Facility is presently owned by Recycling Park, Inc. ("RPI"). SWP shall make a written request to RPI to obtain site access agreements for itself and its contractors, and for EPA and LDEQ and their authorized representatives and contractors, from the owner(s) of such property. SWP shall make the written request to obtain such access agreements as expeditiously as practicable, to prevent any delays in Work required under this Consent Decree. If an agreement for access to such property is not obtained within sixty (60) days after SWP's request for access, SWP shall notify EPA and LDEQ regarding its written request to RPI to secure an access agreement and the reasons for SWP's inability to obtain such an agreement. In the event that the United States or State of Louisiana obtain or the Court orders access for SWP, SWP shall undertake the Work approved by EPA and LDEQ pursuant to this Consent Decree on such property.

34. After the access described in Paragraph 33 is obtained, SWP agrees to provide EPA or LDEQ and their representatives, including contractors, access at all reasonable times, to enter and move about all property at the RPI Property, with such representatives having due regard for safety of personnel and property, for any purpose relating to the implementation, monitoring or enforcement of this Consent Decree, including, without limitation, interviewing SWP's Supervising Contractor, his/her designated representative(s) or personnel involved in field work at the RPI Property; inspecting records, operating logs and contracts related to the implementation, monitoring or enforcement of this Consent Decree; reviewing progress of SWP in carrying out terms of this Consent Decree; conducting such sampling and tests as EPA or

LDEQ or their representatives deem appropriate for implementation, monitoring or enforcement of this Consent Decree; using a camera, sound recording, or other documentary type equipment; and verifying the reports and data that SWP submits to LDEQ and EPA. SWP shall permit such persons to inspect and copy all records, files, photographs, computer records and other writings, including all sampling and monitoring data, required to implement, monitor or enforce this Consent Decree. Such persons shall comply with all health and safety plans approved pursuant to this Consent Decree and SWP's safety program. SWP or its representatives may accompany EPA or LDEQ representatives throughout their presence at the RPI Facility, but may not in any way delay or impede their investigative activities. Upon request at the time of sampling, SWP may obtain splits of any samples and duplicates of any photographs and videos taken by EPA or LDEQ or their contractors, and upon request shall be provided with copies of the results of analyses or tests made on such samples and such photographs and videos. In the event SWP believes that information, data or other material accessible to the EPA or LDEQ under this Consent Decree contains confidential business information, SWP shall be entitled to all confidential business information protections available under applicable law or regulation, and EPA and LDEQ shall handle such designated material in accordance with such law.

35. Nothing in this Section limits or otherwise affects LDEQ or EPA's right of access and entry pursuant to any applicable law, including, but not limited to, Section 3007 of RCRA, 42 U.S.C. § 6927, and Section 104(e) of CERCLA, 42 U.S.C. § 9604, La. R.S. 30:2012, et seq., and other corresponding state laws.

IX. PAYMENT OF RESPONSE COSTS

36. Within 30 days of the Effective Date of this Consent Decree, Settling Defendants shall pay to LDEQ \$200,000 in payment for Past Response Costs and anticipated Future

Response Costs. Settling Defendants shall make all payments required by this Paragraph by a certified or cashier's check made payable to the LDEQ, and mailed or delivered to the Office of Management and Finance, Financial Services Division, Department of Environmental Quality, Post Office Box 4303, Baton Rouge, Louisiana, 70821-4303. At the time of payment, Settling Defendants shall send notice that payment has been made to the United States, EPA, the Regional Financial Management Officer, and the LDEQ in accordance with Section XVIII (Notices).

37. Upon receipt of the funds, the Secretary shall deposit the funds in an interest bearing escrow account, pursuant to La. R.S. 30:2031 B. The Secretary shall expend such funds solely for closure and remediation of the contamination at the MSP Facility and/or the RPI Facility.

38. If any Settling Defendant fails to make any payment required under this Consent Decree by the due date, Interest shall continue to accrue on the unpaid balance through the date of payment.

X. STIPULATED PENALTIES

39. SWP shall be liable for Stipulated Penalties to the United States and the State for violations of this Consent Decree as specified below, unless excused under Section XI (Force Majeure). A violation includes failing to perform any obligation required by this Consent Decree, including any work plan or schedule approved under this Consent Decree, according to all applicable requirements of this Consent Decree and within the specified time schedules established by or approved under this Consent Decree.

A. SWP shall pay stipulated penalties to the United States and the State for each day it fails to meet any of the completion dates for Areas A, B, or C of the RPI Property in accordance with the requirements set forth in Paragraphs 18-25 above and the Work Plan. The

stipulated penalties collectively payable to the United States and the State per day for each failure to meet each milestone date are as follows:

<u>Period of Noncompliance</u>	<u>Penalty per Day of Violation</u>
1 st to 30 th day	\$ 200
31 st to 60 th day	\$ 400
61 st to 90 th day	\$ 750
After 90 days	\$1,250

B. SWP shall pay stipulated penalties to the United States and the State for each day it fails to meet any of the requirements for proposing a Supervising Contractor as set forth in Paragraph 8 or for scheduling and conducting an inspection and submitting a written completion report to EPA and LDEQ as set forth in Paragraph 26. The stipulated penalties collectively payable to the United States and the State per day are as follows:

<u>Period of Noncompliance</u>	<u>Penalty per Day of Violation</u>
1 st to 30 th day	\$ 200
31 st to 60 th day	\$ 400
After 60 days	\$ 750

C. SWP shall pay stipulated penalties to the United States and the State for each day it fails to effectively maintain the Remedial Measures performed at the RPI Property identified in Paragraph 27, above as required by this Consent Decree. The stipulated penalties collectively payable to the United States and the State per day are as follows:

<u>Period of Noncompliance</u>	<u>Penalty per Day of Violation</u>
1 st to 30 th day	\$ 200
31 st to 60 th day	\$ 400

61 st to 90 th day	\$ 750
After 90 days	\$1,250

40. Stipulated Penalties under this Section shall begin to accrue on the day after complete performance is due or on the day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated Penalties shall accrue for separate violations of Subparagraphs A, B and C of Paragraph 39 of this Consent Decree. The United States, or the State, or both may seek Stipulated Penalties under this Section. Where both sovereigns seek Stipulated Penalties for the same violation of this Consent Decree, SWP shall pay fifty percent to the United States and fifty percent to the State. Where only one sovereign demands Stipulated Penalties for a violation, and the other sovereign does not join in the demand within thirty (30) days of receiving the demand, or timely joins in the demand but subsequently elects to waive or reduce Stipulated Penalties for that violation, SWP shall pay the Stipulated Penalties due for the violation to the sovereign making the initial demand, less any amount paid to the other sovereign. The determination by one sovereign not to seek Stipulated Penalties shall not preclude the other sovereign from seeking Stipulated Penalties.

41. The United States or the State may, in the unreviewable exercise of its discretion, reduce or waive Stipulated Penalties otherwise due that sovereign under this Consent Decree.

42. Any applicable Stipulated Penalties shall continue to accrue during any Dispute Resolution, with interest on accrued penalties payable and calculated at the rate established by the Secretary of the Treasury, pursuant to 28 U.S.C. § 1961, but need not be paid until the following:

- a. If the dispute is resolved by agreement that is not appealed to the Court, SWP shall pay accrued penalties determined by the Parties to be owing, together with interest, to the Plaintiffs within thirty (30) days of such agreement;

- b. If the dispute is resolved by a decision of EPA that is not appealed to this Court, SWP shall pay accrued penalties determined by EPA to be owing, together with interest, to the Plaintiffs within thirty (30) days of the Effective Date of the agreement or the receipt of EPA's decision or order;
- c. If the dispute is appealed to this Court and the Plaintiffs prevail in whole or in part, SWP shall pay all stipulated penalties determined by the Court to be owing, if any, together with interest. The Court, in its discretion, shall determine whether and in what amount the stipulated penalties accruing during dispute resolution shall be payable by SWP. SWP shall make such payment within sixty (60) days of receiving the Court's decision or order, except as provided in Subparagraph d, below;
- d. If any Party appeals the District Court's decision, SWP shall pay all accrued penalties determined by the Court to be owing, if any, together with interest, within sixty (60) days of receiving the final appellate court decision.

43. Upon demand, SWP shall, as directed by the United States, pay Stipulated Penalties owing to the United States by Electronic Funds Transfer in accordance with Section IX (Payment of Response Costs), above; and as directed by the State, pay Stipulated Penalties owing to the State by certified check in accordance with Section IX.

44. If the SWP fails to pay Stipulated Penalties according to the terms of this Consent Decree, the United States and the State shall be entitled to collect interest on such penalties, as provided for in 28 U.S.C. § 1961.

45. Subject to the provisions of Section XIV of this Consent Decree (Covenants Not to Sue by Plaintiffs), the Stipulated Penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States or the State for SWP's violation of this Consent Decree or applicable law. Where a violation of this Consent Decree is also a violation of relevant statutory or regulatory requirements, the SWP shall be

allowed a credit, for any Stipulated Penalties paid, against any statutory penalties imposed for such violation.

XI. FORCE MAJEURE

46. A "force majeure event" is any event arising from one or more causes beyond the control of SWP, Rayonier, their contractors, or any entity controlled by SWP or Rayonier that delays or prevents the performance of any obligation under this Consent Decree despite SWP's or Rayonier's best efforts to fulfill the obligation. The requirement that SWP or Rayonier exercise "best efforts to fulfill the obligation" means using reasonable efforts to anticipate any potential force majeure event and reasonable efforts to address the effects of any such event (a) as it is occurring and (b) after it has occurred, such that the delay is minimized to the greatest extent reasonably possible. "Force Majeure" does not include SWP's financial inability to perform any obligation under this Consent Decree.

47. SWP shall provide notice orally or by electronic or facsimile transmission as soon as possible, but not later than fifteen (15) days after the time SWP first knew that the event might cause a delay. Within 10 business days thereafter, SWP shall provide in writing to EPA and LDEQ the anticipated duration of any delay; its cause(s); the SWP's past and proposed future actions to prevent or minimize any delay; a schedule for carrying out those actions; and SWP's rationale for attributing any delay to a force majeure event. Failure to give such notice shall preclude SWP from asserting any claim of force majeure for that event for the period of such failure to comply, and for any additional delay caused by such failure.

48. If the United States and the State agree that a force majeure event has occurred, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be suspended by EPA during the force majeure event and extended for

such time as is adequate to complete those obligations. An extension of time to perform the obligations affected by a force majeure event shall not, by itself, extend the time to perform any other obligation unless the other obligation is affected by such force majeure event. If the United States and the State do not agree that a force majeure event has occurred, the United States will notify SWP in writing of its decision.

49. If SWP elects to invoke the dispute resolution procedures set forth in Section XII (Dispute Resolution), it shall do so no later than fifteen (15) business days after receipt of the United States' written notice. In any such proceeding, SWP shall have the burden of proving, by a preponderance of the evidence, that each claimed force majeure event was or is a force majeure event; that SWP gave the notice required by this Section; that the force majeure event caused any delay SWP claims was attributable to that event; and that SWP exercised reasonable efforts to avoid and mitigate the effects of any delay caused by the event.

XII. DISPUTE RESOLUTION

50. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. However, such procedures shall not apply to actions by any Party to enforce obligations of any other Party that have not been disputed in accordance with this Section.

51. Any dispute subject to dispute resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when a Settling Defendant sends the United States and LDEQ a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed twenty (20) days from the date the dispute arises, unless that period is modified by

written agreement of the parties to the dispute. If the Parties cannot resolve a dispute by good faith informal negotiations, then the position advanced by the United States in writing shall be considered binding unless, within thirty (30) days after the conclusion of the informal negotiation period, a Settling Defendant invokes formal dispute resolution procedures as set forth below.

52. A. A Settling Defendant shall invoke formal dispute resolution procedures (if it so elects), within the time period provided in the preceding Paragraph, by serving on the United States and LDEQ a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but may not be limited to, any factual data, analysis or opinion supporting the Settling Defendant's position, and any supporting documentation relied upon by the Settling Defendant.

B. The United States and LDEQ shall serve its Statement of Position within forty-five (45) days of receipt of SWP's Statement of Position. The Plaintiffs' Statement of Position shall include, but may not be limited to, any factual data, analysis, or opinion supporting that position, and all supporting documentation relied upon by the United States and LDEQ. The Plaintiffs' Statement of Position shall be binding on the Settling Defendant, unless the Settling Defendant files a motion for judicial review of the dispute in accordance with Subparagraph 54.C., below.

C. The Settling Defendant may seek judicial review of the dispute by filing with the Court and serving on the United States and LDEQ, in accordance with Section XVIII of this Consent Decree (Notices), a motion requesting judicial resolution of the dispute. The motion must be filed within thirty (30) days of the date of receipt of the plaintiffs' Statement of Position pursuant to the preceding Subparagraph. The motion shall contain a written statement of the

Settling Defendant's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of this Consent Decree.

D. The Plaintiffs shall respond to the Settling Defendant's motion within the time period provided in the Local Rules of this Court, unless the parties stipulate otherwise. The Settling Defendant may file a reply memorandum, to the extent permitted by the Local Rules or the Parties' stipulation, as applicable.

E. In any judicial review of any dispute governed by this Section, SWP shall bear the burden of demonstrating that its position complies with this Consent Decree and any applicable statutory requirements.

F. Invoking dispute resolution procedures under this Section shall not extend, postpone, or affect in any way any obligation of the Settling Defendant under this Consent Decree, not directly in dispute or related thereto, unless the United States and LDEQ or the Court agrees otherwise. Stipulated Penalties with respect to the disputed matter shall continue to accrue during any period of dispute resolution, and payment of any Stipulated Penalties shall be stayed pending resolution of the dispute as provided in this Section. If the Settling Defendant does not prevail on the disputed issue, Stipulated Penalties shall be assessed and paid as provided in Section X (Stipulated Penalties).

XIII. INDEMNIFICATION

53. The United States and LDEQ do not assume any liability by entering into this agreement. SWP agrees to indemnify, save, and hold harmless the United States, LDEQ, their agencies, departments, officials, agents, employees, and representatives from any and all claims or causes of action arising from or on account of negligent or other wrongful acts or omissions of

SWP, its officers, directors, employees, and any other Person acting on its behalf or under its control in carrying out the activities pursuant to this Consent Decree. Further, to the extent that SWP fails to assume defense of the United States and LDEQ for any indemnifiable claim, SWP agrees to pay the United States and LDEQ all costs they incur including, but not limited to, reasonable attorneys' fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States or LDEQ based on negligent or other wrongful acts or omissions of SWP, its officers, directors, employees, agents, and any Persons acting on its behalf or under its control, in carrying out activities pursuant to this Consent Decree. Neither the United States nor LDEQ shall be held out as a party to any contract entered into by or on behalf of SWP in carrying out activities pursuant to this Consent Decree. Neither SWP nor any such contractor shall be considered an agent of the United States or LDEQ.

54. SWP waives all claims against the United States and LDEQ for damages or reimbursement or for set-off of any payments made or to be made to the United States or LDEQ arising from or on account of any contract, agreement, or arrangement between SWP and any Person for performance of Work on or relating to the RPI Property, including, but not limited to, claims on account of construction delays. In addition, SWP shall indemnify and hold harmless the United States and LDEQ with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between SWP and any Person for performance of Work on or relating to the RPI Property, including, but not limited to, claims on account of construction delays.

XIV. COVENANTS NOT TO SUE BY PLAINTIFFS

55. In consideration of the actions that will be performed and any payments that will be made by SWP under the terms of the Consent Decree, this Consent Decree resolves and the

United States and LDEQ covenant not to sue or to take administrative action against the Settling Defendants for claims alleged in Plaintiffs' Complaints, those under Sections 106 and 107(a) of CERCLA, Section 7003 of RCRA, La. R.S. 30:2271 et seq. and La. R.S. 30:2171 et seq. relating to the Sites, or for recovery of any Past Response Costs and Future Response Costs. Except with respect to future liability, these covenants not to sue shall take effect upon receipt by LDEQ of the payment required under Paragraph 36 of Section IX (Payment of Response Costs). With respect to future liability, these covenants not to sue shall take effect upon certification of completion of the Remedial Measures by EPA and LDEQ pursuant to Paragraph 26 of Section VI (Remedial Measures). These covenants not to sue are conditioned upon the satisfactory performance by the Settling Defendants of their obligations under this Consent Decree. These covenants not to sue extend only to the Settling Defendants and do not extend to any other Person.

56. The United States and LDEQ reserve, and this Consent Decree is without prejudice to, all rights against Settling Defendants with respect to all matters not expressly included within Plaintiffs' covenant not to sue. Notwithstanding any other provision of this Consent Decree, the United States and LDEQ reserve all rights against Settling Defendants with respect to:

- a. claims based on a failure by Settling Defendants to meet a requirement of this Consent Decree;
- b. liability arising from the Settling Defendants' past, present, or future disposal, release, or threat of release of Waste Materials outside of the Sites;
- c. liability based upon Settling Defendants' transportation, treatment, storage, or disposal, or the arrangement for the transportation, treatment, storage, or disposal of

Disputed Material at or in connection with the Sites, other than as provided in this Consent Decree, or otherwise ordered by EPA or LDEQ, after signature of this Consent Decree by the Settling Defendants; and

d. liability for damages for injury to, destruction of, or loss of natural resources, and for the reasonable costs of any natural resource damage assessments;

e. criminal liability; and

f. liability for violations of federal or state law by the Settling Defendants which occur during or after implementation of the Remedial Measures.

57. In the event EPA or LDEQ determines that Settling Defendants have ceased implementation of any portion of the Work, are seriously or repeatedly deficient or late in their performance of the Work, or are implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA or LDEQ may assume the performance of all or any portions of the Work as EPA or LDEQ determines necessary. Settling Defendants may invoke the procedures set forth in Section XII (Dispute Resolution) to dispute EPA or LDEQ's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by the United States in performing the Work pursuant to this Paragraph shall be considered Future Response Costs to be paid by Settling Defendants.

58. Notwithstanding any other provision of this Consent Decree, the United States and LDEQ retain all authority and reserve all rights to take any and all remedial measures authorized by law as to Persons other than the Settling Defendants; provided, however, that nothing in this Paragraph shall modify or otherwise affect the covenants not to sue provided to Settling Defendants in Paragraph 55 or the reservations afforded the Plaintiffs in Paragraph 56.

XV. COVENANTS BY SETTLING DEFENDANTS

59. Settling Defendants covenant not to sue and agree not to assert any claims or causes of action against the United States or LDEQ with respect to the MSP Facility, the RPI Facility, Past and Future Response Costs, or this Consent Decree, including, but not limited to:

a. 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), 107, 111, 112, 113 or any comparable funds maintained by LDEQ for costs incurred in complying with this Consent Decree.

b. any claims, including claims for declaratory judgment, against the United States, including any department, agency or instrumentality of the United States under RCRA including Sections 3004, 3008 or 7003, or CERCLA including Sections 107 or 113 related to the MSP Facility or RPI Facility, or

c. any claims arising out of response actions at or in connection with the MSP Facility or the RPI Facility, including any claim under the United States Constitution, the State Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law.

d. any direct or indirect claim for disbursement from the escrow account established by the Secretary under Paragraph 37 for closure and remediation of the contamination at the MSP or RPI Facilities.

60. These covenants not to sue shall not apply in the event that the United States or the State of Louisiana bring a cause of action or issue an order pursuant to the reservations set forth in Paragraph 56, but only to the extent that Settling Defendants' claims arise from the same remedial measures, response action, response costs, or damages that the United States or the State of Louisiana is seeking pursuant to the applicable reservation. Nothing in this Consent

Decree 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).

61. Settling Defendants agree not to assert and to waive and dismiss all claims or causes of action that they may have for all matters relating to the Sites, including for contribution, against all Persons not parties to this Consent Decree. This agreement and waiver shall not apply in the event:

(a). The United States or the State of Louisiana brings a cause of action or issues an order pursuant to the reservations set forth in Paragraph 56; or

(b). Any Person not a party to this Consent Decree brings an action or asserts a claim for losses, liabilities, or damages of any nature against any Settling Defendant, arising out of or related in any manner to (i) the Sites, including, but not limited to, any Past Response Costs, Future Response Costs, or response costs incurred or that may hereafter be incurred by any Person other than the United States or the State of Louisiana; or (ii) any damage or injury to, destruction of, or loss of natural resources, or for the costs of any natural resources damage assessments, relating to any of the Sites.

XVI. EFFECT OF SETTLEMENT/CONTRIBUTION PROTECTION

62. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any Person not a Party to this Consent Decree. Except as provided in Paragraph 61, the Parties expressly reserve any and all rights, defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Sites against any Person not a Party hereto. Nothing herein diminishes the right of the United States, pursuant to Sections 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue non-Settling Defendants to obtain additional response costs or

response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

63. The Parties agree, and by entering this Consent Decree this Court finds, that the Settling Defendants are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2) for matters addressed in this Consent Decree. The "matters addressed" in this Consent Decree are all response actions (including, but not limited to, all removal actions and all remedial actions) taken or that may hereafter be taken, and all Past Response Costs, Future Response Costs, and other response costs or remedial costs incurred or paid or that may hereafter be incurred or paid, by the United States, the State of Louisiana, or any other Person with respect to any of the Sites, including, but not limited to, all claims, losses, or liabilities of any kind that are or may hereafter be asserted by any Person against the Settling Defendants pursuant to CERCLA (including, but not limited to, Sections 106 or 107 of CERCLA, 42 U.S.C. §§9606 or 9607), RCRA (including, but not limited to, Section 7003 of RCRA, 42 U.S.C. §6973), or any corresponding state statutes, regulations, or provisions of law. The "matters addressed" in this settlement do not include those matters as to which the United States and the State have reserved their rights, in the event that the United States or the State assert rights against Settling Defendants reserved under Paragraph 56 of the Consent Decree.

64. The Settling Defendants agree that with respect to any suit or claim for contribution brought by them for matters related to this Consent Decree they will notify the United States and LDEQ in writing no later than 60 days prior to the initiation of such suit or claim. The Settling Defendants also agree that with respect to any suit or claim for contribution brought against them for matters related to this Consent Decree they will notify in writing the

United States and LDEQ within 10 business days of service of the complaint on them. In addition, Settling Defendants shall notify the United States and LDEQ within 10 business days of service or receipt of any Motion for Summary Judgment and within 10 business days of receipt of any order from a court setting a case for trial.

65. In any subsequent administrative or judicial proceeding relating to the Sites brought pursuant to those rights specifically reserved in Paragraph 56, Settling Defendants 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 or LDEQ in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the rights of the Settling Defendants to assert the enforceability of the covenants not to sue set forth in Paragraph 55.

66. If any Disputed Material is removed and transported from the RPI Facility, SWP and Rayonier shall not be designated as a generator of the Disputed Material on any manifests, records, or other documents related thereto, unless SWP or Rayonier removes and transports any of such Disputed Material from the RPI Facility. In addition, if any Disputed Material or Waste Material is removed and transported from the MSP Facility, SWP and Rayonier shall not be designated as a generator of the Disputed Material or Waste Material on any manifests, records, or other documents related thereto, unless SWP or Rayonier removes and transports any of such Disputed Material or Waste Material from the MSP Facility.

XVII. COSTS OF SUIT

67. The Parties shall bear their own costs of this action, including attorneys fees, except that the United States and LDEQ shall be entitled to collect the costs (including attorneys

fees) incurred in any action necessary to collect any portion of any Stipulated Penalties due but not paid by the Settling Defendants.

XVIII. NOTICES

68. Unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

As to the United States:

Chief,
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Reference: DO Case No. 90-5-1-1-07473

As to EPA:

Chief, RCRA Branch
ALONN (6EN-HX)
Compliance Assurance and Enforcement Division
U.S. Environmental Protection Agency, Region VI
1445 Ross Avenue
Dallas, Texas 75202-2733
Attn: SWP - Project Coordinator

As to LDEQ:

General Counsel
Legal Division
Louisiana Department of Environmental Quality
P.O. Box 4302
Baton Rouge, Louisiana 70821-4302

As to the Settling Defendants:

Southern Wood Piedmont Company
c/o Rayonier Inc.
Attn: Mr. Timothy H. Brannon, President
50 North Laura Street, Suite 1900
Jacksonville, FL 32202

With a copy to:

Southern Wood Piedmont Company
Attn: Mr. Bill Arrants, General Manager
P.O. Box 5447
Spartanburg, SC 29304
(municipal address)
591 Springfield Road
Spartanburg, SC 29303

and

Henry C. Perret, Jr.
Perret Doise
600 Jefferson St., Ste. 1200
P.O. Drawer 3408
Lafayette, LA 70502-3408

Rayonier Inc.
Attn: Mr. Michael R. Herman
Vice President and General Counsel
50 North Laura Street, Suite 1900
Jacksonville, FL 32202

69. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

70. Notices submitted pursuant to this Section shall be deemed submitted upon mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing. Notifications to or communications, if received, shall be deemed submitted on the date they are postmarked, or when sent by non-postal delivery, the date of pickup provided same is for next day delivery.

XIX. EFFECTIVE DATE

71. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court.

XX. RETENTION OF JURISDICTION

72. The Court shall retain jurisdiction over both the subject matter of this Consent Decree and the Settling Defendants for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court for such further order, direction, or relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XII of this Consent Decree (Dispute Resolution).

XXI. MODIFICATION

73. The terms of this Consent Decree may be modified only by a subsequent written agreement signed by all the Parties. Where the modification constitutes a material change to any term of this Consent Decree, it shall be effective only upon approval by the Court. The terms and schedules contained in the Appendices of this Consent Decree may be modified upon written agreement of the Parties without Court approval, unless any such modification effects a material change to the terms of this Consent Decree or materially affects the Settling Defendants's ability to meet the objectives of this Consent Decree.

XXII. PUBLIC PARTICIPATION

74. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) days for public notice and comment in accordance with 28 C.F.R. § 50.7, and for notice, comment, and an opportunity for a public meeting in accordance with 42 U.S.C. § 6973(d). The United States reserves the right to withdraw or withhold its consent if the comments regarding this Consent Decree disclose facts or considerations indicating that this Consent Decree is inappropriate, improper, or inadequate. The Settling Defendants consent to entry of this Consent Decree without further notice.

75. The Parties agree and acknowledge that final approval by LDEQ and entry of this Consent Decree is subject to the requirements of La. R.S. 30:2050.7, which provides for public notice of this Consent Decree, opportunity for public comment, consideration of any comments, and concurrence by the State Attorney General. This Paragraph does not create any rights exercisable by the Settling Defendants.

XXIII. SIGNATORIES/SERVICE

76. Each undersigned representative of the SWP, Rayonier, LDEQ, and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

77. This Consent Decree may be signed in counterparts, and such counterpart signature pages shall be given full force and effect.

78. The Settling Defendants agree not to oppose entry of this Consent Decree by the Court or to challenge any provision of this Consent Decree, unless the United States has notified the Settling Defendants in writing that it no longer supports entry of this Consent Decree.

79. The Settling Defendants agree to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

XXIV. INTEGRATION/APPENDICES

80. This Consent Decree and its Appendices constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Consent Decree and supersede all prior agreements and understandings,

whether oral or written. Other than the Appendices, which are attached to and incorporated in this Consent Decree, no other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Consent Decree or the settlement it represents, nor shall it be used in construing the terms of this Consent Decree.

XXV. FINAL JUDGMENT

81. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between the United States, LDEQ, and the Settling Defendants. The Court finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

XXVI. APPENDICES

82. The following appendices are attached to and incorporated into this Consent Decree:

Appendix A - A description and map of the MSP Facility real property.

Appendix B - A description and map of the RPI Facility.

Appendix C - Work Plan for implementation of the Remedial measures at the RPI Facility.

Appendix D - The Human Health Risk Assessment: Recycling Park, Inc. prepared by Chemrisk, Inc. in December 2004.

Appendix E - Conveyance Notification to be recorded in the official conveyance records of the Clerk of Court of St. Mary Parish, Louisiana.

Appendix F - Transfer provisions to be set forth in any future act of conveyance of any right or interest in the RPI Facility.

Dated and entered this ___ day of _____, _____.

UNITED STATES DISTRICT JUDGE

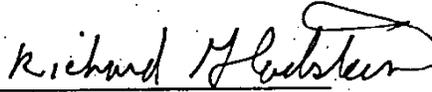
FOR THE UNITED STATES OF AMERICA:

Date: June 5, 2006



SUE ELLEN WOOLDRIDGE
Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice

Date: June 5, 2006



RICHARD GLADSTEIN
Senior Counsel
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
(202) 514-1711

FOR THE ENVIRONMENTAL PROTECTION AGENCY:

Date: 6/5/06


RICHARD E. GREENE
Regional Administrator
U.S. Environmental Protection Agency, Region VI
1445 Ross Avenue
Dallas, Texas 75202-2733

Date: 6/5/06


TERRY SYKES
Associate Regional Counsel (6RC-EW)
Environmental Protection Agency, Region VI
1445 Ross Avenue
Dallas, Texas 75202

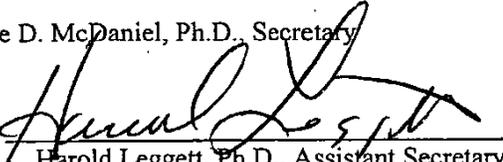
OF COUNSEL:

GREG MADDEN
Attorney/Advisor
Office of Regulatory Enforcement
United States Environmental Protection Agency
1200 Pennsylvania Ave, NW
Washington, D.C. 20460

FOR THE STATE OF LOUISIANA, THROUGH THE DEPARTMENT OF ENVIRONMENTAL QUALITY:

Mike D. McDaniel, Ph.D., Secretary

BY:


Harold Leggett, Ph.D., Assistant Secretary
Office of Environmental Compliance



CHRISTOPHER A. RATCLIFF
Attorney Supervisor
Special Assistant Attorney General
For the State of Louisiana
Department of Environmental Quality
P.O. Box 4302
Baton Rouge, LA 70821-4302
(225) 219-3985

Date: 5/31/06

FOR SOUTHERN WOOD PIEDMONT COMPANY

Date: June 3, 2006



TIMOTHY H. BRANNON
PRESIDENT
Southern Wood Piedmont Company

Date: June 6, 2006



HENRY C. PERRET, JR.
Perret Doise
600 Jefferson St., Ste. 1200
P.O. Drawer 3408
Lafayette, LA 70502-3408

Boyd A. Bryan
Jones Walker
8555 United Plaza Boulevard
Baton Rouge, La. 70809-7000

ATTORNEYS FOR SOUTHERN WOOD
PIEDMONT COMPANY

FOR RAYONIER INC.

Date: June 2, 2006



MICHAEL R. HERMAN,
VICE-PRESIDENT AND GENERAL COUNSEL
Rayonier Inc.

MSP FACILITY

Located in Section 44, T16S-R13E
St. Mary Parish, Louisiana

Commencing on the property line common to the Estate of Biaggio Domino and the subject tract at the right descending bank of Bayou Boeuf. Said point being the POINT OF BEGINNING,

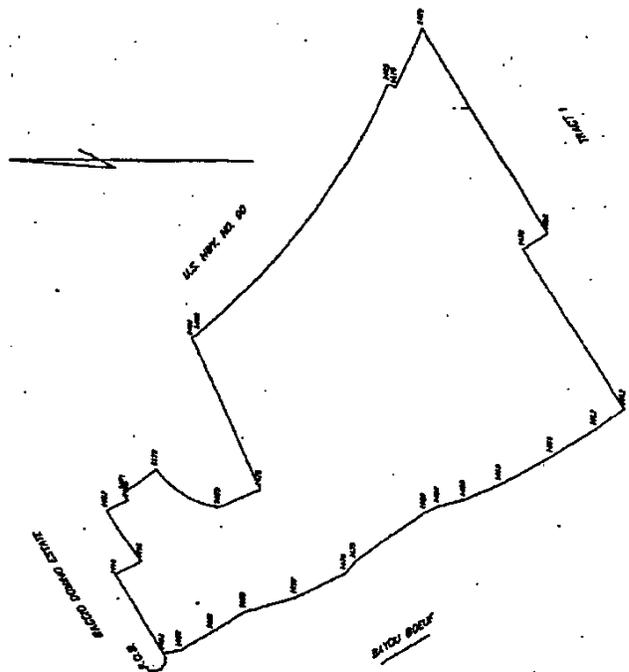
Thence N 58-09-48.0 E	364.996 Feet to a point,
Thence S 24-48-12.0 E	123.150 Feet to a point,
Thence N 55-57-57.1 E	218.368 Feet to a point,
Thence S 26-06-39.9 E	87.405 Feet to a point,
Thence N 63-40-34.7 E	31.331 Feet to a point,
Thence S 36-06-56.7 E	149.558 Feet to a point,
Thence 281.943 Feet along a curve to the left having a radius of 362.330 Feet to a point,	
Thence N 80-36-02.4 E	639.585 Feet to a point,
Thence S 40-41-36.5 E	32.854 Feet to a point,
Thence 1194.703 Feet along a curve to the left having a radius of 2944.926 Feet to a point,	
Thence S 26-03-45.5 W	30.000 Feet to a point,
Thence 242.206 Feet along a curve to the left having a radius of 2974.926 Feet to a point,	
Thence S 57-41-55.9 W	905.446 Feet to a point,
Thence N 32-18-04.1 W	111.682 Feet to a point,
Thence S 57-37-25.1 W	710.200 Feet to a point,
Thence N 36-11-32.1 W	133.775 Feet to a point,
Thence N 32-16-39.6 W	190.793 Feet to a point,
Thence N 28-49-35.4 W	218.344 Feet to a point,
Thence N 24-01-05.7 W	145.652 Feet to a point,
Thence N 14-07-49.9 W	101.710 Feet to a point,
Thence N 23-02-26.4 W	61.334 Feet to a point,
Thence N 34-45-36.5 W	329.876 Feet to a point,
Thence N 49-25-12.8 W	57.133 Feet to a point,
Thence N 25-22-16.2 W	211.633 Feet to a point,
Thence N 16-06-17.2 W	199.980 Feet to a point,
Thence N 31-51-51.3 W	145.655 Feet to a point,
Thence N 30-46-13.5 W	138.776 Feet to a point,
Thence N 10-34-57.5 W	79.072 Feet back to the POINT OF BEGINNING.

Said Tract contains an area of 2103434.76 Square Feet (48.2882 Acres)

APPENDIX A

MSP FACILITY MAP

(B0386372.2)



{B0386372.2}

{B0386372.2}

**PORTION OF THE MSP FACILITY
OWNED, NOW OR FORMERLY, BY
MARINE SHALE PROCESSORS, INC.**

IMMOVABLE PROPERTY

ALL THAT CERTAIN PIECE OR PORTION OF GROUND, together with all the buildings and improvements thereon, and all of the rights, ways, means, privileges, servitudes, prescriptions, appurtenances and advantages thereunto belonging or in anywise appertaining thereto, situated in the Parish of St. Mary, State of Louisiana, in Section 44, Township 16 South, Range 13 East, described in accordance with a survey by Robert E. Miller, Jr., dated November 12, 1984, copy of which is attached hereto and made part hereof, as follows, to-wit:

From the Northwest corner of Section 16, Township 16 South, Range 13 East, St. Mary Parish, Louisiana, go South 37 degrees 43 minutes 04 seconds East 10,257.19 feet to an iron situated at the northeast corner of the subject property and the point of intersection of the line dividing the property of Pelican State Lime, (a division of S I Lime Company) from the property of Domino Estates Partnership and the original survey line of property by T. F. Kramer, dated September 6, 1952, and the point of beginning.

From the point of beginning, go along the line dividing the property owned by Domino Estates Partnership from the property of S I Lime Company, South 58 degrees 31 minutes 59 seconds West 351 feet to a corner "C"; thence recommence at the point of beginning labeled corner "D" on the referenced plat and go along a line located within the 60 foot wide right of way South 24 degrees 28 minutes 01 seconds East 968 feet to corner "E"; thence go South 22 degrees 27 minutes 01 seconds East 200 feet to a corner "A" on the line dividing the property of S I Lime Company from the property of the Kurzweg-Miller family; thence leaving said right of way go along the line dividing the property of S I Lime Company from the property of the Kurzweg-Miller family South 61 degrees 42 minutes 59 seconds West 287 feet to a corner "B" located on the bank of Bayou Boeuf, thence go along the meanderings of Bayou Boeuf in a northerly direction 1105 feet, more or less, to corner "C" previously established, including all of vendor's right, title and interest in and to any and all accretions, alluvion, artificial fill or other projections of any kind or nature into Bayou Boeuf

Vendor further transfers all of its right, title and interest in and to a certain servitude of use and permit granted by the Estate of Lucia R. Domino to Radcliff Materials, Inc., dated April 1, 1971, recorded in Conveyance Book 16-P, at folio 629 of the official records of St. Mary Parish, Louisiana.

Being the same property acquired by S I Lime Company, an Alabama Corporation, from Radcliff Materials, Inc., an Alabama Corporation, by deed under private act acknowledged in August, 1973, of record in Conveyance Book 17-W at folio 580 of the official records of St. Mary Parish, Louisiana.

**PORTION OF THE MSP FACILITY
OWNED, NOW OR FORMERLY, BY
RECYCLING PARK, INC.**

**DESCRIPTION A 37.7174 ACRE TRACT
LOCATED IN SECTION 44, T16S-R13E
ST MARY PARISH, LOUISIANA**

Commencing on the line common to the property of or subject to the Lee Vac, Inc. Lease (Tract "J"), now or formerly, and the subject tract at the right descending bank of Bayou Boeuf. Said point being the POINT OF BEGINNING,

Thence N 36-11-32.1 W	133.775 Feet to a point,
Thence N 32-16-39.6 W	190.793 Feet to a point,
Thence N 28-49-35.4 W	218.344 Feet to a point,
Thence N 24-01-05.7 W	145.652 Feet to a point,
Thence N 14-07-49.9 W	101.710 Feet to a point,
Thence N 23-02-28.9 W	61.334 Feet to a point,
Thence N 61-17-27.6 E	281.398 Feet to a point,
Thence N 22-22-55.1 W	202.136 Feet to a point,
Thence N 24-19-12.9 W	844.854 Feet to a point,
Thence N 55-57-57.1 E	218.368 Feet to a point,
Thence S 26-06-39.9 E	87.405 Feet to a point,
Thence N 63-40-34.7 E	31.331 Feet to a point,
Thence S 36-06-56.7 E	149.558 Feet to a point,
Thence 281.943 Feet along a curve to the left having a radius of 362.330 Feet to a point,	
Thence S 23-40-20.7 E	169.462 Feet to a point,
Thence N 65-14-21.1 E	619.954 Feet to a point,
Thence S 40-41-36.5 E	32.854 Feet to a point,
Thence 1194.703 Feet along a curve to the left having a radius of 2944.926 Feet to a point,	
Thence S 26-03-45.5 W	30.000 Feet to a point,
Thence 242.206 Feet along a curve to the left having a radius of 2974.926 Feet to a point,	
Thence S 57-41-55.9 W	905.446 Feet to a point,
Thence N 32-18-04.1 W	111.682 Feet to a point,
Thence S 57-37-25.1 W	710.200 Feet to the POINT OF BEGINNING.

Said Tract contains an area of 1642971.91 Square Feet (37.7174 Acres)

**MAP SHOWING THE PORTIONS OF THE MSP FACILITY
OWNED, NOW OR FORMERLY, BY MARINE SHALE
PROCESSORS, INC. AND RECYCLING PARK, INC.,
RESPECTIVELY**

{B0386372.2}

RPI FACILITY

Area A

That area allocated in the tract of land designated as Tract O, Lot 6 on the attached map prepared by Keneth L. Rembert, Land Surveyor, dated October 31, 1991, Rev. December 31, 1991, and entitled Map Showing Properties of Englewood Partnership in Sections 23, 44, 46, T16S-R13E, St. Mary Parish, Louisiana.

Area B

That area located in the tract of land designated as Tract Q, Lots 16, 17, 18, 19, and 20 on the attached map prepared by Keneth L. Rembert, Land Surveyor, dated October 31, 1991, Rev. December 31, 1991, and entitled Map Showing Properties of Englewood Park Partnership in Sections 23, 44, and 46 T16S-R13E, St. Mary Parish, Louisiana.

Area C

That area located in tract of land designated as Tract O, Lots 4 and 5 on the attached map prepared by Keneth L. Rembert, Land Surveyor, dated October 31, 1991, Rev. December 31, 1991, and entitled Map Showing Properties of Englewood Park Partnership in Sections 23, 44, and 46 T16S-R13E, St. Mary Parish, Louisiana.

APPENDIX B

APPENDIX C

WORK PLAN FOR IMPLEMENTATION OF THE
REMEDIAL MEASURES AT THE RPI FACILITY

The RPI Facility generally is divided into three areas which are identified as Areas A, B, and C. See Appendix B.

Within 90 days after the Effective Date of the Consent Decree or the satisfaction of the conditions set forth in Paragraph 21 of the Consent Decree, whichever occurs later, SWP shall commence the clearing and grubbing of Area A of the RPI Site. Within 24 months thereafter, SWP shall complete the Remedial Measures described herein for Area A of the RPI Facility. Area A generally consists of Unmixed SWP Disputed Material, which totals approximately 89,000 tons of Disputed Material. Previously, others have spread and leveled native soil of varying thickness (but having a minimum verified thickness of six inches) on Area A. However, a portion of Area A, located on the northwest side, was left with a steep slope. Because the follow-up work was never finished, the portion exists as an abrupt, steep face that is susceptible to sloughing and lateral movement. The entire Disputed Material area will be cleared and grubbed where required, which will allow the entire cap area to be exposed. Native soil or imported material will be placed along the northwestern edge of the Disputed Material to provide a 3H: 1V side slope. Additional cap material will be placed, leveled and compacted to provide a minimum two foot cap over the Disputed Material and a 4% slope from the center of the pile to the outside edges. Upon satisfactory testing of the cap material, an additional six inches of loose topsoil will be placed and spread over the entire Disputed Material area. This topsoil will then be seeded and fertilized to allow for reasonably expedient growth of grass. In addition, in Area A there is an HPDE liner that underlies and extends beyond the Disputed Material. The portion of

the liner that extends beyond the Disputed Material is exposed to the elements and as a result water has pooled on the liner. Therefore, that portion of the exposed HPDS liner shall be cut and removed from Area A or completely covered by the two foot cap described above.

Within 150 days after the Effective Date of the Consent Decree or the satisfaction of the conditions set forth in Paragraph 21 of the Consent Decree, whichever occurs later, SWP shall commence the clearing and grubbing of Area B of the RPI Site. Within 24 months thereafter, SWP shall complete the Remedial Measures described herein for Area B of the RPI Site. Area B of the RPI Site generally consists of Non-SWP Disputed Material. Previously, others have spread and leveled native soil of varying thickness (but having a minimum verified thickness of six inches) on Area B. This entire site has well sloped and stabilized edges and no fissuring or erosion is evident. The entire Disputed Material area will be cleared and grubbed where required, which will allow the entire cap area to be exposed. Additional cap material will be placed, leveled and compacted to provide a minimum two foot cap over the Disputed Material and a minimum two inches fall from the center of the pile to the outside edges. Upon satisfactory testing of the cap material an additional six inches of loose topsoil will be placed and spread over the entire Disputed Material area. This topsoil will then be seeded and fertilized to allow for expedient growth of grass.

Within 210 days after the Effective Date of the Consent Decree or the satisfaction of the conditions set forth in Paragraph 21 of the Consent Decree, whichever occurs later, SWP shall commence the clearing and grubbing of Area C of the RPI Site. Within 24 months thereafter, SWP shall complete the Remedial Measures described herein for Area C of the RPI Facility. Area C of the RPI Site generally consists of Mixed SWP Disputed Material, Non-SWP Disputed

Material, and SWP Disputed Material. Previously, others placed a native soil of varying thickness over the Disputed Material in Area C. The two largest piles in Area C are along the southwestern edge of the site and average fourteen feet above finished grade. The two smaller piles are southwest of Area A and average eight feet above natural grade. The area has become overgrown with vegetation and generally has slopes around 1.5H:IV. No previous efforts were made to spread, level, or grade the Disputed Material in Area C. Sloughing is evident around the larger piles with minor gulying evident on the smaller piles. The entire Disputed Material area will be cleared and grubbed where required, which will allow the entire cap area to be exposed. The four discrete piles will be combined into one large pile (similar to Area B) having an approximate nominal height of seven feet above grade. The material will be spread and turtle-backed to allow for positive flow off the top of the pile. A minimum two foot thick cap will be placed over the Disputed Material with a minimum two inches fall from the center of the pile to the outside edges.

Material to be utilized for cap material must have permeability less than 1×10^{-7} cm/sec per ASTM 5084. Certain in-situ samples have been taken from native soil materials at a depth of 1-3 feet (composite samples) which show that this material meets this requirement. An area of 300 feet beyond the limits of the Disputed Material piles in Area C (and between all piles) may be excavated down to a depth of 36 inches. This material will be stockpiled on site and is expected to generate approximately 37,500 loose yards (27,750 cys) of material meeting specifications. Imported material will be available from numerous local pits which generate a typical clayey/sand and clayey/silt material that should easily meet the permeability requirements. Cap material will be placed in maximum six inches compacted lifts and compacted

to 90% standard proctor per ASTM D698 maintaining moisture at 2%-8% above optimum.

Upon satisfactory testing of the cap material to verify that it meets the requirements of Paragraph 22 of the Consent Decree, an additional six inches of loose topsoil will be placed and spread over the entire pile area. This topsoil will then be seeded and fertilized to allow for expedient growth of grass. Topsoil must consist of available material complying with LADOTD specifications. Generally, the material must have less than 20% organics, no rocks or cobbles larger than two inches, and minimal silt content. Topsoil must be well graded, free of lumps, and placed and spread while maintaining a compaction less than 85% standard proctor. Topsoil must be free of pesticides or other contaminants that will inhibit the growth of grass and vegetation.

The entire disturbed area will be seeded and fertilized. Seeding must be accomplished by spreading 45 pounds of Bermuda/rye grass per acre. Seed shall be broadcast or spread in two perpendicular passes to ensure adequate coverage. Immediately after seeding, the seed must be thoroughly watered and fertilized as appropriate to promote the growth of grass on the topsoil. All disturbed areas (piles, side slopes, on-site borrow areas, etc) must be watered and maintained until the site has been 85% established.

An accredited geo-technical testing services company must be retained to maintain a certified technician on site at all times during the Remedial Measures required in this Section, except for seeding, fertilizing, and watering. The on-site representative will observe all ongoing grading operations, assure compliance with the project specifications, and perform all testing of the in-place material, cap material (both native and imported), and will visit and approve borrow sources. Testing methods and frequencies shall comply with the following: (A) Permeability Testing - ASTM D5084, Required Value $<1 \times 10^{-7}$ cm/sec; testing Frequency-2 tests/acre existing

cap, 1 test per 6" Compacted Lift per acre for new Cap. Permeability also to be evaluated by on-site testing representative using moisture (ASTM D-3017) and density (ASTM D-2922) relationships to predict in-place permeability; (B) Standard Proctor- ASTM D698, Testing Frequency 1 composite per off-site source, 1 per each on-site source; © Optimum Moisture- ASTM D3017, Required Value 2%-8% above optimum per ASTM D698 Testing Frequency 8 tests per acre per 6" compacted lift; and (D) Density - ASTM D2922, Required Value 90% optimum per ASTM D698 Testing Frequency 8 tests per acre per 6" compacted lift.

Human Health Risk Assessment: Recycling Park, Inc. Facility

PREPARED FOR:
SOUTHERN WOOD PIEDMONT COMPANY
P.O. BOX 5447
SPARTANBURG, SC 29304

PREPARED BY:
CHEMRISK, INC.
25 JESSIE STREET
SUITE 1800
SAN FRANCISCO, CA 94105

DECEMBER, 2004

APPENDIX D

Executive Summary.....	1
1.0 INTRODUCTION.....	7
1.1 SITE DESCRIPTION AND BACKGROUND.....	7
1.2 REPORT ORGANIZATION.....	9
2.0 HAZARD IDENTIFICATION.....	11
3.0 DOSE-RESPONSE ASSESSMENT.....	16
3.1 CHRONIC NONCARCINOGENIC HEALTH EFFECTS.....	17
3.2 CARCINOGENIC HEALTH EFFECTS.....	18
4.0 EXPOSURE ASSESSMENT.....	20
4.1 IDENTIFICATION OF POTENTIALLY EXPOSED POPULATIONS.....	21
4.2 EXPOSURE SCENARIOS.....	21
4.3 IDENTIFICATION OF POTENTIAL EXPOSURE PATHWAYS.....	22
4.4 ESTIMATION OF EXPOSURE POINT CONCENTRATIONS.....	22
4.5 CONCEPTUAL SITE MODEL.....	23
4.6 EXPOSURE VIA INCIDENTAL INGESTION OF SOIL.....	23
4.7 EXPOSURE VIA DERMAL CONTACT WITH SOIL.....	26
4.8 EXPOSURE VIA PARTICULATE INHALATION.....	28
4.9 NONCANCER ASSESSMENT FOR LEAD.....	29
5.0 RISK CHARACTERIZATION.....	31
5.1 NONCARCINOGENIC HEALTH EFFECTS.....	31
5.2 CARCINOGENIC HEALTH RISK.....	32
5.3 LEAD EVALUATION.....	33
5.4 SEMI-QUANTITATIVE UNCERTAINTY ANALYSIS.....	34
5.4.1 Hazard Identification.....	34
5.4.2 Dose-Response Assessment.....	35
5.4.3 Exposure Assessment.....	35
5.4.4 Risk Characterization.....	37
5.4.5 Uncertainty Analysis Summary.....	38
6.0 SUMMARY.....	39
7.0 REFERENCES.....	41

Appendix A – Site Solid Media Sampling Data

Appendix B – Summary Statistics and ProUCL Version 3.0 Output - 95% UCL

Appendix C – Risk and Lead Calculations

Appendix D – Risk Calculations at 50 Days Per Year Exposure Frequency

Appendix E – RECAP Submittal Documents

Executive Summary

Background

Several piles of material produced as a byproduct of the waste treatment operations conducted by Marine Shale Processors, Inc. (MSP) (Treated Material) have been placed at property owned by Recycling Park Inc. (RPI) located on Lake Palourde Road near Amelia, Louisiana (the Site). The Treated Material is located in three areas of the Site designated as Areas A, B, and C and is generally capped with approximately 2 ½ feet of native soil.

The Treated Material, as well as the native soil surrounding or underlying the Treated Material, the native soil cap material, surface water, groundwater, and sediments at the Site, was extensively sampled by Hydro-Environmental Technology, Inc. (HET) in February and March, 2004. The analytical results were reported in the Site Assessment Report (SAR) prepared by Hydro-Environmental Technology, Inc. dated July 19, 2004 (HET, 2004). HET concluded in the SAR that, based on the analytical results, the constituents of concern (COCs) at the Site are limited to the Treated Material itself.

The analytical results in the SAR were reported on a dry weight basis. The Louisiana Department of Environmental Quality (LDEQ) has determined, however, that the appropriate method of reporting analytical results for purposes of the LDEQ Risk Evaluation/Corrective Action Program (RECAP) is on a wet weight basis, rather than a dry weight basis (see the LDEQ website, RECAP Frequently Asked Questions, response to question 5 on the seventh page). Accordingly, the analytical results reported in the SAR (HET, 2004) have been converted to a wet weight basis using the formula prescribed by LDEQ. The analytical results calculated on a wet weight basis are provided in Appendix A to this HRA.

Notably, the conversion of the analytical results from a dry weight basis to a wet weight basis does not alter the conclusion in the SAR that the COCs are limited to the Treated Material itself.

ChemRisk, Inc., on behalf of Southern Wood Piedmont Company (SWP), conducted a human health risk assessment (HRA) of the chemical constituents in the Treated Material, the native soils surrounding or underlying the Treated Material, and the native soil cap material at the Site. This HRA quantitatively determined the potential human health risks should the Treated Material

be left in place. This HRA was conducted in accordance with the LDEQ RECAP guidelines. U.S. Environmental Protection Agency (EPA) guidance for conducting human health risk assessments was also used as supplemental guidance, as necessary. In accordance with RECAP, this HRA evaluates the analytical results reported on a wet weight basis (Appendix A). Further, in an effort to be consistent with RECAP's terminology, the term "soil", as hereafter used in this HRA, includes the Treated Material, the native soils surrounding or underlying the Treated Material, and the native soil cap material.

Analytical samples from the soil at the Site have been shown to contain various concentrations of metals. Based on the SAR (HET, 2004) and the RECAP screening process, the COCs and medium of concern were determined to be arsenic in Areas A, B, and C and lead in soil in Areas B and C.

Future use of the site is expected to be industrial, thus, potential risks from exposure to Site soils were evaluated for an industrial worker and a construction worker scenario (as potential exists for earth moving activities). Both noncarcinogenic and carcinogenic health risks were evaluated.

Noncarcinogenic health effects. Noncarcinogenic health effects are characterized using the "hazard quotient" approach. The "hazard quotient" or hazard index (HI) is the ratio between the agency-established acceptable or "safe" dose and the calculated dose associated with the Site. An HI of less than or equal to 1 indicates that the levels of exposure are acceptable even for chemicals having an additive effect. That is, an HI less than one indicates that the Site dose is less than the agency-established safe dose.

When individual COCs potentially act on the same organs or result in the same health endpoint (e.g., respiratory irritant), hazard quotients for groups of chemicals are summed to derive the overall "hazard index." In this assessment, the HQ for each chemical, regardless of the target organ, has been summed. Evaluation of this additive effect is a very conservative approach which overestimates the true noncarcinogenic hazard.

Carcinogenic Health Effects. Carcinogenic health effects are defined in terms of the probability of an individual developing cancer as the result of exposure to a given chemical at a given

concentration. The incremental probability of developing cancer is the additional risk above and beyond the cancer risk an individual would face in the absence of the exposures characterized in this risk assessment. For example, a carcinogenic health risk of 1×10^{-5} means that the individual's risk of developing cancer is increased by 1 in 100,000 as a result of exposure to the chemicals at the site under the conditions (e.g. for the number of days per year at the Site, and the number of years at the Site, etc.) assumed in the risk assessment. Generally, risk within the range of 10^{-4} to 10^{-6} are considered acceptable by the U.S.EPA for Superfund sites (U.S.EPA, 1990) and are within the LDEQ requirements (LDEQ, 2003).

Evaluation of Lead Exposures. U.S.EPA has not verified noncarcinogenic or carcinogenic toxicity criteria (the reference dose or the slope factor, respectively) for lead. As a result, the noncarcinogenic health effects (e.g., a Hazard Index) and carcinogenic health risks (e.g., 1×10^{-5} cancer risk) of exposure to lead cannot be calculated. Instead, several modeling approaches have been developed to characterize blood lead levels associated with environmental and dietary exposures to lead. These models identify a target soil concentration based upon a target blood lead in terms of microgram of lead per deciliter of blood ($\mu\text{g}/\text{dL}$).

The U.S.EPA's methodology suggests a target blood lead concentration of $10 \mu\text{g}/\text{dL}$. This method assumes that the exposed individual is a pregnant woman, and was designed to protect an unborn fetus, which is considered to be especially sensitive to the adverse health effects of lead. However, the OSHA blood lead concentration standard for women of child-bearing years is $30 \mu\text{g}/\text{dL}$. Both target blood lead concentrations were used in this HRA to provide a measure of the upper and lower bound estimates of safe lead concentrations in soil that are protective of health.

Results

Human Health Risks. As stated, future use of the Site is expected to be industrial. Therefore, the potential risks from exposure to the chemical concentrations in Site soils were evaluated for an industrial worker and a construction worker scenario, assuming nearly unlimited direct contact by such workers with the Treated Material.

It is important to note that this HRA is not an assessment of the health risks posed by current Site conditions. At present, there is no direct exposure by workers or other persons to the Treated

Material and, thus, no risk. This is so because most if not all of the Treated Material is capped with approximately 2 ½ feet of native soil and, further, the Site is currently an inactive industrial facility, i.e. there are no industrial or construction workers at the Site. For these reasons, the assessment of the industrial and construction worker scenarios, assuming nearly unlimited direct exposure of such persons to the Treated Material, is considered to be hypothetical.

Nevertheless, this HRA demonstrates that, even under these hypothetical exposure scenarios, the Treated Material, if left in place, would not pose an unacceptable health risk to hypothetical industrial workers and construction workers at the site. The total noncarcinogenic hazard indices for both the construction worker and the industrial worker scenarios in each of the three areas of the Site are far less than 1, indicating a lack of noncarcinogenic hazard to these potential future workers. The theoretical increased cancer risk for the industrial worker who may be present in Area A is 5×10^{-6} (5 in 1,000,000) and 1×10^{-5} (1 in 100,000) for Areas B and C, and for the construction worker, the theoretical increased cancer risk is 3×10^{-6} (3 in 1,000,000) in Area A, and 6×10^{-6} (6 in 1,000,000) in Areas B and C. These theoretical risk levels are considered acceptable as they fall well within the tolerable cancer risk range of 1×10^{-4} and 1×10^{-6} (LDEQ, 2003; USEPA, 1990, 2001c).

The U.S. EPA Adult Lead Model was used to derive acceptable soil concentrations of lead for Areas B and C, the only two Treated Material areas that contained lead above the RECAP standard. Acceptable soil lead concentrations were developed using two target blood lead levels, 10 µg/dL and 30 µg/dL. As stated, the former is intended to be protective of the fetus of pregnant women and is a U.S.EPA guideline (U.S. EPA 1996b) while the latter is the OSHA limit for the general worker population (OSHA 29 CFR 1910.1025) and is protective of women of child bearing age. The results of this analysis are presented in the table below:

Exposure Scenario	10 µg/dL Target	30 µg/dL Target
	Blood Lead	Blood Lead
Industrial Worker Scenario	1,980	9,490 mg/kg
Construction Worker Scenario	990	4,750 mg/kg

The 95 percentile upper confidence limit on the arithmetic mean (95% UCL) of lead in Area B is 3,715 and 2,223 in Area C. Thus, the lead concentrations present in Areas B and C are not expected to present an unacceptable health risk to future industrial and commercial workers at the Site as they fall within the range of safe soil concentrations as determined by this HRA using the U.S.EPA Adult Lead Model.

Risks Associated with Plausible Future Uses of the Site. The risks and acceptable soil lead concentrations in the hypothetical industrial and construction worker scenarios described above were calculated assuming nearly unlimited direct contact with the Treated Material for 25 years. As quantitatively determined in the Uncertainty Analysis of this HRA, the potential risk would be reduced to near *de minimis* levels (i.e., 1×10^{-6} for Area A; 3×10^{-6} for Area B; 2×10^{-6} for Area C) should direct contact with the Treated Material be limited to 50 days per year or less. Further, any potential risk associated with blood lead levels, even in a pregnant industrial or construction worker, would be removed by limiting exposure to 50 days per year or less as blood lead levels typically increase only as a result of long-term exposure to lead, i.e. exposure of at least 90 days (U.S. EPA 1996b).

Direct contact with the Treated Material may be limited to 50 days per year or less in a number of ways, including but not limited to the following (or any combination thereof):

- Maintaining a soil or clay cap over the Treated Material;
- Planting grass or other vegetation over the Treated Material;
- Paving over the Treated Material;
- Installing or constructing structures over the Treated Material; or
- The majority of worker activities are indoors or away from the Treated Material.

Should any of the foregoing uses of the Site be implemented, any health risk associated with leaving the Treated Material in place would thereby be greatly reduced or even eliminated.

To summarize, even assuming nearly unlimited direct contact with the Treated Material if left in place, the Treated Material would not pose an unacceptable health risk to potential future industrial and construction workers at the Site. Moreover, there are several plausible future uses of the Site (e.g., maintaining a soil or clay cap, planting grass or other vegetation, paving, construction of structures over the Treated Material, or worker activities away from Treated Material) any of which, if implemented, would limit direct contact with the Treated Material to less than that assumed by this HRA thereby greatly reducing or even eliminating any potential health risks.

As Site media pose neither a significant noncarcinogenic nor carcinogenic risk under potential future use scenarios, it should not be necessary to calculate cleanup standards using any of the RECAP Management Options.

1.0 INTRODUCTION

ChemRisk, Inc., on behalf of Southern Wood Piedmont, conducted a human health risk assessment (HRA) of the chemical constituents in soils and Treated Materials at the Recycling Park Inc. site in Amelia, Louisiana. Treated material samples have been shown to contain various concentrations of metals. The purpose of this HRA was to determine whether these chemical constituents, if left in place, would pose an unacceptable health risk to industrial users of the site.

The Louisiana Department of Environmental Quality's (LDEQ) Risk Evaluation/Corrective Action Program (RECAP) guidance was used to conduct this assessment. Specifically, this HRA was conducted in a manner consistent with RECAP Management Option 3 guidelines. U.S. Environmental Protection Agency (EPA) guidance for conducting human health risk assessments was also used as supplemental guidance, as necessary. Specifically, the following guidance documents were used:

- *Louisiana Department of Environmental Quality (LDEQ). 2003. Risk Evaluation/Corrective Action Program (RECAP). LDEQ Corrective Action Group. October 20, 2003.*
- *Risk Assessment Guidance for Superfund Volume I, Human Health Evaluation Manual (Part A). 1989. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, DC. December. EPA/540/1-89/002.*
- *Exposure Factors Handbook (EFH), Volumes I, II, and III. 1997. U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC. February. EPA/600/P-95/002Fa.*

1.1 SITE DESCRIPTION AND BACKGROUND

The Recycling Park, Inc. (RPI) facility is located on Lake Palourde Bypass in Amelia, St. Mary Parish, Louisiana (Figure 1) situated between United States Highways 90 and 182. The RPI facility is a commercial property owned by Recycling Park, Inc. No buildings or structures are located on the property; however, several piles of Treated Material exist in three (3) areas of the

site, designated as Areas A, B, and C. In addition, located on-site are a total of seven (7) monitoring wells that were originally installed between 1991 and 1999, and two (2) water outfall locations as designated by the U.S. EPA. The site is overgrown with grass vegetation and bushes, shrubs, and trees. The site property is bound on the north and east by a coulee, railroad tracks, undeveloped property, and United States Highway 90 East; on the south by undeveloped property; and on the west by undeveloped commercial property. Lake Palourde Bypass Road bisects the property on a southwest to northeast trend. Figure 2 contains a regional location map of the entire RPI property. Figure 3 contains a generalized site plan map of the site with regard to the stockpiles of Treated Material.

Portions of the RPI facility were developed on behalf of RPI for the purpose of storing Treated Material generated during MSP's processing operations at the Amelia, Louisiana plant. The MSP plant operated from approximately June of 1985 until June of 1996, at which time a potential sale of the facility to GTX was proposed. GTX secured the appropriate permits to operate the plant, but, thereafter, attempts to purchase and reopen the plant were abandoned.

Between 1992 and 1998, approximately 338,000 tons of Treated Material were transported to the RPI site and were separated into six (6) piles (Figure 3). Prior to placement of the Treated Material on the RPI property, the material was certified by MSP or designees to meet the applicable Environmental Protection Agency (EPA) Land Disposal Treatment Standards as defined under the Resource Conservation and Recovery Act (RCRA) in the Code of Federal Regulations Title 40 Chapter 1 Part 268.49.

Based upon information received from Mr. Mike Crocker, former employee of both MSP and Earthlock Technologies, L.L.C. (successor by merger of GTX, Inc.), it appears that approximately two and a half (2.5) feet of native soil was removed from land surface for the placement of a liner prior to introduction of Treated Material. In Area A of the RPI facility, a high density polyethylene (HDPE) liner was utilized, while the remaining Areas B and C were underlain with fabric liner. The excavated, native soils were placed on top of the Treated Material upon completion of stockpiling to serve as a cap. Typical heights of the stockpiles range from eight (8) feet above land surface in Areas A and B to approximately fourteen (14) feet above land surface in the western portion of Area C.

SWP understands that the Treated Material located in Area A of the site and the approximate 1,000-ton pile of Treated Material located in Area C of the site were generated from MSP's processing of contaminated soil received from SWP. SWP understands, however, that other Treated Material generated from SWP contaminated soils may have been mixed by MSP with Treated Material generated from non-SWP wastes and that this mixed Treated Material was then placed in Area C of the site.

The SWP soils processed by MSP were organically contaminated soils, typically containing creosote and pentachlorophenol constituents from SWP wood processing plants. From information received, the SWP soils were manifested as hazardous waste, because the soils were believed to have contained listed hazardous waste, specifically K001 and F032. Prior to the promulgation of the F032 waste code, some of the contaminated soils that contained similar types of waste were manifested as "K001-like" material. The contaminants of interest associated with these waste codes consist of volatile and semi-volatile organics and two (2) metals, arsenic and chromium. The SWP soils prior to processing may have also contained trace amounts of other RCRA metals. It is generally undisputed that all organic constituents that were present in the material sent by SWP to MSP were destroyed in MSP's process.

The 41,806 and 50,694 ton piles located in Area C and the 114,804 ton pile located in Area B of the site contain Treated Material from various generators. The 42,196 ton pile of Treated Material in Area C was generated from material previously sold by MSP to various people in the community prior to 1992.

1.2 REPORT ORGANIZATION

The remainder of this report is organized as follows:

- Section 2.0 Hazard Identification – The process for the identification of the chemicals and media of concern is presented in this section.
- Section 3.0 Dose-Response Assessment – The Agency-verified toxicity criteria for use in the quantification of potential human health risks are presented in this section.

- Section 4.0 Exposure Assessment – This section presents the quantitative methodology for assessing potential contact with soils at the RPI site.
- Section 5.0 Risk Characterization – Aspects of the Dose-Response Assessment are combined with the Exposure Assessment to quantitatively estimate potential health risks. Further, a qualitative uncertainty analysis is provided.
- Section 6.0 Conclusions – A summary of the results of the HRA is provided in this section.
- Section 7.0 References – All documents cited in this report are listed in this section.

2.0. HAZARD IDENTIFICATION

The hazard identification section outlines the screening methodology used to identify the Constituents of Concern (COCs) for the site and the media in which they are found. The initial screening processes were conducted in the SAR (HET, 2004) and Human Health Risk Assessment Work Plan (ChemRisk, Inc. 2004), both of which are reiterated below. It is important to note that in the SAR report (HET 2004) and the Risk Assessment Work Plan (ChemRisk 2004), the solid media were reported on a dry weight basis. In addition, all screening conducted in these two documents were conducted using the dry weight data. Consistent with RECAP guidance, the solid media results were converted to a wet weight basis. It is the results of this conversion to wet weight that are used in this HRA and presented in Appendix A.

Results of the Site Assessment Report Sampling and Screening Process

TCL Organics: In light of the known effectiveness of MSP's process for destroying organics, not all Treated Material samples were submitted for the analysis of Target Compound List (TCL) organics. All laboratory analytical results report TCL organic concentrations below the LDEQ RECAP screening standards.

TAL Metals: All Treated Material samples were analyzed for target analyte list (TAL) metals. There is no applicable RECAP screening standard for three of the 25 TAL metals (calcium, potassium, and sodium). For ten other metals (aluminum, beryllium, cobalt, hexavalent chromium, selenium, silver, thallium, vanadium, mercury, and total cyanide), none of the 69 Treated Material samples contained concentrations above RECAP screening standards. Consistent with RECAP standards, the results are reported on a wet weight basis and are included here as Appendix A.

The highest concentrations (on a wet weight basis) detected for the remaining 12 TAL metals above RECAP screening standards before taking into account SPLP results in each area of the site are as follows: antimony concentrations of 82 milligrams per kilogram (mg/kg) (Area A), 349 mg/kg (Area B), and 218 mg/kg (Area C); arsenic concentrations of 66 mg/kg (Area C), 115 mg/kg (Area B), and 150 mg/kg (Area C); barium concentrations of 12,920 mg/kg (Area A), 9,216 mg/kg (Area B), and 14,880 mg/kg (Area C); cadmium concentrations of 28 mg/kg (Area

A), 276 mg/kg (Area B), and 106 mg/kg (Area C); total chromium concentrations of 205 mg/kg (Area A), 1,248 mg/kg (Area B), and 828 mg/kg (Area C); copper concentrations of 21,160 mg/kg (Area B) and 4,368 mg/kg (Area C); iron concentrations of 27,720 mg/kg (Area A), 86,400 mg/kg (Area B), and 76,440 mg/kg (Area C); lead concentrations of 1,246 mg/kg (Area A), 6,048 mg/kg (Area B), and 7,990 mg/kg (Area C); magnesium concentrations of 12,960 mg/kg (Area A), 16,530 mg/kg (Area B), and 18,400 mg/kg (Area C); manganese concentrations of 682 mg/kg (Area A), 1,440 mg/kg (Area B), and 1,764 mg/kg (Area C); a nickel concentration of 2,668 mg/kg (Area A); and zinc concentrations of 15,980 mg/kg (Area B), and 17,640 mg/kg (Area C).

TCLP and SPLP: Selected Treated Material samples were analyzed for toxicity characteristic leachate procedure (TCLP) and/or synthetic precipitate leachate procedure (SPLP). Four (magnesium, manganese, nickel, and zinc) of the above 12 TAL metals that were detected above RECAP screening standards can be eliminated from further consideration under a risk assessment based on SPLP results, which indicate that these constituents do not pose a threat via the soil to groundwater pathway, thus eliminating the soil protective of groundwater screening standard for these constituents.

Results of the Human Health Risk Assessment Work Plan Screening Process

The screening process, or COC selection process, includes two main elements: 1) a summary of the relevant environmental data (i.e., calculation of summary statistics), including the determination of exposure point concentrations, and 2) determination of those chemicals that exceed the screening criteria. The purpose of the screening process is to identify those chemicals that are present in such small concentrations that they are not worthy of evaluation in the risk assessment. Chemicals presented in the Site Assessment Report (SAR; HET, 2004) were compared to the LDEQ Screening Option criteria (SOs), taking into account the synthetic precipitation leaching potential (SPLP) test results, and background tolerances. Those chemicals that exceed the SOs are further screened in this section of the HRA.

It is important to note that the SAR (HET, 2004) separately addressed the Treated Material, the native soils surrounding or underlying the Treated Material, and the native soil cap material, as well as sediments, surface water, and groundwater. The terminology used in RECAP for solid

media does not distinguish between the contamination and the environmental media (e.g., soil) in which it is found. In an effort to be consistent with RECAP's terminology, the term "soil", as used in this HRA, includes the Treated Material, the native soils surrounding or underlying the Treated Material, and the native soil cap material.

Appendix G of the SAR and Appendix A of this HRA present the analytical data for the soil, groundwater, sediment and surface water (HET, 2004). These tables show that the detected concentrations of chemical constituents in sediment, surface water, and groundwater were either below RECAP SO values or within background tolerances. However, there were several chemical constituents detected in the soil that were either present at concentrations greater than RECAP SO values or background tolerances. Antimony, arsenic, barium, cadmium, total chromium, copper, iron, lead, magnesium, manganese, nickel, zinc had maximum concentrations in the soil greater than the SO screening values. The SAR (HET, 2004) determined that magnesium, manganese, nickel, and zinc may be further eliminated based upon the results of the SPLP test, as they do not present a leaching hazard from soil to groundwater. The soil sample results are included in this HRA as Appendix A. Only those chemicals not eliminated in the SAR report (HET, 2004) included in this HRA and are subjected to the screening process described below. Details of the screening process are discussed below.

For the soil evaluation, COCs were determined for each of the three Areas of Concern (AOCs). These three AOCs have been previously defined as Areas A, B and C in the SAR (HET, 2004) and were discussed in Section 1.1 of this HRA. The soil samples were collected at depths ranging from 0 – 1 and 14 – 16 feet, with the exceptions of two samples in Area C that were collected at depths between 20 and 22 feet below land surface (bls) (TCB#22, 20-22 and TCB#22, 22-24). Consistent with RECAP guidelines, surface soil is considered to be at depths between 0 – 15 feet, thus all samples were considered to be surface soil samples. Despite the fact that samples TCB#22, 20-22 and TCB#22, 22-24 were collected below a depth of 15 feet, they were addressed as surface soil as a conservative, health protective measure.

Summary Statistics

Summary statistic calculations were performed for each chemical constituent not eliminated in the SAR report (HET, 2004) and include the following:

- Distribution type (i.e., normal, lognormal or neither)
- Number of samples, minimum, maximum, arithmetic mean
- 95% upper confidence limit (95% UCL)

Summary statistics were calculated using one-half of the limit of detection for all non-detected samples while duplicate samples were averaged. The distribution type for each data set (e.g. normal, lognormal, or neither) was used to determine the process for calculating the 95% UCL of the mean for each dataset, or the value that equals or exceeds the true mean of the dataset 95% of the time (95% UCL). Calculation of the 95% UCL followed the U.S.EPA guidance document "Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites," OSWER Directive 9285.6-10, December 2002 (U.S.EPA, 2002a). The Las Vegas Technical Support Center of the U.S.EPA has developed the software package ProUCL Version 3.00.02 to perform the calculation of UCLs (U.S.EPA, 2004a). Further, this software package has recently been incorporated into the OSWER guidance document (U.S.EPA, 2002a). The software used to calculate the 95% UCLs was previously described in the Human Health Risk Assessment Work Plan (ChemRisk, 2004). Documentation for the calculation for the 95% UCL (and other summary statistics) is provided in Appendix B. This appendix includes calculations for all metals present in soil, although not all metals in soil were of interest as they were eliminated in the SAR.

Screening Process

Chemical constituents not eliminated in the SAR report (HET, 2004) were further screened in this HRA using the Management Option 1 (MO-1) criteria as discussed below and the wet weight revision to the analytical data. As all other chemicals in other media have been eliminated from further consideration, the screening process in this HRA is limited to soil. In summary, chemicals present in Site media were considered potential COCs if they are not essential nutrients (i.e., calcium, potassium, and sodium), if they are present at levels in excess of naturally occurring background concentrations, and if their 95% UCL concentrations exceed the RECAP MO-1.

Health-Based Screening Criteria – As presented previously, a 95% UCL was calculated for each chemical in Areas A, B and C that was not eliminated in the SAR report (HET, 2004). These chemical-specific 95% UCLs were then compared to the appropriate RECAP MO-1 criteria. The MO-1 criteria were developed by LDEQ using conservative exposure assumptions and target risk levels for the purpose of screening multiple chemicals present in various media at a site. Based on the anticipated future land use of the site and direction from LDEQ, the industrial MO-1 values were used for soil screening purposes.

Tables 1 through 3 present the comparison of the 95% UCL concentrations to the MO-1 screening criteria. Based on this screening process and the SAR, a summary of the chemicals considered to be COCs for this HRA is provided below. It should be noted that the Risk Assessment Work Plan stated that benzo(a)pyrene would be addressed as a COC in this HRA. However, due to the use of wet weight analytical data, this chemical is no longer a COC as its maximum detected concentration (0.328 mg/kg) is less than the RECAP Screening Standard of 0.33 mg/kg). These chemicals will be further evaluated in this HRA.

Media	Area A	Area B	Area C
Soil	Arsenic	Arsenic Lead	Arsenic Lead
Groundwater	None	None	None
Sediment	None	None	None
Surface Water	None	None	None

3.0 DOSE-RESPONSE ASSESSMENT

Dose-response assessment is the process of characterizing the relationship between the dose of a chemical and the frequency of an adverse health effect in an exposed population (U.S.EPA, 1989). The dose is the quantity of the chemical that enters the body through all routes of exposure. The manner in which the dose-response relationship for a given chemical is quantitatively evaluated depends upon the nature of the adverse health effect. For example, the risks associated with very low doses of carcinogens are predicted using models; whereas, for noncarcinogenic effects, uncertainty factors are used to estimate a dose which is safe for even sensitive human subpopulations.

The body of knowledge about the dose-response relationship is based on data collected from animal studies and theoretical precepts about what might occur in humans. The U.S.EPA maintains an on-line database called the *Integrated Risk Information System* (IRIS; <http://www.epa.gov/iriswebp/iris/index.html>) which provides toxicity criteria for chronic oral and inhalation exposures based upon these studies. All data contained in IRIS are verified by a U.S.EPA work group, approved by each office of the U.S.EPA, and are updated monthly. As such, IRIS served as the primary source of toxicity values for this HRA.

The dose-response relationship is often established under controlled conditions (e.g., in the laboratory using test animals) in order to minimize responses due to confounding variables. Mathematical models are used to extrapolate the relatively high doses administered to animals to predict potential human responses at environmental contaminant levels that are typically far below those tested in animals. Such low doses may be "detoxified" or rendered inactive by the myriad of protective mechanisms that are present in humans (Ames et al., 1987). Consequently, the results of standard animal bioassays are of limited use in accurately predicting a dose-response relationship in humans at typical concentrations found in the environment. Risk assessment procedures acknowledge that the human population is likely to have a wider range of responses to toxic agents than the small groups of well-controlled, genetically homogenous animals used in exposure studies. Hence, the U.S.EPA attempts to correct for this factor, and others as discussed in the following section, through the use of uncertainty or safety factors in their toxicity criteria.

3.1 CHRONIC NONCARCINOGENIC HEALTH EFFECTS

In experimental systems such as animal bioassays, the benchmark against which allowable levels of exposure are calculated is the no observed adverse effect level (NOAEL). It is widely accepted that most biological effects of chemicals occur only after a threshold dose is exceeded (Klaassen *et al.*, 1986; Paustenbach, 1989a). For the purposes of establishing noncarcinogenic health criteria, this threshold dose is usually estimated from the NOAEL or LOAEL identified in chronic animal or human studies. The NOAEL is defined as the highest dose at which no adverse effects appear, while the LOAEL is the lowest dose at which adverse effects begin to appear (Klaassen *et al.*, 1986). The LOAEL or NOAEL from the most sensitive animal or human study is used by the U.S.EPA to establish long-term health criteria, which are called reference doses (RfDs) for exposures via the oral route and reference concentrations (RfCs) for exposures to chemicals via inhalation. The RfD is a daily intake level (mg/kg-day) of the chemical of interest for the human population, including sensitive subpopulations, that is not expected to cause adverse health effects over a lifetime of exposure (U.S.EPA, 1989).

In an attempt to account for limitations in the quality or quantity of available toxicological data, uncertainty factors are used with NOAELs (or LOAELs) to set RfDs for noncarcinogenic effects. Generally, an experimental NOAEL is divided by an uncertainty factor ranging from 10 to 10,000. A factor of 10 is used to account for uncertainties in extrapolating animal data to human health effects; another 10-fold factor accounts for differences in sensitivity within the human population; a third 10-fold factor is used if the available data base is incomplete and a fourth 10-fold factor is used if the exposures were for a partial lifetime (*i.e.*, sub-chronic). In cases where the data do not meet all the conditions for one of these categories and appear to fall between requirements for two categories, an intermediate uncertainty factor (usually 3) is used. It should be noted that RfDs are generally very conservative (*i.e.*, health protective) due to the repeated use of relatively large uncertainty (safety) factors.

The RfDs for the noncarcinogenic effects of the COCs are presented in Table 4. U.S.EPA has not verified noncarcinogenic or carcinogenic toxicity criteria (RfD or slope factor, respectively) for lead. Therefore, blood lead concentration modeling, as discussed in Section 4.5, using U.S.EPA's adult blood lead model (U.S.EPA, 1996b) for lead was used to assess its hazard.

3.2 CARCINOGENIC HEALTH EFFECTS

The historical regulatory approach has generally assumed that carcinogenic chemicals should be treated as if they have no dose below which a risk will not exist (e.g., there is no threshold) (Paustenbach, 1989b). In other words, it is assumed that any dose of a carcinogen, no matter how small, is assumed to present a cancer risk. This is a regulatory assumption. To estimate theoretically plausible responses at low doses, various mathematical models that describe the expected quantitative relationship between risk and dose can be used (Paustenbach, 1989a,b). While most models may fit the dose-response relationship adequately at high exposure levels used in animal studies, their ability to accurately predict responses at low doses may vary significantly (Paustenbach, 1989a). The accuracy of the projected risk depends on how well the model predicts the true relationship between dose and risk at dose levels where the relationship cannot actually be measured.

The mathematical model currently used by the U.S.EPA for low-dose extrapolation is the linearized multistage model (LMS). This model is based on the multistage theory of the carcinogenic process, which attempts to account for the fact that, in many types of cancer, the logarithm of the cancer mortality rate increases in direct proportion to the logarithm of age (Crump et al, 1976). This suggests that a cell may go through a sequence of specific changes (stages) before reaching a malignant state. The LMS model is used in U.S.EPA carcinogen assessments to estimate the dose-response characteristics of carcinogens at low exposure levels typically encountered in the environment. Health risks for exposures to carcinogens are defined in terms of probabilities. These probabilities identify the theoretical risk of a carcinogenic response in an individual that receives a given dose of a particular compound. The slope factor (SF), expressed in units of $(\text{mg/kg-day})^{-1}$, multiplied by the daily human dose of the chemical, provides an estimate of the theoretical cancer risk.

The U.S.EPA classifies compounds, according to their weight-of-evidence for carcinogenic toxicity, into the following six groups (U.S.EPA, 1996a):

-
- | | |
|-----------------|---|
| Group A | Human Carcinogen (sufficient evidence of carcinogenicity in humans) |
| Group B1 | Probable Human Carcinogen (limited evidence of carcinogenicity in humans) |
| Group B2 | Probable Human Carcinogen (sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans) |
| Group C | Possible Human Carcinogen (limited evidence of carcinogenicity in animals or lack of human data) |
| Group D | Not Classifiable as to Human Carcinogenicity (Inadequate or no evidence) |

It is notable that EPA has proposed new cancer classification guidelines in 1999, however, these guidelines have not yet been incorporated into the IRIS framework.

Arsenic is classified as a Group A carcinogen and has verified oral and inhalation SFs by the U.S.EPA, both of which are presented in Table 4. Lead is classified as a B2 probable carcinogen, however, U.S.EPA has not developed toxicity criteria (RfDs or slope factors) for lead, and as a consequence, blood lead concentration modeling, as discussed in Section 4.5, was conducted using U.S.EPA's Adult Blood Lead model (U.S.EPA, 1996b). This blood lead modeling is based upon potential neurological effects as the Agency has concluded that the renal carcinogenic effects of lead are observed at dosages significantly higher than the doses that result in neurological effects.

4.0 EXPOSURE ASSESSMENT

Exposure assessment is the process through which the exposure of biological receptors to substances present in the environment is estimated and/or measured. Exposure assessment generally involves analysis of the following variables: 1) magnitude, duration and route of exposure; 2) nature and size of potential receptor populations; and 3) uncertainties associated with each variable (NAS, 1983).

Exposure pathways are determined by environmental conditions (*e.g.*, location of surface waters, groundwater, vegetative cover, and prevailing wind direction), by the potential for chemical migration from one environmental medium (*e.g.*, soil, water, or air) to another, and by the general activities of the potentially exposed populations (*e.g.*, time spent inside or outside, level of work activity). Each pathway describes a unique mechanism by which a population or an individual may be exposed to a chemical. Although several potential pathways may exist, not all are usually complete. For a pathway to be complete, the following conditions must exist:

- a source and mechanism of chemical release to the environment;
- an environmental transport medium (*e.g.*, air, water, soil);
- a point of potential human contact with the medium; and
- a human exposure route at the contact point (*e.g.*, inhalation, ingestion, dermal contact).

The potential for the occurrence of an adverse health effect associated with exposure to a chemical depends on the degree of systemic uptake (amount absorbed into the blood and tissues). For any route of exposure, the uptake (U) is the product of exposure (E) and the absorption (B):

$$U = E \times B$$

Where:

U = Uptake
E = Exposure

B = Bioavailability or absorption efficiency

Although a number of different factors are used to quantify exposure, the mathematical relationship shown above holds true for all exposure routes and is typically expressed as mass of chemical per mass of body weight per day (mg/kg-day).

4.1 IDENTIFICATION OF POTENTIALLY EXPOSED POPULATIONS

Currently, the site is an inactive industrial facility and the expected, continued future use of the site is industrial. Consequently, the potential exists for on-site workers to be exposed to the COCs. Therefore, it was the intent of this HRA to evaluate the potential human health impacts to future on-site workers. For this industrial exposure scenario, only adult exposure was quantified, as children are not generally present at an operating industrial facility. In addition, site expansion may occur in the future; therefore, a construction worker was also addressed in this HRA.

4.2 EXPOSURE SCENARIOS

Two occupational exposure scenarios were evaluated in this HRA; an industrial site worker who is conservatively assumed to spend the entire time at the facility outdoors and solely within each of the three AOCs, and a construction worker who is also assumed to spend the entire time within this exposure realm. Further, it was conservatively assumed that contact with the Treated Material was not precluded by the natural soil cap that is currently in place. This approach is highly conservative as it is unlikely that any site worker would spend their entire time at the facility within any of the three impacted AOCs or solely with the Treated Material. For these two exposure scenarios, the reasonable maximum exposure (RME) scenario was evaluated as described below.

Reasonable Maximum Exposure

The RME is representative of an upper-bound exposure and is an estimate of the highest exposure that is *reasonably* expected to occur at a site in a given population (U.S.EPA, 1989; 1992a). The RME is determined primarily by using upper bound estimates for key parameters, such as the 95th percentile estimates of exposure duration, and the median for other parameters (i.e., body weight). These parameters are clearly defined in the LDEQ RECAP guidance for an industrial worker exposure scenario. However, LDEQ RECAP does not provide guidance on a construction worker scenario, thus U.S. EPA guidance and professional judgment was relied upon for this scenario.

4.3 IDENTIFICATION OF POTENTIAL EXPOSURE PATHWAYS

Currently the COCs are present in the three Treated Material areas and are below a soil cap. This cap varies in thickness but is generally two and a half feet thick. Thus, the COCs are not readily available for direct contact pathways such as dermal contact or incidental soil ingestion. However, it may be possible for the subsurface soils which contain the COCs to, at some point, be brought to the surface by construction or other earth moving activities. To account for this possibility, for the industrial worker, this HRA quantifies exposure to the COCs in soils by assuming that they are present in surface soils and, thus available for dermal contact, incidental ingestion, and inhalation of particulates. As construction workers may conduct soil-intrusive activities, exposure of this population to soil below the cap is also quantified.

As presented in the HRA Work Plan, exposure to groundwater was considered to be an incomplete exposure pathway as it is not classified as a drinking water source. As such, this pathway was not addressed in this HRA (HET 2004).

4.4 ESTIMATION OF EXPOSURE POINT CONCENTRATIONS

Reliable estimates of exposure point concentrations in soil are required to calculate the magnitude of exposure for humans. Therefore, representative soil concentrations were used in

this HRA to quantify exposure to the COCs. Consistent with LDEQ and U.S.EPA guidance for risk assessment (LDEQ 2003; U.S.EPA, 1989, 1992), representative site data were derived from the soil sampling data as discussed in Section 2.0 (i.e., 95% UCLs were utilized).

4.5 CONCEPTUAL SITE MODEL

The conceptual site model (CSM) for the site was developed by combining all elements of impacted media, transport mechanisms, exposure pathways, and potentially exposed populations (as discussed above). The CSM presented in the Human Health Risk Assessment Work Plan (ChemRisk, 2004) has been revised to reflect the complete exposure scenarios addressed by this HRA and is included as Figure 4.

4.6 EXPOSURE VIA INCIDENTAL INGESTION OF SOIL

For all on-site scenarios, the potential exists for individuals to ingest incidental amounts of impacted soil. The dose due to the soil ingestion pathway was quantified according to the following equation:

$$Dose = \frac{CS \times SIR \times CF \times EF \times ED \times OBF \times MET}{BW \times AT}$$

where:

Dose	=	Average daily dose (ADD) for noncarcinogens (mg/kg-day) or lifetime average daily dose (LADD) for carcinogens (mg/kg-day);
CS	=	95% UCL concentration of COC in soil (mg/kg);
SIR	=	Soil ingestion rate (mg/day);
CF	=	Conversion factor (10^{-6} kg/mg);
EF	=	Exposure frequency (days/year);
ED	=	Exposure duration (years);
OBF	=	Oral bioavailability factor (unitless)
MET	=	Meteorological factor (unitless)
BW	=	Body weight (kg); and

AT = Averaging time (days).

The exposure factors used to derive the estimated doses were obtained from the LDEQ RECAP and U.S.EPA risk assessment guidance documents (LDEQ, 2003; U.S. EPA 1989; 1997); they are presented in Table 5. When available, the exposure factors for the construction worker scenario were obtained from U.S. EPA guidance. For those which no guidance exists, professional judgment was used. Each of the exposure factors used for this pathway is discussed below.

Body Weight. The average body weight (BW) for an adult, 70 kilograms, will be used, as recommended in the RECAP and U.S.EPA guidance (LDEQ, 2003; U.S.EPA, 1989, 2001a,b).

Averaging Time. The averaging time is the time over which exposure occurs. For carcinogens, the averaging time (AT) is a 70 year lifetime (U.S.EPA, 2001a). For noncarcinogens, the AT is equal to the exposure duration; 25 years for the industrial worker and one year for the construction worker as discussed below.

Exposure Duration. The exposure duration (ED) is the number of years over which exposure occurs. The RECAP standard default exposure duration is 25 years and will be used for the industrial worker scenario.

Currently, neither the LDEQ nor U.S.EPA has any guidance on exposure duration for a construction worker. However, it is a reasonable assumption that soil intrusive activities for a site of this size would not occur for more than one year. Thus, an exposure duration of one year was used in this HRA for the construction worker scenario.

Exposure Frequency. The exposure frequency (EF) is the number of days per year during which exposure occurs. For the industrial/commercial worker scenario, the RECAP standard default exposure frequency of 250 days per year will be used for both the industrial and construction worker scenarios.

Soil Ingestion Rate. The soil ingestion rate (SIR) represents the amount of soil that may be incidentally ingested during exposure activities. A soil ingestion rate of 50 mg/day will be used for the industrial worker scenario as it is the RECAP and U.S. EPA recommended value for adults (U.S.EPA, 1997; 2001a). In lieu of RECAP guidance on soil ingestion rates for construction workers, the U.S. EPA recommended rate for outdoor workers of 100 mg/day (U.S. EPA 1997) was use in this assessment.

Oral Bioavailability Factor. Oral bioavailability factors (OBFs) are chemical specific values that represent the fraction of a chemical that may be liberated from the soil matrix and subsequently available for absorption following incidental soil ingestion. Metals such as arsenic have reduced bioavailability due to the presence of secondary reaction products and insoluble soil or in this case, Treated Materials matrixes (Davis et al., 1992). Many *in vitro* and *in vivo* studies support this conclusion. Rodriguez et al. (1999) and Ruby et al. (1996, 1999) have reported bioavailability of less than 50% for various soil types, mining waste, and smelter waste. Further, Roberts et al. (2002) observed arsenic bioavailability of less than 25% using a primate model and arsenic impacted soils from an electrical substation, wood preservative, pesticide, and a cattle dip facilities. This latter study was supported by the Florida Department of Environmental Protection. Based upon this evidence and given that the Treated Material has been subjected to extremely high temperatures and did not leach to any appreciable degree in the toxicity characteristics leaching potential (TCLP) test and synthetic precipitation leaching procedure tests, inclusion of a factor to account for this reduced bioavailability is warranted. The upper bound value as reported in these studies, 50%, was used in this HRA to ensure that the leaching potential of arsenic was not underestimated.

Meteorological Factor. Meteorological conditions such as rain or frozen ground may preclude direct contact with soil and suppress the suspension of respirable particulates. Studies have found that soil ingestion rates decrease significantly during times of precipitation (van Wijnen et al., 1990). Further, Calabrese and Stanek (1992) found that, on average, only about one-third of indoor dust was derived from outdoor soil. These data indicate that it is appropriate to consider the effect of inclement weather on incidental soil ingestion, dermal contact and inhalation of particulates (U.S. EPA 2001b).

A meteorological factor (MET) that accounts for only days with precipitation greater than or equal to 0.01 inches per day was utilized in this HRA. This factor ignores the days per year when the ground is frozen or following significant precipitation events but there is no precipitation, and thus is believed to be conservative. A review of 30 years of daily precipitation data from Baton Rouge, Louisiana (the nearest city with precipitation data) collected from 1961 to 1990 (U.S. EPA 2004b) indicates that, on average, this amount of precipitation falls on 110 days per year. This number was adjusted to estimate the number of weekdays that precipitation falls by multiplying 110 days per year by 5 weekdays per week and then dividing that product by 7 days per week. This indicates that, on average, there is precipitation of 0.01 inches or more on 79 weekdays each year leaving 171 workdays (68%) on which there is no precipitation. This unitless fraction (0.68) was used in this HRA to account for these meteorological conditions.

4.7 EXPOSURE VIA DERMAL CONTACT WITH SOIL

For the potentially exposed on-site worker populations, the potential exists for contact via dermal contact with the COCs in soil. Dermal intake via skin for the COCs in on-site soils was calculated according to the following equation:

$$Dose = \frac{CS \times AF \times DAF \times SA \times CF \times EF \times ED \times MET}{BW \times AT}$$

where:

Dose	=	Average daily dose (ADD) for noncarcinogens (mg/kg-day) or lifetime average daily dose (LADD) for carcinogens (mg/kg-day);
CS	=	95% UCL concentration of COC in soil (mg/kg);
AF	=	Soil adherence factor (mg/cm ²);
DAF	=	Dermal absorption factor (unitless);
SA	=	Exposed skin surface area (cm ²);
CF	=	Conversion factor (10 ⁻⁶ kg/mg);
EF	=	Exposure frequency (days/year);
ED	=	Exposure duration (years);

MET	=	Meteorological factor (unitless)
BW	=	Body weight (kg); and
AT	=	Averaging time (days).

The exposure parameters for this pathway were obtained from the RECAP risk assessment guidance with the exception of the construction worker exposure duration of one year (as discussed previously). Those exposure parameters unique to this pathway and not discussed previously are presented below.

Skin Surface Area. An exposed skin surface area (SA) of 3,300 cm² will be used for the industrial and construction worker scenarios. This is representative of the exposed skin of the arms, hands and face. This is the value recommended in the RECAP guidance (LDEQ, 2003).

Adherence Factor. The adherence factor (AF) describes the amount of soil that adheres to the skin per unit of surface area. The RECAP recommended value of 0.2 mg/cm² will be used for the industrial and construction worker scenarios (LDEQ, 2003).

Dermal Absorption Factor. Dermal Absorption Factors (DAFs) are chemical specific values that represent the fraction of a chemical that is dermally available from the soil matrix. The DAF of 0.03 for arsenic as recommended in Appendix H of the RECAP guidance was used in this HRA.

4.8 EXPOSURE VIA PARTICULATE INHALATION

The inhalation of particulates was quantified according to the following equation for the on-site potentially exposed populations. These scenarios were evaluated to quantify the daily dose for the COCs in on-site soils according to the following equation:

$$Dose = \frac{CS \times IR \times EF \times ED \times MET}{BW \times AT \times PEF}$$

where:

Dose	=	Average daily dose (ADD) for noncarcinogens (mg/kg-day) or lifetime average daily dose (LADD) for carcinogens (mg/kg-day);
CS	=	95% UCL concentration of COC in soil (mg/kg);
IR	=	Inhalation rate (m ³ /day);
EF	=	Exposure frequency (days/year);
ED	=	Exposure duration (days);
MET	=	Meteorological factor (unitless);
BW	=	Body weight (kg);
AT	=	Averaging time (days); and
PEF	=	Particulate emission factor (m ³ /kg).

All of the parameters used in the quantification of this pathway and not discussed previously are presented below.

Inhalation Rate. The inhalation rate (IR) represents the volume of air that is respired on a daily basis. The RECAP recommended volume of 20 m³/day was used in the assessment (LDEQ, 2003).

Particulate Emission Factor. The USEPA default particulate emission rate of 6.88 x 10⁻⁸ g/m²-second from the supplemental Soil Screening Guidance and the air dispersion factor (Q/C) for a

10 acre site of $46.2 \text{ g/m}^2\text{-sec}$ per kg/m^3 based on the RECAP guidance (LDEQ, 2003) were used to calculate a PEF of $6.72 \times 10^8 \text{ m}^3/\text{kg}$ for the industrial worker in this assessment (USEPA, 2002b). For the construction worker, the AP-42 emission factor (USEPA, 1995) for heavy construction work of $2,690 \text{ kg/ha-month}$ ($1.04 \times 10^4 \text{ g/m}^2\text{-sec}$) was combined with the same air dispersion factor (Q/C) of $46.2 \text{ g/m}^2\text{-sec}$ per kg/m^3 (LDEQ, 2003) to derive a PEF of $4.44 \times 10^5 \text{ m}^3/\text{kg}$.

4.9 NONCANCER ASSESSMENT FOR LEAD

The U.S.EPA has not promulgated an RfD or SF for lead on which to base a risk assessment. However, several modeling approaches have been developed to characterize blood lead levels associated with environmental and dietary exposures to lead. A discussion of U.S.EPA's approach is provided. It should be noted that the model output is a target soil concentration rather than a blood lead level or estimate of risk contrary to the methodology used for the other COCs in this HRA.

The U.S.EPA's *Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil* (1996b) was followed in this HRA. This methodology was developed by the U.S.EPA Technical Review Workgroup for Lead to be protective of women of child-bearing age. Because the method is designed to protect an unborn fetus, which is considered to be especially sensitive to elevated lead exposures, the 95% UCL target blood lead concentration of $10 \text{ }\mu\text{g/dL}$ was used (CDC, 1991; U.S.EPA, 1996b). However, the OSHA standard for women of child-bearing years is $30 \text{ }\mu\text{g/dL}$. Both target blood lead concentrations were used in this HRA to provide a measure of the upper and lower bound estimates of health protective soil (Treated Material) concentrations. The approach is generally consistent with that used to set remedial goals at the National Priority List (NPL) Gulch site in Region VIII.

The equations and exposure parameters suggested in the guidance and provided in the calculation spreadsheet from the U.S. EPA website including the geometric standard deviation of 1.8 (as recommended for homogeneous populations), were utilized in the calculation of a site-

specific soil criterion for lead for the industrial and construction worker scenarios. The calculation spreadsheets are provided in Appendix C. In addition, the site-specific meteorological factor (MET) was included in the calculation. The only pathway of exposure considered in the U.S.EPA guidance is soil ingestion because lead is not known to be absorbed dermally to a significant degree, and inhalation of soil particulates is usually not a significant pathway of exposure (U.S. EPA 1996b). The remaining default parameters provided in the U.S. EPA guidance were used in this evaluation. For the construction worker scenario, the lead model default soil ingestion rate was changed to 100 mg/day to be consistent with this HRA and other U.S. EPA guidance. For those parameters that are described by a range of suitable values, values were selected that are generally consistent with the characteristics of the potentially exposed population at the site (*i.e.*, women of child-bearing age of a heterogeneous urban population).

5.0 RISK CHARACTERIZATION

The risk characterization provides a quantitative and qualitative discussion of the health hazards posed by the COCs. Both noncarcinogenic and carcinogenic health effects are addressed. As discussed in Section 4.0, noncarcinogenic health effects are characterized by comparing estimated doses to the maximally "acceptable" doses, and carcinogenic health risks are characterized with respect to cancer risks that typically trigger regulatory concern.

5.1 NONCARCINOGENIC HEALTH EFFECTS

Noncancer hazards are typically characterized using the "hazard quotient" approach (U.S.EPA, 1989). The hazard quotient (HQ) is the ratio of the calculated average daily dose (ADD) to the maximally acceptable "safe" dose (*i.e.*, the U.S.EPA's reference dose, or RfD):

$$\text{Hazard Quotient} = \frac{ADD}{RfD}$$

An HQ less than 1 indicates that the average daily dose for a particular pathway is below the level associated with a toxic effect. The smaller the HQ, the lesser the probability of an adverse health hazard. When individual COCs potentially act on the same organs or result in the same health endpoint (*e.g.*, respiratory irritant), hazard quotients for groups of chemicals are summed to derive the overall "hazard index."

$$\text{Hazard Index} = \frac{ADD_1}{RfD_1} + \frac{ADD_2}{RfD_2} + \dots + \frac{ADD_n}{RfD_n}$$

A hazard index (HI) of less than or equal to 1 indicates that the levels of exposure are acceptable for chemicals having an additive effect. If the total HI is greater than one using this approach, a more thorough evaluation should be performed.

In Table 6, the HIs for the construction and industrial worker scenarios were presented and include all pathways (ingestion, inhalation, and dermal contact). Arsenic was the only chemical in this HRA with noncarcinogenic toxicity criteria and was considered a COC in each of the three AOCs. For the industrial worker, the hazard indices in Areas A, B, and C are 0.06, 0.1, and 0.1, respectively. For the construction worker scenario, the hazard indices in Areas A, B, and C are 0.2, 0.3, and 0.3 respectively.

5.2 CARCINOGENIC HEALTH RISK

Carcinogenic health risks are defined in terms of the probability of an individual developing cancer as the result of exposure to a given chemical at a given concentration (U.S.EPA, 1989). The incremental probability of developing cancer (*i.e.*, the theoretical excess cancer risk) is the additional risk above and beyond the cancer risk an individual would face in the absence of the exposures characterized in this risk assessment. The theoretical excess cancer risk is based on the LADD and is calculated as follows:

$$\textit{Theoretical Risk} = \textit{LADD} \times \textit{SF}$$

Where:

LADD = Lifetime average daily dose (mg/kg-day)

SF = Cancer slope factor (mg/kg-day)⁻¹

The LADDs were used with the U.S.EPA cancer slope factors (Section 3.2) as described above to calculate the theoretical increased in cancer risk associated with exposure to the COCs at the site (Table 6).

In this assessment, as shown in Table 6, the theoretical increased cancer risk posed by the carcinogenic COCs is 5×10^{-6} for the industrial worker in Area A and 1×10^{-5} in Areas B and C. For the construction worker scenario, the theoretical increased cancer risk is 3×10^{-6} for Area A and 6×10^{-6} for Areas B and C. Since these risks are within than the levels considered acceptable by the U.S.EPA for Superfund sites (10^{-4} to 10^{-6}) (U.S.EPA, 1990) and the LDEQ requirements (LDEQ, 2003), they should be considered acceptable for this site.

5.3 LEAD EVALUATION

The site-specific lead concentrations for the RPI Inc. facility are presented below.

Exposure Scenario	10 mg/dl Based Blood Lead	30 mg/dl Based Blood Lead
Industrial Worker Scenario	1,980 mg/kg	9,490 mg/kg
Construction Worker Scenario	990 mg/kg	4,750 mg/kg

The construction worker scenario soil criterion is lower than the industrial worker because the model does not account for exposure duration. That is, the model is insensitive to the number of years over which exposure may occur. For example, it does not matter if the duration is 10 days or 10 years, as the model will yield the same result. However, this is not entirely accurate since lead is a chronic toxicant, and therefore repeated exposure would influence the level of lead contained in the body. Therefore, caution should be exercised when relying upon this model as for short term exposures such as for a construction worker scenario as it most accurate when addressing long-term, continuous exposures.

The 95% UCLs of the soil concentrations for Areas B and C, 3,715 and 2,223 mg/kg, respectively, fall within the calculated range of acceptable concentrations as calculated in this HRA.

5.4 SEMI-QUANTITATIVE UNCERTAINTY ANALYSIS

There are numerous sources of uncertainty inherent in the risk assessment process. Some level of uncertainty is introduced into the assessment each time an assumption is made. Many assumptions have valid and strong scientific bases while others are estimates usually represented by a range of values (and these often incorporate professional judgment). Where there is uncertainty regarding an assumption, a conservative estimate is often chosen to ensure that the assessment will be health-protective. The following presents a consideration of some of the uncertainties associated with the risk assessment according to each of the major components of the analysis (*i.e.*, site characterization, data evaluation, toxicity assessment, exposure assessment, and risk characterization). It is a semi-quantitative analysis as this section presents alternative risk estimates based upon the use of alternative values for key exposure assumptions.

The purpose of this section is to identify and discuss the uncertainties associated with the quantitative estimates of risk presented in this assessment. This discussion serves to place the risk estimates in this assessment into proper perspective by fully specifying the assumptions and uncertainties inherent in the assessment (U.S.EPA, 1989). The key variables and assumptions are identified that contribute most to the uncertainty.

5.4.1 Hazard Identification

Use of Nondetect Data - As recommended by U.S.EPA guidance (1989), non-detected concentrations of chemicals detected in site media were included in the calculation of the 95% UCL concentrations using one-half the detection limit (U.S.EPA, 1989b). It should be noted that in most cases a chemical present in site media at a concentration equal to half the detection limit would be detected at least qualitatively. As such, the concentration of the chemical could be estimated, receiving a "J" qualifier from the laboratory. For this reason, the use of one-half the detection limit for non-detect data is conservative since if the COC was present at a concentration of one-half of its detection limit, it would most likely be qualified by the laboratory. In extreme cases, this practice can result in the calculation of mean and 95% UCL concentrations that exceed the maximum concentration. Exposure point concentrations calculated in this manner most likely exceed actual exposures.

5.4.2 Dose-Response Assessment

Reference Doses - Toxicity information for many constituents is limited for humans, consequently, depending on the quality and extent of toxicity information, varying degrees of uncertainty will be associated with the calculated toxicity values. In general, the procedures used to extrapolate from animals to humans in toxicity studies include the use of uncertainty factors so that the potential hazard to humans is likely to be overestimated rather than underestimated. As discussed in Section 3.1, it is widely accepted in the scientific community that low doses of toxicants may be detoxified by any one of several processes present in human organ-systems (Ames *et al.*, 1987). As a result, humans may not react to the same degree as the population of genetically homogeneous laboratory animal populations used in standard bioassays.

Slope Factors - Cancer slope factors, by definition, are a "plausible upper-bound estimate of the probability" of developing cancer per unit dose over a lifetime. These estimates are conservative for two reasons; (1) they are based on the most conservative model (*i.e.*, linearized multistage model) for extrapolating dose-response information from high doses to low doses, and (2) the 95% UCL of the slope of the dose-response curve is used when the information is based on animal studies. In some cases, slope factors derived from human studies are based on the best estimate (*i.e.*, median) of the dose-response curve (U.S.EPA, 1989).

Route-to-Route Extrapolation - In this risk assessment, oral toxicity values were used to fill toxicity value gaps for dermal exposures. This practice is uncertain due to inherent differences in the absorption, pharmacokinetics, and target organ specificity of chemicals following different routes of exposure. Therefore, any risk estimates calculated using these extrapolated values may also carry significant uncertainty.

5.4.3 Exposure Assessment

Hypothetical Exposures - Potential risks from exposure to Site soils were evaluated for an industrial worker and a construction worker scenario. This risk evaluation is considered to be

hypothetical, however, because it is based on several assumptions that do not reflect the actual present conditions, or expected future conditions, at the site. In particular, the risks and acceptable soil lead concentrations were calculated assuming nearly unlimited direct contact by the industrial worker with the Treated Material for a period of 25 years. As stated previously, most if not all of the Treated Material is presently overlain by 2 ½ feet of a native soil cap that effectively precludes any current direct exposures. Moreover, the site is currently an inactive industrial facility and, therefore, there is no current exposure to the Treated Material and thus, no health risk.

Exposure Parameters - Several parameters were incorporated into the exposure assessment that entails the use of conservative values to define general population behavior. Conservative default values used for exposure parameters (i.e., estimates of 100 mg/day soil ingestion for adult construction workers) were chosen to evaluate RME populations. It was assumed that the individual was exposed to the 95% UCL soil concentration for the entire duration of exposure (25 years) and that all soil contacted during the course of a work day was derived solely from each of the AOCs. It was also assumed that the COCs were present in surface soil which is presently not the case. The COCs are currently located down to 22 feet below the ground surface and, therefore, are not currently available for exposure to on-site industrial workers. The net effect of these conservative exposure assumptions is the overestimation of potential health risks.

Exposure Frequency - It is worthy of closer examination to assess the impact of exposure frequency on the risk estimates. Should the site be redeveloped and if buildings, pavement or structures that preclude direct contact with soil are put in place, then the calculated risks would be dramatically reduced. For example, should the exposure be limited to approximately 4 days per month or 50 days per year, then the calculated risks would be reduced as follows:

Exposure Scenario	Area A	Area B	Area C
Industrial Worker	1×10^{-6}	3×10^{-6}	2×10^{-6}

Exposure frequency may be reduced to 50 days per year or less in a number of ways, including but not limited to the following (or any combination thereof):

- Maintaining a soil or clay cap over the Treated Material;
- Planting grass or other vegetation over the Treated Material;
- Paving over the Treated Material;
- Installing or constructing structures over the Treated Material; or
- The majority of worker activities are indoors or away from the Treated Material.

Should any of the foregoing uses of the Site be implemented, any health risk associated with leaving the Treated Material in place would thereby be greatly reduced or even eliminated.

Even assuming nearly unlimited direct contact with the Treated Material if left in place, the Treated Material would not pose an unacceptable health risk to potential future industrial and construction workers at the Site. Moreover, there are several plausible future uses of the Site (e.g., maintaining a soil or clay cap, planting grass or other vegetation, paving, construction of structures over the Treated Material, or worker activities away from Treated Material) any of which, if implemented, would limit direct contact with the Treated Material to less than that assumed by this HRA thereby greatly reducing or even eliminating any potential health risks.

5.4.4 Risk Characterization

Summation of Hazard Indices Across Pathways - In this assessment, the potential for noncancer health risks was evaluated assuming additivity across exposure pathways and for all COCs. This practice, although conservative, ignores possible synergisms or antagonisms with other chemicals, which may be present in the environment which may affect the absorption, metabolism (metabolic activation or detoxification), and ultimately the net toxicity of the COCs. Therefore, there is a significant amount of conservatism associated with the assumption of additivity used in this assessment.

5.4.5 Uncertainty Analysis Summary

This HRA included many conservative assumptions to ensure that the potential for current and future exposures are not underestimated. These conservatisms effectively combine to yield risk and hazard estimates that likely far exceed any true exposure conditions that currently exist or which could possibly exist in the future. Because of this, the risk and hazard estimates quantified in this HRA likely overestimate the true potential for adverse health effects associated with exposure to the COCs at the site.

6.0 SUMMARY

This HRA evaluated the potential carcinogenic and noncarcinogenic health risks associated with the placement of Treated Material on the Site. The Site was assessed as three separate areas, Areas A, B and C. Based on the SAR (HET, 2004) and RECAP screening process, the chemicals and medium of concern were determined to be arsenic and lead Site soil (which includes the Treated Material and surrounding soils). Specifically, arsenic in Area A and arsenic and lead in Areas B and C were determined to be COCs in soil and were quantitatively addressed in the HRA.

Use of the site is expected to be industrial, thus, potential risks from exposure to Site soils were evaluated for an industrial worker and a construction worker scenario (as potential exists for earth moving activities). The total noncarcinogenic hazard indices for both the construction worker and the industrial worker scenarios in each of the three areas were far less than 1, indicating a lack of noncarcinogenic hazard to these potential future workers. The theoretical increased cancer risk for the industrial worker who works in Area A is 5×10^{-6} and 1×10^{-5} for Areas B and C, and for the construction worker, the theoretical increased cancer risk was 3×10^{-6} in Area A, and 6×10^{-6} in Areas B and C. Since these risks are within the levels considered acceptable by the U.S.EPA for Superfund sites (10^{-4} to 10^{-6}) (U.S.EPA, 1990) and the LDEQ requirements (LDEQ, 2003), they should be considered acceptable for this site.

The U.S. EPA Adult Lead Model was used to derive acceptable soil concentrations of lead for Areas B and C, the only two Treated Material areas that contained lead above the RECAP standard. Acceptable soil lead concentrations were developed using two target blood lead levels, 10 µg/dL and 30 µg/dL. As stated, the former is intended to be protective of the fetus of pregnant women and is a U.S.EPA guideline (U.S. EPA 1996b) while the latter is the OSHA limit for the general worker population (OSHA 29 CFR 1910.1025) and is protective of women of child bearing age. The results of this analysis are presented in the table below:

Exposure Scenario	10 mg/dL Target Blood Lead	30 mg/dL Target Blood Lead
Industrial Worker Scenario	1,980	9,490 mg/kg
Construction Worker Scenario	990	4,750 mg/kg

The 95 percentile upper confidence limit on the arithmetic mean (95% UCL) of lead in Area B is 3,715 and 2,223 in Area C. Thus, the lead concentrations present in Areas B and C are not expected to present an unacceptable health risk to future industrial and commercial workers at the Site as they fall within the range of safe soil concentrations as determined by this HRA using the U.S.EPA Adult Lead Model.

It should also be noted that the risks and acceptable soil lead concentrations were calculated assuming nearly unlimited direct contact for several years, 25 years in fact. As the site is currently an inactive industrial facility and most if not all of the Treated Material is capped with approximately 2 1/2 feet of native soil, there is no current exposure and thus, no health risk. If one or more plausible future uses of the site are implemented (e.g. maintaining a soil or clay cap, planting grass or other vegetation, paving, construction of structures over the Treated Material, or conducting the majority of worker activities indoors or away from the Treated Material), direct contact to the Treated Material would be limited to 50 days per year. The Uncertainty Analysis of this HRA quantitatively determined that the potential risk would be reduced to near *de minimis* levels (i.e., 1×10^{-6} for Area A; 3×10^{-6} for Area B; 2×10^{-6} for Area C) should direct contact be limited to 50 days per year or less.

In conclusion, as Site media pose neither a significant noncarcinogenic nor carcinogenic risk to potential future use scenarios, it should not be necessary to calculate cleanup standards using any of the RECAP Management Options.

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Table 1. Area A Treated Material Samples

Constituent	Concentration (mg/kg or units)	MO-1 (mg/kg or units)	Relative to MO-1	
Antimony	mg/kg	49	820	No; does not exceed MO-1
Arsenic	mg/kg	28	12	Yes; exceeds MO-1
Barium ^a	mg/kg	6,622	70,000	No; does not exceed MO-1
Cadmium ^a	mg/kg	15	500	No; does not exceed MO-1
Chromium (total)	mg/kg	105	1,000,000	No; does not exceed MO-1
Lead	mg/kg	603	1,400	No; does not exceed MO-1

^a MO-1 values have been adjusted for additive noncarcinogenic effects, as appropriate. Specifically, the target endpoint for both barium and cadmium is the kidney, thus their MO-1 values have been adjusted by a factor of 2; it was not necessary to adjust any other metals.

Table 2. Area B Treated Material Samples

Constituent	Concentration Units	95% UCL	MO-1	Material Safety Data Sheet
Antimony	mg/kg	191	820	No; does not exceed MO-1
Arsenic	mg/kg	63	12	Yes; exceeds MO-1
Barium ^a	mg/kg	5,784	70,000	No; does not exceed MO-1
Cadmium ^a	mg/kg	143	500	No; does not exceed MO-1
Chromium (total)	mg/kg	755	1,000,000	No; does not exceed MO-1
Copper	mg/kg	6,482	82,000	No; does not exceed MO-1
Iron	mg/kg	42,311	321,000 ^b	No; does not exceed MO-1
Lead	mg/kg	3,715	1,400	Yes; exceeds MO-1

^a MO-1 values have been adjusted for additive noncarcinogenic effects, as appropriate. Specifically, the target endpoint for both barium and cadmium is the kidney, thus their MO-1 values have been adjusted by a factor of 2; it was not necessary to adjust any other metals.

^b Calculated using LOEC screening equation and default exposure parameters for an industrial scenario.

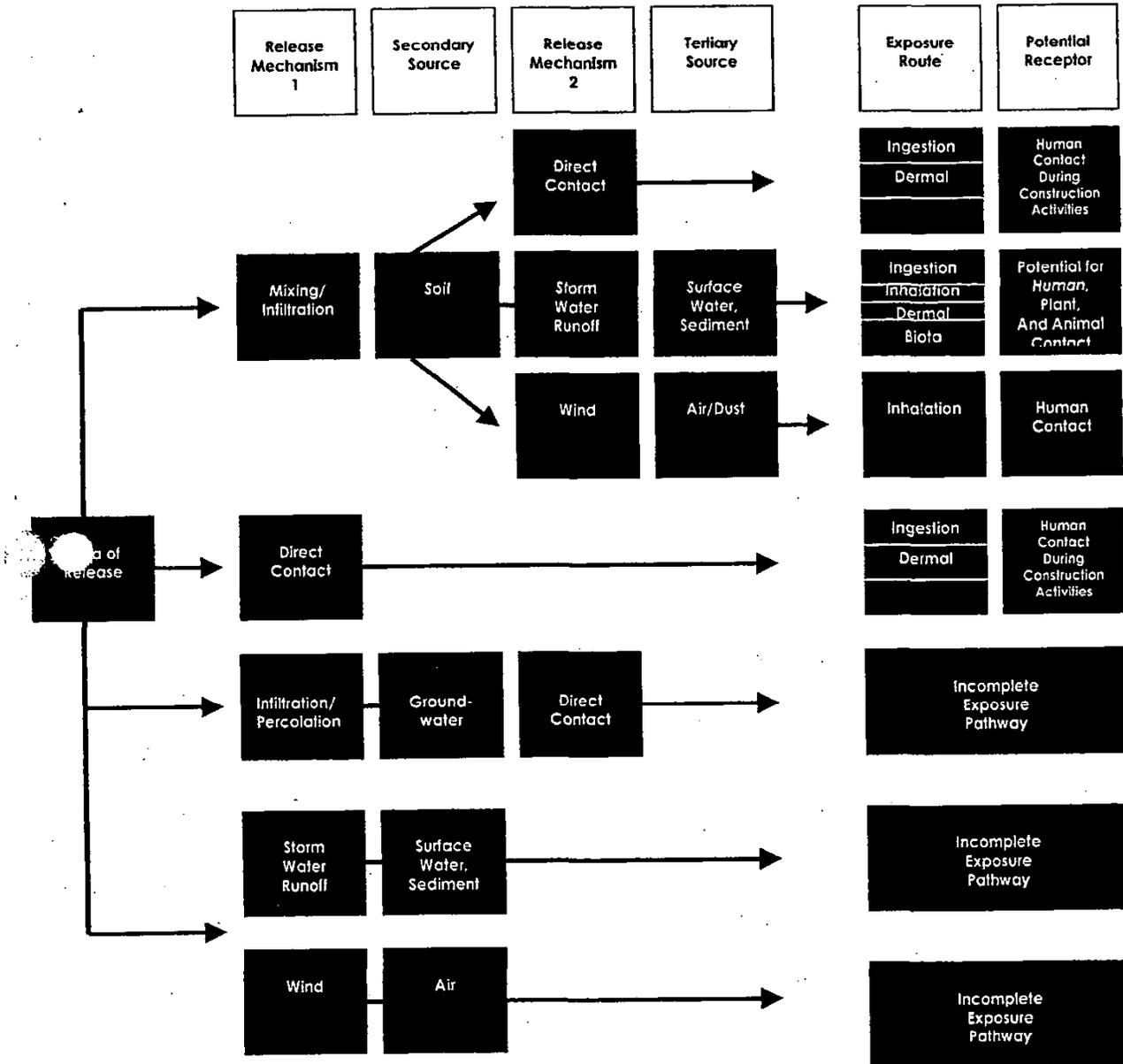
Table 5. Exposure Parameters

Parameter	70	70	70	70	Source
BW (kg)	70				LDEQ, 2003
AT (years)	25				Professional Judgement
Averaging Time	70				LDEQ, 2003
EF (days/year)	250				LDEQ, 2003
ED (years)	25				LDEQ, 2003
SIR (mg/day)	50				Professional Judgement
IR (m ³ /day)	20				U.S. EPA 1997
SA (cm ²)	3,300				LDEQ, 2003
PEF (mg/cm ²)	6.72 x 10 ⁸				LDEQ, 2003
AF (mg/cm ²)	0.2				U.S. EPA 2002b
DAF (unitless)	0.03				LDEQ, 2003
OBF (unitless)	0.5				LDEQ, 2003
MIET (unitless)	0.68				Scientific Literature
					Section 4.6

Table 6. Hazard Indices and Theoretical Increased Cancer Risk

Scenario	Area A		Area B		Area C	
	Hazard Index	Risk	Hazard Index	Risk	Hazard Index	Risk
Industrial Worker	0.06	5×10^{-6}	0.1	1×10^{-5}	0.1	1×10^{-5}
Construction Worker	0.2	3×10^{-6}	0.3	6×10^{-6}	0.3	6×10^{-6}

Conceptual Site Model



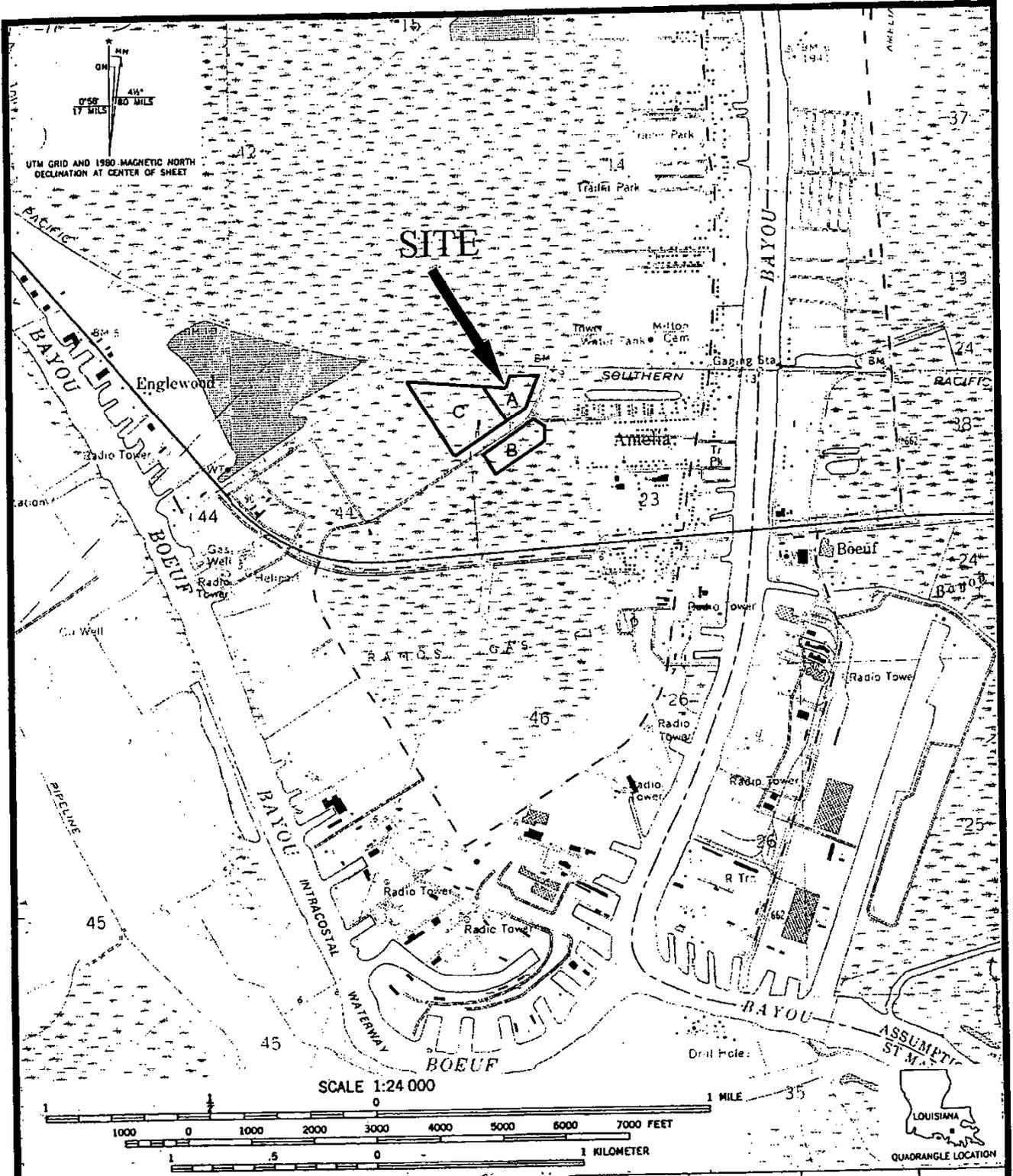
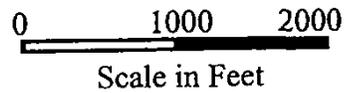
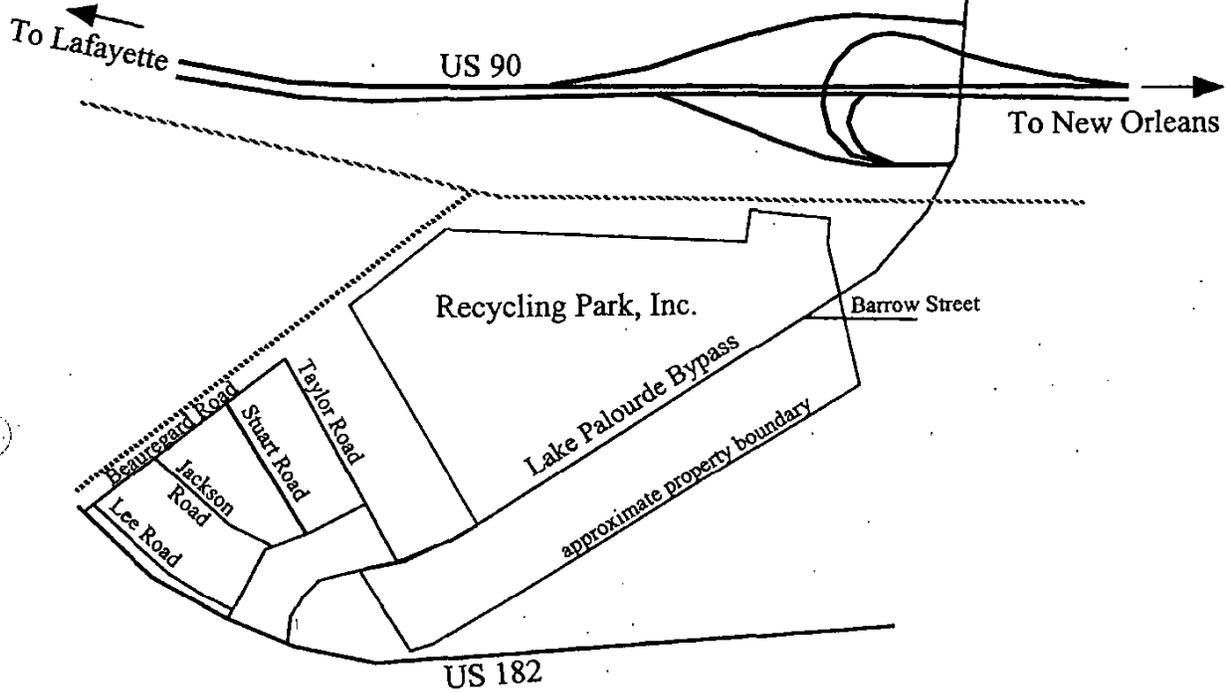


Figure 1. Site Location Map of the Recycling Park, Inc. facility located on Lake Palourde Bypass in Amelia, St. Mary Parish, Louisiana. Source: USGS 7.5 Minute Series, Morgan City and Amelia, Louisiana Quadrangles.

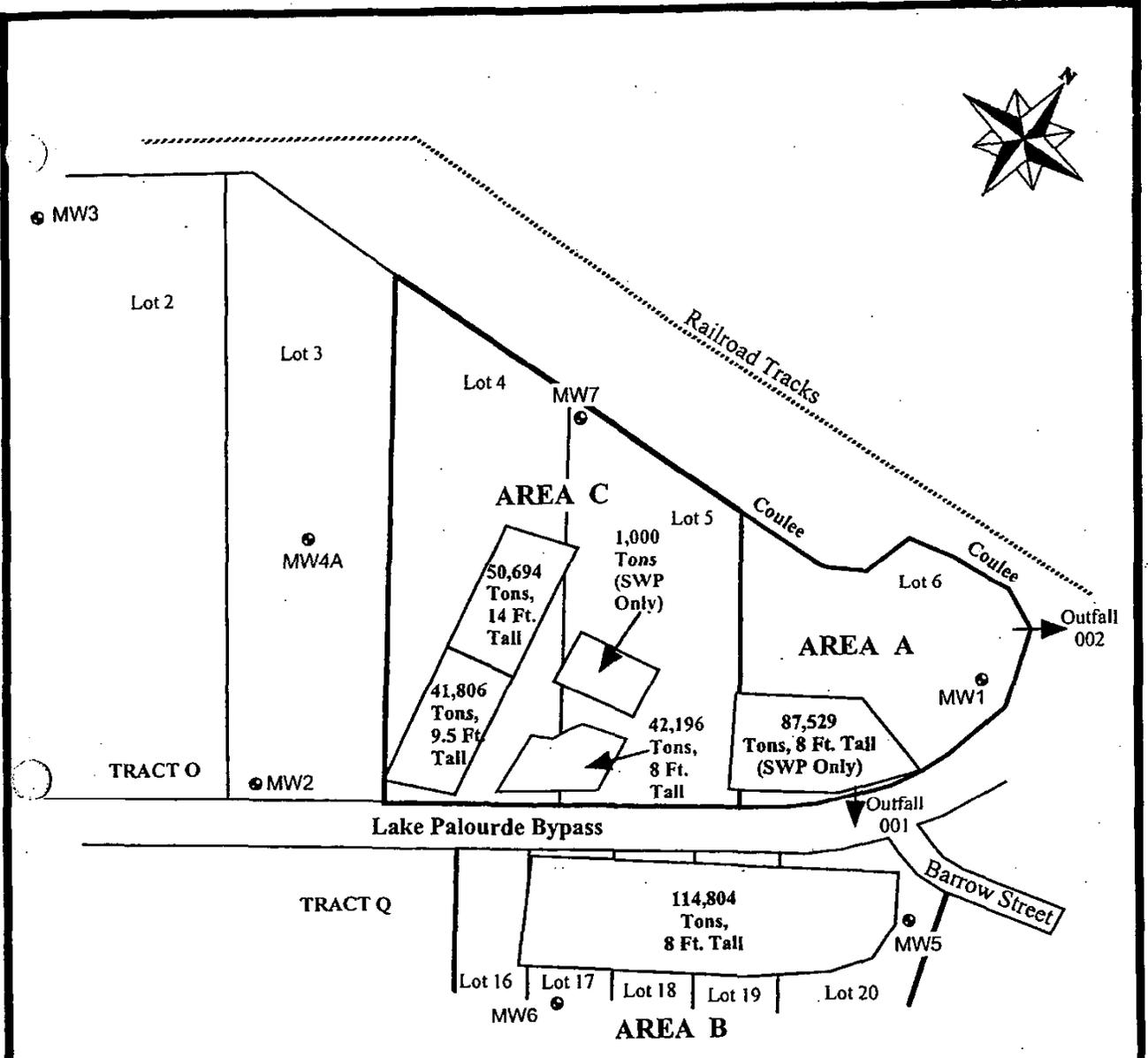
USGS Drawn By	SLS Approved By	1113.02 Project #	05/25/04 Date
HYDRO-ENVIRONMENTAL TECHNOLOGY, INC. ENVIRONMENTAL CONSULTANTS 101 Credit Drive Scott, LA 70583 (337) 261-1963			



2. Regional Map of the Recycling Park, Inc. property located on Lake Palourde Bypass in Amelia, St. Mary Parish, Louisiana.

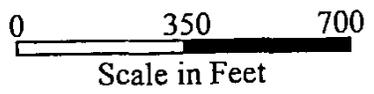
BTP Drawn By	SLS Approved By	1113.02 Project #	05/25/04 Date
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EXPLANATION

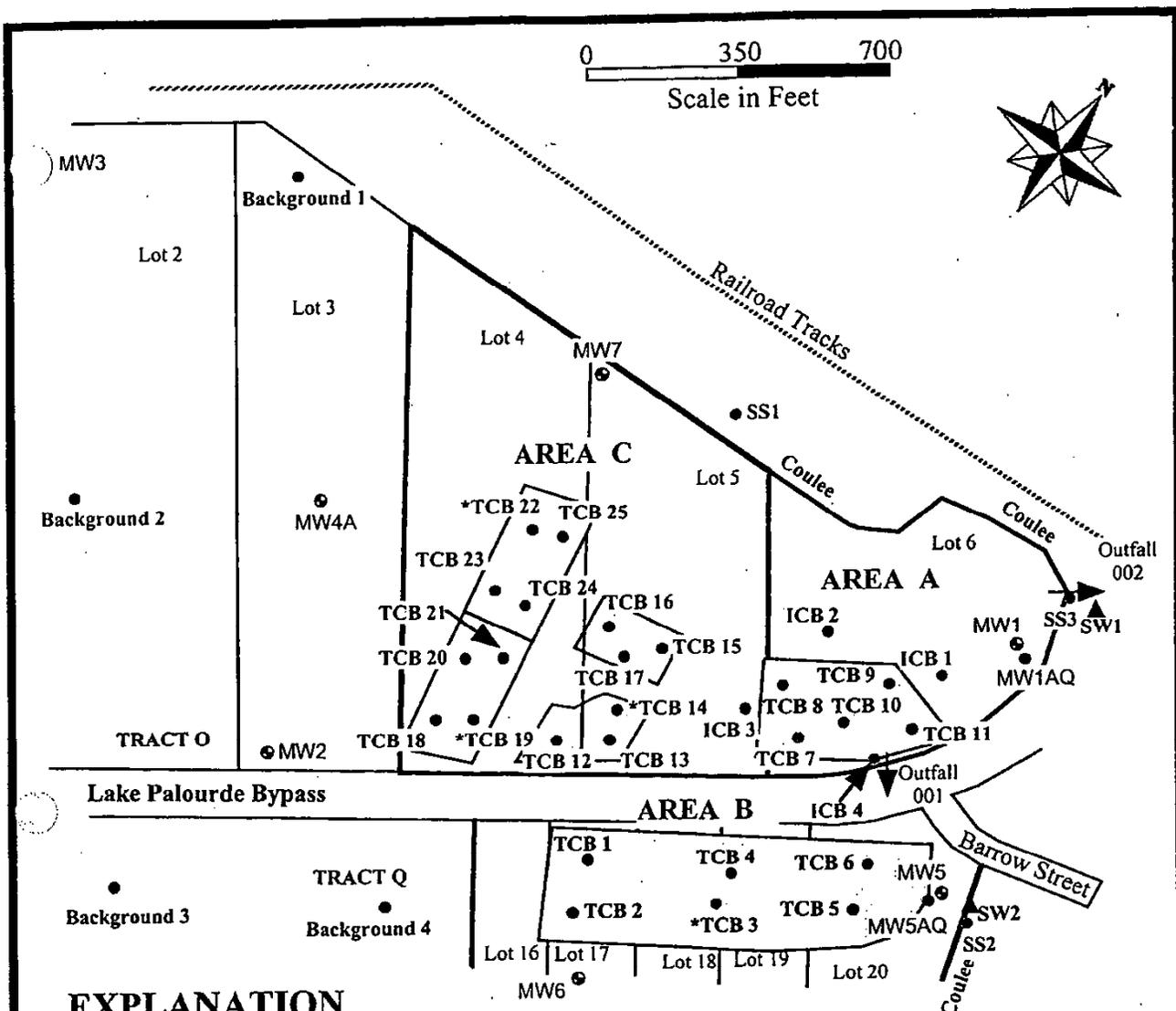
- EXISTING MONITOR WELL LOCATION
- ▭ AGGREGATE PILE
- SWP SOUTHERN WOOD PIEDMONT
- ▼ STORMWATER OUTFALL LOCATION



BTP Drawn By	SLS Approved By	1113.02 Project #	05/25/04 Date
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Figure 3. Generalized Site Plan Map of the Recycling Park, Inc. Division 01. facility located on Lake Palourde Bypass in Amella, St. Mary Parish, Louisiana.

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EXPLANATION

- EXISTING MONITOR WELL LOCATION
- ▭ AGGREGATE PILE
- SWP SOUTHERN WOOD PIEDMONT
- ↓ STORMWATER OUTFALL LOCATION
- BORING LOCATION (TAL ONLY)
- BORING LOCATION (TAL/TCL)
- AQUIFER TEST BORING LOCATION
- ▲ SURFACE WATER (SW) SAMPLING LOCATION (TAL/TCL)
- SS INDICATES SEDIMENT SAMPLING BORING
- INDICATES IMPACT
- ICB CHARACTERIZATION BORING
- TCB INDICATES TREATED MATERIAL CHARACTERIZATION BORING
- BORING LOCATION (TCLP only)

*Note: Borings TCB3, TCB 14, TCB 19, and TCB 22 were installed to allow for sampling of native soils beneath the Treated Material Pile.

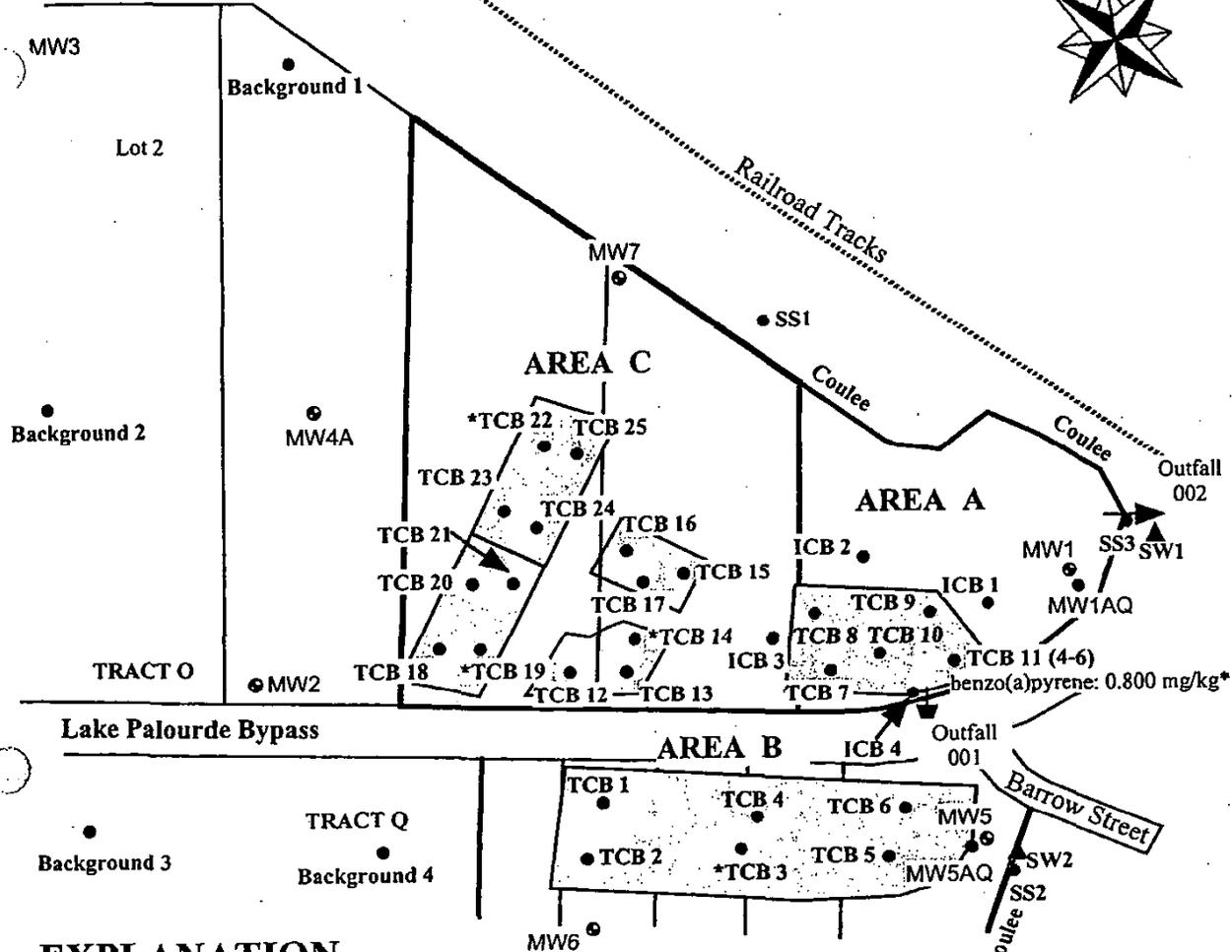
BTP Drawn By	SLS Approved By	1113.02 Project #	05/25/04 Date
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Figure 4. Generalized Site Plan Map of the Recycling Park, Inc. facility, Division 03, located on Lake Palourde Bypass in Amelia, St. Mary Parish, Louisiana illustrating the location of the boring, sediment, groundwater, aquifer test, and surface water sampling locations.

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0 350 700

Scale in Feet



EXPLANATION

- EXISTING MONITOR WELL LOCATION
- ▭ AGGREGATE PILE
- SWP SOUTHERN WOOD PIEDMONT
- ▼ STORMWATER OUTFALL LOCATION
- BORING LOCATION (TAL ONLY)
- BORING LOCATION (TAL/TCL)
- AQUIFER TEST BORING LOCATION
- ▲ SURFACE WATER (SW) SAMPLING LOCATION (TAL/TCL)
- SS INDICATES SEDIMENT SAMPLING BORING
- INDICATES IMPACT
- ICB CHARACTERIZATION BORING
- TCB INDICATES TREATED MATERIAL CHARACTERIZATION BORING
- BORING LOCATION (TCLP only)

*RECAP SS: benzo(a)pyrene: 0.330 mg/kg

*Note: Borings TCB3, TCB 14, TCB 19, and TCB 22 were installed to allow for sampling of native soils beneath the Treated Material Pile.

BTP Drawn By	SLS Approved By	1113.02 Project #	05/25/04 Date
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Figure 12. TCL Organic Treated Material and Soil Concentration Map for those constituents with concentrations above the appropriate RECAP screening standards. Concentrations reported in milligrams per kilogram (mg/kg). Note, only soil sample TCB11(4-6) contained concentrations of TCL above RECAP screening standards.

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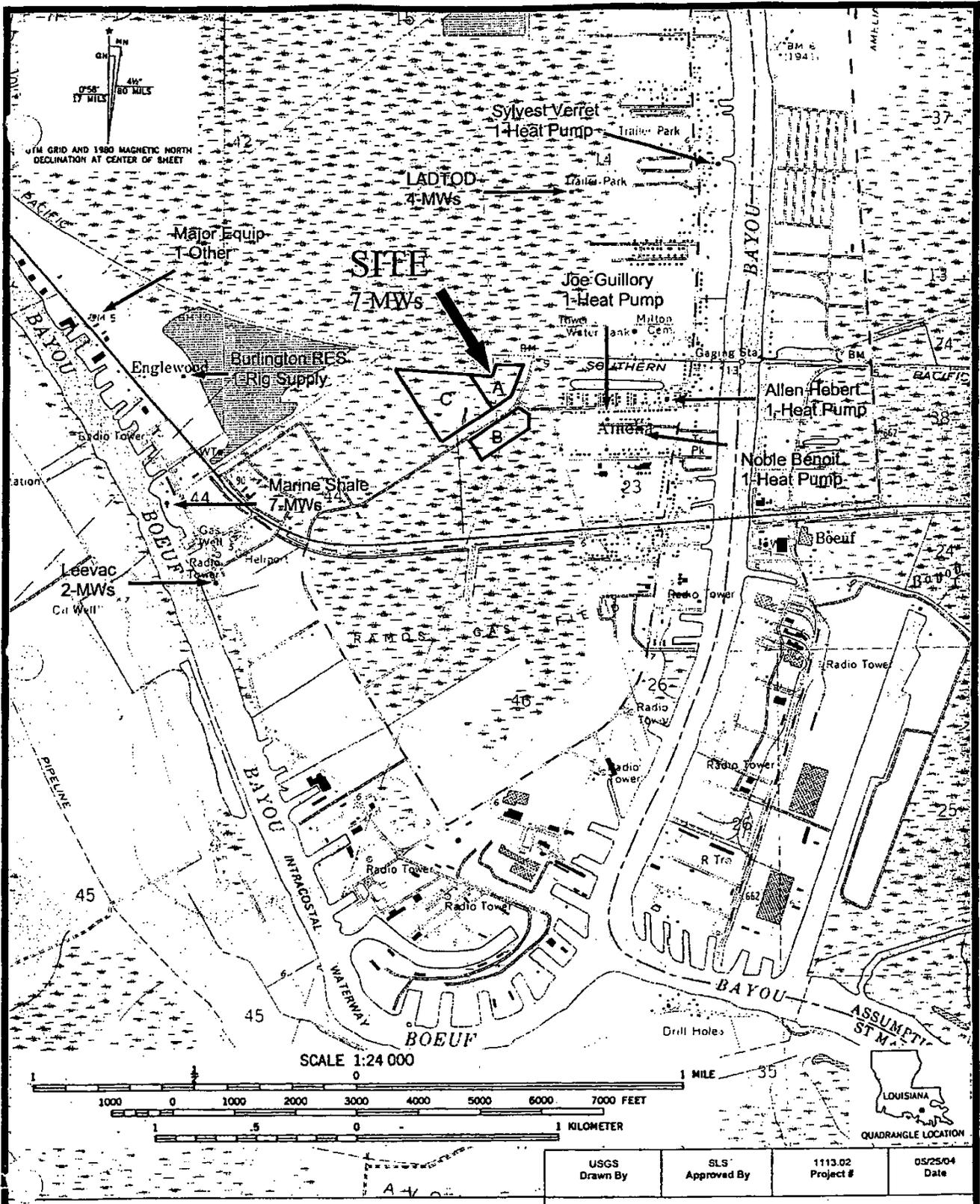


Figure 14. One (1) Mile Sensitive Receptor Map.

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CONVEYANCE NOTIFICATION

Recycling Park, Inc., a Louisiana corporation, hereby notifies the public that it is informed that a human health risk assessment (the "Risk Assessment") has been performed on the following described Area of Investigation (the "Site"), Louisiana Department of Environmental Quality (LDEQ) Agency Interest Number (AI No.) 5414, and that the Site is the subject of a Consent Decree (the "Consent Decree") lodged with the by the United States District Court, Western District of Louisiana, Lafayette Division, in the matter captioned "United States of America v. Marine Shale Processors, Inc., et al", Civil Action No. CV90-1240 (Judge Adrian G. Duplantier, United States District Court, Eastern District of Louisiana, presiding), on June ____, 2006, which provides for corrective action (the "Remedial Measures") to be performed at the Site, including placement of a cap over contaminated material referred to in the Consent Decree as "Disputed Material" (the "Disputed Material") at the Site.

Site Description:

The Site is identified as being the Recycling Park, Inc. property located on Lake Palourde Road in St. Mary Parish, Louisiana. A legal description of the Site is attached hereto as Attachment 1.

Recycling Park, Inc. hereby further notifies the public that Disputed Material will remain at the Site after completion of the Remedial Measures with constituent concentrations that are acceptable for industrial/commercial use of the property as described in the Louisiana Department of Environmental Quality's ("LDEQ") Risk Evaluation/Corrective Action Program (RECAP) dated October 20, 2003, Section 2.9, and that:

1. The Site shall not be used for any use other than an industrial/commercial land use as described in RECAP, Section 2.9.
2. The cap material at the Site shall not be disturbed or removed.
3. If any cap material at the Site is disturbed or removed in violation of provision 2 above, the person or entity that disturbs or removes the cap material shall immediately repair and restore same.
4. No Disputed Material shall be removed from the Site except with the prior written consent of the United States Environmental Protection Agency ("EPA") and LDEQ, or their respective successor agencies or departments.
5. If any Disputed Material is removed from the Site:
 - a. The Disputed Material shall be managed and transported as solid waste and shall be disposed of in a permitted Type I Industrial Solid Waste landfill under Louisiana Administrative Code Title 33, Part VII, or in an equivalent RCRA Subtitle D landfill if disposed of outside of Louisiana, in a separate and segregated cell containing no material other than the Disputed Material, unless the total volume of the Disputed Material removed from the Site is less than 100 tons, in which case a separate and segregated cell shall not be required; and

b. The person or entity removing the Disputed Material from the Site shall be designated as the sole "generator" of any such Disputed Material removed from the Site on any manifests, records, or other documents related to such removal.

The foregoing institutional controls shall run with the land and shall be incidental to ownership of the Site, and shall be binding on Recycling Park, Inc. and its successors, assigns, including all future owners of all or any part of or interest in the Site.

No person shall allow, cause, or attempt to cause this Conveyance Notification to be modified in any manner or canceled from the official conveyance records of the Clerk of Court of St. Mary Parish, Louisiana, except with the prior written consent of EPA and LDEQ, or their respective successor agencies or departments.

Information regarding this site is available in the LDEQ public record and may be obtained by contacting the LDEQ Records Manager for LDEQ at (225) 219-3168. Inquiries regarding the contents of this site may be directed to:

Louisiana Department of Environmental Quality
Remediation Services Division
Post Office Box 4314
Baton Rouge, Louisiana 70821-4314

Attachment 2 is a figure illustrating the Site and the soil / treated material piles. Attachment 3 contains the RECAP Management Option (MO)-1 industrial/commercial standards for those constituents detected at concentrations above RECAP screening standards, and the 95% UCL-AM constituent concentrations for those constituents remaining at the Site.

John M. Kent, President
Recycling Park, Inc.

(Signature of Person Filing Parish Records)

Date

(A true copy of the document certified by the parish clerk of court must be sent to the Remediation Services Division, Post Office Box 4314, Baton Rouge, Louisiana 70821-4314.)

RPI FACILITY

Area A

That area allocated in the tract of land designated at Tract O, Lot 6 on the attached map prepared by Keneth L. Rembert, Land Surveyor, dated October 31, 1991, Rev. December 31, 1991, and entitled Map Showing Properties of Englewood Partnership in Sections 23, 44, 46, T16S-R13E, St. Mary Parish, Louisiana.

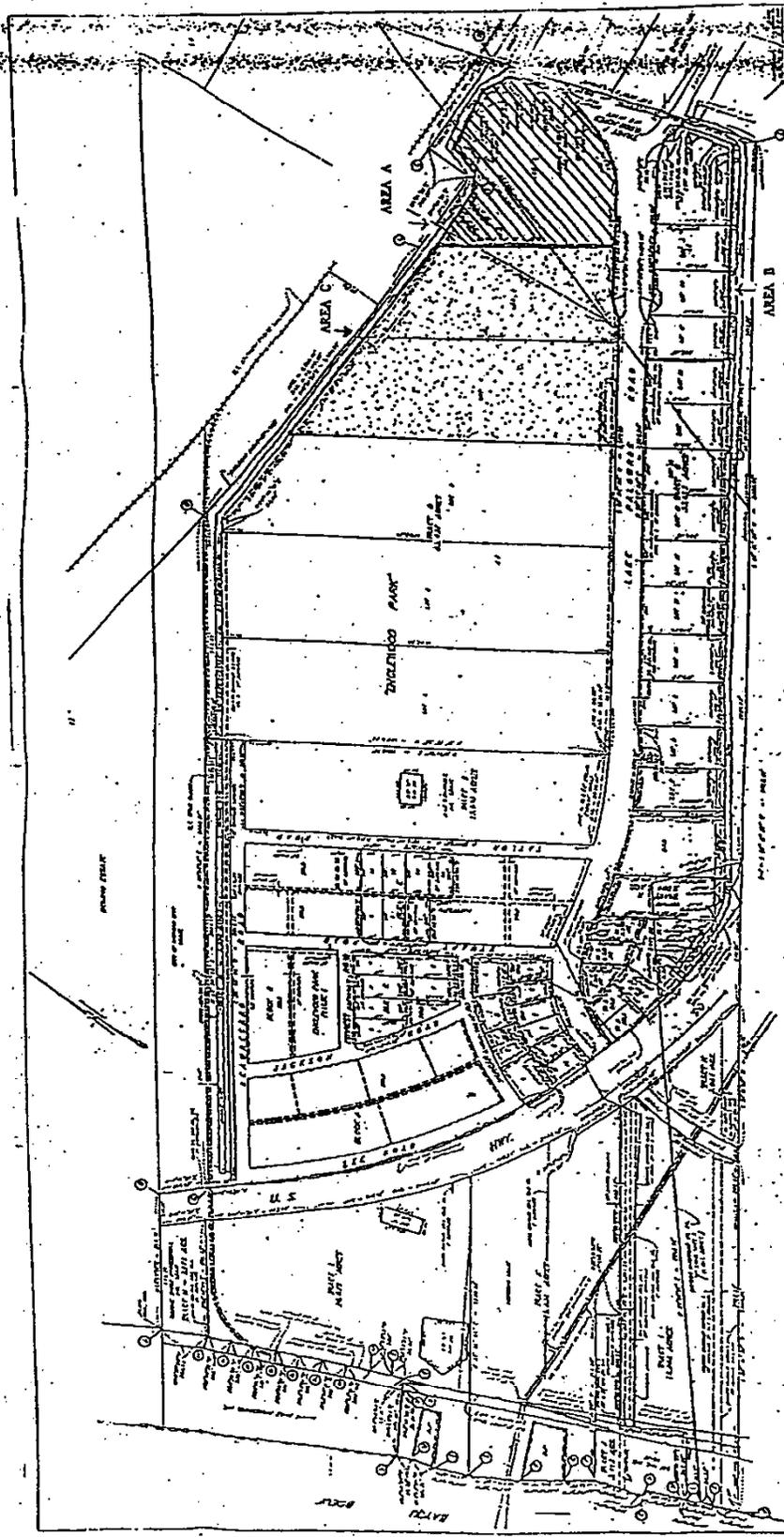
Area B

That area located in the tract of land designated as Tract Q, Lots 16, 17, 18, 19, and 20 on the attached map prepared by Keneth L. Rembert, Land Surveyor, dated October 31, 1991, Rev. December 31, 1991, and entitled Map Showing Properties of Englewood Park Partnership in Sections 23, 44, and 46 T16S-R13E, St. Mary Parish, Louisiana.

Area C

That area located in tract of land designated as Tract O, Lots 4 and 5 on the attached map prepared by Keneth L. Rembert, Land Surveyor, dated October 31, 1991, Rev. December 31, 1991, and entitled Map Showing Properties of Englewood Park Partnership in Sections 23, 44, and 46 T16S-R13E, St. Mary Parish, Louisiana.

ATTACHMENT I



ALL DIMENSIONS FROM CENTER
 OF ENGLEWOOD PARK PARKING LOT
 AS SHOWN ON 11 x 14 FILED
 ST. MARY PARISH, LOUISIANA

DATE: 11-1-58
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 PROJECT: [Signature]

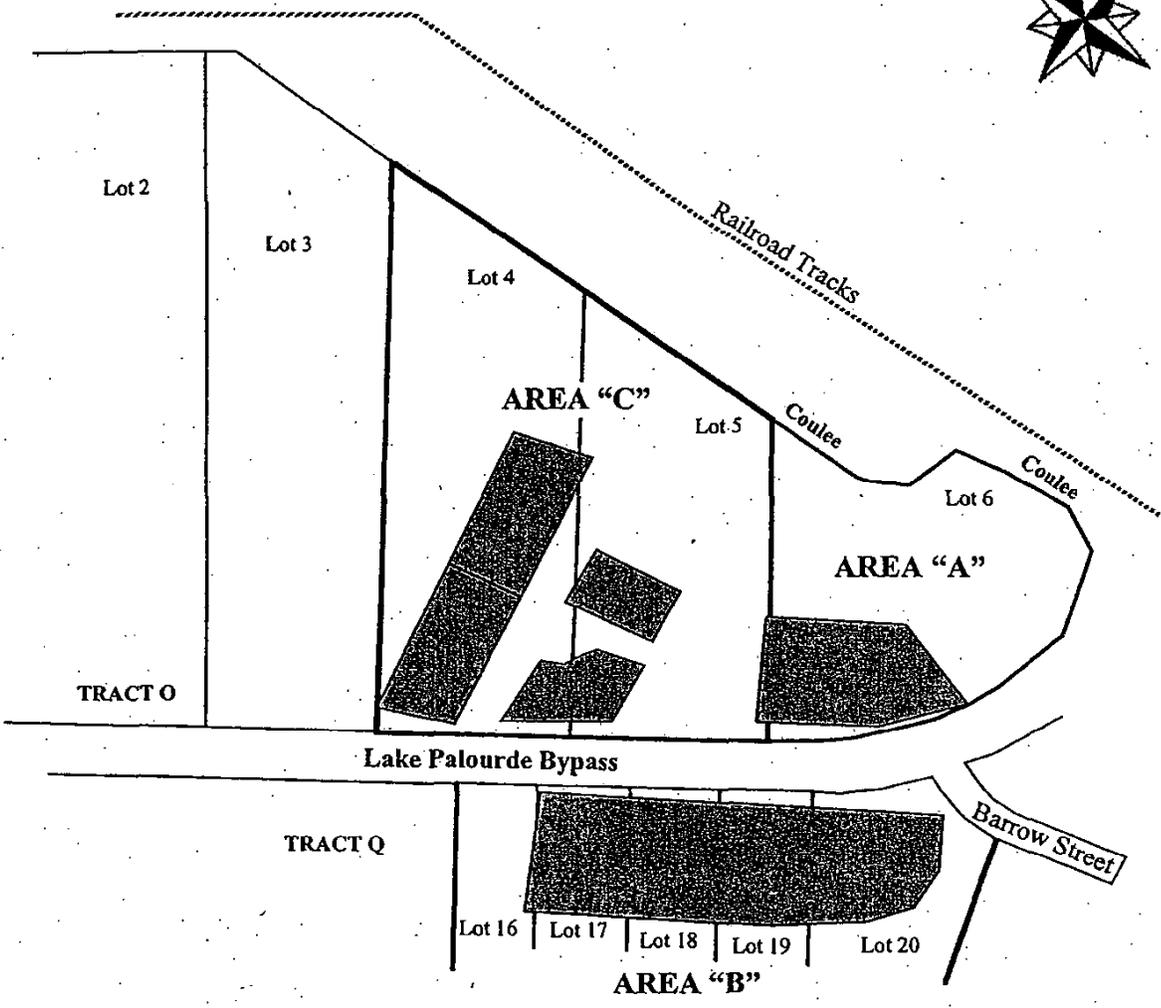
NOT TO SCALE
 ALL DIMENSIONS ARE IN FEET
 UNLESS OTHERWISE SPECIFIED

NO.	DESCRIPTION	AREA (SQ. FT.)	TOTAL AREA (SQ. FT.)
1	AREA A	10,000	10,000
2	AREA B	5,000	15,000
3	AREA C	2,000	17,000
4	ENGLEWOOD PARK	10,000	27,000
5	LAWN	1,000	28,000
6	LANE	1,000	29,000
7	STALL	1,000	30,000
8	RESTROOM	1,000	31,000
9	UTILITY	1,000	32,000
10	DRIVEWAY	1,000	33,000
11	WALKWAY	1,000	34,000
12	LANDSCAPE	1,000	35,000
13	PERMITS	1,000	36,000
14	CONCRETE	1,000	37,000
15	ASPHALT	1,000	38,000
16	PAVING	1,000	39,000
17	GRASS	1,000	40,000
18	SHRUBS	1,000	41,000
19	TREES	1,000	42,000
20	UTILITIES	1,000	43,000
21	LANDSCAPE	1,000	44,000
22	PERMITS	1,000	45,000
23	CONCRETE	1,000	46,000
24	ASPHALT	1,000	47,000
25	PAVING	1,000	48,000
26	GRASS	1,000	49,000
27	SHRUBS	1,000	50,000
28	TREES	1,000	51,000
29	UTILITIES	1,000	52,000
30	LANDSCAPE	1,000	53,000
31	PERMITS	1,000	54,000
32	CONCRETE	1,000	55,000
33	ASPHALT	1,000	56,000
34	PAVING	1,000	57,000
35	GRASS	1,000	58,000
36	SHRUBS	1,000	59,000
37	TREES	1,000	60,000
38	UTILITIES	1,000	61,000
39	LANDSCAPE	1,000	62,000
40	PERMITS	1,000	63,000
41	CONCRETE	1,000	64,000
42	ASPHALT	1,000	65,000
43	PAVING	1,000	66,000
44	GRASS	1,000	67,000
45	SHRUBS	1,000	68,000
46	TREES	1,000	69,000
47	UTILITIES	1,000	70,000
48	LANDSCAPE	1,000	71,000
49	PERMITS	1,000	72,000
50	CONCRETE	1,000	73,000
51	ASPHALT	1,000	74,000
52	PAVING	1,000	75,000
53	GRASS	1,000	76,000
54	SHRUBS	1,000	77,000
55	TREES	1,000	78,000
56	UTILITIES	1,000	79,000
57	LANDSCAPE	1,000	80,000
58	PERMITS	1,000	81,000
59	CONCRETE	1,000	82,000
60	ASPHALT	1,000	83,000
61	PAVING	1,000	84,000
62	GRASS	1,000	85,000
63	SHRUBS	1,000	86,000
64	TREES	1,000	87,000
65	UTILITIES	1,000	88,000
66	LANDSCAPE	1,000	89,000
67	PERMITS	1,000	90,000
68	CONCRETE	1,000	91,000
69	ASPHALT	1,000	92,000
70	PAVING	1,000	93,000
71	GRASS	1,000	94,000
72	SHRUBS	1,000	95,000
73	TREES	1,000	96,000
74	UTILITIES	1,000	97,000
75	LANDSCAPE	1,000	98,000
76	PERMITS	1,000	99,000
77	CONCRETE	1,000	100,000
78	ASPHALT	1,000	101,000
79	PAVING	1,000	102,000
80	GRASS	1,000	103,000
81	SHRUBS	1,000	104,000
82	TREES	1,000	105,000
83	UTILITIES	1,000	106,000
84	LANDSCAPE	1,000	107,000
85	PERMITS	1,000	108,000
86	CONCRETE	1,000	109,000
87	ASPHALT	1,000	110,000
88	PAVING	1,000	111,000
89	GRASS	1,000	112,000
90	SHRUBS	1,000	113,000
91	TREES	1,000	114,000
92	UTILITIES	1,000	115,000
93	LANDSCAPE	1,000	116,000
94	PERMITS	1,000	117,000
95	CONCRETE	1,000	118,000
96	ASPHALT	1,000	119,000
97	PAVING	1,000	120,000
98	GRASS	1,000	121,000
99	SHRUBS	1,000	122,000
100	TREES	1,000	123,000

NOT TO SCALE
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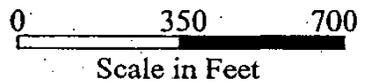
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EXPLANATION

 SOIL / TREATED MATERIAL PILE



Attachment 2.	Generalized Site Plan Map of the Recycling Park, Inc. facility located on Lake Palourde Bypass in Amelia, St. Mary Parish, Louisiana. Source: Kenneth L. Rembert Surveyor.	BTP Drawn By	SLS Approved By	1113.02 Project #	05/25/04 Date
		<p align="center">HYDRO-ENVIRONMENTAL TECHNOLOGY, INC. ENVIRONMENTAL CONSULTANTS 101 Credit Drive Scott, LA 70583 (337) 261-1963</p>			

Attachment 3

Area A

Constituent of Concern above RCAP Screening Standards	95% UCL AM Soil Constituent Concentrations	Limiting MOE/RCAP Standards
Antimony	49.0 mg/kg	820.0 mg/kg
Arsenic	28.0 mg/kg	12.0 mg/kg
Barium	6,622.0 mg/kg	70,000.0 mg/kg
Cadmium	15.0 mg/kg	500.0 mg/kg
Chromium	105.0 mg/kg	1,000,000.0 mg/kg
Lead	603.0 mg/kg	1,400.0 kg/kg

Area B

Constituent of Concern above RCAP Screening Standards	95% UCL AM Soil Constituent Concentrations	Limiting MOE/RCAP Standards
Antimony	191.0 mg/kg	820.0 mg/kg
Arsenic	63.0 mg/kg	12.0 mg/kg
Barium	5,784.0 mg/kg	70,000.0 mg/kg
Cadmium	143.0 mg/kg	500.0 mg/kg
Chromium	755.0 mg/kg	1,000,000.0 mg/kg
Copper	6,482.0 mg/kg	82,000.0 mg/kg
Iron	42,311.0 mg/kg	321,000.0 mg/kg
Lead	3,715.0 mg/kg	1,400.0 kg/kg

Area C

Constituent of Concern above RCAP Screening Standards	95% UCL AM Soil Constituent Concentrations	Limiting MOE/RCAP Standards
Antimony	215.0 mg/kg	820.0 mg/kg
Arsenic	60.0 mg/kg	12.0 mg/kg
Barium	6,405.0 mg/kg	70,000.0 mg/kg
Cadmium	36.0 mg/kg	500.0 mg/kg
Chromium	762.0 mg/kg	1,000,000.0 mg/kg
Copper	1,753.0 mg/kg	82,000.0 mg/kg
Iron	42,222.0 mg/kg	321,000.0 mg/kg
Lead	2,223.0 mg/kg	1,400.0 kg/kg

The locations of Areas A, B, and C are shown in Attachment 1.

Form of Transfer Provisions¹

"Agreements by [Transferee]."

a. [Transferee]: (1) acknowledges and agrees that the property described herein is subject to all provisions, restrictions, and requirements set forth in that certain Conveyance Notification recorded in the official conveyance records of the Clerk of Court of St. Mary Parish, Louisiana, under File No. _____ (the "Conveyance Notification"); (2) [Transferee] shall fully comply with all provisions, restrictions, and requirements set forth in the Conveyance Notification; (3) [Transferee] shall not allow any person that is present on the Property with the permission of [Transferee], its tenants, contractors, agents, or invitees, or subject to the control of [Transferee], to violate any provisions, restrictions, and requirements set forth in the Conveyance Notification; and (4) [Transferee] shall not allow, cause, or attempt to cause the Conveyance Notification to be modified in any manner or canceled from the official conveyance records of the Clerk of Court of St. Mary Parish, Louisiana, except with the prior written consent of the United States Environmental Protection Agency ("EPA") and the Louisiana Department of Environmental Quality ("LDEQ"), or their respective successor agencies or departments.

b. It is the intent and agreement [Transferee] to ensure that every future owner or transferee of any interest or rights in all or any part of the property described herein ("Transferee") shall fully comply with all provisions, restrictions, and requirements set forth in the Conveyance Notification, and that the subject property shall remain subject to all provisions, restrictions, and requirements set forth in the Conveyance Notification, unless and until the Conveyance Notification is modified or canceled by, or with the prior written consent of, EPA and LDEQ, or their respective successor agencies or departments. Accordingly, [Transferee] agrees that it shall not sell, exchange, donate, grant a servitude in, or otherwise convey, transfer, or grant of any interest or rights in ("Transfer") all or any part of the subject property unless [Transferee] includes sections identical to this section entitled "Agreements by [Transferee]" and the following section entitled "Third Party Beneficiaries; Violation; Injunctive Relief" in any future sale, exchange, donation, lease, servitude, or other conveyance, transfer, or grant of any interest or rights in all or any part of the subject property.

c. Recycling Park Inc. ("RPI") and John M. Kent, Sr., in his capacity as an officer and director of RPI, and their respective successor and assigns shall be prohibited from conveying, transferring, encumbering, or otherwise assigning title to or any interest in any of the Property that is subject to this Agreement without the consent of EPA and LDEQ.

¹ The name or designation of the transferee shall be inserted in place of the term "[Transferee]".

Third Party Beneficiaries; Violation; Injunctive Relief.

a. The agreements set forth in the section above entitled "Agreements by [Transferee]" shall be binding upon Transferee and [its/his/her/their] heirs, successors, and assigns. Further, [Transferee] hereby expressly declares and agrees that the agreements set forth in the section above entitled "Agreements by [Transferee]" are intended to and shall confer upon EPA and LDEQ, and their respective successor agencies or departments, legal or equitable rights, benefits, or remedies as set forth herein, and that EPA and LDEQ, and their respective successor agencies or departments, and Southern Wood Piedmont Company and Rayonier Inc. and their respective successors and assigns, are third party beneficiaries of and may enforce the said agreements and exercise the remedies, including but not limited to injunctive relief, set forth herein.

b. In the event of any violation or threatened violation by [Transferee] of any of the agreements set forth in the section above entitled "Agreements by [Transferee]" and the provisions and requirements of the Conveyance Notification, EPA and LDEQ, and their respective successor agencies or departments, will have, in addition to all other remedies that may be available to them under applicable law, the right to enforce the agreements set forth in the section above entitled "Agreements by [Transferee]" and the provisions and requirements of the Conveyance Notification by specific performance, and the right to enjoin such violation or threatened violation, in a court of competent jurisdiction by injunctive relief. [Transferee] agrees and stipulates that [its/his/her/their] obligations set forth in paragraphs a.(3) and (4) b. and c. of the section above entitled "Agreements by [Transferee]" are "obligations not to do" and that EPA and LDEQ, and their respective successor agencies or departments, and Southern Wood Piedmont Company and Rayonier Inc. and their respective successors and assigns, may enjoin violations or threatened violations of such obligations without proof of irreparable injury."