APPENDIX NOT INCLUDED

REMOVAL REPORT

FOR

CEDAR CHEMICAL CORPORATION
STATE HIGHWAY 242
WEST HELENA, PHILLIPS COUNTY, ARKANSAS

Prepared for

U.S. Environmental Protection Agency Region 6
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Contract No. 68-W-01-005
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November 2003

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EXECUTIVE SUMMARY

The Cedar Chemical Corporation facility, located in West Helena, Phillips County, Arkansas, was identified for removal action under the Comprehensive Environmental, Response, Compensation, and Liability Act (CERCLA) in January 2003. The U.S. Environmental Protection Agency (EPA) in coordination with Arkansas Department of Environmental Quality (ADEQ) initiated a removal action at the site on 16 July 2003. The removal action was conducted by EPA Emergency and Rapid Response Services (ERRS) contractor, Environmental Quality Management, Inc. (EQM) and subcontractor U.S. Environmental Services (USES), and the removal oversight was conducted by Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team (START-2).

Due to the variety of laboratory chemicals being stored at this site, the EPA Response and Prevention Branch (RPB) requested START-2 to inventory the laboratory, to prepare an inventory of on-site chemicals, to identify the chemicals by hazard categorization, to conduct oversight of the removal action, and to provide documentation support for the EPA. The HazCat® Chemical Identification System (HazCat) was used to classify the contents of the containers.

The ERRS contractors removed the chemicals present in the tanks and pipes of seven processing units. During the course of the removal, START-2 photographed the daily activities of the ERRS contractor, maintained a site logbook, and reported the project status to the EPA. On 6 October 2003, removal activities were completed, and the ERRS contractors and START-2 demobilized from the site.

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☐ The EPA Task Monitor did not provide final approval of this report prior to the completion date of the work assignment. Therefore, Weston Solutions, Inc. has submitted this report absent the Task Monitor's approval.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... **i**

1. INTRODUCTION **1-1**

2. PROJECT OBJECTIVES **2-1**

3. SITE BACKGROUND **3-1**

- **3.1** SITE LOCATION 3-1
- **3.2** SITE DESCRIPTION 3-1
- **3.3** OPERATIONAL HISTORY 3-2
- **3.4** PREVIOUS INVESTIGATIONS 3-2

4. ACTIONS TAKEN **4-1**

- **4.1** MOBILIZATION AND CHEMICAL INVENTORY 4-1
- **4.2** PRODUCT REMOVAL 4-2
- **4.3** TRANSPORTATION AND DISPOSAL 4-3

5. LIST OF APPENDICES **5-1**

LIST OF FIGURES

Figure	Title
Figure 1-1	Site Location Map
Figure 3-1	Site Area Map
Figure 3-2	Site Plan

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1. INTRODUCTION

The Superfund Technical Assessment and Response Team (START-2) was tasked by the U.S. Environmental Protection Agency (EPA) Region 6 under Contract Number 68-W-01-005, Technical Direction Document (TDD) No. 06-03-07-0004 (Appendix G) to provide hazardous categorization (HazCat), inventory, and removal oversight support at the Cedar Chemical Corporation (Cedar Chemical) facility. The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Number assigned to the site is ARD990660649. The Cedar Chemical facility is located at 49 Phillips Road at the corner of Highway 242 and Industrial Park Road in West Helena, Phillips County, Arkansas. A Site Location Map is provided as Figure 1-1. All figures are provided as a separate portable document format (PDF) file. START-2 has prepared this Removal Report to describe the technical scope of work performed.

The Cedar Chemical site was identified by the Arkansas Department of Environmental Quality (ADEQ) for removal action. The site is located within Section 14, Township 2S, Range 4E, Phillips County, Arkansas. The geographic center of the site, Latitude 34.5203017° North and Longitude 90.6523351° West, was determined by using Maptech Terrain Navigator software. The reading was based on the North American Datum-1927.

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2. PROJECT OBJECTIVES

The purpose of the removal action at the Cedar Chemical site was to characterize and remove or eliminate chemical wastes present at the site, thereby, eliminating or reducing risks from potential migration and exposure posed by those wastes. To meet these objectives, EPA tasked an Emergency and Rapid Response Services (ERRS) contractor to perform removal activities and START-2 to perform waste characterization and oversight activities.

The scope of work defined in the TDD includes the following tasks: inventory the laboratory and other containerized chemicals on-site; conduct HazCat for the containers without labels and/or those with questionable labels; inventory the on-site containers and tanks; and separate laboratory chemicals and containers identified for off-site disposal by the ERRS contractor. START-2 was also tasked to document the removal activities; to maintain a site logbook; to contact former employees to assist in identification; to prepare a Health and Safety Plan (HASP); to prepare maps and sketches; to prepare a Quality Assurance Sampling Plan (QASP); and to disseminate EPA-approved information to the public. The Federal On-scene Coordinator (FOSC) for the Cedar Chemical site was Gary Moore.

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3. SITE BACKGROUND

A summary of background information including site location, site description, and history of past operations and previous investigations is provided in this section.

3.1 SITE LOCATION

The Cedar Chemical site encompasses approximately 48 acres of land 1.0 mile southwest of the intersection of U.S. Highway 49 and Arkansas Highway 242 in West Helena, Phillips County, Arkansas. A Site Area Map is provided as Figure 3-1.

3.2 SITE DESCRIPTION

The Cedar Chemical site is an abandoned chemical manufacturing facility and consists of the following:

- Seven processing units and associated piping.
- Three laboratory buildings (quality control, research and development, and formulation).
- One warehouse.
- Several offices, maintenance shops, and packing, storage, and supply buildings.

The locations of these site features are shown on Figure 3-2.

The surrounding grounds consist of industrial complexes and agricultural land. The site is in the Helena-West Helena Industrial Park and is bordered by a biological treatment system to the south of Industrial Park Road, Arkansas Highway 242 to the northwest, a Union Pacific railway to the northeast, and other industrial park properties to the southeast and southwest. The site is enclosed by a chain link fence with a guard and not readily accessible to the public. In general, site drainage is from north to south, but is complicated by the presence of various sumps, ditches, trenches, roads, and railroad beds on the site.

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3.3 OPERATIONAL HISTORY

Cedar Chemical manufactured various agricultural chemicals and organics including insecticides, herbicides, polymers, and organic intermediates from 1986 until 18 October 2002. The company is currently in bankruptcy and the site is inactive. Prior to 1970, the site was cultivated farmland. In 1970, Helena Chemical Company (Helena Chemical) acquired the property to construct a propanil manufacturing facility. In 1971, the newly constructed plant was sold to J. A. Williams, who in turn transferred the plant to Eagle River Chemical Corporation, a Arkansas corporation that was initially controlled by Ansul Company (Ansul). Under Ansul management, the plant was converted to the production of dinitrobutlyphenol, also known as dinoseb. In late 1972, Ansul sold its majority stock interest in Eagle River Chemical Corporation. Eagle River Chemical Corporation was subsequently merged into Vertac Chemical Corporation (Vertac). Vertac operated the plant until Cedar Chemical acquired it in 1986.

Cedar Chemical was a large quantity generator of hazardous wastes. Although most hazardous waste generated at the facility was transported off-site for disposal, some basic treatment processes did occur on-site. Two chemicals that remained on-site included waste propionic acid and waste sodium hypochlorite scrubber liquid. These chemicals were treated in enclosed treatment vessels within process units and then discharged into the biological treatment ponds. Prior to the Cedar Chemical purchase of the property, on-site disposal also occurred. Previous reports indicated that the three now-closed ponds received propionic acid wastes, a calcium chloride brine stream, and sulfuric acid waste from Helena Chemical. In 1978, the ponds were pumped of their water, which was transported off-site for disposal. A clay cap of native soil and bentonite was placed over the former ponds. According to previous documentation, several hundred buried drums also were found at the site. The contents of these drums were undocumented, and Cedar Chemical removed them in the early and mid 1990s.

3.4 PREVIOUS INVESTIGATIONS

ADEQ began monitoring the Cedar Chemical site in 1993. A Facility Investigation (FI) was conducted by Environmental and Safety Design. Inc. (EnSafe) of Memphis, Tennessee, on behalf

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of Cedar Chemical. Cedar Chemcial agreed to conduct the FI pursuant to the Consent Administrative Order (CAO) No. LIS 91-118, issued by ADEQ. The FI consisted of three phases. Phase I began on 30 August 1993 and consisted of field sampling and analysis. Phase II of the FI was recommended to fill the data gaps and to further delineate contamination identified in the first phase and began on 7 November 1994. To finalize the FI, Phase III work began on 19 September 1995. This work characterized and delineated the source of 1,2-dichloroethane in the soil, and delineated the vertical and areal extent of the 1,2-dichloroethane in groundwater.

The FI identified several chemicals of potential concern (COPC) at the site. The COPCs identified for soil and sediment were arsenic, dieldrin, 1,2-dichloroethane, chromium, dinoseb, mercury, aldrin, chloroform, methylene chloride, toxaphene, pentachlorophenol, 3,4-dichloroaniline, methoxychlor, heptachlor, and propanil. The COPCs identified in perched groundwater were arsenic, barium, cadmium, chromium, lead, 4,4-DDT, alpha-BHC, 2,6-dinitrotoluene, 3,4-dinitroaniline, 4-chloroaniline, bis(2-chloroethyl)ether, dinoseb, 1,2-dichloroethane, 4-methyl-2-pentanone, acetone, benzene, chloroform, methylene chloride, and trichloroethene. The COPCs identified in alluvial groundwater were 1,1,2-trichloroethane, 1,2-dichlorobenzene, 1,2-dichloroethane, 1,2-dichloropropane, acetone, benzene, bromodichloromethane, bromoform, chlorobenzene, chloroform, dibromochloromethane, methylene chloride, 4-methyl-2-pentanone, and toluene.

In March 2001, a Risk Assessment (RA) was conducted by EnSafe to evaluate potential impact to human health and the environment associated with the COPCs reported in soil, sediment, and groundwater at the site. Based on this RA, it was found that the highest risks at the site were noncarcinogenic risks associated with dinoseb exposure in the surface and subsurface soils.

Following the bankruptcy of Cedar Chemical in October 2002, ADEQ became concerned about the site conditions and contacted the EPA. In November 2002, START-2 conducted a Site Data Evaluation. Using EPA Site Inspection Prioritization (SIP) Guidance and the Hazard Ranking System (HRS) SUPERScreen software, START-2 was tasked to determine if the available information on Cedar Chemical facility met a minimum standard of evaluation reflecting the requirements of the HRS. The SIP process better enables the EPA to determine if a site is likely

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to receive a score of 28.50 or above under the HRS, potentially making it a candidate for placement on the National Priorities List (NPL). If it is determined that the site will not score above the NPL threshold of 28.50, the EPA is in a position to declare that a No Further Remedial Action is Planned (NFRAP) for the site under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). A site score of 0.38 was developed for the Cedar Chemical site using SUPERScreen. Complete results of the scoring and copies of the EnSafe FI and RA reports can be found in START-2 Site Data Evaluation for the Cedar Chemical Corporation dated November 2002.

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4. ACTIONS TAKEN

Removal activities were initiated at the Cedar Chemical site on 16 July 2003 under the direction of EPA FOSC Gary Moore. Environmental Quality Management, Inc. (EQM) and subcontractor U.S. Environmental Services (USES), both EPA ERRS contractors, were responsible for the removal activities including overall site health and safety, air monitoring, and transportation and disposal of materials including waste manifest preparation of hazardous material. START-2 was responsible for inventorying the laboratory, preparing an inventory of on-site containerized chemicals, identifying the unknown chemicals by HazCat, organizing chemicals for off-site disposal, conducting oversight of the removal action, and providing logbook and photographic documentation support for the EPA.

In preparation for removal activities, START-2 prepared a Health and Safety Plan (HASP) for inclusion in the overall site HASP. Preparation of a Quality Assurance Sampling Plan (QASP) was not required as part of the TDD. Photographs taken of site activities are included in Appendix A. Copies of the START-2 Logbooks are included in Appendix B. START-2 HazCat results and chemical inventory are included in Appendices C and D, respectively.

4.1 MOBILIZATION AND CHEMICAL INVENTORY

On 16 July 2003, START-2 mobilized personnel to conduct HazCat activities and to inventory containerized chemicals in the laboratories and throughout the facility. The containerized chemicals were classified, labeled, segregated, and prepared for lab-packing and disposal. Upon completion of the chemical inventory of the containers on 25 July 2003, START-2 demobilized from the site. Subsequently, one START-2 personnel remained on-site to conduct oversight of ERRS removal activities.

On 28 July 2003, EQM and USES mobilized personnel and equipment to complete the removal activity. Mobilization included providing personal protective equipment and supplies necessary to complete work, connecting telephone services, designating decontamination areas, and maintaining overall site security.

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Prior to removal activities, EQM hired former Cedar Chemical employee, David Parker, to provide assistance with an overall site survey of processing unit piping and an inventory of tanks on the site. The site survey included identifying chemicals that were processed within each unit and providing schematics of pipe connections. Following the site survey, EQM established designated work zones and equipment and personnel decontamination procedures. As part of the overall site health and safety, daily production meetings were held and site-specific work tasks were outlined before commencement of work activities.

4.2 PRODUCT REMOVAL

The removal of containerized chemicals not donated to local facilities was performed by EQM subcontractor Clean Harbor Environmental Services (Clean Harbor) on 11 August 2003. Clean Harbor began removal activities by lab-packing containers into drums based on their hazards, removing miscellaneous cylinders within the laboratory areas, and preparing waste manifests for disposal. Clean Harbor departed the site on 14 August 2003.

Several on-site tanks contained calcium chloride from historical operations. A sample of the calcium chloride was analyzed by Pace Analytical for flashpoint (method SW1010), pH (method EPA150.1), reactive cyanide, reactive sulfide, the eight Resource Conservation and Recovery Act (RCRA) metals, and toxicity characteristic leachate procedure for herbicides and pesticides, and semivolatiles and volatiles. The results were compared to RCRA characteristics for hazardous wastes and indicated the calcium chloride was acceptable for disposal as dust control on roadways. ERRS subcontracted with a road construction company, Sicalco, to remove approximately 23,200 gallons of calcium chloride from the site between 25 August and 27 August 2003. Analytical results are presented in Appendix F.

Piping on the site identified by former Cedar Chemical employee, David Parker, as requiring evacuation was vacuumed of its contents. Processing units and their associated pipes were vacuumed by the ERRS contractor, according to the site work plan based on chemical contents and hazard classification. The vacuumed products were drummed for disposal. Clean Harbor removed a total of 73 drums of pipe products and hazardous waste from the site warehouse.

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Clean Harbor also supplied a separate refrigerated truck to remove remaining thermally sensitive chemicals from the laboratory area. Nonhazardous solid waste was removed by a local municipal garbage company, The Tunica Landfill, for disposal as municipal waste. At 1300 hours on 6 October 2003, FOSC Gary Moore released START-2 from the site.

4.3 TRANSPORTATION AND DISPOSAL

The off-site transportation and disposal of materials performed by the ERRS contractor was dependant on both the characteristics of the material and the acceptance criteria required by the selected disposal facilities. Both nonhazardous and hazardous wastes required preparation of a waste profile form that was sent to and approved by the appropriate disposal facility. This profile dictated which facility the impacted and nonimpacted materials were sent. Off-site disposal facilities were subject to approval by the EPA and to compliance with CERCLA off-site disposal policy.

Waste haulers were licensed to carry the waste materials as manifested. Manifests were completed for each load leaving the site. EQM and their subcontractors performed the waste profiling, manifest preparation, coordination of licensed transportation, and disposal of containers and material. A manifest summary is provided on Table 4-1. Copies of waste manifests prepared as part of this removal activity and provided to START-2 are included in Appendix E.

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Table 4-1

Manifest Summary

DATE	SOURCE	TYPE	QUANTITY	MANIFEST NUMBER	HAUL CONTRACTOR
08/14/03	Laboratories	Toxic solids, organic (potassium chloride, potassium fluoride)	80 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ waste, flammable liquids, n.o.s. (ethanol, petroleum distillates)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ Waste, corrosive liquids, flammable, n.o.s. (acetic anhydride, hydrochloric acid)	27 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, corrosive liquid, basic, organic, n.o.s. (sodium hydroxide, tetra butyl ammonium hydroxide)	100 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, toxic liquids, organic, n.o.s. (chloroform, dichloroaniline)	51 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ waste, toxic liquids, organic, n.o.s. (o-dichlorobenzene, phenol)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (acifluorfen, cyclanilide)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (acifluorfen, diuron)	110 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ waste, toxic liquids, organic, n.o.s. (2,4-D, phenol))	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (propanil, tromethamine)	100 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic solids, organic, n.o.s. (tromethamine)	300 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, toxic liquids, organic, n.o.s. (acifluorfen, tromethamine)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.

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Table 4-1

Manifest Summary (Continued)

DATE	SOURCE	TYPE	QUANTITY	MANIFEST NUMBER	HAUL CONTRACTOR
08/14/03	Laboratories	Waste, toxic liquids, organic, n.o.s. (potassium carbonate, urea)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Hydrazine, anhydrous	2 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, hydrazine aqueous solutions	5 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, mercury compounds, liquid, n.o.s (mercuric nitrate)	6 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, cyanides, inorganic, n.o.s (potassium cyanide, sodium cyanide)	5 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, acetic acid, glacial	5 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, corrosive liquid, acidic, inorganic, n.o.s. (phosphoric acid, sulfuric acid (fuming))	60 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, corrosive liquid, acidic, organic, n.o.s. (carbon tetrachloride, dichloroaniline)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Methanesulfonyl choride	1 lb	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Ethylene chlorohydrin	1 lb	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Wastee, Dinmethyl sulfate	1 lb	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Chloroacetyl chloride	1 lb	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Trimethylacetyl chloride	1 lb	IL 10660014	Clean Harbors Environmental.

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Manifest Summary (Continued)

DATE	SOURCE	TYPE	QUANTITY	MANIFEST NUMBER	HAUL CONTRACTOR
					Services Inc.
08/14/03	Laboratories	Acetone cyanohydrin, stabilized	1 lb	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Chloroacetyl chloride	1 lb	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Ethylene chlorohydrin	1 lb	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Trimethylacetyl chloride	4 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Nitric acid, red fuming	5 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, Polyamines, flammable, corrosive, n.o.s.	20 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, corrosive liquids, flammable, n.o.s.	10 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, flammable, liquid, toxic, corrosive, n.o.s. (diallyamine)	10 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Carbon disulfide	10 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Hydrogen peroxide	2 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, nitric acid	10 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Sodium dithionite	2 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, elf-heating solid, inorganic, n.o.s. (raney nickel)	10 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.

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Manifest Summary (Continued)

DATE	SOURCE	TYPE	QUANTITY	MANIFEST NUMBER	HAUL CONTRACTOR
08/14/03	Laboratories	Waste, water-reactive solid, self-heating, n.o.s (sodium borohydride, zinc powder)	3 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, oxidizing liquid, toxic, n.o.s. (silver nitrate, sodium nitrite)	56 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, flammable solids, organic, n.o.s. (paraformaldehyde, sulfur)	82 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Acetic anhydride	10 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (diuron)	545 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, toxic liquids, organic, n.o.s. (molinate, tillam)	201 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, toxic liquids, organic, n.o.s. (carbaryl, chloroform)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (alachlor, propanil)	158 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (acetochlor)	192 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (glycerin)	272 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. chloroacetophenone)126 lbs	126 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (diuron)	134 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.

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Manifest Summary (Continued)

DATE	SOURCE	TYPE	QUANTITY	MANIFEST NUMBER	HAUL CONTRACTOR
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (propanil)	194 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, toxic liquids, organic, n.o.s. (butylate, tetrachloroethylene)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (chlorothalinil)	245 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, flammable liquids, corrosive, n.o.s. (formaldehyde 37%, isopropylamine)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic solids, organic, n.o.s (4-(2,4-dichlorophenoxy) butyric acid)	40 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, toxic liquids, organic, n.o.s (2,6-dichlorobenzonitrie)	184 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, flammable liquids, n.o.s. (kerosene, xylene)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, corrosive liquid, basic, organic, n.o.s. (modified amines)	100 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (celite)	132 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic liquids, organic, n.o.s. (glycerol)	145 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, flammable liquids, n.o.s. (paint, petroleum distillates)	100 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Toxic solids, organic, n.o.s. (sodium chloride)	60 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, Paraformaldehyde	40 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.

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Table 4-1

Manifest Summary (Continued)

DATE	SOURCE	TYPE	QUANTITY	MANIFEST NUMBER	HAUL CONTRACTOR
08/14/03	Laboratories	RQ, Waste, flammable liquids, n.o.s. (paint)	100 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, flammable liquids, n.o.s. (xylene, toluene)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	RQ, Waste, flammable liquids, n.o.s. (xylene, toluene)	150 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Corrosive solids, n.o.s. (2,4-dichlorophenoxy butyric acid)	100 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Potassium fluoride	250 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Pesticides, liquid, toxic, n.o.s. (dichloroaniline)	300 lbs	IL 10660014	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, flammable liquids, n.o.s.	106 lbs	AR-1033810	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, corrosive liquid, acidic, organic, n.o.s.	20 lbs	AR-1033810	Clean Harbors Environmental. Services Inc.
08/I4/03	Laboratories	Waste, corrosive liquid, basic, organic, n.o.s.	10 lbs	AR-1033810	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, flammable solids, organic, n.o.s.	60 lbs	AR-1033810	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, flammable solids, corrosive, organic, n.o.s.	20 lbs	AR-1033810	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, flammable liquids, n.o.s.	80 lbs	AR-1033810	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste oxidizing liquid, corrosive, n.o.s.	5 lbs	AR-1033810	Clean Harbors Environmental. Services Inc.

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Table 4-1

Manifest Summary (Continued)

DATE	SOURCE	TYPE	QUANTITY	MANIFEST NUMBER	HAUL CONTRACTOR
08/14/03	Laboratories	Waste Water-reactive liquid, n.o.s.	1 lb	AR-1033810	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste, flammable solids, organic, n.o.s.	35 lbs	AR-1033810	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste Compressed gases, flammable, n.o.s.	3 lbs	S00682444	Clean Harbors Environmental. Services Inc.
08/14/03	Laboratories	Waste Ethylene oxide	12 lbs	S00682444	Clean Harbors Environmental. Services Inc.
10/03/03	Processing unit piping product and warehouse drums	Flammable liquids, n.o.s.	4400 lbs	3096553	Clean Harbors Environmental. Services Inc.
10/03/03	Processing unit piping product and warehouse drums	Hazardous waste, liquid, n.o.s. (trichloroethylene)	9600 lbs	3096553	Clean Harbors Environmental. Services Inc.
10/03/03	Processing unit piping product and warehouse drums	Non D.O.T. regulated	400 lbs	3096553	Clean Harbors Environmental. Services Inc.
10/03/03	Processing unit piping product and warehouse drums	Flammable liquids, n.o.s.	800 lbs	3096553	Clean Harbors Environmental. Services Inc.
10/03/03	Processing unit piping product and warehouse drums	Hazardous waste liquids, n.o.s.	3200 lbs	3096553	Clean Harbors Environmental. Services Inc.
10/03/03	Processing unit piping product and warehouse drums	Pesticieds, solid, toxic, n.o.s. (propanil, diuron)	4400 lbs	AR-1390047	Clean Harbors Environmental. Services Inc.

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Table 4-1

Manifest Summary (Continued)

DATE	SOURCE	TYPE	QUANTITY	MANIFEST NUMBER	HAUL CONTRACTOR
10/03/03	Processing unit piping product and warehouse drums	Non D.O.T. regulated material	100 lbs	AR-1390047	Clean Harbors Environmental. Services Inc.
10/03/03	Processing unit piping product and warehouse drums	Dichloroanilines, solid	2000 lbs	AR-1390047	Clean Harbors Environmental. Services Inc.
10/03/03	Processing unit piping product and warehouse drums	Pesticides, solid, toxic, n.o.s.	4800 lbs	AR-1390047	Clean Harbors Environmental. Services Inc.
10/03/03	Processing unit piping product and warehouse drums	Dichloroanilines, solid	3200 lbs	AR-1390047	Clean Harbors Environmental. Services Inc.
10/05/03	Processing unit piping product and warehouse drums	Pesticides, solid, toxic, n.o.s. (Propanil, Diuron)	180 lbs	AR-1390060	Clean Harbors Environmental. Services Inc.
10/06/03	Processing unit piping product and warehouse drums	RQ, Waste, mercury	3 lbs	IL10711292	Clean Harbors Environmental. Services Inc.
10/06/03	Processing unit piping product and warehouse drums	Waste, organic peroxide type S, solid	1 lb	AR-969803	Clean Harbors Environmental. Services Inc.
10/06/03	Processing unit piping product and warehouse drums	Waste, organic peroxide type C, solid, temperature controlled	1 lb	S00440690	Clean Harbors Environmental. Services Inc.

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Table 4-1

Manifest Summary (Continued)

DATE	SOURCE	TYPE	QUANTITY	MANIFEST NUMBER	HAUL CONTRACTOR
10/06/03	Processing unit piping product and warehouse drums	Waste, flammable solids, organic, n.o.s.	1 lb	S00440691	Clean Harbors Environmental. Services Inc.
10/06/03	Processing unit piping product and warehouse drums	Pesticides, solid, toxic, n.o.s. (propanil, diuron)	180 lbs	S00440691	Clean Harbors Environmental. Services Inc.
10/06/03	Processing unit piping product and warehouse drums	Waste, hazardous waste, liquid, n.o.s. (trichloroethylene)	1350 lbs	S00440691	Clean Harbors Environmental. Services Inc.
10/06/03	Processing unit piping product and warehouse drums	Waste, hazardous waste, liquid, n.o.s. (trichloroethylene)	900 lbs	S00440691	Clean Harbors Environmental. Services Inc.

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5. LIST OF APPENDICES

Appendix A Digital Photographs

Appendix B Copy of START-2 Logbooks

Appendix C Hazard Categorization Sheets

Appendix D Chemical Inventory

Appendix E Waste Manifests

Appendix F Laboratory Results

Appendix G Copy of TDD No 06-03-07-0004 and Amendments A and B

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