UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

September 24,2004

10115934

MEMORANDUM

SUBJECT: Five-Year Review Report
City Industries Superfund Site
Winter Park, Orange County, Florida

FROM: JameyWatt, RPM

THRU: Jim McGuire, Chief
Section D

Carol Monell, Chief
South Remedial and Technical Support Branch

TO: Winston Smith, Director
Waste Management Division

Attached please find a copy of the Five-Year Review Final Report (Report) for the City Industries Superfund Site (Site) in Orange County, Florida. Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended requires that if a remedial action is taken that results in any hazardous substances, pollutants, or contaminants remaining at a site, the Environmental Protection Agency (EPA) shall review such remedial action no less often than every five years after initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The Record of Decision (ROD) selected remedy for the City Industries Superfund Site includes extraction of the ground water via a network of 13 recovery wells, treatment of the ground water using aeration, and discharge of the treated water to a nearby surface canal (pump and treat). This is the second Five-Year Review for the Site. The triggering action for this statutory review is the completion of the first Five-Year Review Report signed on September 13, 1999.

There are currently no outstanding issues at this Site. The Report has gone through EPA Region 4 review. Based upon this review, it has been determined that the remedial action taken at this Site continues to be protective of human health and the environment. At this time we are seeking the Division Director's approval of this document.

Approved by: _____ Date: 9/29/04

U.S. Environmental Protection Agency

EPA REGION 4 RESPONSE ACTION CONTRACT

Contract No. 68-W-99-043

City Industries Groundwater Extraction and Treatment Facility
Winter Park, FL

Final Five Year Review
September 2004

BLACK & VEATCH Special Projects Corp.

FINAL
Second Five-Year Review Report
City Industries Superfund Site
Winter Park, Orange County, Florida

US EPA Work Assignment No. 362-FRFE-04A7
Black & Veatch Project No. 48362.846

Prepared under
EPA Contract Number 68-W-99-043

September 23, 2004

Prepared by
Black & Veatch Special Projects Corp.
1145 Sanctuary Parkway, Suite 475
Alpharetta, Georgia 30004

Approved by: _____ **Date:** 9/29/04
Winston Smith, Director
Waste Management Division
Environmental Protection Agency, Region 4

CITY INDUSTRIES SUPERFUND SITE
WINTER PARK, FLORIDA
SUPERFUND FIVE-YEAR REVIEW REPORT

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LIST OF ABBREVIATIONS AND ACRONYMS

AOP	Advanced oxidation processes
ARARs	Applicable or Relevant and Appropriate Requirements
AST	Air Stripper Tower
AWQC	Ambient Water Quality Criteria
Black & Veatch	Black & Veatch Special Projects Corp.
bis	below land surface
CAS	Columbia Analytical Services, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminants-of-Concern
CWA	Clean Water Act
DCA	Dichloroethane
DCE	Dicholoroethene
EQ	Equalization Tank
ERM	ERM-EnviroClean, Inc.
ESD	Explanation of Significant Difference
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FRP	Fiberglass Reinforced Plastic
FS	Feasibility Study
FWSWCTL	Freshwater Surface Water Cleanup Target Level
FYR	Five-Year Review
GCTL	Groundwater Cleanup Target Level
gpm	gallons per minute
GPS	Global Positioning System
HDPE	High-Density Polyethylene
IEC	International Electrotechnical Commission
LTRA	Long Term Remedial Action
MCL	Maximum Contaminant Level
MEK	Methyl Ethyl Ketone
MIBK	Methyl Isobutyl Ketone
MW	Monitoring Well
NCP	National Contingency Plan
NEPA	National Environmental Protection Plan

LIST OF ABBREVIATIONS AND ACRONYMS (con't.)

NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NTP	Notice-to-Proceed
O&M	Operation and Maintenance
OWT	Organic Waste Technologies, Inc.
PCE	Tetrachloroethene
PLC	Programmable Logic Controller
POTW	Publicly-Owned Treatment Works
PRP	Potential Responsible Parties
RA	Remedial Action
RAC	Response Action Contract
RAO	Remedial Action Objectives
RAR	Remedial Action Report
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
RW	Recovery Well
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SESD	Science and Ecosystems Support Division
TBC	To be considered
TCA	Trichloroethane
TCE	Trichloroethene
µg/L	micrograms per Liter
USACE	United States Army Corps of Engineers
US EPA	United States Environmental Protection Agency
UU/UE	Unrestricted Use / Unrestricted Exposure
VOCs	Volatile Organic Compounds
WRS	WRS Infrastructure and Environment, Inc.

EXECUTIVE SUMMARY

The selected remedy for the City Industries Superfund Site, located in Winter Park, Florida included extraction of the groundwater via a network of 13 recovery wells, treatment of the groundwater using aeration, and discharge of the treated water to a nearby surface canal (pump and treat). The Long-Term Remedial Action for this site commenced on May 19, 1994. The trigger action for this Five-Year Review was the approval of the first five-year review completed on September 13, 1999.

The US Environmental Protection Agency was responsible for operating and maintaining the treatment system for the first ten years of operation, which terminated on May 20, 2004. The Potentially Responsible Parties are currently operating and maintaining the treatment system and are responsible for the remainder of the site cleanup.

The remedy is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals, which is expected to require 15 years to achieve using pump and treat methods from the start of the remedial action, May 1994. In the interim, exposure pathways that may experience unacceptable risks are being controlled by the remedy and institutional controls are preventing exposure to, or the ingestion of, contaminated groundwater. All threats at the site have been addressed through the installation of fencing, warning signs, and the implementation of institutional controls.

Current data indicate that the plume remains contained onsite. Long-term protectiveness of the remedial action will be verified by obtaining additional groundwater samples to fully evaluate potential migration of the contaminant plume down gradient from the treatment area and towards the canal. Additional sampling and analysis will be completed within the next six months. Current monitoring data indicate that the remedy is functioning as required to achieve existing groundwater cleanup goals and any Applicable or Relevant and Appropriate Requirements that may become more stringent over time.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN):* City Industries Superfund Site		
EPA ID *(from WasteLAN):* FLD055945653		
Region: 4	**State: FL**	**City/County:** Winter Park/Orange

SITE STATUS	
NPL status: V Final • Deleted a Other (specify)	
Remediation status (choose all that apply): • Under Construction V Operating D Complete	
Multiple OUs?* D YES **V NO**	**Construction completion date:** .03/02/1994
Has site been put into reuse? • YES V NO	

REVIEW STATUS	
Lead agency: V EPA • State • Tribe • Other Federal Agency	
Author name: Jamey Watt	
Author title: Remedial Project Manager	**Author affiliation:** U.S. EPA, Region **4**
Review period:** 05 / 20/2004 to 08 / 31/2004	
Date(s) of site inspection: 05 / 20/2004	
Type of review: V Post-SARA D Pre-SARA • NPL-Removal only D Non-NPL Remedial Action Site a NPL State/Tribe-lead D Regional Discretion)	
Review number: D 1 (first) V 2 (second) a 3 (third) a Other (specify)	
Triggering action: • Actual RA On-site Construction at OU #_____ D Actual RA Start at OU# NA • Construction Completion V Previous Five-Year Review Report • Other (specify)	
Triggering action date *(from WasteLAN):* **09 /13/1999**	
Due date *(five years after triggering action date):* **09 / 13 /2004**	

* ["OU" refers to operable unit]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form (cont'd.)

Issues:

The organic compound, 1,4-dioxane has been identified in the groundwater at the site. The current NPDES permit established effluent discharge criteria for the compound in January 2004. The current remedy does not treat the contaminant. Should the EPA adopt cleanup levels for the compound; the remedy and potential risks will need to be evaluated. The current sampling analytical method does not achieve a reporting limit low enough for appropriate quantification of the contaminant.

The road construction on Forsyth Road may affect the plume during dewatering activities. Monitoring of these activities and coordination with the PRPs' contractor needs to be maintained. Any destroyed wells will be replaced by the Orange County Department of Public Works

Recommendations and Follow-up Actions:

There are two recommendations/follow-up actions that have a potential affect on the future protectiveness of the site:

1. There has been past evidence that trespassers have been using the effluent discharge for washing or bathing. A sign that states "WARNING, Non-potable water, unfit for human consumption or use" has been posted at the point of discharge. However, if evidence indicates continued use, then the institutional control methods may need to be modified.

2. The analytical method, SW 846-8260B, currently being used to analyze the groundwater samples is unable to achieve a method detection limit low enough to properly quantify the 1,4-dioxane contamination. This compound should be analyzed by a method capable of detecting the compound at concentrations below the cleanup target levels.

Protectiveness Statement(s):

The remedy is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals, through pump and treat, which is expected to require 15 years from the start of the remedial action (May 1994) to achieve. In the interim, exposure pathways that could result in unacceptable risks are being controlled

and institutional controls are preventing exposure to, or the ingestion of, contaminated groundwater. All threats at the site have been addressed through the installation of fencing and warning signs, and the implementation of institutional controls.

Long Term Protectiveness:

Long-term protectiveness of the remedial action will be verified by obtaining additional groundwater samples to fully evaluate potential migration of the contaminant plume down gradient from the treatment area and towards the canal. Current data indicate that the plume remains contained onsite. Additional sampling and analysis will be completed within the next six months. Current monitoring data indicate that the remedy is functioning as required to achieve groundwater cleanup goals.

Other comments:

This Five-Year Review report closely follows the Interim Long-Term Remedial Action Reports submitted over the last five-year period.

1.0 INTRODUCTION

The purpose of the Five-Year Review (FYR) is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in FYR Report. In addition, the FYR identifies issues found during the review, if any, and identifies recommendations to address them.

The US Environmental Protection Agency (US EPA) has prepared this FYR Report pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The US EPA interpreted this requirement further in the NCP; 40 CFR §300.430(f) (4) (ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The US EPA, Region 4, has conducted this second FYR of the remedy implemented at the City Industries Superfund Site in Winter Park, Orange County, Florida. This review was conducted on the behalf of the US EPA, with the support of Black & Veatch Special Projects Corp. (Black & Veatch) for the entire site from May through August 2004. This report documents the results of the review. This is the second FYR for the City Industries Superfund Site. The triggering action for this policy review is the completion of the first FYR on September 13, 1999. The FYR is required when a pre- or post-Superfund Amendments and Reauthorization Act (SARA) Remedial Action (RA) that, upon completion will not leave hazardous substances, pollutants, or contaminations onsite above levels that allow for unlimited use and unrestricted exposure (UU/UE), but requires five years or more to complete.

On September 19, 1994, a Final Remedial Action Report (RAR) was prepared and submitted to the US EPA Region 4 Superfund Remedial Branch.

In January 1997, the US EPA prepared and submitted an Interim LTRA Report. This report described the O&M activities performed at the site during the period from May 20, 1994 to My 7,1996.

In March 1998, the US EPA awarded the RA follow-on O&M contract to Organic Waste Technologies, Inc. (OWT).

In October 1998, the US EPA prepared and submitted a Second Interim LTRA Report. This report described the O&M activities performed site during the period from July 8, 1996toMarchll,1998.

In August 1999, the USACE, on behalf of the US EPA, conducted and submitted the first FYR Report.

On January 1, 2000, the FDEP issues new site specific National Pollution Discharge Elimination System (NPDES) permit and assumes enforcement of the permit.

In February 2000, the US EPA's contractor, EMCON/OWT, prepared and submitted the Third Interim LTRA Report. This report described the O&M activities performed at the site during the period from March 12, 1998 to February 12, 2000.

In March 2002, the US EPA's contractor, EMCON/OWT, prepared and submitted the Fourth Interim LTRA Report. This report described the O&M activities performed at the site during the period from February 13, 2000 to January 3, 2002.

In December 2002, under the Region 4 Response Action Contract (RAC), the US EPA awarded the O&M contract to Black & Veatch.

On January 20,2003, Black & Veatch commenced O&M activities at the site.

In February 2003, the US EPA's contractor, Shaw/EMCON/OWT, prepared and submitted the Fifth Interim LTRA Report. This report described the O&M activities performed at the site during the period from January 4,2002 to January 19,2003.

On May 20, 2004, the US EPA transferred the O&M responsibilities of the City Industries Superfund Site to the PRPs. Black & Veatch began the FYR on behalf of the US EPA.

In July 2004, the US EPA's contractor, Black & Veatch, prepared and submitted the Sixth Interim LTRA Report. This report described the O&M activities performed at the site during the period from January 20,2003 to May 20,2004.

The chronology of the major actions concerning the City Industries Superfund Site is summarized in Table I.

Table 1 - Chronology of Site Events

	wmmmm
Waste oil and solvent recovery and transfer activities at the site.	1971 -1981
US EPA and Orange County discovery of non-compliance with RCRA and orders the business closed	1981-1983
Removal Actions by FDEP - drums, liquids, sludges, and tanks.	1983
Final NPL Listing	1984
RI/FS and Proposed Plan completed and released to the public	February 1990
ROD selecting remedy is signed	March 29, 1990
Consent Decree with the PRPs signed	September 1990
Remedial Design completed	April 1992
Remedial Action awarded	January 1993
Notice to Proceed issued for construction start	May 1993
Pre-Final Inspection / Construction completed	October 1993
ESD issued by US EPA that added two compounds to the list of contaminants and eliminated secondary treatment of the effluent.	February 1994
Preliminary Close Out Report / Punch List completed	March 1994
O&M activities begin	May 20, 1994
Final Remedial Action Report	September 1994
First Interim LTRA Report (5/20/94 - 7/7/96)	January 1997
Second Interim LTRA Report (7/8/96 - 3/11/98)	October 1998
First FYR Report (USACE)	September 13,1999
Third Interim LTRA Report (3/12/98 - 2/12/00)	February 2000
Fourth Interim LTRA Report (2/13/00-1/3/02)	March 2002
Fifth Interim LTRA Report (1/4/02 -1/19/03)	February 2003
Sixth Interim LTRA Report (1/20/03 - 5/19/04)	July 2004
PRPs assume responsibility for remainder of site cleanup	May 20, 2004

3.0 BACKGROUND

3.1 Physical Characteristics

The City Industries Superfund Site is located in central Florida, in Goldenrod Township, which is in the eastern section of Orange County, Florida, approximately 1.2 miles east of the City of Winter Park and 2.2 miles north-east of Orlando. The former property is bounded by Cato Steel to the north, Costco Wholesale to the south, Top-Gun Gunite to the west and Forsyth Road to the east. Attachment 1 is a site vicinity map that presents the relationship of the site to the surrounding areas. The closest waterway is the Crane Strand Drainage Canal, located east of the site, which accepts the treated effluent discharge from the site.

3.2 Land and Resource Use

From at least 1971 until operations ceased in 1983, activities at the site included waste oil and solvent recovery and disposal. Since 1983, the facility has been used for other small commercial and retail business operations.

The City Industries Superfund Site consists of a one-acre site situated in a light industrial area. The current land use for the surrounding area is primarily commercial and industrial. Although there have been a number of zoning changes over the years, it is anticipated that a mix of land uses similar to that described will continue into the future.

The geology of the site can be described as follows: the site is underlain by approximately 60 feet of sands, silty sands, and clayey sands containing variable amounts of unconsolidated lime rock, chert, and phosphate fragments. Silt and clay content of the soils generally increase with depth. The surficial soils are underlain by the Hawthorn Formation at depth of 60 to 70 feet below land surface (bis). The Hawthorn is characterized by up to 170 feet of inter-layered clayey gravel, clayey sand, clay, and limestone layers. The karstified, erosional limestone surface of the Ocala Formation is found beneath the Hawthorn layer at depths ranging from 140 to greater than 230 bis.

The surficial aquifer occurs in the uppermost 60 to 70 feet of permeable sands and is reportedly separated into an upper unconfined zone and a lower, semi-confined zone. The water table is encountered at depths from 3 to 5 feet bis. Groundwater flow is to the east at flow velocities ranging from about 10 to 145 feet per year. Flow rates generally decrease with depth and are greater during the summer's wet season than the dry season.

The Floridan aquifer, widely used as a source of potable water in the region, occurs in a thick sequence of limestone units generally encountered at the top of the Ocala Formation. The Ocala Formation was identified at a depth of 237 feet during the drilling of the Floridan aquifer monitoring well, however, depth to the Floridan aquifer bis may vary from about 140 to more than 230 feet in Orange County.

3.3 History of Contamination

The former City Industries Superfund Site activities included the receipt, handling, storage, reclamation, and disposal of various waste chemicals. General classes of waste handled included chlorinated and non-chlorinated organic solvents, paint and varnish wastes, acid/alkaline plating wastes, and waste ink. In the course of these operations, spills occurred causing contamination of the subsurface soils and groundwater. Contamination in groundwater at the site consists primarily of volatile organic compounds (VOCs), including chlorinated and non-chlorinated solvents. Approximately 1,200 drums of hazardous waste and thousands of gallons of sludge in a number of large holding tanks were left when the owner abandoned the facility in 1983.

3.4 Initial Response

From 1983 to 1984, as a result of US EPA enforcement efforts, approximately 1200 gallons of sludge and associated storage tanks were removed from the site. In February 1984, the remaining tanks and sludge were removed by the US EPA. In May 1984, the US EPA removed 1,670 tons of contaminated soil; heat treated it and returned it to the site to be re-applied. Additionally, 180 cubic yards of highly contaminated soil were removed and transported to a hazardous landfill for disposal. In August 1984, the City Industries Superfund Site was proposed for the NPL. In December 1985, the facility owner was indicted for hazardous was handling violations and other criminal charges. He was found guilty on 17 counts and received a jail sentence. In May 1986, a multi-phased RI at the site was completed by FDEP (the lead agency.) The FS was completed in December 1989 and the RI/FS and Proposed Plan were released to the public in February 1990.

3.5 Basis for Taking Action

A multi-phase RI was conducted by FDEP during the years of 1986 and 1987. The findings of the RI confirmed the presence of chemical constituents in the shallow groundwater aquifer underlying the City Industries Superfund Site. Plume delineation results established that the area distribution of impacted groundwater extended beyond the site property boundaries. A data augmentation program was conducted in 1987 to

provide more recent data for constituents previously detected at the site and define the migration of the groundwater plume since the initial RI was performed. The results of the RI and data augmentation program indicated that several target list compounds were present in the shallow aquifer. The data also indicated that the groundwater plume had migrated down gradient from the City Industries Superfund Site.

The 15 COCs identified in the ROD that required cleanup or were required to meet regulated discharge criteria were:

(1) Acetone
(2) Benzene
(3) l,l-Dichloroethane(l,l-DCA)
(4) trans-l,2-Dichloroethene (trans-l,2-DCE)
(5) l,l-Dichloroethene(l,l-DCE)
(6) Ethyl Benzene
(7) Methylene Chloride
(8) Methyl Ethyl Ketone (MEK)
(9) Methyl Isobutyl Ketone (MIBK)
(10) Tetrachloroethene (PCE)
(11) Toluene
(12) 1,1,1-Trichloroethane (1,1,1-TCA)
(13) Trichloroethene (TCE)
(14) Total Phthalates (Bis-2-ethylhexyl)
(15) Total Xylenes

In 1994, based on current analytical data, the US EPA issued an ESD that added two additional compounds to the list of COCs:

(16) cis-l,2-Dichloroethene (cis-l,2-DCE)
(17) Vinyl Chloride

No data was available for Total Phthalates analyses during the system O&M. It is assumed that the performance-based contract did not include the cost of the analysis for this compound, by EPA Method 8270; therefore, it has not been considered as one of the 17 COCs during the O&M.

Another compound, 1,4-dioxane, was identified in the sample analyses during in 1998. This compound has been recently detected at several sites across the United States due to new developing laboratory analytical methods. 1,4-dioxane has historically been used as a solvent stabilizer, particularly with 1,1,1-TCA. It is usually found in chlorinated plumes and is extremely mobile. It tends to migrate ahead of the chlorinated plume and may disperse within the aquifer to a much larger extent. 1,4-dioxane was added as a monitored compound to bring the total number of COCs up to 17, per the *Remedial Action Operation & Maintenance Manual for The City Industries Site*, (EPA, 1998).

4.0 REMEDIAL ACTIONS

4.1 Remedy Selection

The ROD for the City Industries Superfund Site was signed on March 29, 1990. The object of the RA for the City Industries Superfund Site is to mitigate and minimize contamination in the groundwater, and to reduce current and future potential risks to human health and the environment. Based on the level of contaminants found at the site (due to the endangerment assessment and the regulatory requirements) the following Remedial Action Objectives (RAOs) were determined:

- Be protective of human health and the environment from exposure of groundwater.
- Attain Applicable or Relevant and Appropriate Requirements (ARARs) of state and federal regulations.
- Be cost-effective.
- Utilize permanent solutions and alternate treatment technologies or resource recovery technologies to the maximum extent practicable.
- Address whether the preference for treatment that reduces toxicity, mobility, or volume as a principle element is satisfied.

The selected remedy consisted of pumping the groundwater, treating it by air stripping, and discharging it to the Iron Bridge Publicly-owned Treatment Works (POTW). The contingency remedy included pumping the groundwater, treating it by air stripping, and discharging it to a nearby canal. Prior to discharge to the canal, the ROD called for a secondary treatment of the effluent with carbon adsorption, oxidation, precipitation, sedimentation, and filtration to further remove metals, suspended solids, and ketones which may prevent the effluent from meeting all the discharge requirements. Because the

US EPA and the POTW were unable to reach an agreement with regards to the City Industries discharge, the US EPA implemented the contingency remedy.

The major components of the selected remedy in the ROD include the following:

- Deed/Regional well restrictions
- Groundwater monitoring of surficial and Floridan aquifers
- Groundwater recovery via wells
- Groundwater treatment via aeration
- Discharge of treated effluent to the Iron Bridge POTW or other local POTW

The major components of the contingency remedy alternative selected (due to the inability of the US EPA and the POTW to agree) include:

- Deed/Regional well restrictions
- Groundwater monitoring of surficial and Floridan aquifers
- Groundwater recovery via wells
- Groundwater treatment by aeration, precipitation, filtration, and carbon adsorption
- Surface water discharge of treated effluent

The US EPA issued an ESD in February 1994. The purpose of the ESD was as follows:

- to eliminate the secondary groundwater treatment of the effluent, and
- to add two additional COCs (cis, 1,2-DCE and Vinyl Chloride).

4.2 Remedy Implementation

In September 1990, the US EPA signed a Consent Decree with approximately 163 PRPs to have them finance the RA at the site, as well as reimburse the US EPA for the RD and other past costs. The US EPA hired a contractor to design the groundwater extraction and treatment system (Peer Consultants, Inc.) In April 1992, the RD was completed and included specifications of a performance-based treatment system.

The site achieved construction completion status when the Preliminary Close Out Report was signed on March 2, 1994. The US EPA determined that as of May 19, 1994, the remedy was fully operational and functional and system operations commenced; initiation of the LTRA. Attachment 2 contains a site plan and a treatment schematic.

LIST OF PHOTOGRAPHS

Photo 1: May 2004: Site Computer in the Site Trailer: Enables remote monitoring of the Extraction and Treatment System

Photo 2: May 2004: Removal of spent muriatic acid used in cleaning pump parts and tower packing.

Photo 3: May 2003: View of Old Corroded Blower Inlet

Photo 4: May 2004: View of rebuilt blower and remanufactured blower inlet duct

Photo 5: May 2004: View of Extraction Wells flow transmitters, new manifold header system and new FRP EQ tank.

Photo 6: May 2004:View of 1,500-gailon EQ Tank and new manifold header system.

Photo 7: May 2004: View of repaired Blower stand footings and new conduits supports

Photo 8: May 2004: View of new Circuit Sensing Relays in control cabinet

The groundwater recovery system consists of 13 groundwater recovery wells (RWs) (RW-1 through RW-13) in two groups, which were placed across the width of the contamination plume, located on five adjacent properties east of the original site. The RWs are approximately 60 feet deep, screened from 25 to 60 feet below land surface (ft bis). The submersible pumps are set at 40 ft bis. The first group consists of eight wells (RW-1 through RW-8) located just down gradient from the site; these wells were intended to intercept the contamination first, as it flows east from the site to the Crane Strand Drainage Canal. Each well consists of a submersible pump with a design capacity of 10 gallons per minute (gpm). The second group of wells consists of five wells (RW-9 through RW-13) located further down gradient and closer to the leading edge of the contaminant plume. The submersible pumps installed in wells RW-9 through RW-13 were designed to operate at 5 gpm. The total flow rate for all 13 wells were 105 gpm plus or minus 25 gpm, to allow for variability of well and pump performance.

The contaminated groundwater is pumped from the RWs through a network of over 18,000 feet of fused underground High-Density Polyethylene (HDPE) piping to a 1,500 gallon equalization (EQ) tank. The influent water is then pumped from the EQ tank to an air stripper tower (AST) with a blower for final treatment. The AST packing media is designed to increase the surface area allowing the target VOCs to evaporate to the air being forced over the water. The effluent water is discharged into the Crane Strand Drainage Canal, located at the eastern boundary of the Sears property (see Attachment 2, Figure 2). The off-gas generated from the air stripper is vented to the atmosphere. Contract personnel regularly sample the effluent water to verify compliance with the applicable environmental permits. The instrumentation and controls for the system consists of magnetic flow meters for each well, level control switches, computer controller, alarm system with auto-dialer, and all associated wiring.

In addition to the 13 RWs, a network of monitoring wells (MWs), installed at varying depths, are sampled semi-annually to monitor the contaminant plume migration and to document that the site cleanup activities are remediating the groundwater beneath the site.

In November 1996, based on a groundwater flow model, the US EPA suggested an adjustment to the recovery scheme in order to improve capture of the groundwater contamination plume and eliminate potential stagnant areas in the center of the plume. The pumping modification was implemented in 1998.

It is expected that cleanup levels for all groundwater contaminants will be attained within approximately 15 years from the start of the remedial action, May 1994 (ROD, 1990).

4.3 System Operation/Operation and Maintenance

4.3.1 O&M Requirements

The routine O&M activities at the City Industries Superfund Site require an onsite operator to monitor the performance of the recovery, aeration, and discharge system components. Efficient operation of the AST also requires periodic cleaning or replacement of the tower's packing media to avoid clogging from accumulated biological growth or precipitated matter. Periodic monitoring of the groundwater is performed to assure that the remedy is working. In March 1998, the US EPA contracted EMCON/OWT to operate and maintain the system. In December 2003, the US EPA, under the RAC IV program, contracted Black & Veatch to perform the system O&M. Black & Veatch assumed system O&M activities from Shaw/EMCON/OWT on January 20, 2003. On May 20, 2004, the PRPs assumed responsibilities for the remainder of the site cleanup, ending the US EPA's 10-year commitment to operate and monitor the groundwater extraction and treatment facility. In addition, the NPDES and Consumptive Use permits were transferred to the PRPs' contractor in June 2004.

4.3.2 O&M Summary

Details of the extraction and treatment systems' repairs, upgrades and modifications made during the FYR period can be found in the February 2000, March 2002, February 2003 and July 2004 Interim LTRA Reports. The amount of water pumped through the extraction wells and treated at the site from March 12, 1999 to May 19, 2004 (2nd FYR period) totals approximately 295.7 million gallons. The City Industries Superfund Site has pumped and treated a total of approximately 463.7 million gallons during the 10 years of operation from May 20, 1994 to May 19, 2004.

Monthly reports from March 1999 through May 2004 indicated the following significant O&M activities and modifications were performed:

January 1,2000	FDEP issues new site specific NPDES permit.
June 27, 2000	Data Recorder became inoperable.
September 1,2000	Recorder back in operation.
October 24,2000	EQ tank was overflowing onto the paved area. The blower was not operating. Approximately 78,900 gallons overflowed onto the

	paved area. A formal report of the incident was made to the US EPA and a copy of the report is on file.
April 23, 2001	The AST conductivity level probe controller replaced with the spare controller.
May 16, 2001	Replaced the EQ tank conductivity level probe controller with the repaired controller.
August 10,2001	RW-ll's Foxboro IMT-20 flow transmitter and flow tube was switched with those from RW-8.
January 20,2003	Black & Veatch is assigned the RA O&M under US EPA RAC 4 Contract No. 68-W-99-043, Work Assignment No. 055-RARA-04A7 and initiated O&M activities under a cost-plus contract.
May 5-14,2003	11th Semi-annual sampling of the RWs and MWs is performed.
June 17, 2003	RW-4 was removed from service. The pumping rate was down to 1 gpm and the standby O&M personnel were unable to change the pump.
October 23-29,2003	The AST packing material had not been changed or cleaned in the last four years. Consequently, the packing material was clogged and the removal took more effort than previously was required. The change-out previously had taken two days to perform. This change-out took five-man days. The system was also down over a weekend. An additional day was needed to overhaul the discharge pump and the 6-inch discharge line that became clogged due to amount of silt in the tower sump that resulted from the removal of the packing.
November 3-12,2003	12th semi-annual sampling of RWs and MWs was performed.
November 7, 2003	1745: AST blower failure.
November 8, 2003	The blower was removed from service and the spare blower was installed.
November 18, 2003	The US EPA met with Orange County Department of Public Works and Black & Veatch at the site to discuss the widening of Forsyth Road and the impact it will have on the site and the locations and disposition of the MWs located in the right-of-way.
December 1,2003	The data recorder failed. Attempts to troubleshoot the data recorder with the technical service representative via telephone indicated the problem was in the power supply unit. The US EPA Remedial Project Manager (RPM) was notified of the status. Since the RWs fail to operate in the "auto" mode with the data recorder

	in this non-operational condition; the RWs were placed into "hand" manual mode.
	2003 Annual 7-Day Whole Chronic Toxicity Test began. Analysis to be performed by the US EPA Science and Ecosystems Support Division (SESD) laboratory in Athens, GA.
December 2-8,2003	With the RWs operating in the "hand" mode, the system's fail safe conditions were rendered inoperable. In order to minimize any potential risk of overspills ftom the RWs not being able to shut off automatically while operating in "hand" mode, the US EPA directed the system operator to remain within a 5-minute response time of the site. All of the major printed circuit boards and the power supply unit were removed and shipped to the manufacturer for diagnostic testing, repair, and/or bench testing. The EPA RPM directed Black & Veatch to contact the manufacturer for an onsite technical service call to resolve the problem. The site operator was requested to return to a 5-minute response time since RW-7 had to remain in "hand" mode. December 9th the data recorder technical service representative arrived onsite and installed a new power supply unit, new board, new idler gear, two new carriage drive pulleys and a new print transition board
December 4, 2003	The security light mechanical timer was replaced.
December 17,2003	Upon review of the semi-annual sampling data, the US EPA directed Black & Veatch to return RW-1 to service. Problems with equipment in the wells functioning so parts from RW-8 were used.
January 9, 2004	Review of the Whole Chronic Toxicity Test data reveals a failure in one of two test organisms requiring three additional retests of the organism.
January 12,2004	FDEP issues a revision to NPDES Permit Number 48-FL0043265 for the purpose of adding a sampling requirement to the permit. The conditions are changed as follows: • Parameter 1,1-dichloroethene is hereby added to the sampling requirements of Part I.A.I of this permit. Analysis shall be performed on grab samples taken at least monthly of the effluent at sampling Point EFF-01…. • The average of all samples analyzed for 1,1-dichloroethene in a calendar year shall not exceed Rule 62.302.530 (28),

Florida Administrative Code (FAC) standard of 3.2 micrograms per Liter (µg/L).

- Parameter 1,4-dioxane is hereby added to sampling requirements of Part I.A.I of this permit. Analysis shall be performed on grab samples taken at least monthly of the effluent at Sampling Point.
- EFF-01___The limit for this parameter is 245 (Jg/L for a single sample maximum (Daily Maximum)___

January 20,2004 — The US EPA RPM , the PRPs' representative and Black & Veatch personnel arrived at the site. The purpose for the site visit was to conduct a visual inspection of the system's worn and corroded parts and outdated controllers. The system was secured for electrical repair work in the control cabinet and installation of the new blower inlet duct (See Attachment 3 - Site Photographs; Photos #3 and #4).

January 22,2004 — The treatment system was secured while upgrading IEC components; replacing the combination of West German™ and Telemecanique™ IEC components to all Telemecanique™ IEC components.

January 23, 2004 — A licensed electrical contractor was contracted to troubleshoot and repair the reoccurring over-amperage problems with RW-1 and RW-10. With five of the nine RWs off, the treatment system was unable to maintain the required minimum 80 gpm flow rate.

January 25, 2004 — The first of three mandatory retests for the failed Whole Chronic Toxicity Test organism began. The second test is scheduled to commence the week of February 22, 2004. Analysis to be performed by SESD.

February 2, 2004 — The licensed electrical contractor returned to the site to resume the electrical RW repair work. The PRPs' consultant's electrical engineer arrived on site to perform his inspection and review of the site.

February 23,2004 — The second retest of the Whole Chronic Toxicity test was scheduled to begin the week of February 22, 2004. It was cancelled because the SESD laboratory failed to produce a viable culture for the sampling. The second retest was scheduled to commence the week of March 7, 2004 and the third retest to

	commence the week of March 21, 2004. The samples will be sent to SESD for analyses.
February 25, 2004	The treatment system sump pump float was stuck and the pad was filled with rain water. The sump pump float was dislodged and the rain water was pumped into the EQ tank for treatment. The FDEP Waste Water Compliance officers and the US EPA NPDES compliance officers arrived on-site. FDEP collected several grab samples along with an 8-hour composite sample from the effluent stream with the US EPA overseeing their sampling techniques. The FDEP conducted an on-site inspection of the records and sampling protocols.
March 6-9,2004	Power outage due to Progress Energy. Installed the new in-line pH meter and reset the liquid level control points on the conductivity level probe in the AST site glass for the discharge pump.
March 17,2004	Black & Veatch requests permission from FDEP to change the laboratory providing the Whole Chronic Toxicity Test analysis due to SESD failure to produce a viable culture for the tests. FDEP concurred.
March 18, 2004	All accessible MWs and RWs were surveyed for their respective Global Positioning System (GPS) locations. MW-38-S was destroyed by a construction team installing a new sanitary lift station for the City of Winter Park. The US EPA RPM was notified of the status. MW-20-D was destroyed also. Universal Plastic Pipe, a division of Accord Industries, a front end loader may have damaged the well when installing and leveling new limestone in the area. The US EPA RPM was notified of the status on MW-38S and MW20-D.
March 28,2004	The second of three mandatory retests began. The third test is scheduled to commence the week of April 4, 2004. Analysis to be performed by Columbia Analytical Services, Inc. (CAS) of Jacksonville, Florida.
April 2,2004	Completed 2nd mandatory retest for the Whole Chronic Toxicity test.
April 7,2004	The US EPA representatives, PRPs' representative, Orange County Public Works Department's representative and Southland Construction's representative were on-site to review the effect and impact that the road widening along Forsyth Road has and will

	have on the site (i.e., destroyed monitoring wells and dewatering activities).
April 9,2004	Began third retest for the Whole Chronic Toxicity test. CAS to perform the analysis.
April 13, 2004	Completed third retest for Whole Chronic Toxicity test.
April 14,2004	RW-4's pump was changed due to biological fouling.
April 16,2004	Black & Veatch received US EPA approval and contract modification to perform system's upgrades and modifications at the request of the PRPs.
April 19, 2004	RW-4's pump was changed due to two broken impellers and one broken intermediate chamber. Ten RWs were sampled for 13th semi-annual sampling event prior to turning system off for the modifications. The AST packing media was cleaned by recirculating acidic water (pH between 1.98 and 3.21) through the treatment system for approximately four hours.
April 20,2004	Treatment system was removed from service for completion of the system modification activities. Influent manifold header to EQ tank was dismantled. Associated plumbing from sump pump and recirculation line was dismantled.
April 27-28, 2004	Electrician began control panel upgrades and wiring installations for system modification.
May 3-11,2004	The 13th semi-annual sampling event was completed.
May 3-18,2004	The treatment system modifications and upgrades were performed. Details of the modifications are explained in the next subsection.
May 4, 2004	Three drums of hazardous waste (spent hydrochloric acid) used for cleaning pump parts and the tower packing media were removed by Clark Environmental, Inc. The acid was transported to and disposed of at Environmental Enterprises, Inc. in Cincinnati, Ohio (See Photograph #2)
May 20, 2004	Black & Veatch, on behalf of the US EPA, initiates the Second FYR by conducting the site inspection and interviews.
May 20, 2004	Black & Veatch concluded the O&M activities. L.S. Sims and Associates, the PRPs' contractor, assumed responsibility of the site O&M activities and official transfer took place onsite with the following personnel present: Mr. Jamey Watt - US EPA RPM Ms. Daralene Pondo - Black & Veatch Project Manager

	Mr. Larry S. Sims - L. S. Sims and Associates President
	Mr. David Behnke - Black & Veatch Site Operator/Manager
	Mr. Jonathan Zientarski - L. S. Sims and Associates Site Operator
July 2004	Draft Sixth LTRA Report was submitted to US EPA for review, including a system performance optimization evaluation.
August 13,2004	Black & Veatch revised the O&M Manual and provided to the PRPs' contractor.
August 31,2003	Completion of the Second FYR Report.

4.3.3 System Modifications

From 1994 through 2003, the O&M of the system was conducted under several performance-based contracts. Over these contract periods, there were no substantial system modifications or upgrades designed or implemented. The scope of the performance-based contracts only allowed for maintenance and repairs on the existing system components. Black & Veatch was awarded a cost-plus contract which allowed for the system's upgrades and modifications. Upon recommendations by Black & Veatch and the PRPs' contractor, the US EPA issued Black & Veatch a contract modification in April 2004 to design and implement the following system modifications and upgrades with the assistance from the following subcontractors:

- Shaw Environmental and Infrastructure, Inc. (contract team subcontractor) of Tampa, Florida to purchase and deliver a new fiberglass reinforced plastic (FRP) EQ tank.
- Chemtech Engineering, Inc. (Chemtech), of Sarasota, Florida, (Bart S. Lucas, P.E.) to design the instrumentation and control upgrades, subcontract electrical services, and sign and seal electrical and process as-built drawing revisions.
- WRS Infrastructure and Environmental, Inc. (WRS), of Tampa, Florida, to perform the mechanical design, installations, plumbing and sign and seal the as-built mechanical drawings revisions.

The treatment system was removed from service on April 19, 2004 in preparation for the modifications and upgrades. The existing plumbing was dismantled from the EQ tank and the existing manifold header was removed. Delivery of the new FRP EQ tank was delayed, so the actual system modifications did not begin until April 27, 2004. The upgrades, modifications and start-up testing were completed on May 18, 2004.

The following summarizes the upgrades and modifications that were made to the system:

1. New communications lines (telephone and Ethernet) were installed from the site utility pole to both the site trailer and the control cabinet.
2. The Westronics® Digital Data Recorder was removed from the control cabinet and replaced with a new Dell[8] personal computer system, equipped with a D-Link™ hub, modem, PC Anywhere™ and Rockwell™ software installed in the site trailer (See Photograph #1). The computer is connected to the Allen-Bradley* programmable logic controller (PLC) with a dedicated outside telephone line to enable remote access and troubleshooting. This was performed to eliminate the need for full-time onsite labor.
3. The 1990 GE Fanuc® 90/30 PLC was updated with a Allen-Bradley* PLC model.
4. Thirteen (13) new current sensitive relays were installed in the control cabinet to replace the flow sensor levels in the Westronics® Digital Data Recorder (See Photograph #8).
5. To help reduce the elevated temperature levels in the control cabinet a new exhaust fan system was installed.
6. The in-line pH meter and LCD display were removed from the system. A portable pH meter will be used.
7. Installed a new submersible pump and all associated plumbing in the containment pad collection sump. Also added a "high-high" alarm sensor in the sump.
8. Removed the in-line flow sensor and all associated components from influent line between Transfer Pump 1 and the AST; this item was non-functional and was no longer required.
9. The 13 RWs' pressure gauges were removed and sampling ports were installed to provide better control during the RW VOC sampling.
10. The corroded carbon steel EQ tank and all associated plumbing, including the overhead manifold distribution header system, were removed and replaced with a new FRP EQ tank and associated plumbing; including a new manifold distribution header system (See Photographs #5 and #6).
11. The single probe conductivity liquid level sensor in the steel EQ tank was replaced with a new pressure transducer in the new FRP EQ tank.
12. Repaired all deteriorated rigid conduit clamps, unistrut fittings, unistrut supports, and blower stand footings (See Photograph #7).

13. Installed a "WARNING - NON-POTABLE WATER - NOT FIT FOR HUMAN CONSUMPTION OR USE" sign at treated effluent discharge point at the Crane Strand Drainage Canal to warn trespassers.

All of the modifications and upgrades made to the system were documented in Technical Memoranda and revised As-Built Drawings that are included in the revised O&M Manual, August 2004 and the July 200 LTRA.

4.3.4 O&M Areas of Concern

There are a number of concerns related to the O&M of the extraction and treatment systems. The most problematic O&M concern in the extraction system has been biological growth on the extraction pumps, which tends to reduce the pumps' efficiency and effectiveness. When a pump's performance decreases by approximately 50% of the designed extraction rate for that particular RW, the pump is typically removed from service and replaced with a pump assembled with cleaned parts. The removed pump(s) are dismantled and cleaned for later use. A record of pump removal and maintenance performed over the last five years can be found in the Monthly O&M Reports and in the Interim LTRA Reports submitted by the O&M contractors, EMCON/OWT and Black & Veatch.

A second area of concern is the biological growth potential in the EQ tank and AST. The biological growth can impede the AST's removal efficiency below the design and/or permit discharge requirements. The EQ tank and AST should be cleaned at least semi-annually by recirculating acidic water through the treatment system (EQ tank and AST). Black & Veatch cleaned the AST and replaced the packing media with new packing material in October 2003 and cleaned the AST in April 2004.

A third area of concern relates to the AST's ability to remove the "daughter" compounds produced during the biodegradation of the VOCs. The AST's designed removal efficiency was based on initial influent VOC concentrations detected at the time of the RD, which did not include some of these "daughter" compounds. Since that time, concentrations of the initial VOCs have declined and some "daughter" compounds have increased (i.e., Vinyl Chloride). The detected contaminant levels of the VOC "daughter" compounds are currently being effectively removed by the treatment system, as indicated by the effluent analytical results shown in Attachment 4.

Another developing area of concern relates to the detection of the 1,4-dioxane compound in the groundwater and the effluent. The detection of 1,4-dioxane at some chlorinated solvent cleanup sites has often occurred after the initial site characterization is completed (prior to the 1990 ROD at this site). It has recently been detected at sites due to newly developed laboratory analytical methods that can detect the compound at concentrations less than 100)j.g/L. 1,4-dioxane has historically been used as a solvent stabilizer, particularly with 1,1,1-TCA. When present, 1,4-dioxane is usually associated with chlorinated plumes and is extremely mobile in the aquifer. It tends to migrate ahead of the chlorinated plume and may disperse within the aquifer to a much larger extent.

The NPDES permit was amended in January 2004, to include this compound in the effluent discharge criteria at 245 µg/L. A proposed change to the cleanup rule in Florida may lower this criterion to 130 |ug/L in 2004.

Historically, 1,4-dioxane has been analyzed by EPA Method 8260B, method reporting limit of > 100 µg/L, along with all the other VOC compounds. A Groundwater Cleanup Target Level (GCTL) of 5 ug/L was established by the State of Florida in 1999. Therefore, in the future a more accurate sampling methodology may be required to ensure more definitive reporting of the compound concentrations in the groundwater.

Ensuring compliance with all NPDES permit discharge requirements presents another area of concern. Results of the effluent chemical analyses and the annual Whole Chronic Toxicity Test provide data to support the treatment system's performance in meeting these criteria.

4.3.5 O&M Manual Updates

The O&M Manual was recently updated in August 2004 to include the details and specifications of the modifications and upgrades made to the treatment system and instrumentation/controls in May 2004. The O&M Manual details: the components of the extraction and treatment systems; explains the components' operations and maintenance; provides a schedule of maintenance activities; includes a troubleshooting guide; outlines the groundwater monitoring requirements; and includes all manufacturers' equipment specifications and details.

4.3.6 O&M Contract/Costs

The original O&M cost estimate submitted in the ROD (Table 9-2) projected an annual expenditure of $235,891 per year. From March 1999 through January 19, 2003,

EMCON/OWT operated the system under performance-based contracts where payment was issued in a set amount to the contractor for each "operational day" maintained over the contract. A successful "operational day" was defined as a 24-hour period of continuous treatment at a flow rate of 100 (+/- 20) gpm and meeting the required permit criteria in all the applicable permits. On January 19, 2003, Black & Veatch operated the system under a cost-plus contract. The previous contract's performance criteria were also the goals of the cost-plus contract.

A summary of the annual costs for O&M are shown on the following table.

Table 2 - Annual System Operations/O&M Costs

Dates		Contract Type	Total Cost
From	To		
March 1999	March 2000	Performance	$165,692
March 2000	March 2001	Performance	$173,378
March 2001	March 2002	Performance	$170,558
March 2002	January 2003	Cost-plus	$184,574
January 2003	May 2004	Cost-plus	$411,249

There were some additional costs for oversight of the performance contractor, EMCON/OWT, by the USACE that are included in the summary. There was a modification issued to the Black & Veatch work assignment in April 2004, for $146,071 for additional costs to upgrade and modify the treatment system.

The responsibilities for the O&M activities were transferred from the US EPA to the PRPs on May 20, 2004. The PRPs contractor, L. S. Sims and Associates, indicated that the current O&M costs will be based on time and materials.

5.0 PROGRESS SINCE THE LAST FIVE-YEAR REVIEW

5.1 Protectiveness Statement from Previous Five-Year Review

The following statement was made in the first Five-Year Review report prepared for the City Industries Superfund Site by the USACE.

> *"The remedies at the City Industries Superfund Site remain protective of human health and the environment. The pump and treat system appears to be effective at containing contaminants. Effluent is being discharged in accordance with the*

O&M Manual. Institutional controls at the site remain in place and are effective."

5.2 Status of Recommendations and Follow-up Actions from Previous Five-Year Review

The following deficiencies and recommendations were stated in the FYR prepared by the USACE:

- The monitoring well clusters located near Forsyth Road may be or have already been damaged due to the Forsyth Road expansion (widening to four lanes).
- The 1500 gallon painted steel equalization tank is showing signs of corrosion and should be repaired or replaced.
- The treatment facility area is protected by an 8-foot high security fence. However, there have been some problems with vandalism, as the on-site trailer has been broken into and some equipment and supplies were stolen. No damage occurred to the treatment system.
- No cleanup level has been established for Total Xylenes. Consider establishing a cleanup level for Total Xylenes.
- Consider abandoning any extraction and/or monitoring wells deemed unnecessary or permanently damaged. Currently, there are no extraction wells and/or monitoring wells under consideration for abandonment at this time.
- Consider reducing the sampling/monitoring frequency at several of the wells. Note the overall monitoring frequency of all wells was reduced by US EPA Region 4 from quarterly monitoring to semi annual monitoring in 1998.

During the second five-year period, the following actions were taken to address these concerns:

- The road widening along Forsyth Road in the area of the site began in 2004. The activities destroyed monitoring well, MW-38S. A meeting was held between the Orange County Department of Public Works and the US EPA in November 2003 to discuss the plans and the wells that may be affected. Orange County agreed to replace any wells that are destroyed during the construction. However, since MW-38S has been completely removed it was decided to use MW-39S as its replacement in the sampling program, per US EPA.

- The severely corroded steel EQ tank was replaced in May 2004 with a new fiberglass reinforced plastic tank as part of the system upgrades. In addition, the manifold header system was also redesigned and replaced and a new water level transducer was installed as part of the EQ tank replacement.
- No vandalism of the site trailer has occurred during the last five years. A new trailer was leased for the site in 2003.
- No cleanup level for Total Xylenes has been formally established for the site. However, the current influent concentrations for this compound are substantially below the EPA MCL of 10,000 µg/L.
- A well status and inventory was performed by the US EPA contractor in 2004. Past analytical data and well construction details were researched for all wells onsite. The data was compiled and recommendations for well sampling and abandonment will be submitted to the PRPs' contractor for their consideration. In addition, a list of needed well repairs and replacements will be transmitted to the PRPs' contractor. New locks and caps were placed on the wells in April 2004.
- Recommendations for future sampling and analysis, including a recommendation to evaluate Monitored Natural Attenuation, were included in the Draft LTRA (July 2004) currently under review at the US EPA.

6.0 FIVE-YEAR REVIEW PROCESS

6.1 Administrative Components

This FYR consisted of the following activities:

- community involvement/public notices
- a review of relevant documents
- data review
- site inspection/technology review
- local interviews
- FYR report development and review.

The completed report will be placed in the local information repository. Notice of the FYR completion will be placed in the local newspaper.

The FYR team consisted of the following individuals:

- Jamey Watt - US EPA RPM

- Daralene Pondo -Black & Veatch Site Project Manager
- Mary Wenska — Black & Veatch Community Involvement Coordinator
- David Behnke - Black & Veatch Site System Operator

6.2 Community Involvement

Activities to involve the community in the FYR were initiated with a meeting in early June 2000 between the US EPA RPM and a Community Involvement Coordinator (CIC) for the City Industries Superfund site. A notice was placed in the *Orlando Sentinel* (a local newspaper) on July 22, 2004, that a FYR was being conducted at the site. The notice invited interested readers to submit any comments or questions to the US EPA RPM. No public comments were received.

Upon conclusion of the FYR, another notice will be sent to the same local newspaper announcing that the FYR report for the City Industries Superfund Site is complete, and that the results of the review and the report are available to the public at the Winter Park Public Library and the EPA Region 4 office in Atlanta, Georgia. The finalized document will also be placed on the US EPA's internet site at http://www.epa.gov/region4/waste/sf/fiveyear.htm.

6.3 Document Review

This FYR consisted of a review of relevant documents including O&M records and monitoring data (See Attachment 5). Applicable groundwater cleanup standards, as listed in the 1990 ROD and the 1994 ESD were reviewed. In addition, Federal and State cleanup regulations adopted since the last FYR were researched and reviewed.

6.4 Data Review/Groundwater Monitoring

The effectiveness of the Groundwater Treatment System is monitored bi-weekly. A summary of the influent and effluent concentrations are included as Attachment 4.

Groundwater monitoring has been performed semi-annually over the past five years; a total of 11 semi-annual events. Groundwater data for the last 11 semi-annual sampling events conducted from March 1999 to May 2004 can be found by reviewing the following reports:

1. Semi-Annual Events 3 - 4 (May 1999 - November 1999) LTRA Report, February 2000.
2. Semi-Annual Events 5 - 8 (May 2000 - November 2001) LTRA Report,

March 2002.

3. Semi-Annual Events 9 & 10 (May 2002 - November 2002) LTRA Report, February 2003.
4. Semi-Annual Events 11-13 (May 2003 - May 2004) LTRA Report, July 2004.

Summary tables of the analytical data from each MW and RW sampled over the last 11 periods can be found in the Draft LTRA (July 2004), currently under review by the US EPA. In addition, groundwater isoconcentration maps for the 11*, 12th and 13th semi-annual events can be found in this report. The groundwater data presented in this report indicate that the VOC plume is continuing to decrease in size and is being hydraulically controlled. One area of concern that needs to be examined closely in the future is the detection of 1,1-DCE in the down gradient deep well, MW-48D. MW-48D is a sentinel well and continued detections in this well may require changes in the RW pumping regime. A graphical analysis of the contaminant trends in select wells is provided in the Draft LTRA (July 2004) as Appendix J, currently under review by the US EPA.

The analytical data collected during the period indicate that the VOC concentrations in the RWs and MWs are being reduced, however some COCs still exceed the MCLs and/or Florida's GCTLs: primarily 1,1-DCE, Vinyl Chloride, and 1,4-dioxane. One area of concern is around MW-43D and MW-45D. Data evaluations discussed in the Draft LTRA (July 2004) report consider this area to be a stagnant zone in the center of the plume. The RWs do not appear to be affecting the plume in this area. Concentrations of 1,4-dioxane have been increasing in these two wells and continued detections in this area may require modifications to the groundwater recovery system to prevent further migration.

The shallow zone of the surficial aquifer has remained at or near the established cleanup levels and has continued to decrease over the last five years (11 periods). The intermediate zone is also decreasing in overall VOC concentrations. Monitoring wells, MW-7I and MW-13I, are the only wells in the zone that show an increasing trend. However, each of the wells showed a short period of increased concentrations, likely the result of a "slug" of residual contamination moving through the aquifer. The Total VOC levels during the 13th sampling event were back within the normal range for each well.

Historically, concentrations in the most contaminated well, MW-35I, have continued to decrease and currently only TCE and PCE have been detected at concentrations slightly

above the US EPA Maximum Contaminant Levels (MCLs). An analysis of the deep zone showed two wells with increasing Total VOC trends, MW-43D and MW-45D, the wells in an apparent stagnant zone of the plume. All the remaining MWs in this zone are decreasing in concentrations. The RWs are also decreasing in Total VOC concentrations; with the exception of RW-3, which shows an increasing trend due to TCE and PCE detections. There was one abnormality observed in the data from RW-1 over the interim period. During the 12th semi-annual sampling event, a Total VOC concentration of 297.1 ug/L was detected in the sample. The data from this RW have historically been below cleanup levels; therefore, the well has not operated as an extraction well since 1998. With the approval of the US EPA RPM, RW-l's pump was turned on to remove the VOCs in the area. No VOCs were detected in the data from the 13th semi-annual sampling; so the RW pump was shut off and will remain off as designed.

Contaminant levels have been detected slightly above the regulatory limits (the GCTLs and/or MCLs) at the down gradient edge of the original plume; concentrations of 1,1-DCE have been detected in MW-48D.

There were changes in the sampling scheme worthy of noting:

- 12th Semi-Annual: MW-6S could not be sampled because the well casing had broken and the well is full of sand. Since this is the only shallow well on the former City Industries_property, it is recommended that this well be abandoned properly and redrilled.
- 13th Semi-Annual: MW-3S was sampled in place of MW-6S; also MW-3S has been identified as a well that will be destroyed during the widening of Forsyth Road, therefore, data from the well was requested by the US EPA. MW-39S was sampled in place of MW-38S. MW-38S was removed during the installation of a sanitary lift station along Forsyth Road. MW-20D was not sampled because it has been destroyed by the property owner's operations. Accord Industries has been informed of the status. Acetone was detected in the Floridan aquifer well, FL-1; likely due to laboratory contamination.

6.5 Site Inspection

The City Industries second FYR site inspection was held on May 20, 2004. The following representatives of the US EPA, Black & Veatch, and L. S. Sims & Associates took part in the site inspection. The weather during the inspection was clear, warm, and humid.

1. Jamey Watt: US EPA, RPM
2. Daralene Pondo: Black & Veatch Project Manager
3. Larry Sims: PRPs' contractor/representative, L. S. Sims & Associates, Inc. Project Manager
4. David Behnke: Black & Veatch Site Operator
5. Jonathan Zientarski: PRPs' contractor, L. S. Sims & Associates, Site Operator

The purpose of the inspection was to assess the protectiveness of the remedy and to become familiar with the recent modifications and upgrades made to the system.

One minor issue, noted during the inspection, was trespassing by homeless individuals in the area. There is evidence that these individuals are camping in the fenced area and have been using the effluent discharge point for washing. A warning sign was posted at the discharge point to deter further use.

The current widening of the Forsyth Road is a major concern and was discussed at the inspection. The road widening will likely destroy_a few monitoring wells and any associated dewatering activities may affect the plume. A meeting was held in April 2004 between the US EPA and Orange County Department of Public Works to discuss the project and any possible affects.

The following system components were inspected during the site inspection. A Site Inspection Checklist was completed and is provided as Attachment 6.

6.5.1 System Layout

The groundwater recovery system consists of 13 extraction wells located generally to the east of the site, arranged around the various warehouses and businesses. The wells each have a submersible pump with a design flow rate of 5, 10, or 15 gpm. The water is pumped from the wells through a pipe network of over 18,000 feet of fused underground HDPE pipe to a 1500-gallon EQ tank. The influent water is then pumped to an AST for final treatment. Off-gas from the AST is vented to the atmosphere. The groundwater plume is monitored with a network of 49 monitoring well clusters. Groundwater sampling of the RWs and MWs occurs semi-annually, usually in May and November.

6.5.2 Extraction Wells

The 13 extraction wells are approximately 60 feet deep with a 35-foot screen and the

submersible pump is located approximately 40 feet bis. The well heads were not inspected during the site inspection as several were located in parking areas and covered by vehicles. Currently nine of the 13 wells are operating per the 1998 modification.

6.5.3 Controls, Pumps, Tanks

The extraction and treatment systems are controlled using a pressure transducer within the EQ tank and a level switch within the stripper tank. Alarms are provided for a low flow condition (i.e., less than 82 gpm), high-high level in the EQ tank, failure of the air stripper pumps and blower, and for power outages. A programmable auto dialer notifies the operator on call if a predetermined alarm condition exists which requires immediate on-site operator attention. The 1500-gallon painted steel EQ tank showed signs of corrosion and was replaced with a FRP tank. New remote access telemetry system was installed during the upgrades.

6.5.4 Air Stripper

The AST is 3-feet in diameter, 45 feet tall, and contains 142 cubic feet of Jaeger #1 packing media. The AST packing is subject to biological fouling and requires cleaning at six-month intervals using hydrochloric (muratic) acid. Biologic growth causes head loss through the stripper, and eventually sloughing off into the effluent stream. The blower inlet duct for the AST showed signs of corrosion and was replaced. The remaining AST components (piping, valves, and pumps) are in good physical condition. The concrete secondary containment/equipment pad shows signs of surface deterioration in the vicinity where packing / acid washing occurs, but has not caused visible cracking or reduction in its structural integrity.

A new sump pump and level switch had been installed during the upgrades and the grate over the sump had been repaired.

The AST packing was replaced in October 2003 and cleaned in April 2004.

6.5.5 Other Observations

The site was generally neat and clean. The accesses to the MWs and discharge pipe were recently mowed. The treatment system was actively discharging into Crane Strand Drainage Canal. The sign on the entrance to the treatment system had been replaced and warned of no trespassing. The site trailer has been replaced in 2003 and is now air-conditioned for the proper storage of the site computer system. There are obvious signs

of trespasser use of the effluent discharge for personal washing. A warning sign has been posted at the discharge point.

6.6 Interviews

Interviews were conducted with: Mr. David Behnke, previous site operator for the last 9 years; Mr. Jamey Watt, US EPA RPM; and Mr. Larry Sims, PRPs' contractor. Items discussed during the interviews included project background, system operating procedures, system operating status, and the transfer the O&M responsibilities from the US EPA to the PRPs' contractor. Interview forms were completed for each interviewee and are included in Attachment 7.

7.0 TECHNICAL ASSESSMENT

7.1 Question A: Is the remedy functioning as intended by the decision documents?

The review of documents, ARARs, risk assumptions, and the results of the site inspection indicates that the remedy is functioning as intended by the ROD and as modified by the ESD. The following conclusions support the determination that the remedy at the City Industries Superfund Site remains protective of human health and the environment. The pump and treat system has achieved containment of the contaminants. However, the pumping configuration could be adjusted to increase the concentration of contaminants pumped to the treatment system and to draw contaminants out of the stagnant zone that appear to exist between well groups. In the Draft LTRA (July 2004), specifically Appendix I entitled *Remedial Performance Optimization Evaluation,* several recommendations are included that could optimize the system performance and reduce cleanup time. Continued evaluations should be performed in order to optimize site cleanup costs and reduce cleanup time.

The effective implementation of institutional controls has prevented exposure to, or ingestion of, contaminated groundwater.

O&M procedures are consistent with site requirements. No recent significant difficulties have occurred to date.

O&M annual costs are consistent with original estimates and there are no indications of any difficulties with the remedy. Costs increases were mainly the result of replacement of worn and obsolete equipment and technology upgrades for remote access to the system to reduce onsite labor. System modifications were performed in May 2004 to upgrade the site instrumentation and provide for remote system monitoring and reset capability.

The MW network provides sufficient data to assess the progress of remedy. However, there is some concern that the plume may be migrating down gradient toward the Crane Strand Canal. Concentrations of 1,1-DCE in MW-48D have remained slightly above the MCL in this well. In addition, detected concentrations of 1,4-dioxane are increasing in the some deep wells.

The institutional controls in place include prohibitions on the use of groundwater until cleanup levels are achieved. Trespassing activity at the effluent discharge point was observed. Access to the canal is not prohibited by the fenced area and should not be considered a violation of the institutional controls. The fence around the site is intact and in good condition. The containment pad and sump are in good condition and will function adequately to contain any possible overspills.

7.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

The exposure assumptions used to develop the Human Health Risk Assessment included both current exposures (older child trespasser, adult trespasser) and potential future exposures (young and older future child resident, future adult resident and future adult worker). There have been no changes in the toxicity factors for the COCs that were used in the baseline risk assessment. These assumptions are considered to be conservative and reasonable in evaluating risk and developing risk-based cleanup levels. No change to these assumptions, or the cleanup levels developed from them is warranted. There has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy. The remedy is progressing as designed and it is expected that all groundwater cleanup levels will be met within approximately 15 years of system startup, May 2009 (ROD, 1990).

7.2.1 Changes in Standards - To Be Considered (TBC) Criteria

An ARARs and TBC criteria review was performed for the City Industries Superfund Site in accordance with the EPA guidance document, "Comprehensive FYR Guidance", EPA 540-R-01-007, June 2001. Section 121(d)(2)(A) of CERCLA incorporates into law the CERCLA Compliance Policy, which specifies that Superfund RAs meet any Federal standards, requirements, criteria, or limitations that are determined to be legally ARARs. Also included is the provision that State criteria must be met if they are more stringent than Federal requirements.

The requirements of the National Environmental Protection Act (NEPA) have been met. Additionally, the results of these studies were presented to the public through a public notice, and the public was given the opportunity to comment on the results of the studies and the Proposed Plan for the RA.

The following documents were reviewed for the ARAR and TBC criteria analysis:

1. ROD, March 1990
2. ESD, 1994
3. First FYR, September 1999
4. NPDES Permit, Amended January 2004
5. State of Florida's Chapter 62-777, FAC; Cleanup Target Levels for Groundwater and Surface Water.

7.2.2 ARARs and TBC Criteria Identified in the ROD/ESD Requiring Review

1. Groundwater Standards, Criteria and Guidelines as listed in Table 7-1 of the ROD
2. Freshwater Aquatic Life Criteria as listed in Table 7-2 of the ROD
3. NPDES permitting requirements as established in the discharge permit for the site

A copy of the current NPDES permit was available for review. Recent sampling data indicates that discharge conditions of the permit are being met. (Note: The NPDES permit is currently up for renewal in December 2004.)

7.2.3 Surface Water Related ARARs and TBC Criteria Review

Site contaminants of concern and their maximum discharge limits were listed in Table 7-1 of the City Industries Superfund Site ROD. Per the US EPA's FYR Guidance

document, old standards are to be compared to new standards to evaluate whether or not the newer standards are more stringent and whether or not the remedy can attain the more stringent standards. Florida received general NPDES permitting authority in 1994, therefore, Florida's Freshwater Surface Water Cleanup Target Levels (FWSWCTLs), promulgated in Chapter 62-777, FAC (August 1999) were evaluated against the prior federal Ambient Water Quality Criteria (AWQC). In comparing the original 1990 federal AWQCs to the applicable 1999 Florida FWSWCTLs, effluent discharge limits have changed for 9 COCs. Changes in the effluent discharge criteria are shown on Table 3.

The January 2004 revision to the NPDES permit established the FWSWCTL for 1,1-DCE and 1,4-dioxane as discharge criteria. When the Florida effluent standards are more stringent than the criteria originally identified in the ROD/ESD, the next step is to evaluate whether or not the treatment system is meeting the more stringent standard.

Based upon information provided in recent sampling events, the current treatment system is meeting the more stringent Florida FWSWCTLs.

Table 3 - NPDES Effluent Discharge Criteria

Target Compound	Effluent Discharge Criteria[1]	FDEP FWSWCTLs
Acetone	88,000	**1,692**
Benzene	53	**≤71.28***
1,1-Dichloroethane (1,1-DCA)	1,160	NA
1,1-Dichloroethene (1,1-DCE)	303	**≤3.2***
trans-1,2-Dichloroethene	1,160	11,000
cis-1,2-Dichloroethene	1,160	NA
1,4-dioxane[2]	-	**245**
Ethyl benzene	453	605
Methylene Chloride (Dichloromethane)	1,100	**£1,580***
Methyl Ethyl Ketone (MEK)	56,400	120,000
4-Methyl-2-pentanone (MIBK)	42,800	**23,000**
Tetrachloroethene (PCE)	84	**≤8.85***
Toluene	175	475
1,1,1-Trichloroethane (TCA)	530	**270**
Trichloroethene (TCE)	4,500	**£80***
Vinyl Chloride (VC)	525	**NA**
Xylenes, Total	260	370

Notes: All concentrations in micrograms per liter (pg/L)
FDEP - Florida Department of Environmental Protection
EPA - Environmental Protection Agency
FWSWCTL- Freshwater Surface Water Cleanup Target Level; Chapter 62-777, F A C , August 1999
1 - Established in ROD, 1990, Amended in ESD, 1994.
2 - Added to the Chemical of Concern List as a monitored compound in the *Remedial System Operations & Maintenance Manual,* EPA 1996
* - Annual average concentration over 12 months.

7.2.4 Groundwater Related ARARs and TBC Criteria Review

The ROD identifies several different groundwater standards as influent standards for the site. The standards are based on the following criteria:

- Reference Dose (RfD) Limits from IRIS
- Florida Primary Drinking Water Standards
- Federal Primary Drinking Water Standards
- Proposed Federal Maximum Contaminant Level Goals (MCLGs)
- US EPA Office of Drinking Water Lifetime Health Advisory risk levels (for 10^{-6} risk level)

The US EPA MCLs for three COCs have changed from the levels established in the ROD/ESD. The changes are for trans-1,2-DCE, Toluene, and total Xylenes. Additionally, 1,4-dioxane has been added as a monitored compound for the site. Florida adopted GCTLs in 1999; which established levels for 1,4-dioxane, Ethyl benzene, Toluene and total Xylenes that are lower than the US EPA MCLs. The following table shows the new criteria

Table 4 - Influent Cleanup Criteria

[illegible]	[illegible]	[illegible]	[illegible]
Acetone	700	700	NS
Benzene	1	1	5
1,1-Dichloroethane (1,1-DCA)	5	70	NS
1,1-Dichloroethene (1,1-DCE)	7	7	7
trans-1,2-Dichloroethene	70	100	100
Cis-1,2-Dichloroethene	70	70	70
1,4-dioxane*	-	5	NS
Ethyl benzene	700	30	700
Methylene Chloride (Dichloromethane)	5	5	5
Methyl Ethyl Ketone{MEK)	200	4200	NS
4-Methyl-2^0entanone (MIBK)	350	560	NS
Tetrachloroethene (PCE)	3	3	5
Toluene	2,000	40	1000
1,1,1-Trichloroethane (TCA)	200	200	200
Trichloroethene (TCE)	3	3	5
Vinyl Chloride (VC)	1	1	2
Xylenes, Total	-	20	10000

Notes: All concentrations in micrograms per liter (ug/L)

FDEP - Florida Department of Environmental Protection

EPA - Environmental Protection Agency

GCTL - Groundwater Cleanup Target Level; Chapter 62-777, F.A.C., August 1999

MCL - Federal Maximum Contaminant Level, EPA Summer 2002

NS - No standard

1 - Established in ROD, 1990, Amended in ESD, 1994.

2 - Added as a monitored compound in the *Remedial System Operations & Maintenance Manual,* EPA 1998.

The ROD established a cleanup level for Toluene at 2000 |ig/L; the current MCL is 1000 ng/L. This level is more stringent than the previously established level; therefore, an evaluation as to whether or not the remedy is attaining the more stringent standard is required. Based on a review of the influent concentrations shown in Attachment 4, the maximum concentration detected was 220 µg/L in 1994. Therefore, the remedy is attaining the lower standard.

Total Xylenes were added to the list of COCs in the 1994 ESD. Since this date the EPA MCL has been established at 10,000 µg/L. As seen from Attachment 4, the maximum total Xylenes concentration detected in the influent was 80)xg/L in 1994. The remedy is capable of attaining the more stringent standard.

7.2.5 Safe Drinking Water Act

The feasibility study to determine the appropriate clean-up alternative included measures to ensure conformance with the Safe Drinking Water Act (SDWA). The selected remedy assures that drinking water supplied to current well users will meet available MCLs under the SDWA. For those chemicals that do not have assigned MCLs, to-be-considered health-based values will be attained. Discharge from the groundwater treatment system will meet NPDES permit discharge limits under the Clean Water Act (CWA). The CWA is an applicable requirement, while the SDWA MCLs is relevant and appropriate.

7.2.6 National Pollutant Discharge Elimination System

The chosen alternative includes discharging the effluent stream into the Crane Strand Drainage Canal; therefore, a NPDES permit is required and is regulated by the FDEP.

7.2.7 Clean Water Act

Groundwater remediation was aimed at source control, and implementation of the recommended alternative resulted in an end to potential contamination of surface water.

7.2.8 Resource Conservation and Recovery Act

The requirements of RCRA are applicable to RCRA-characterized or listed hazardous wastes (40 CFR Part 261) which were recycled and of disposed at the site until August, 1983.

7.2.9 Florida Department of Environmental Protection

Compliance with other environmental laws includes monitoring of the effluent discharge into the Crane Strand Drainage Canal is regulated by the FDEP NPDES Industrial Waste Water Compliance Section.

7.2.10 General ARAR and TBC Criteria Related Protectiveness Summary

Currently, the remedy is protective as pertains to ARAR-related issues. The treatment system is meeting current surface water discharge limits, even those more stringent limits established by post-ROD regulations. Established cleanup criteria are consistent with current standards, with the exception of Toluene and total Xylenes; however, there is no reason to believe the system can not continue to meet the more stringent standards.

7.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No ecological targets were identified during the baseline risk assessment and none were identified during the second FYR; therefore, monitoring of ecological targets is not necessary. All surface water samples analyzed for the Whole Chronic Toxicity Tests found no contamination of the surface water. No weather-related events have affected the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

7.4 Technical Assessment Summary

According to the data reviewed, the site inspection, and the interviews, the remedy is functioning as intended by the ROD and modified by the ESD. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. Most ARARs for groundwater contamination cited in the ROD are being achieved. There have been no changes in the toxicity factors for the COCs that were used in the baseline risk assessment, and there have been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy. The remedy can meet the more stringent criteria of the ARARs that have changed sine the RA cleanup criteria were established. There is no other information that calls into question the protectiveness of the remedy.

8.0 ISSUES

Table 5 - Issues

Issue	Currently Affects Protecriveness (Y/N)	Affects Future Protectiveness (Y/N)
No cleanup level has been established for Total Xylenes for this site.	N	N
1,4-dioxane has been identified in the groundwater at the site. NPDES permit established effluent discharge criteria in 2004. The remedy does not treat the contaminant. Should the EPA adopt cleanup levels for the compound; the remedy and potential risks will need to be evaluated. Current sampling analytical method does not achieve a reporting limit low enough for appropriate quantification of the contaminant.	N	Y
Trespassers using effluent discharge for washing. Institutional controls may need to be modified.	N	Y
Potential monitoring data gaps. Destroyed wells at plume perimeter. Breakthrough of contaminants in down gradient sentinel wells.	N	N
Reduce the number of wells sampled. Consider abandoning any extraction and/or monitoring wells deeded unnecessary or permanently damaged.	N	N
Stagnant area in center of plume.	N	N
Monitoring wells in Forsyth Road may be destroyed during road construction. Dewatering activities may cause contact of workers with the plume.	N	N

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Table 6 - Recommendations and Follow-Up Actions

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
No cleanup level has been established for Total Xylenes at this site.	None needed. Influent levels are below the standard.	EPA	State/EPA		N	N
1,4-dioxane- Current sampling analytical method does not achieve a reporting limit low enough for proper quantification.	Sample MWs and RWs using a method with a lower reporting limit to determine extent of the plume.	PRPs	State/EPA	November 2004	N	Y
Trespassers using effluent discharge for washing.	Warning sign has been posted. Watch for evidence of further use. May need to modify controls.	PRPs	State/EPA	December 2004	N	Y
Potential monitoring data gaps	MW-20D and MW-6S need to be repaired or replaced. Down gradient sentinel well may be needed.	PRPs	State/EPA	December 2004	N	N
Road construction on Forsyth Road.	Dewatering activities need to be monitored; possible exposure of workers to plume. Any destroyed wells need to be replaced.	PRPs	State/EPA	2004 - 2005	N	N
Stagnant area in center of plume.	Groundwater modeling to optimize the pumping scheme to capture this area.	PRPs	State/EPA	December 2004	N	N
Reduce the number of wells sampled.	Based on results of 14th Semi-annual sampling and 1,4-dioxane data, eliminate wells from sampling program.	PRPs	State/EPA	January 2005	N	N

10.0 PROTECTIVENESS STATEMENT

The remedy is expected to be protective of human health and the environment upon attainment of groundwater cleanup goals, through pump and treat, which is expected to require 15 years to achieve, hi the interim, exposure pathways that could result in unacceptable risks are being controlled and institutional controls are preventing exposure to, or the ingestion of, contaminated groundwater. All threats at the site have been addressed through the installation of fencing and warning signs, and the implementation of institutional controls.

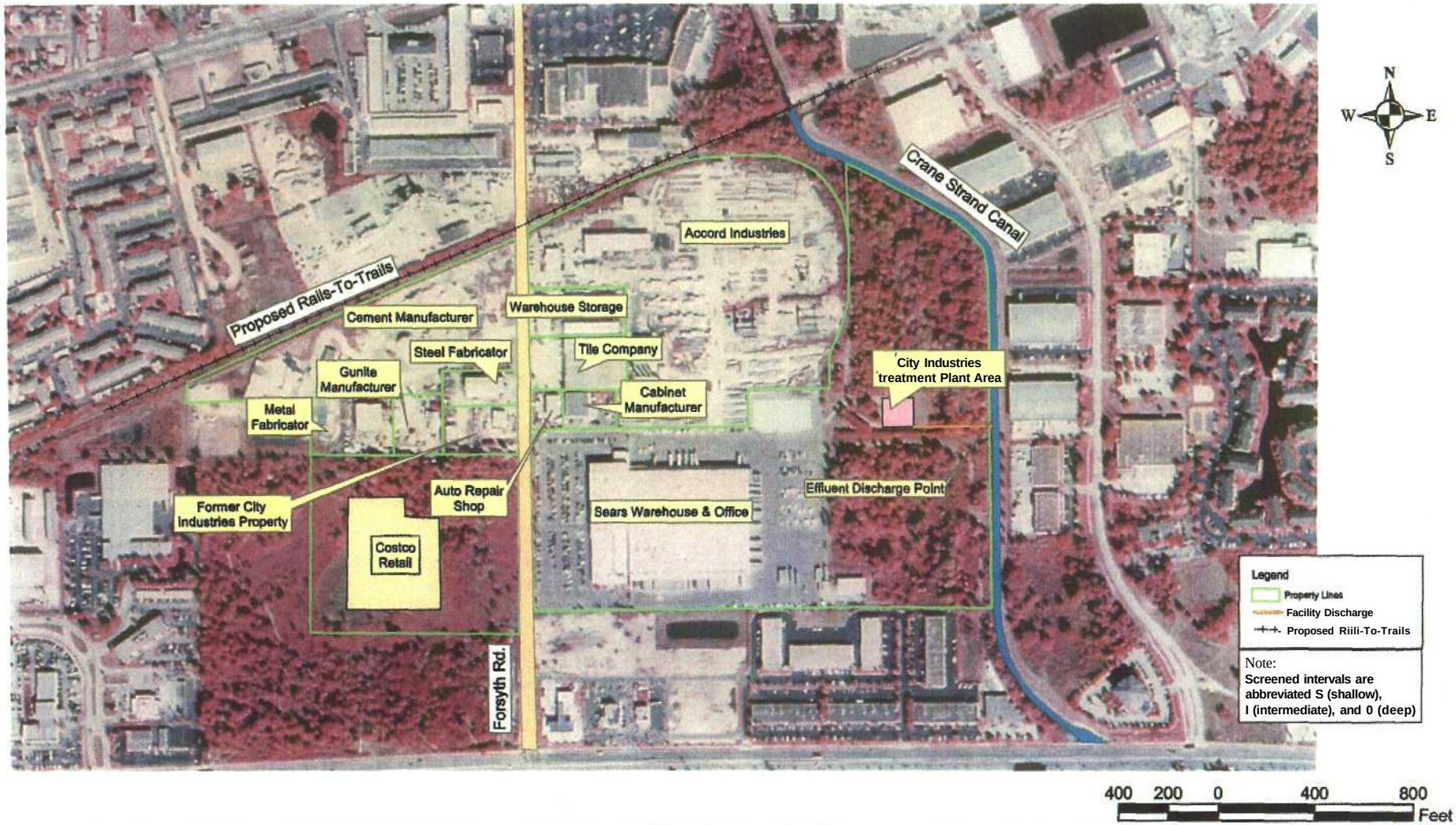
Long-term protectiveness of the remedial action will be verified by obtaining additional groundwater samples to fully evaluate potential migration of the contaminant plume down gradient from the treatment area and towards the canal. Current data indicate that the plume remains on site. Additional sampling and analysis will be completed within the next six months. Current monitoring data indicate that the remedy is functioning as required to achieve groundwater cleanup goals.

11.0 NEXT FIVE-YEAR REVIEW

The next FYR for the City Industries Superfund Site is required by September 2009, five years from the date of this review.

ATTACHMENT 1

SITE VICINITY MAP

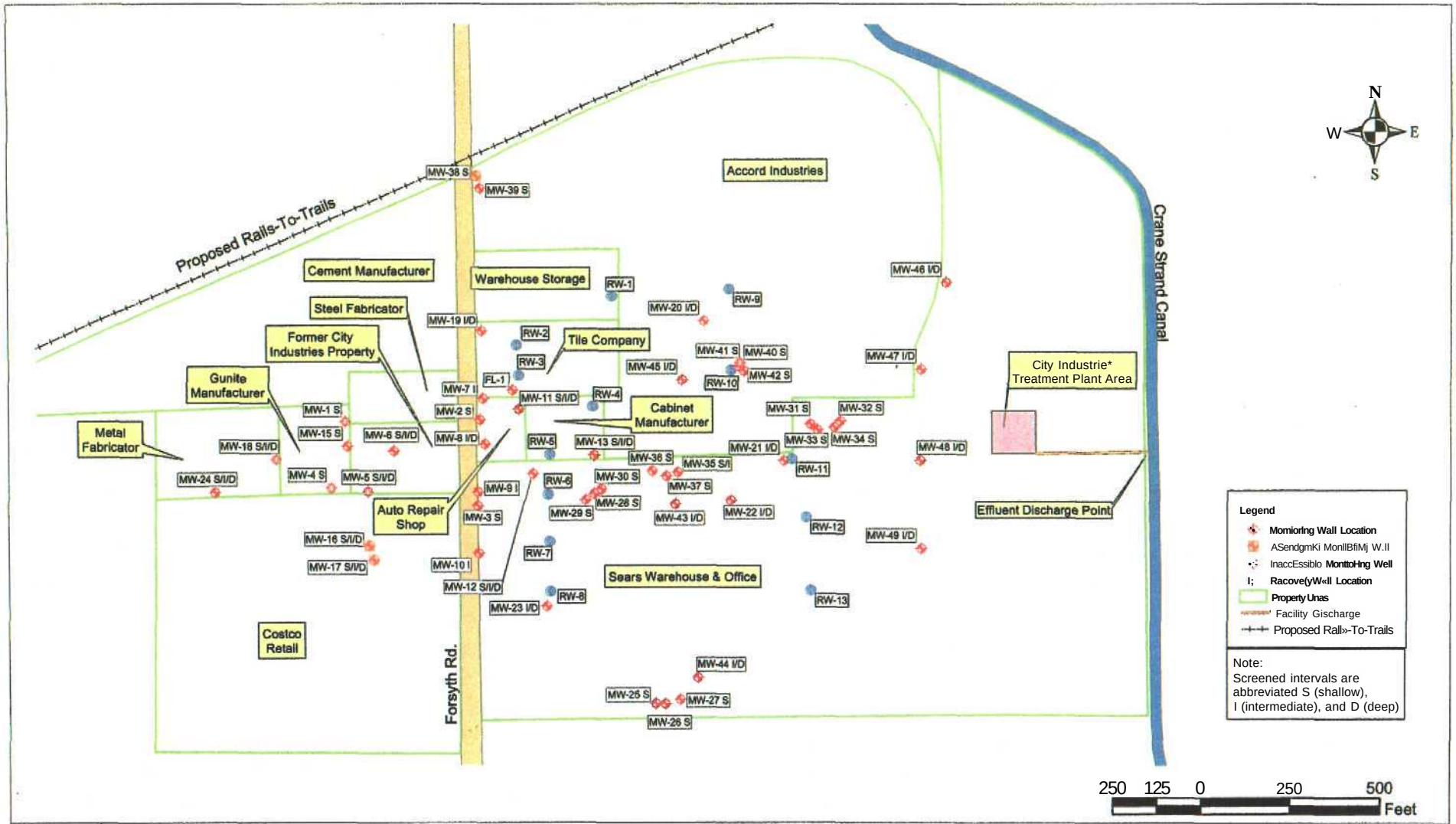


Site Vicinity Map
City Industries Superfund Site
Winter Park, Orange County, Florida

Figure **1**

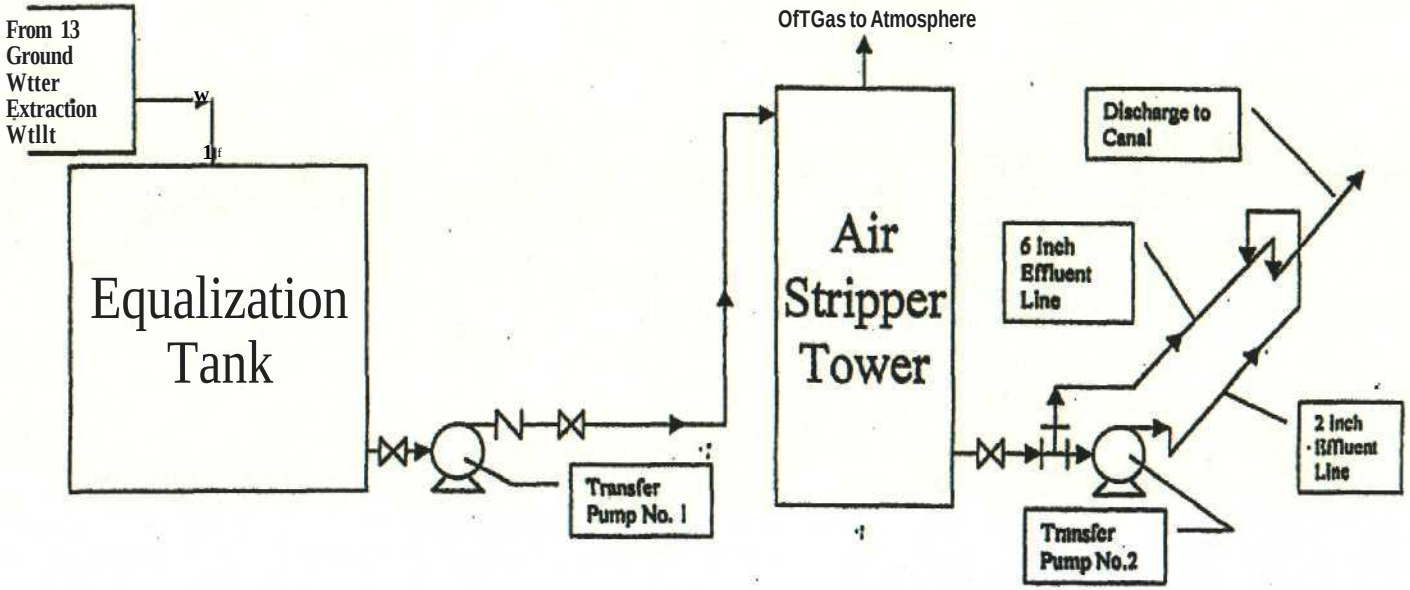
ATTACHMENT 2

SITE PLAN
SITE SCHEMATIC



Site Layout Map
City Industries Superfund Site
Winter Park, Orange County, Florida

Figure 2



	TREATMENT SYSTEM SCHEMATIC **CITY INDUSTRIES SUPERFUND** **WINTER PARK, ORANGE COUNTY, FLORIDA**	**FIGURE 3**

ATTACHMENT 3

SITE PHOTOGRAPHS


PHOTO 1

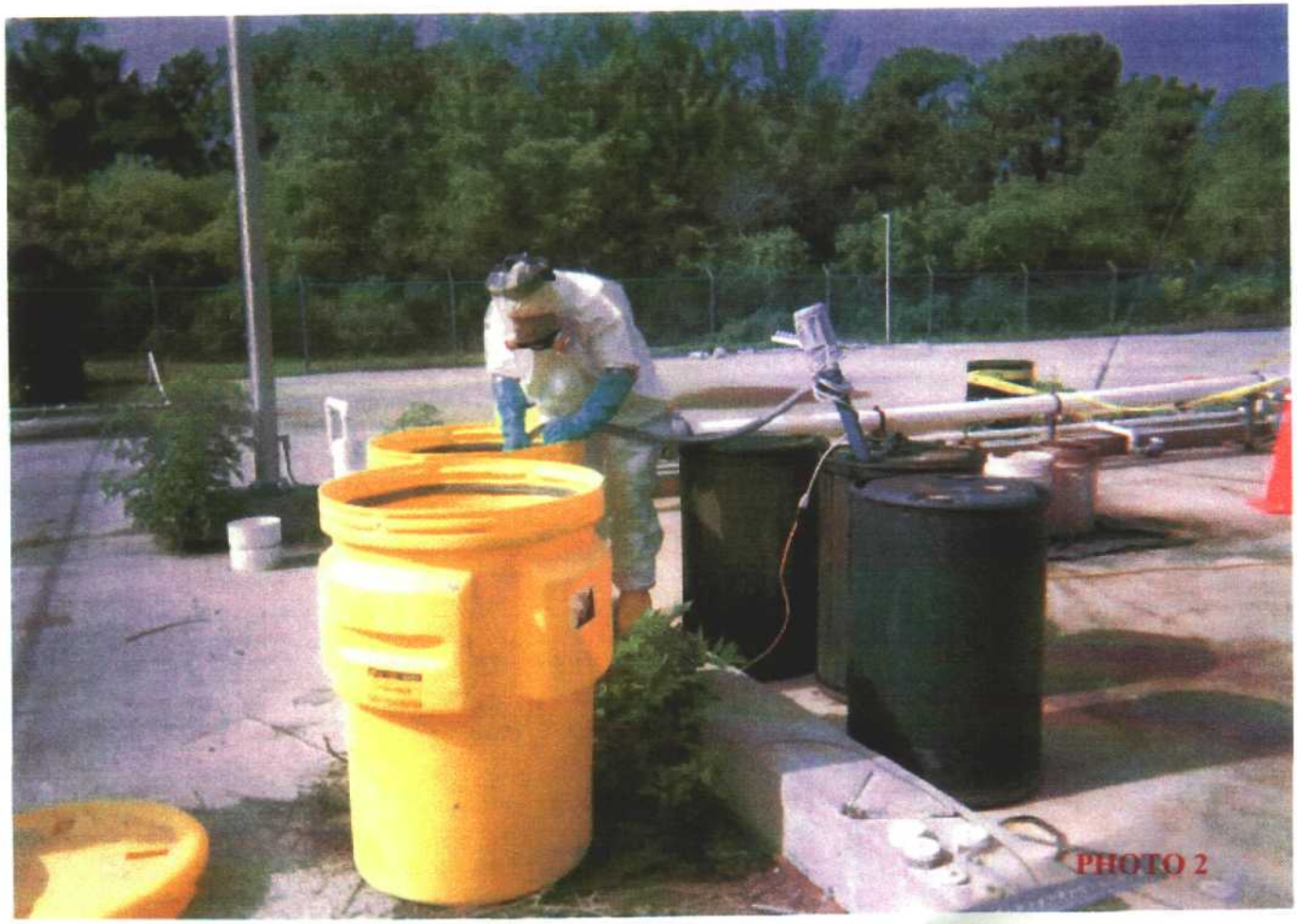


PHOTO 2

PHOTO 3

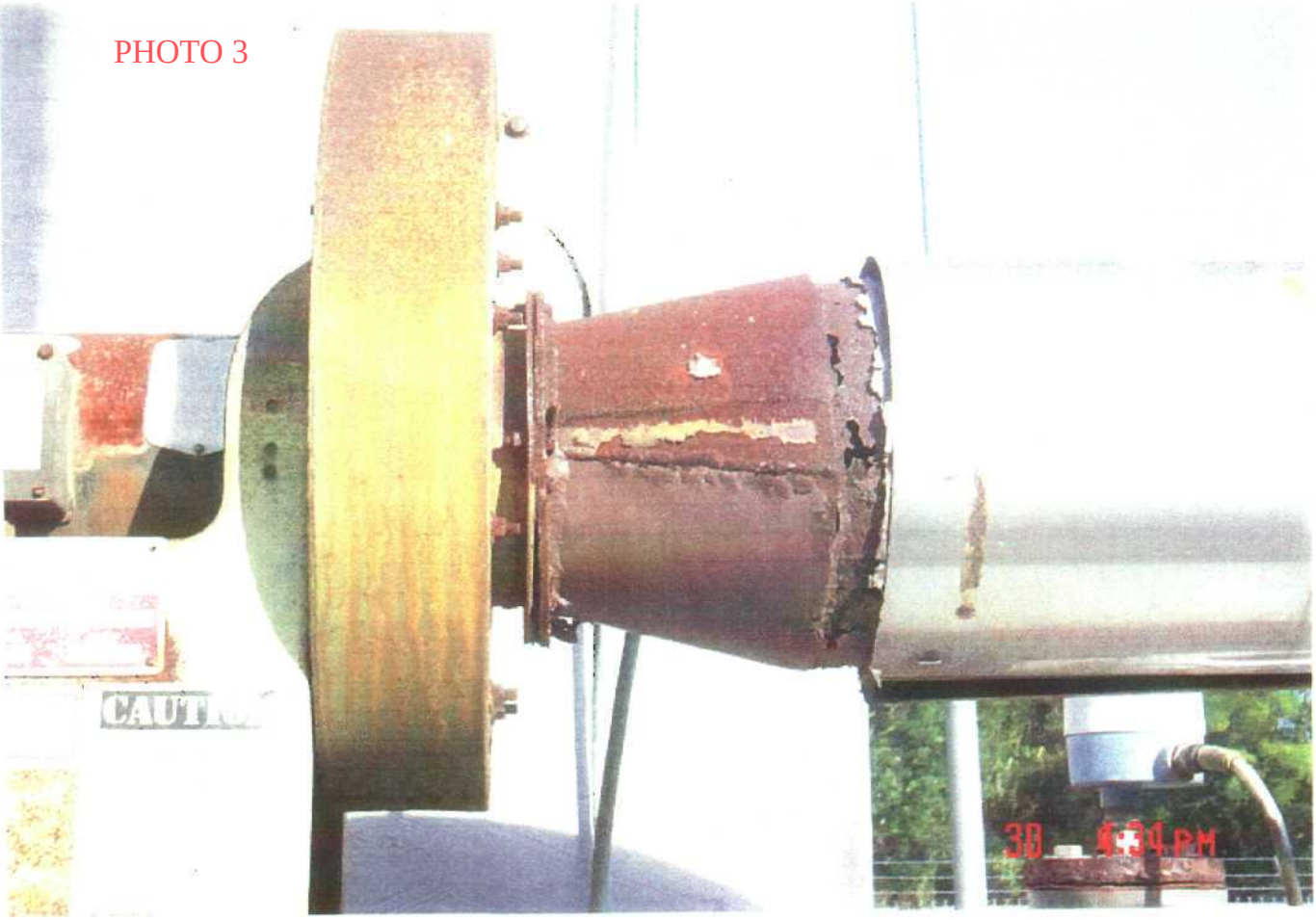


PHOTO 4

PHOTO 5

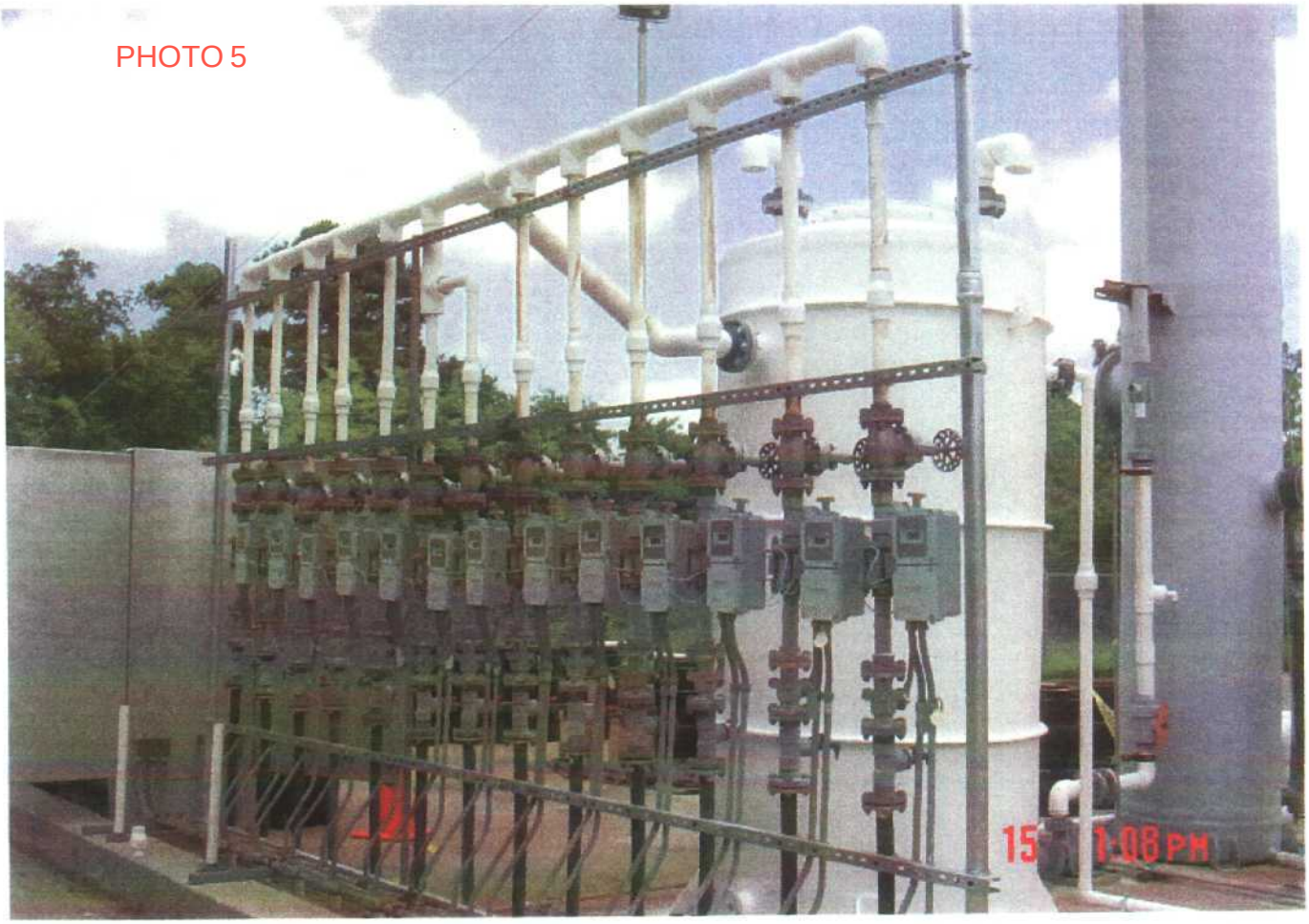


PHOTO 6

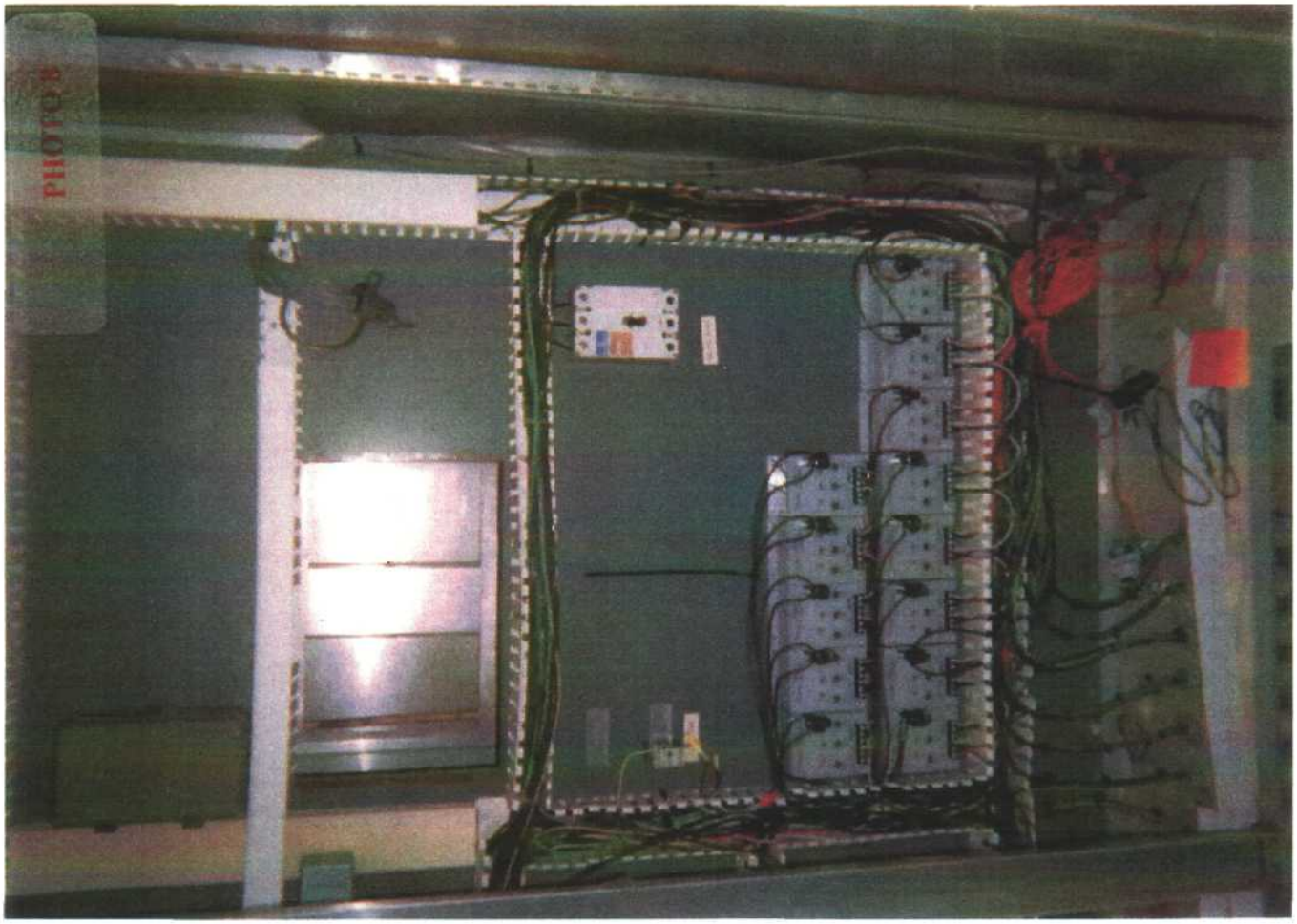


PHOTO 8

PHOTO 7

ATTACHMENT 4

GROUNDWATER QUALITY
INFLUENT AND EFFLUENT DATA SUMMARY

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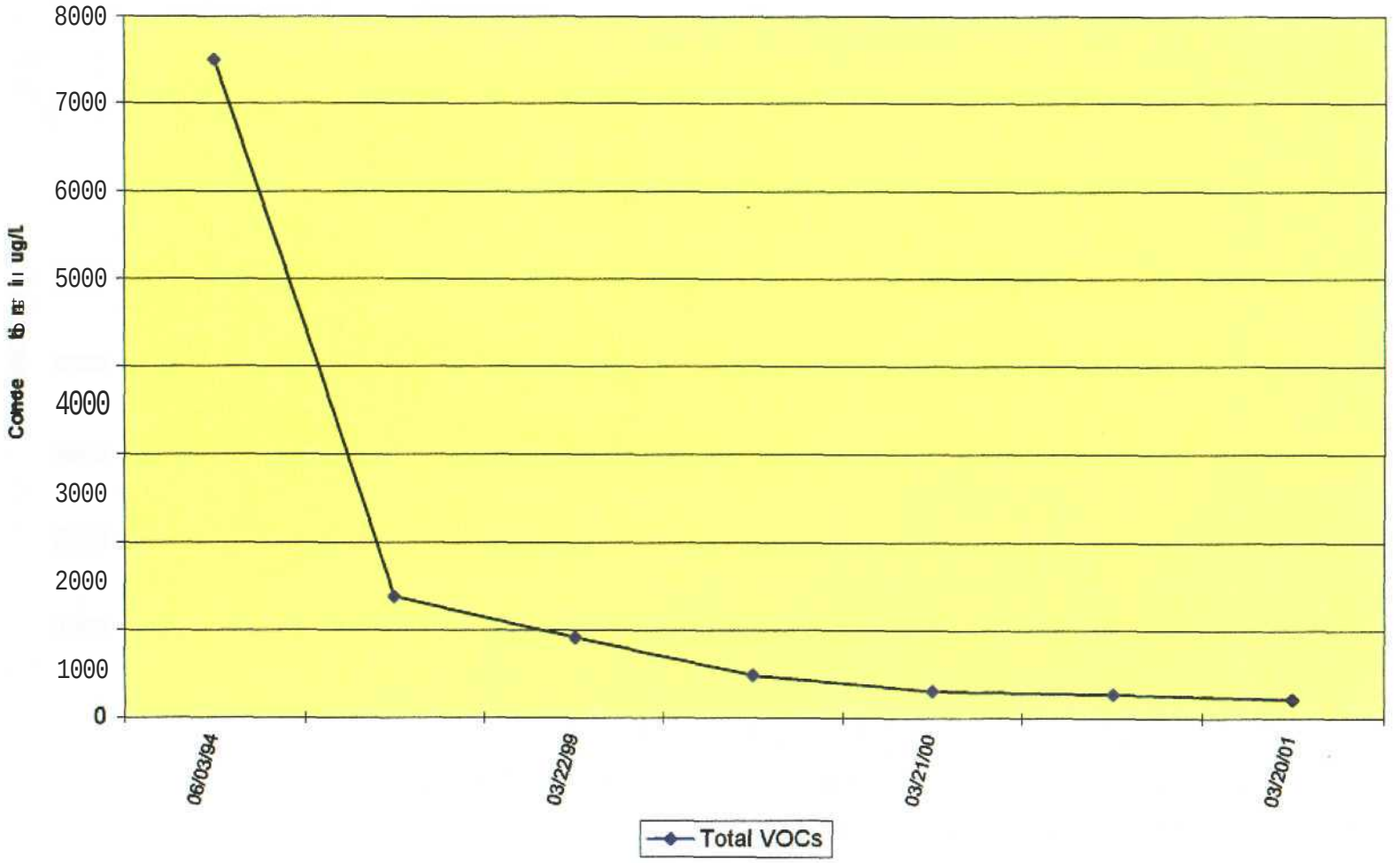
ATTACHMENT 4
GROUNDWATER QUALITY COMPARISON DATA
INFLUENT AND EFFLUENT VOC CONCENTRATIONS (ug/L)
1994-2004

•Hffg|*V« Compotmtfj^H	Date Sampled													
	06/03/94		03/22/99		03/21/00		03/20/01		03/2 1ST		03/18/93		03Q2/04	
	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent
Acetone	~2400	*1080*	**180**	r **<so**	**<S0**	*<50*	M —	*<S0*	**<S0**	*<50*	**<50**	<50	<50	**<SO**
Benzene	8	***ND***	**2**	***<1***	2	<f	1	*<1*	<1	***<1***	<1.0	***<1.0***	<1.0	***<1.0***
Methyl Ethyl Ketone (MEIC	144	29	16	***<10***	**<25**	***2S***	<25	***<25***	*2S	***26***	<10	***<10***	<10	***<10***
1,1-D(chloroethane (1.1.-DCA)	96	***4***	24	***<1.0***	19	***<1***	13	***<1***	8.4	***<1***	10	***S.7***	6	***<1.0***
1,1-Dichloroethene (1.1-DCE)	680	***ND***	79	***<1.0***	61	***<1***	34	***<1***	33	***<1***	34	**ar**	21	***<1.0***
Cis-1,2-DIchlorOettiene	1690	***114***	**290**	***4***	180	***<1***	100	***<1***	77	***2.S***	66	***31***	36	***<1.0***
Tran»-1.,2-Dichtoroettiene	ND	***ND***	<1	<1	<1	***<1***	=1	***<1***	<1	***<1***	<1.0	***<1.0***	<1.0	***<1.0***
1,4-Dioxane	1720	***1780***	**400**	***390***	420	***4*0***	180	***130***	94	S5	**88**	***80***	72	95
Ethyl Benzene	22	***ND***	8	***<1***	7	***<1***	4	***<1***	3.6	<J	3.0	***<1.0***	3.1	***<1.0***
Uethytene Chloride (DIchloromethane)	63	***S***	**<to**	<^Q	<10	***<10***	<10	***<10***	<10	***<10***	<5.0	***<5.0***	**<s.o**	***<5.0***
4-Methy-2-pent»none (MIBK)	**324**	52	83	***^10***	19	<26	<25	«25	<25	***<2$***	<25	<2S	<2S	<25
Tetrachloroethene (PCE)	10	ND	2	***<1***	3.0	***<1***	2	***<1***	2.6	***<1***	4.7	***1.9***	**4.7**	***<1.0***
Toulane	221	8	62	<J	43	***<.1***	20	***<2***	**10**	***<1***	6.2	***<1.0***	1.6	***<1.O***
1,1,1-Trichloroethane (TCAJ	10	NO	<1	***<1***	1	***<1***	1	<1	1.3	***<1***	1.9	***<1.0***	*1.0	***<1.0***
Trlchksroethene (TCE)	**134**	***3***	14	***<1***	26	***<1***	20	***<1***	24	***<1***	20	9.9	29	***^1,0***
Vinyl Chloride (VC)	**ND**	***ND***	190	<J	120	<f	42	***<1***	39	***<1***	43	***9.8***	28	***^1.0***
Xylenes (total)	80	***ND***	27	***<2***	22	***<2***	**11**	***<2***	9.2	***<3***	6.6	***<2.Q***	9.2	***<2.0***
Others	ND	***ND***	<1	***<1***	<1	<(	**6**	***<1***	6.8	***<1***	3.0	***<1.0***	2.7	***<1.0***
Total VOCs	**7502**	***3045***	**1379**	***394***	**913**	***4$$***	**487**	***180***	**307.7**	***122.5***	**274.4**	***147***	**213.3**	***95***

Bold **Text** - denotes concentrations levels above the laboratory's method reporting llmi
* - Annual average exoeedence

City Industries Influent Concentrations vs. Time



ATTACHMENT 5

LIST OF DOCUMENTS REVIEWED

List of Documents Reviewed

Administrative Settlement and Consent Decree, City Industries Superfund Site, Winter Park, Orange County, Florida, April 1987- September 1990.

Comprehensive Five-Year Review Guidance, US EPA, June 2001

Explanation of Significant Difference, US EPA, February 1994

Five Year Review for City Industries Superfund Site, Winter Park, Orange County, Florida, US Army Corp. of Engineers, August 1999.

Interim Long -Term Response Action Report, City Industries Superfund Site, February 2000, Organic Waste Technologies (OWT)

Interim Long -Term Response Action Report, City Industries Superfund Site, March 2002, OWT

Interim Long -Term Response Action Report, City Industries Superfund Site, February 2003, OWT

Interim Long -Term Remedial Action Report, City Industries Superfund Site, July 2004, Black & Veatch

Monthly Reports, City Industries Superfund Site, Winter Park, Orange County, Florida March 1999 through May 2004

Revised Operations and Maintenance Manual, August 2004, Black & Veatch

Record of Decision, ROD Decision Summary, City Industries Superfund Site, Winter Park, Orange County, Florida, March 1990.

ATTACHMENT 6

SITE INSPECTION CHECKUST

Site Inspection Checklist

I. SITE INFORMATION

Site name: City Industries Superfund Site	**Date of inspection:** May 20,2004
Location and Region: Winter Park, FL Region 4	**EPA ID:** FL0055945653
Agency, office, or company leading the five-year review: Black & Veatch Special Projects Corp., on behalf of the US EPA, Region 4	**Weather/temperature:** Partly Cloudy / 88

Remedy **Includes:** (Check all that apply)

- • Landfill cover/containment
- • Access controls
- / Institutional controls
- / Groundwater pump and treatment
- • Surface water collection and treatment
- D Other_____
- • Monitored natural attenuation
- *S* Groundwater containment
- • Vertical barrier walls

Attachments: </ Inspection team roster attached • Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** David Behnke (Name) Technician (Title) May 20. 2004 (Date)
   Interviewed / at site D at office D by phone Phone no. 813-657-9742
   Problems, suggestions; / Report attached_____

2. **O&M** staff see above (Name) _____ (Title) _____ (Date)
   Interviewed • at site D at office • by phone Phone no. _____
   Problems, suggestions; • Report attached_____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency United States Environmental Protection Agency. Region 4
Contact Jamev Watt (Name) Region Project Manager (Title) May 20.2004 (Date) 404-562-8920 (Phone no.)
Problems; suggestions; / Report attached
_____
_____
___

Agency L. S. Sims & Associates
Contact Larry S. Sims (Name) President (Title) May 20. 2004 (Date) 321-504-4046 (Phone no.)
Problems; suggestions; / Report attached
_____
_____
___

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; D Report attached
_____
_____
___

Agency._____
Contact _____ _____ _____ _____
Name Tide Date Phone no.
Problems; suggestions; D Report attached
_____
_____
___

4. **Other interviews** (optional) • Report attached.

HI. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M **Documents**

/ O&M manual / Readily available / Up to date D N/A
/ As-built drawings / Readily available / Up to date D N/A
/ Maintenance logs / Readily available / Up to date **a N/A**
Remarks O&M Manual Revised August 2004: Revised As-Builts May 2004

2. Site-Specific **Health and Safety Plan** / Readily available / Up to date DN/A
/ Contingency plan/emergency response plan / Readily available / Up to date D N/A
Remarks Revised March 2003

3. **O&M and OSHA Training Records** / Readily available / Up to date **a N/A**
Remarks

4. **Permits and Service Agreements**

D Air discharge permit • Readily available • Up to date /N/A
/ Effluent discharge / Readily available / Up to date DN/A
D Waste disposal, POTW • Readily available • Up to date /N/A
/ Other permits Consumptive Use Pernit / Readily available / Up to date D **N/A**
Remarks

5. **Gas Generation Records** D Readily available D Up t<)datc /N/A
Remarks

6. **Settlement Monument Records** D Readily available D Up to date /N/A
Remarks

7. **Groundwater Monitoring Records/** Readily available / Up to date • N/A
Remarks Monthly Reports and LTRAs

8. **Leachate Extraction Records** D Readily available D Up to date /N/A
Remarks

9. **Discharge Compliance Records**

• Air • Readily available **n** Up to date /N/A
/ Water (effluent) / Readily available / Up to date DN/A
Remarks NPDES DMRs

10. **Daily Access/Security Logs** D Readily available • Up to date /N/A
Remarks

IV. O&M COSTS

1. O&M Organization
D State in-house • Contractor for State
• PRP in-house / Contractor for PRP
• Federal Facility in-house D Contractor for Federal Facility
/ Other Contractor for US EPA Region 4

2. O&M Cost Records
/ Readily available / Up to date
/Funding mechanism/agreement in place
Original O&M cost estimate $235.891/Yearor$1.17M/5YR • Breakdown attached

Total annual cost by year for review period if available

From	3/12/99 Date	To	3/11/00 Date	$165.692.00 Total cost	• Breakdown attached
From	3/12/00 Date	To	3/11/01 Date	$173,378.00 Total cost	• Breakdown attached
From	3/12/01 Date	To	3/11/02 Date	$170.558.00 Total cost	• Breakdown attached
From	3/12/02 Date	To	3/11/03 Date	$184.574.00 Total cost	• Breakdown attached
From	3/12/03 Date	To	8/27/04 Date	$434.987.00 Total cost	• Breakdown attached

$1.3M/5yr

3. Unanticipated or Unusually High O&M Costs During Review Period
Describe costs and reasons: Replacement of the Air Stripper tower packing media — bought new packing media, the changing of the packing media was more time and labor intensive than in the previous FYR period. Repair of outdated electronic controls with new updated ones. Upgrades and Modifications made to the system components (EO tank, controllers, pumps, computer remote access and telemetry system. Sampling for natural attenuation parameters (13th event). Retesting for failed Whole chronic Toxicity Test in 2003/2004,

V. ACCESS AND INSTITUTIONAL CONTROLS /Applicable DN/A

A. Fencing

1. Fencing damaged / Location shown on site map / Gates secured DN/A
Remarks

B. Other Access Restrictions

1. Signs and other security measures / Location shown on site map DN/A
Remarks Replaced site access sign (was illegible) and placed warning sign at effluent discharge to deter trespassers from washing in the effluent.

C. Institutional Controls (ICs)

1. Implementation and enforcement

Site conditions imply ICs not properly implemented • Yes DNo /N/A

Site conditions imply ICs not being fully enforced • Yes DNo /N/A

Type of monitoring *(e.g.,* self-reporting, drive by) _____

Frequency

_____

Responsible party/agency

_____

Contact _____ _____ _____

_____

Name Title Date Phone no.

Reporting is up-to-date • Yes • No D N/A

Reports are verified by the lead agency • Yes • No • N/A

Specific requirements in deed or decision documents have been met • Yes • No • N/A

Violations have been reported • Yes • No • N/A

Other problems or suggestions: • Report attached

_____

_____

_____

_____

2. Adequacy • ICs are adequate • ICs are inadequate /N/A

Remarks_____

_____

_____

D. General

1. Vandalism/trespassing / Location shown on site map • No vandalism evident

Remarks Evidence of trepassing: homeless people are camping on the Sears property and washing in the effluent discharge.

2. Land use changes on site • N/A

Remarks The former City Industries property is now being leased by a landscaping company and a residential / commercial extermination company _____

_____

3. Land use changes off site • N/A

Remarks Costco Wholesale company built an outlet on the property adjacent to the south of the City Industries property. Light Industrial/ Food Retailers developed the property adjacent to the south side of Sears (Universal and Forsyth *area).* Orange County actively widening Forsyth Road from Colonial (US 501 north to Aloma.

VL GENERAL SITE CONDITIONS

A. Roads / Applicable D N/A

1.	Roads damaged	O Location shown on site map	</ Roads adequate	D N/A

Remarks_____

_____

B. Other Site Conditions

Remarks ___

VII. LANDFILL COVERS • Applicable / N / A

A. Landfill Surface

1. Settlement (Low spots) • Location shown on site map D Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. Cracks • Location shown on site map • Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. Erosion • Location shown on site map P Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. Holes • Location shown on site map • Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. Vegetative CoverD Grass • Cover properly established • No signs of stress
   • Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. Alternative Cover (armored rock, concrete, etc.) D N/A
   Remarks_____

7. Bulges D Location shown on site map • Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. Wet Areas/Water Damage — P Wet areas/water damage not evident
- • Wet areas — • Location shown on site map — Areal extent_____
- D Ponding — • Location shown on site map — Areal extent_____
- *0* Seeps — • Location shown on site map — Areal extent_____
- • Soft subgrade — • Location shown on site map — Areal extent_____

Remarks_____

9. Slope Instability — D Slides — D Location shown on site map — D No evidence of slope instability
Areal extent_____
Remarks_____

B. Benches — D Applicable — • N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. Flows Bypass Bench — D Location shown on site map — • N/A or okay
Remarks_____

2. Bench Breached — • Location shown on site map — • N/A or okay
Remarks_____

3. Bench Overtopped — • Location shown on site map — • N/A or okay
Remarks_____

C. Letdown Channels — • Applicable — *S* N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. Settlement — • Location shown on site map — D No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. Material Degradation — • Location shown on site map — • No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. Erosion — Q Location shown on site map — D No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** • Location shown on site map • No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. Obstructions Type_____ • No obstructions
• Location shown on site map Areal extent_____
Size_____
Remarks_____

6. Excessive **Vegetative Growth** Type_____
• No evidence of excessive growth
D Vegetation in channels does not obstruct flow
D Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations • Applicable / N/A

1. **Gas** Vents D Active P Passive
• Properly secured/locked • Functioning D Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance
a N/A
Remarks_____

2. **Gas Monitoring Probes**
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance DN/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
• Properly secured/locked • Functioning • Routinely sampled D Good condition
• Evidence of leakage at penetration • Needs Maintenance **DN/A**
Remarks_____

4. **Leachate Extraction Wells**
• Properly secured/locked • Functioning D Routinely sampled D Good condition
• Evidence of leakage at penetration • Needs Maintenance **a N/A**
Remarks_____

5. **Settlement Monuments** 0 Located Q Routinely surveyed ON/A
Remarks_____

E. Gas Collection and Treatment • Applicable • N/A

1. Gas Treatment Facilities

• Flaring D Thermal destruction • Collection for reuse

EH Good condition D Needs Maintenance

Remarks_____

_____

2. Gas Collection Wells, Manifolds and Piping

• Good condition • Needs Maintenance

Remarks_____

_____

3. Gas Monitoring Facilities *(e.g.,* gas monitoring of adjacent homes or buildings)

• Good condition D Needs Maintenance • N/A

Remarks_____

_____

F. Cover Drainage Layer • Applicable / N / A

1. Outlet Pipes Inspected • Functioning • N/A

Remarks_____

_____

2. Outlet Rock Inspected • Functioning D N/A

Remarks_____

_____

G. Detention/Sedimentation Foods • Applicable • N/A

1. Siitation Areal extent_____ Depth_____ • **N/A**

• Siitation not evident

Remarks_____

_____

2. Erosion Areal extent_____ Depth_____

• Erosion not evident

Remarks_____

_____

3. Outlet Works D Functioning D N/A

Remarks_____

_____

4. Dam • Functioning • N/A

Remarks_____

_____

H. Retaining Walls • Applicable / N/A

!. Deformations • Location shown on site map • Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks_____

2. Degradation D Location shown on site map • Degradation not evident
Remarks_____

L Perimeter Ditches/Off-Site Discharge **D Applicable** / N / A

1. Siltation • Location shown on site map • Siltation not evident
Areal extent_____ Depth_____
Remarks_____

2. Vegetative **Growth** D Location shown on site map D N/A
• Vegetation does not impede flow
Areal extent_____ Type_____
Remarks_____

3. Erosion • Location shown on site map • Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. Discharge Structure • Functioning D N/A
Remarks_____

VIII. VERTICAL BARRIER WALLS • Applicable / N / A

1. Settlement D Location shown on site map • Settlement not evident
Areal extent_____ Depth_____
Remarks_____

2. Performance Monitoring Type of monitoring_____
• Performance not monitored
Frequency_____ • Evidence of breaching
Head differential_____
Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES /Applicable DN/A

A. Groundwater **Extraction Wells, Pumps, and Pipelines** • Applicable D N/A

1. Pumps, Wellhead Plumbing, and Electrical

J Good condition / All required wells properly operating • Needs Maintenance • N/A

Remarks_____

_____

_____

_____

2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances

/ Good condition • Needs Maintenance

Remarks_____

_____

_____

3. Spare Parts and Equipment

/ Readily available / Good condition • Requires upgrade D Needs to be provided

Remarks_____

_____

_____

B. Surface Water Collection Structures, Pumps, and Pipelines **D Applicable** **• N/A**

1. Collection Structures, Pumps, and Electrical

• Good condition • Needs Maintenance

Remarks_____

_____

_____

2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

• Good condition • Needs Maintenance

Remarks_____

_____

_____

3. Spare Parts and Equipment

• Readily available • Good condition • Requires upgrade D Needs to be provided

Remarks_____

_____

_____

C. **Treatment** System / Applicable • N/A

I. Treatment **Train** (Check components that apply)

• Metals removal • Oil/water separation • Bioremediation
/ Air stripping • Carbon adsorbers
D
Filters_____
D Additive *(e.g.,* chelation agent, flocculent)_____
D
Others_____
/ Good condition • Needs Maintenance
1/ Sampling ports properly marked and functional
S Sampling/maintenance log displayed and up to date
S Equipment properly identified
/ Quantity of groundwater treated annually ^ 52.56 million gallons year
P Quantity of surface water treated annually N/A
Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)

• N/A D Good condition / Needs Maintenance
Remarks Exterior panel handles need to be repaired / replaced with new

3. **Tanks, Vaults, Storage** Vessels

• N/A / Good condition *S* Proper secondary containment • Needs Maintenance
Remarks New FRP EO tank recently installed

4. **Discharge Structure and Appurtenances**

• N/A </ Good condition • Needs Maintenance
Remarks_____

5. **Treatment Building(s)**

/ N/A • Good condition (esp. roof and doorways) • Needs repair
• Chemicals and equipment properly stored
Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)

S Properly secured/locked </ Functioning *S* Routinely sampled </ Good condition
•/ All required wells located / Needs Maintenance • N/A
Remarks MW-6S and MW-20D. cracked well casing and filled in. Need to be replaced. MW-38S destroyed while Orange County contractor was installing a new lift station for the City of Winter Park.

D. Monitoring Data

1. Monitoring Data

/ Is routinely submitted on time ✓ Is of acceptable quality

2. Monitoring data suggests:

/ Groundwater plume is effectively contained / Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

- Properly secured/locked
- Functioning
- Routinely sampled
- D Good condition
- All required wells located
- Needs Maintenance
- /N/A

Remarks_____

_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). Remedy is to provide containment of the contamination plume and to provide treatment of the groundwater withdrawn. Remedy is functioning as designed and is protective of human health and the environment.
B.	**Adequacy** of O&M
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. O&M at the site appears to be adequate at this time.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None observed at time of this inspection.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. A review of the analytical data indicates that some of the monitoring well contamination levels are at or below those stated in the FAC 62.777. Hence, the recovery wells in those areas can be removed from the active remediation and enter into Natural Attention monitoring.

ATTACHMENT 7

SITE INTERVIEW FORMS

INTERVIEW DOCUMENTATION FORM

The following is a list of individual interviewed for this five-year review, See the attached contact record(s) for *i*i detailed summary of the interviews.

Name	Title/Position	Organization	Date
David Behnke	Site Manager	Black & Veatch	5/20/04
Larry Sims	PRPs Consultant/President	L. S. Sims & Associates	5/20/04
Jamey Watt	RPM	US EPA	5/20/04

INTERVIEW RECORD

Site Name: City Industries Superfund Site		**EPA** HI No.: FL0055945653
Subject: Five Year Review - Second	**Time:** 1100	**Date:** 5/20/04
Type: **a** Telephone • Visit **a** Other **Location of Visit:** City Industries Superfund Site		**o** Incoming n Outgoing

Contact Made *By:*

Name: **Daralene Pondo**	**Title: Site Project Manager**	**Organization: Black & Veatch**

Individual Contacted:

Name: Larry Sims	**Title: President**	**Organization: L. S. Sims & AMOC.**

Telephone No: 321-504-4046 **Fax No: 321-504-4035** **E-Mail Address: lssims@simseDv.com**	**Street Address: 1530 US Highway 1** **City, State, Zip: Rockledge, FL 32955**

Summary Of Conversation

Effectiveness of the Remedy.
Transference of the O&M responsibilities from the US EPA to the PRPs.
Transference of all existing permits from Black & Veatch to L. S. Sims & Associates.
The widening of Foisyth Rd and the effect it could have **on** the remedy.
Operationai changes due the system modifications and upgrades.

INTERVIEW RECORD

Site Name; City Industries Superfund Site		**EPA IB** No.: FL0055945653
Subject: Five Year Review - Second		**Time:** 1100 **Date:** 5/20/04
Type: **a** Telephone /Visit **a** Other **Location of Visit:** City Industries Superfund Site		**o** Incoming • Outgoing
Contact Made By:		
Name: Daralene Pondo	**Title: Site Project Manager**	**Organization: Black** & Veatch
Individual Contacted:		
Name: Jamey Watt	**Title: US EPA Remedial Project Manager**	**Organization: US EPA, Region 4**
Telephone No: 404-562-K920 **Fax No:** **E-Mail Address: Jamey_Watt@epa.gov**		**Street Address: 61 Forsyth Street** **City, State, Zip: Atlanta, GA 30303**

Summary Of Conversation

Effectiveness of the Remedy.
Transference of the O&M responsibilities from the US EPA to the PRPs.
The widening of Forsyth Rd and the effect it could have on the remedy.
Operational changes due the system modifications and upgrades.
The possibility of Black & Veatch performing the duties of the US Army Corps of Engineers as project overview.
Optimization of the remedy (Natural Attentuation).
Costs of the system upgrades and modifications.
Trespassers at the effluent discharge point.

INTERVIEW RECORD

Site Name: City Industries Superfund Site		**EPA** D> No.: FL0055945653
Subject: Five Year Review - Second	**Time:** 1100	**Date:** 5/20/04
Type: • Telephone /Visit **a** Other **Location of Visit:** City Industries Superfund Site		□ Incoming • Outgoing

Contact Made By:

Name: Daralene Pondo	**Title: Site Project Manager**	**Organization: Black & Veatch**

Individual Contacted:

Name: David Behnke	**Title: Site Manager**	**Organization: Black & Veatch**

Telephone No: 813-657-9742 **Fax No: 813-689-1257** **E-Mail Address: Behnkedl@bv.com**	**Street Address: 809 E. Bloomingdale** Avc, **#391** **City, State, Zip: Brandon, FL 33594**

Summary Of Conversation

Effectiveness of the Remedy.
Transference of the O&M responsibilities from the US EPA to the PRPs.
The widening of Forsyth Rd and the effect it could have on the remedy.
Operational changes due the system modifications and upgrades.
Summary of system O&M schedules, maintenance routines, problematic components over the last 9 years and operational costs under the other consultants hired by the US EPA.
Trespassers at the effluent discharge.

ATTACHMENT 8

US EPA COMMENT LETTER

UNITED STATI :S ENVIRONMENTAL PRO TECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA. GEORQ1A30303-8330

September 23, 20(4

Daralene Pondo
Black & Veatch Special Projects Corp.
809 E. Bloomingdale Ave., Su ite 391
Brandon, FL 335'.. 1

Subject: Comments on Draft Five-Year Review iteport, August 2004
City Industrie *1* Superfund Site
Winter Park,] 'lorida

Dear Ms, Pondo:

On August 25, 20fH, EPA sen: out the Draft Five-Year I Lsview Report, Augu::t : 04 to the following reviewers and re guested comments: Aaroi 1 Cohen with the Floric. DepartroeDi of Environmental Protection in Tallahassee, Uill O'Sieen and Sanj: iia Urquhart-Foster v/iih the EPA :n Atlanta, Randy Meichs rt with the Florida *D&] 1* tTnent of Health in Tallahassee, Kath j'Fuchs with the Orange Ciunty Health Deparun •,•:in Orlando, and Lany Sims with *L.S. Sims* & Associates ir Rockledge, Florida. E \ \ requested that comments be si bmitted by September 10, *.1004,*

All of die conuner.ts received :y the date of this letter ar,; listed below. Most or tese comments have already been cjscussed verbally with yoi 1 and incorporated into . -*t* final document. There s no need KI respond directly to this letter.

Comments from SamanthaUrauhart-Foster received on 08/26/20P .

General Comments:

The document was very well written and detailed and followed the guidance do .rtent. Thanks!

The document has the incorreci date for the first Five-Ye *11* Review report and s 1 sequent due dates in numei ous locations. Please change all instances of September 3, *V '* > or September 3,20W to Septemtesr 13th. The first 5YR widi signature page can b ound at http://www-epa.gov/superfond ^5ites/fiveyear/f99-0400l ,p if and clearly shows *S* J/1999. That date is also ir WasteLA>. The following places we noted incorrect date Executive Summary, 1st paragraph; Five-Year Review S. mmary Form, Triggta 1 5action date & Due Date; Section 1.0, Page 1, last paragraph on :)age; Table 1, page S (.. gust 1999 should be 9/J 3/1999).

Specific Comments^

1. Five-YearReview Sumnary Form, Recomroendat: <ms and Follow-up As is - please sumrrarize the ra^mmendationa and follow-up actions. This fornr a quick reference form and needs to include a summary, not just refer to a s ion of the report. At a mimmini, state tbat there are 4 ret ommendanons/follov- actions that ;tffect correr I protectiveness and 1 mo:.is that affects future protect!veness. Also sta:s that those follow-up act:•MIS are scheduled to t> completed by the PRP with State/EPA oversight b ? December 2005 (I as: ned based on 201)4-2005 as irdlestone date for road con'.traction issue).
2. Thanks for the very detailed O&M discussionl Hcvever, please include : Section 4.3.'5 the origin* Jly estimated O&M costs f rom the ROD or KE')
3. Section 5'.2,7th bullet - Have the wells been repla >;d? If so, provide a d: , If not, please provide a tin £ frame fox this to occur e r.d ensure it's included the issues/recoaimendadoni/follow-up actions section.
4. Section 6,2,1st paragra] >h - Please state whether o *t* not any comments ha been leceived from the public. If comments have been rsceived, please summ ze and include copies of the comments in an attachment.
5. Section 6.2,2nd paragrsi;?h, last sentence - The fro ilized document will a *i* bo placed on EPA's interne t Site at http://www .epa.gov/reg i an4/waste/sf/fiveyear.htn
6. Section 6.4 - Refer the] wader to Attachment 4 whi«:h includes the sumnu : table for influent and effluem concentrations.

Comments to Jamey:

• The cover page needs a ijignature block for Winst;:n or you'll need to pe ' :e a cover memo for Winston to sign that will be kept with th's 5YR.
• You need to add the Su GT date into CERCLIS/Wa *i* telAN,
• When you issue the public notice of availability, y DU may also want to ir ide the internet location far the report: http://www.epa.gov/regii • i4/waste/s£fliveyear.h i
• Once the re port is final ;ied, get it signed by Wins tan, enter the data inta WastdLAN/CERCLIS, and gh (? the document to Debbie J ourdan. She'll have ii < anned, placed on our web:iite and distibuted to HQ.

Comments r< eeived from Bill Q'Steer an 09/09/2004:

1. On page 6, in the fourti I paragraph of Section 3.2, the text refers to an uj.: r confined pi<rt of the sui licial aquifer. This identiJ i cation should probabl .e changed to an upper ur confined part of the aquifi r.

2. In the last] jaragraph of Section 3.5 on page 9, tht text reads, in part "1,*4* • ioxane was added as a monito • id compound to the targe- compound list, to tann j he total number of COCs to 17..." This wording implies diat the "target compoi • .list" being referred to is EPA's target compound list o f constituents that are r i dnely monitored at NFL Site»(commonly tctrocd the '"LCL"). 1,4-dioxanci.j • copan

of the TCL. Therefore some other wording shou I *i* be used here so that I : meaning of the statement is unambiguous.

3. Some sort of wording c hanges are needed in the t - ird paragraph of Secti - 4.3.4 (bottom of page 20).

4. In the second sentence t>f the fourth paragraph of Election 4.3.4 (top of p s 21), the word "occurrence" should probably be replaced by "detection." Ai 11 close of that sentsnce, it shoi i .d probably be mentioned l hat the site characteri . . ion being refer-ed to was tl & characterization that oci inred before the 199() ! cord of Decision.

5. In the fourth paragraph 3f Section 4.3.4 on page'.; I»the text states, witli · jard to 1,4-dioxanu "It is usual ly found in chlorinated pit i nes..." While it is tru lat when present, 1,4-diox ane is typically associated with chlorinated solvei i , it is not the cast: that where chlorinated solvent contai rination is present thut 1 4-dioxane is .almost always found. It would be ben ;r to state something ;i • "When present,' 1^'-dioxane is usually associated with ch I urinated solvent p l u m : '

6- At the top of page 27, t here is a statement "Reduced levels of contamin a i n due to treatment have reacted the down gradient edge: of the original plume the meaning oi this statement is not clear. If it is inte r.ded to indicate that contaminant concentration decreases in response :o the remedial action 1; ·e been observed a:; far downgi udient as MW-48D, then l * at point should be mo > directly staled. Note a]; o that the concentration c t creases would be in n : .onse to the remedied action in ≤ ;i:neral and not the ground· vater treatment per se

7. Section 7.2.2 is titled " .'iRARs Identified in the B OD/ESD Requiring IU , w ." Several of ihe items lis *ad* under this heading are • ot ARARs (for instaa i "Guideline?" axe not A?LARs). The title of Secucm 7.2.2 needs to be clu- • ed to correctly identify that vhat requires review are b u n ARARs and other c i aia (sometimes called "to l« considered" criteria).

8. Section 7.2.4 is titled"liroundwater Related AR/>. Els Review." In the fi • part of Section 7.2.4, the text i :lentifies as influent stands i ds for the site a num b af influent cleanup criterii L, some of which are ARA f:s (e.g. MCLs) and so: • of which are r..ot ARARs, hut that are risk-based stajLiards. Table-4show3 ! *i* influent cleanup criteriii compared to EPA's MCI •;: (ARARs) and Florid "GCTLs" (not ARARs based on a reading of Ch;t ?ter 62-777.150 F.A.C Comment 7 has applic*l>ility to this xable, and to; lie title of Section 7.2.*.

9. In Section '7.2.10, die tl Lird sentence should begin "Established cleanup *c* • sria are consistent ivith current standards..." rather than "Hatablished cleanup ciii • !a meet currenc star dards..."