

**Third Five-Year Review Report  
for  
Gurley Pit Superfund Site  
Edmondson, Arkansas**



**September 2007**

**Region 6  
United States Environmental Protection Agency  
Dallas, Texas**

**FIVE-YEAR REVIEW  
Gurley Pit Superfund Site  
EPA ID# ARD035662469  
Crittenden County, Arkansas**

This memorandum documents the United States Environmental Protection Agency's (EPA's) performance, determinations, and approval of the Gurley Pit Superfund Site Third Five-Year Review Report.

**Summary of Five-Year Review Findings**

The results of this Third Five-Year Review, which covers the period since the Second Five-Year Review dated September 2002, indicate that the remedy continues to be protective of human health and the environment. The Remedial Actions performed appear to be functioning as designed, and no deficiencies were noted that directly impact the protectiveness of the remedy. The site is secure, and the landfill cap vegetative cover is in very good condition. A ground water sampling event was completed in June 2006. Analytical results obtained from this event indicate that the remedy continues to be protective of ground water.

**Actions Needed**

Minor maintenance issues, as identified in this report, should be addressed as part of the long-term site Operation and Maintenance program.

**Determinations**

I have determined that the remedy for the Gurley Pit Superfund Site is protective of human health and the environment, and will remain so provided the action items identified in the Five-Year Review Report are addressed as described above.

By:

  
Samuel A. Coleman, P.E.

Director, Superfund Division

U.S. Environmental Protection Agency, Region 6

Date:



CONCURRENCES

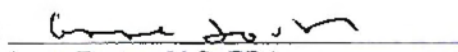
FIVE-YEAR REVIEW  
Gurley Pit Superfund Site  
EPA ID# ARD035662469

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## **Executive Summary**

The Third Five-Year Review of the Remedial Actions performed at the Gurley Pit Superfund Site located in Edmondson, Crittenden County, Arkansas, was completed in June 2007. This Five-Year Review covers the period since the Second Five-Year Review was completed in September 2002. The current review indicates that the remedy continues to be protective of human health and the environment. The Remedial Actions implemented appear to be functioning as designed, and the site is in good condition. No deficiencies were noted that directly impact the protectiveness of the remedy. However, some monitoring wells and landfill cap drainage outfalls need minor repairs to keep them in good working order.

The remedy at the site was divided into two Operable Units (OUs). The Source Control Operable Unit (OU1) remedy, as stated in the Enforcement Decision Document signed on October 6, 1986, consisted of the treatment of contaminated surface waters; solidification of contaminated sludge, sediments, and soil and placement of this material in a Resource Conservation and Recovery Act (RCRA) compliant landfill; installation of an appropriate monitoring well network; and implementation of a long-term Operation and Maintenance plan. The Groundwater Operable Unit (OU2) Record of Decision (ROD), signed on September 26, 1988, concluded that no further action was necessary provided the source control measure was implemented. In June 2006, the six site wells and one background well were sampled. Groundwater analytical results from the June 2006 sampling event continue to indicate no site related impact to the ground water.

The remedy for the Gurley Pit Superfund Site is protective of human health and the environment and will remain so provided the action items identified in this Five-Year Review Report are addressed.

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## List of Acronyms

ADEQ	Arkansas Department of Environmental Quality
ADPC&E	Arkansas Department of Pollution Control and Ecology
ARARs	Applicable or Relevant and Appropriate Requirements
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
FYR	Five Year Review
gpm	gallons per minute
GRC	Gurley Refining Co., Inc.
HI	Hazard Index
MCL	Maximum Contaminant Level
MSL	Mean Sea Level
mg/kg	milligrams per kilogram
µg/L	micrograms per liter
NCP	National Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
PCB	Polychlorinated Biphenyl
ppm	Parts per million
PRP	Potentially Responsible Party
RAGS	Risk Assessment Guidance for Superfund Sites
RAOs	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
Report	Second Five-Year Review Report
RfD	Reference Dose
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act
TBC	To Be Considered
TCLP	Toxicity Characteristic Leaching Procedure
USACE	United States Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Services
USEPA	United States Environmental Protection Agency

## Five-Year Review Summary Form

<b>SITE IDENTIFICATION</b>		
Site name (from WasteLAN): Gurley Pit Superfund Site		
EPA ID (from WasteLAN): ARD035662469		
Region: 6	State: AR	City/County: Edmondson/Crittenden
<b>SITE STATUS</b>		
NPL status: Final <input type="checkbox"/> Deleted <input checked="" type="checkbox"/> Other (specify) _____		
Remediation status (choose all that apply): Under Construction <input type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete <input type="checkbox"/>		
Site Wide FYR <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Construction completion date: <u>09 / 12 / 1994</u>	
Has site been put into reuse? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
<b>REVIEW STATUS</b>		
Lead agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency _____		
Author name: Ernest Franke		
Author title: Remedial Project Manager		Author affiliation: U.S. EPA Region 6
Review period: <u>09 / 30 / 2002</u> to <u>09 / 30 / 2007</u>		
Date(s) of site inspection: <u>05 / 10 / 2007</u>		
Type of review: Statutory <input type="checkbox"/> <input checked="" type="checkbox"/> Policy Post-SARA <input checked="" type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> Regional Discretion <input type="checkbox"/>		
Review number: 1 (first) <input type="checkbox"/> 2 (second) <input type="checkbox"/> <input checked="" type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
<b>Triggering action:</b> Actual RA Onsite Construction at OU # _____ Actual RA Start <input type="checkbox"/> Construction Completion <input type="checkbox"/> <input checked="" type="checkbox"/> Previous Five-Year Review Report Other (specify) _____		
Triggering action date (from WasteLAN): <u>09 / 30 / 2002</u>		
Due date (five years after triggering action date): <u>09 / 30 / 2007</u>		



**Issues:**

Monitoring Well Condition - Water has accumulated inside the above-grade protective casings of two of the onsite groundwater monitoring wells, wells A and E. The water may have entered the casing around the locked protective casing lids. Seep holes had been drilled in the side of the protective casings to prevent water from rising above the top of the PVC well casing. It was noted that there was some peeling paint and rust on protective casings of monitoring wells and bollards around monitoring wells and gas vents.

Leak Detection Sump Cover - The leak detection sump had a PVC discharge pipe extending in from the sump. The presence of this pipe prevents the locking cover from being closed. Consequently, the well is open to precipitation and the potential for vandals to throw trash, debris or contaminants down the pipe upon their illegal entrance to the site which has restricted access by a six foot perimeter chain link fence, no-trespassing signage and a lock secured entrance.

Cover Drainage Outlet Pipes - All outlet pipes appeared to be functioning. Rodent screens were missing from the south, southwest, northeast, and southeast outlet pipes. Animal chew marks were present on the southern pipe but damage was minimal. The southwest pipe was covered with water due to sedimentation in the outlet drainage channel. About 1-inch of sedimentation was present in the northern drainage pipe. The top of the northeast drainage pipe is missing about 6-inches back and also contains some sediment at the bottom.

Padlocks – rust on the existing padlocks for the monitoring wells make them difficult to open and closed.

**Recommendations and Follow-up Actions:**

Monitoring Well Condition – water that has accumulated in the protective casings of well A and E should be drained by drilling a 1/8-inch diameter seep hole through the protective casing, just above the grout within the protective casing. Existing seep holes were drilled several inches to a foot above the interior grout. All wells should be checked and similar seep holes drilled if not already present. Protective casings and bollards should be repainted as necessary to minimize deterioration from rust.

Leak Detection Sump Cover – recommend that a flexible hose, similar to that used in the Leachate Collection sump, be installed so that the lid to the Leak detection sump can be closed and secured.

Cover Drainage Outlet Pipes – it is recommended that all outlet pipes be inspected and any accumulated sediments be removed. New rodent screens should be installed on the south, southwest, northeast, and southeast outlet pipes. The new screens installed during the 2006 maintenance event consisted of chicken wire. The chicken wire did not appear to provide a sturdy fix in that the south screen was missing entirely and the southwest screen had come partially off. Recommend that all wire mesh rodent screens be replaced with molded plastic drainage grates.

Padlocks – recommend replacing all of the existing padlocks with ones that are more corrosion resistant.

**Protectiveness Statement(s):**

The remedy for the Gurley Pit Superfund Site is protective of human health and the environment and will remain so provided the action items identified in this Five-Year Review Report are addressed.

**Other Comments:**

The field inspection showed the site to be in very good condition. The vegetative cover is well established, and the site is properly secured with fencing, locks, and sign postings. No damage due to vandalism was observed. No complaints or concerns about the site have been received by EPA, ADEQ, or the local authorities.

## 1.0 Introduction

The United States Environmental Protection Agency (EPA) Region 6 has conducted a Five-Year Review of the Remedial Action implemented at the Gurley Pit Superfund Site for the period September 2002 through September 2007. The Gurley Pit Superfund Site (or "site") is located near Edmondson, Crittenden County, Arkansas. This is the Third Five-Year Review for this site. The purpose of a Five-Year Review is to determine whether the remedy at a site remains protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and recommendations to address them. This Five-Year Review Report (Report) documents the results of the review for this site, conducted in accordance with EPA guidance on Five-Year Reviews.

EPA guidance on conducting Five-Year Reviews is provided by OSWER Directive 9355.7-03B-P, *Comprehensive Five-Year Review Guidance (EPA, June 2001)* which replaces and supersedes all previous guidance on conducting five-year reviews. Guidance provided in this document has been incorporated into the Third Five-Year Review performed for the site.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) call for Five-Year Reviews of certain Remedial Actions. EPA policy also calls for Five-Year Reviews of Remedial Actions in some other cases. The statutory requirement to conduct a Five-Year Review was added to CERCLA as part of the Superfund Amendments and Reauthorization Act of 1986 (SARA). The EPA classifies each Five-Year Review as either "statutory" or "policy" depending whether it is being required by statute or is being conducted as a matter of policy. This Five-Year Review for the Source Control Operable Unit is being conducted as a matter of policy. It is a Remedial Action selected pre-SARA (in an Enforcement Decision Document signed on October 6, 1986), and contaminants remain onsite above levels that allow for unlimited use and unrestricted exposure (EPA, 1986). The triggering action for this review is the date of the previous Five Year Review, which was signed on September 30, 2002.

## **2.0 Site Chronology**

A chronology of significant site events and dates is included in Table 1, provided at the end of the report text.

### **3.0 Background**

This section describes the physical setting of the site, including a description of the land use, resource use, and environmental setting. Finally, this section briefly describes the history of contamination associated with the site, the initial response actions taken at the site, and the basis for each action.

#### **3.1 Physical Characteristics**

The site is located 1.2 miles north of the City of Edmondson, in Crittenden County, Arkansas. It is on the northwest corner of the intersection of County Roads 14 and 175. The site is located within the floodplain of Fifteen Mile Bayou, a tributary of the St. Francis River. **Figure 1** presents the site location, and **Figure 2** is a site plan.

The site originally consisted of one large pit which was excavated for the clay material contained within this area. Gurley Refining Company later leased the property from Robert Caldwell for use as a disposal area in 1970. The site was divided into three pits for disposal of sludges from the refining of used oil with major contaminants including lead, barium, zinc, and polychlorinated biphenyls (PCBs).

The area is generally flat, sloping gently toward Fifteen Mile Bayou. There are three major groundwater aquifers at the following depths: 90 to 200 feet below ground surface (bgs); 300 to 1125 feet bgs; and 1400 to 1700 feet bgs. The shallow aquifer is used for domestic wells. Due to the water quality of the shallow aquifer, most of the domestic wells are used for agricultural irrigation purposes. The middle aquifer is comparatively undeveloped, and the deep aquifer is used for municipal wells. The residences in the vicinity of the site are supplied with drinking water from the Midway Water Association municipal well located in the deep (1,585 feet) aquifer, which is 2.2 miles southeast of the Site.

#### **3.2 Land and Resource Use**

The site is surrounded to the north, west, and south by soybean fields. To the east of the site, across County Road 175, are two residences. There are a total of five residences within a half-

mile radius of the site. The City of Edmondson, located 1.2 miles to the south of the site, has about 500 residences.

### **3.3 History of Contamination**

Gurley Refining Company (GRC), leased the property from property owner, Robert Caldwell, for use as a disposal area in 1970. The site was divided into three pits for disposal of sludges from the refining of used oil with major contaminants including lead, barium, zinc, and PCBs. Waste disposal operations were permitted by the Arkansas Department of Pollution Control and Ecology (ADPC&E) from 1970 until 1975.

In May 1975, an inspection by the ADPC&E revealed that GRC was discharging contaminated storm water from the pit into Fifteen Mile Bayou without treatment. ADPC&E notified GRC it had one year to implement site cleanup and remedial measures. In October 1975, GRC said that it had closed the part of its refining operation which generated the wastes disposed at the site. In December 1975, GRC notified ADPC&E that waste disposal at the site had ceased and that the site was secure. Releases to the bayou from the pit were documented in both 1978 and 1979.

### **3.4 Initial Response**

During 1978, personnel from the United States Fish and Wildlife (USFWS) reported to EPA and ADPC&E that chronic overflows from the pit due to accumulated storm water had resulted in damage to fish and waterfowl in the bayou. On July 12, 1978, GRC responded to EPA requests to contain and clean up the storm water discharges. GRC vacuumed oil from areas outside the pit and pumped untreated storm water into Fifteen Mile Bayou. EPA and ADPC&E halted this discharge of contaminated storm water to the bayou. By July 28, 1978, the spill was cleaned up by EPA, and water levels in the pit were lowered sufficiently to provide adequate capacity for future rainfall.

During the first week of April 1979, heavy rainfall caused extensive flooding in Fifteen Mile Bayou. In response to citizen complaints, ADPC&E performed an inspection. This inspection revealed that 400,000 to 500,000 gallons of oil contained in the pit had been washed onto

adjoining farmland, borrow ditches, adjacent roads, and into Fifteen Mile Bayou some six miles downstream of the Site. EPA Region 6 ordered a contractor cleanup of the site under Section 311(c) of the Clean Water Act (CWA). Periodic pumping of storm water from the pit continued during the summer and fall of 1979 (EPA, 1998).

The site was proposed for inclusion on the NPL in December 1982 and listed on the NPL in August 1983. The site was divided into two Operable Units (OUs): Source Control (OU 1) and Groundwater (OU 2). EPA conducted a Remedial Investigation/Feasibility Study (RI/FS) for OU1 in April 1986. The RI/FS included an investigation of the characteristics of the wastes contained in the pits and contaminated soil and surface water, as well as an evaluation of remedial alternatives. Based on the information presented in the RI/FS report, a remedy was selected in the Enforcement Decision Document (EDD; equivalent of a ROD) signed on October 6, 1986 for OU 1.

From April 1987 to July 1988, a groundwater RI investigation was conducted to address ground water potentially contaminated by the site. A ROD for OU2 was signed on September 26, 1988. The OU2 ROD concluded that no further action was necessary for ground water provided the Source Control remedy was implemented.

### **3.5 Basis for Response Action**

Response actions were necessary at the site to address contamination resulting from chronic overflows from the pit into adjoining farmland, borrow ditches, adjacent roads, and into Fifteen Mile Bayou. These overflows had adverse effects on fish and waterfowl. The sludge, soil, sediments, and oil contained in the pit were contaminated with lead, barium, zinc and PCBs.

## **4.0 Remedial Actions**

This section provides a description of the Source Control (OU 1) ROD remedy objectives, selection, and implementation. It also describes the process through which minor modifications to the Source Control remedy have been implemented, the ongoing Operation and Maintenance (O&M), and the overall progress made at the site. No Remedial Actions were necessary for a site ground water (OU2) provided the Source Control remedy was implemented.

### **4.1 Remedy Objectives**

The Remedial Action Objectives (RAOs) defined for OU1 were to: (1) adequately protect against physical contact with oily waste material and contaminated storm water; (2) minimize damage to and provide adequate protection to the ground water from migrating contaminants; (3) adequately protect against the discharge of contaminated storm water to Fifteen Mile Bayou; (4) adequately protect against site inundation in the 100 year flood of Fifteen Mile Bayou; (5) adequately protect against potential emissions into the air; and (6) prevent spreading of material by flooding to offsite areas (EPA, 1986).

### **4.2 Remedy Selection**

The remedy selected for OU1 was defined to include the following:

- An onsite water treatment unit to provide both physical and chemical treatment resulting in NPDES compliance, with treated water discharged to Fifteen Mile Bayou. Solid contaminants removed from the water would be disposed of with the pit sludge;
- Removal of oil from the water with an oil/water separator. Incineration of oil in an offsite PCB-approved incinerator;
- Excavation and stabilization of pit sludge, sediments and contaminated soil, with disposal of stabilized material onsite;
- Construction of a RCRA-compliant onsite landfill with an appropriate ground water monitoring system;
- Placement of stabilized waste material in the onsite RCRA landfill;



- Installation of appropriate monitoring wells, and provisions for long-term operation and maintenance for the RCRA landfill and related monitoring wells.

During the Remedial Design it was determined that an insignificant change to the remedy in the OU 1 ROD was necessary from a cost and constructability standpoint. This change involved moving the location of the RCRA landfill from the north pit to the south pit. This was deemed necessary because the north pit contained approximately 85% of the contaminated materials. Rather than moving the contaminated materials out of the north pit for construction of the landfill, the south pit (which contained less volume of contaminated material) was used for construction of the landfill. This was a more efficient and cost effective approach in terms of material handling.

#### **4.3 Remedy Implementation (OU-1)**

Full-scale construction activities implementing the source control remedy commenced on November 13, 1992. Remedial construction activities were conducted as planned, and no additional areas of contamination were identified. The EPA, ADPC&E and the Army Corps of Engineers (USACE) conducted a pre-final inspection of the site on August 12, 1994, and a final inspection on August 31, 1994. A letter from EPA to the USACE on September 12, 1994, certified that the Remedial Action construction activities were performed according to the Remedial Design package.

#### **4.4 Operational and Functional Activities**

The ROD called for implementation of a groundwater monitoring and leachate water sampling and analysis/removal program at the site associated with the RCRA landfill, and included maintenance of the associated sumps, fence, and the site wells. Groundwater samples are analyzed for total organic carbon (TOC) and three metals: barium, lead, and zinc. Because sediments in groundwater samples affect observed concentrations of inorganics, dissolved (filtered) metals samples have been used to provide a reliable indication of groundwater quality. Six new monitoring wells (MW-A through MW-F) were installed and developed onsite during the Remedial Action, and two off-site existing monitoring wells (MW-30 & MW-31) were

included in the monitoring program. Monitoring wells MW-30 and MW-31 serve as background monitoring wells and are also known as BG-30 and BG-31. The screened interval for BG-30 is 11 to 21 feet below the top of casing. This is significantly shallower than the other monitoring wells which have a top of screen ranging from 33.5 to 42 feet below the top of casing. BG-30 was dry during the 2002 and 2006 sampling events. Results from groundwater events from 1994 to present are provided in **Table 2**.

The final inspection for construction of the Source Control remedy was completed on August 31, 1994. In September 1995, the end of the first year of operation, there was a significant volume of liquid observed in the leak detection and leachate collection systems. The ADPC&E was concerned that this liquid might indicate the liner had been damaged during landfill construction. Measurements were made which indicated that the liquid was approximately eight (8) feet in depth, but the total volume of liquid within the landfill was unknown. Removal (pumping) of liquids was principally from the secondary leak detection sump, which was attributed to significant rainfall events during the landfill construction process. Based upon the volume of water present in the two collection systems, it was decided by EPA and the ADPC&E that the site could not be considered to be Operational and Functional as defined in 40 CFR (Code of Federal Regulations) Section 300.435(f)(2).

Based on the volume of liquid in the leak detection systems, and in accordance with 40 CFR Section 300.435(f)(2), the one-year O&F period was extended by the EPA. By an interagency agreement, EPA continued to utilize the USACE for activities at the Site. In October 1995, Halliburton Services was contacted to cut additional slots into the sump pipes using a hydrojet to increase the volume of liquid that could enter the sumps. After the slots were cut, the recharge of the water into the sump pipes increased appreciably. The USACE secured a contractor and installed a permanent electrical supply box, flow meter, pump high and low limit switches, circuit and wiring modifications for automated water pumping activities, project signs, and performed site mowing and other related activities. The USACE staff began pumping operations on May 20, 1996, and pumped 63,530 gallons of non-contaminated water through March 12, 1997. Pumping continued until January 1999.

Griffin Electric of West Memphis, Arkansas was contracted to install a control system on one of the pumps that would turn the pumps on and off automatically according to the water levels in the sump pipe. A flow totalizer was installed to record the amount of water removed from the landfill. Operational shakedown and system performance was completed on July 11, 1997, after which the system was set up to run automatically. The contractor pumped 5,820 gallons of water during the shakedown period while perfecting the control system. On July 25, 1997, the totalizer read 7,170 gallons pumped on full automatic mode, which was only an average of 86.4 gallons per day. Average daily readings further decreased in August to 26.0 gallons per day between 23rd through 28th, with the total pumped through August 28, 1997, being 71,570 gallons. This total includes the above-referenced 63,530 gallons.

The results of the test analyses for contaminant concentrations in the pumped and tank-stored waters were below the maximum stated in the EDD as applicable for surface discharge. Therefore, the water was discharged to surface flow. The presence of this water was ultimately attributed to the heavy rainfall during construction of the landfill, which evidently saturated the sand drainage system in the landfill. Because the significant volume of liquids were attributable to the heavy rains during construction and since pumping rates substantially decreased over time, it was determined that the presence of liquid in the sumps did not indicate any problems with the remedy nor the integrity of the landfill.

Groundwater elevations were monitored quarterly throughout the duration of the extended O&F activities and related pumping. The groundwater elevations in the site monitoring wells did not appear to be affected by the water pumping activities in the sumps. This indicated that the hydraulic conditions in the landfill are not in hydraulic connection with the ground water.

Several types of data were collected over the course of USACE O&F activities, including recharge rate to the sumps, volumetric data, hydraulic characteristics and analytical data. Based upon this data, the final engineering report prepared by USACE concluded that the site landfill currently appeared to be Operational and Functional as designed and constructed. The following items were presented to support this conclusion (**EPA, 1998**):

- Recharge rates into the detection and collection sumps continued to decrease throughout the USACE pumping period, refuting the possibility of a major influx of water table flow and/or re-occurring rainwater into the pit during or between the pumping events.
- The volume of water pumped continued to steadily decrease over each pumping event or work period, further negating the possibility of major infiltration of ground water and/or bearing evidence of minimum rainfall permeability of the landfill.
- The comparison of elevation data collected over the course of the USACE work period did not indicate hydraulic communication between the pumping water and the water-bearing zone which is being monitored.
- Similarities in types of chemical constituents detected in the samples collected by USACE in both the primary and secondary leachate collection systems indicate that the two systems may be in hydraulic communication. A general trend in the data was that the majority of the water pumped was from the secondary detection system.
- Contaminant concentrations have remained consistently low and uniform in the ground water monitoring events.

#### **4.5 Progress Since Last Review**

Since the Second Five Year Review conducted in September 2002, one ground water sampling event has occurred at the site. In June 2006, the Arkansas Department of Environmental Quality (formerly the ADPC&E) conducted ground water sampling at the six onsite wells (Well A, Well B, Well C, Well D, Well E, and Well F) and one background well (BG-31). The other background well (BG-30) was not sampled due to an insufficient volume of water in the well. Samples were submitted for dissolved metals and total organics carbon analysis. The concentrations of monitored constituents were consistent with historical values. Results are presented in **Table 2**.

In addition to the monitoring well sampling, ADEQ repaired several deficiencies noted in the 2002 five-year review report. These included replacing the rodent screens on two cover drainage outlet pipes and replacement of the concrete pads around wells BG-30 and BG-31. ADEQ

provided a report describing these activities in addition to the 2006 Monitoring Well Sampling Results. The site was deleted from the NPL on November 6, 2003.

## **5.0 Five-Year Review Process**

This Five-Year Review has been conducted in accordance with the EPA's Comprehensive Five-Year Review Guidance, dated June 2001 (EPA, 2001). Interviews were conducted with relevant parties, a site inspection was conducted, and a review of applicable data and documentation covering the period of the review was evaluated. The findings of the review are described in the following sections.

### **5.1 Administrative Components**

The Third Five Year Review for this site was initiated by the EPA in March 2007, when EPA Region 6 requested that the Kansas City District Corps of Engineers assist in performing the review. The components of the review included document review, standards review, data review, site inspection, interviews, and development of the report, as described below.

### **5.2 Community Involvement**

This report will be placed in the information repositories located for this site at the EPA Region 6 office in Dallas, Texas, and the ADEQ Office in Little Rock, Arkansas. A public notice will be issued by EPA announcing completion of the Five Year Review and the availability of the report in the information repositories.

### **5.3 Document Review**

The Five Year Review included a review of relevant documents. A list of the documents reviewed can be found in **Attachment 1**.

### **5.4 Data Review**

Existing site monitoring data was reviewed as part of this Five-Year Review. A summary of the monitoring data is included on Table 2. The latest round of sampling, June 2006 was included in a report provided by ADEQ.

## 5.5 Site Inspection and Field Investigation

A site inspection was conducted on May 10, 2007. The inspection was conducted by Ernest Franke, EPA Region 6 RPM for the site, Kin Siew, ADEQ, and Paul Speckin, USACE Kansas City District. The purpose of the inspection was to assess current site conditions as they relate to the protectiveness of the remedy. The site-inspection checklist is included as **Attachment 2**, and photographs taken during the site inspection are included as **Attachment 3**.

The inspection established that the site is in good condition, and only minor maintenance issues should be addressed. There was no visible evidence of vandalism or dumping. The perimeter fence was in good condition and the gate was locked. Signs were properly posted and secured to the site fence at appropriate intervals. The site is covered by heavy vegetative growth, primarily Bermuda grass with a few weeds and wildflowers. A few woody type weeds were present but none of significant size where root penetration would be a concern. There was no visible evidence of erosion or settlement on the capped area of the site.

All existing groundwater monitoring wells (onsite wells and offsite background wells) were located during the site inspection. All six of the above-grade completions for the onsite groundwater monitoring wells, wells MW-A through MW-F, were secure and in good condition. The new keyed locks installed during the 2002 five year review had developed surficial rust that made opening and closing the locks difficult. Water had collected inside the above-grade protective casings in monitoring wells MW-A and MW-E. The water may have entered the casing around the locked protective casing lid. Both of the background groundwater monitoring wells, BG-30 and BG-31, had flush completions. Both of these wells were secure and the concrete pads repaired in June 2006 were still in good condition.

The surface completions for the leachate collection sump and the leak detection sump, located at the top-center of the capped area, were found to be in good condition. Both of the sumps are equipped with dedicated submersible pumps. There is no dedicated power source at the site, so operation of the pumps was not tested. At the time of the site inspection the leak detection sump had a PVC discharge pipe extending out from the sump. The discharge pipe is connected to the

dedicated pump and discharges liquid when the pump is operational. The presence of this pipe prevents the locking cover from being closed. Consequently, the well is open to precipitation and the potential for vandals to throw trash down the pipe.

All of the drainage layer outlet pipes for the capped area were located. Four of the drainage outlets are located within the fenced area (north, northwest, southwest, and south) and two outside the fenced area (northeast and southeast). The wire mesh rodent barrier was missing from the outlet pipes on the south, southwest, northeast, and southeast outlet pipes. Animal chew marks were present on the southern pipe but damage was minimal. The southwest pipe was covered with water due to sedimentation in the outlet drainage channel. There was about one inch of sediment in bottom of the northern drainage pipe. The top of the northeast drainage pipe is missing about 6-inches and also contains some sediment at the bottom. The rodent screens replaced during the 2006 maintenance event consisted of chicken wire. The one on the south outlet pipe was missing and the one on the southwest drainage pipe was no longer fully secured to the pipe.

The three passive gas vents were found to be in good condition. The outlet for each was covered with a mesh rodent barrier.

## **5.6 Ground Water and Leachate Monitoring**

The ROD called for implementation of a groundwater monitoring and leachate water sampling and analysis program at the site. The ROD states that groundwater samples should be collected on an annual basis. An Operation and Maintenance Plan and Sampling and Analysis Plan was developed by ADEQ and approved by EPA in January, 1999. ADEQ indicated it would initiate operations and maintenance activities following EPA's 2002 five-Year Review and sampling and leachate removal.

Since the last five-year review in 2002, ADEQ has conducted several site inspections, one monitoring well sampling event in 2006, and repair of minor maintenance issues identified in the 2002 five-year review report. A report providing results of the 2006 sampling event and



maintenance activities completed was provided by ADEQ and reviewed for the Five-Year Review Report. The sampling event was conducted in accordance with approved Sampling and Analysis Plan with the following exceptions: the leachate collection and leak detection sumps were not sampled.

The results from the 2006 sampling event showed concentrations of barium, lead, zinc, and TOC, the COCs for the site, consistent with previous sampling rounds. The results provided no indication that the site was negatively impacting ground water. Results from the 2006 sampling event and historical sampling events back to 1994 are presented on **Table 2**.

In addition to analyzing the samples for the COCs, ADEQ elected to analyze for several constituents not identified as COCs in the Record of Decision. These included Arsenic, Beryllium, and Manganese. Well B had an arsenic level of 0.056 mg/l, which is above the ADEQ action level of 0.050 mg/l. It should be noted that the MCL for arsenic changed from 0.050 mg/l to 0.010 mg/l as of January 23, 2006. In addition to arsenic, manganese exceeded ADEQ action levels in all monitoring wells, including the upgradient well number GOP-31. The ROD noted the presence of these constituents but also determined they were not attributable to pit contaminants. Therefore, they will not be considered in assessing the protectiveness of the site and are not included on Table 2.

During the site inspection for this Five-Year Review, the height of the leachate was measured at 41.5 inches in the leak detection sump and at 36 inches in the leachate collection sump. Based on details of the sumps, this results in a six inch head of leachate above the liner, which is in compliance with the RCRA requirement of maintaining less than one foot of head above the liner.

## **5.7 Interviews**

Interviews for this Five-Year Review consisted of discussions with the EPA Region 6 RPM, Ernest Franke, P.E., the Engineering Supervisor for ADEQ Kin Siew, P.E. prior to and during the site visit. Information gathered from these discussions is integrated throughout the Five-Year

Review Report. Neither, Mr. Franke or Mr. Siew had received any complaints from the local community regarding the site. After completing the site inspection, the inspection team drove over to Edmondson City Hall to discuss the site with someone from the local community. A city employee, Pamala Rauce was asked if she was aware of any complaints or concerns expressed about the site. She indicated she was not aware of any complaints or concerns expressed regarding the site.

## **6.0 Technical Assessment**

The Five Year Review must determine whether the remedy at a site is protective of human health and the environment. The EPA guidance describes three questions used to provide a framework for organizing and evaluating data and information and to ensure all relevant issues are considered when determining the protectiveness of a remedy. These questions are assessed for the site in the following paragraphs. At the end of the section is a summary of the technical assessment.

### **6.1 *Question A: Is the remedy functioning as intended by the decision documents?***

#### **6.1.1 Remedial Action Performance**

The results of this Five Year Review indicate the remedy is functioning as intended by the Source Control ROD. The cap is in good condition, and the site is secure and well posted. The June 2006 ground water monitoring results continue to show no impact to the ground water from the site contaminants. Limited leachate was detected in the two site sumps but the levels are within the allowable RCRA requirements of maintaining less than one foot of head above the liner. Due to the effectiveness of the remedy, the site has been removed from the National Priorities List (NPL). The July 28, 2003 Federal Register (Volume 68, Number 144) contained the “Notice of intent to delete the Gurley Pit Superfund Site from the National Priorities List”. The November 6, 2003 Federal Register (Volume 68, Number 215) contained the “Notice of deletion of the Gurley Pit Superfund Site from the National Priorities List.”

#### **6.1.2 System Operations and Maintenance**

The original approved Operations and Maintenance Plan and Sampling and Analysis Plan called for annual inspections and annual sampling of the groundwater monitoring wells. Due to results consistently showing no impact to ground water from site contaminants, groundwater sampling frequency was reduced to once every five years. ADEQ took over operations, maintenance, and monitoring activities after the 2002 five year review. Since that time ADEQ has conducted annual inspections of the site and collected one round of samples from the monitoring wells in June 2006. The results from the 2006 sampling event were consistent with previous results in the existing monitoring wells and results obtained on wells that have subsequently been

abandoned.

### **6.1.3 Opportunities for Optimization**

No opportunities for optimization were noted during the third five year review.

### **6.1.4 Early Indicators of Potential Issues**

As indicated in the site inspection results, there are minor maintenance issues that should be addressed to keep the landfill in good working order. However, there was nothing found during the site inspection or data review that would indicate any potentially significant issues with the protectiveness of the site.

### **6.1.5 Implementation of Institutional Controls and Other Measures**

Access controls to the site, consisting of a locking gate, six-foot fence with three strands of barbed wire on top, and warning signs placed at several locations around the site, are all in place and in good condition.

Institutional controls in the form of a deed notice for the site are on file with the Crittenden County deed records. It is contained in Book 1178, page 766. The deed warns of buried contaminants and states, "Any Reuse or Redevelopment involving Subsurface Utilities, Trenching, Excavation, or Well Installation Requires Prior Approval by ADEQ, USEPA, and the Property Owner. A copy of the Deed Notice of Capped Facility is included in **Attachment 4**.

## **6.2 *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?***

The purpose of this question is to evaluate the effects of any significant changes in standards or assumptions used at the time of remedy selection. Changes in promulgated standards or "to be considered" (TBCs) and assumptions used in the original definition of the Remedial Action may indicate an adjustment in the remedy is necessary to ensure the protectiveness of the remedy. The RAOs used in the original remedy selection included: (1) adequate protection against physical contact with oily waste material and contaminated storm water; (2) minimization of

damage to and providing adequate protection to the ground water from migrating contaminants; (3) adequate protection against the discharge of contaminated storm water to Fifteen Mile Bayou; (4) adequate protection against site inundation of site contaminants by the flooding of Fifteen Mile Bayou; (5) adequate protection against potential emissions into the air; and (6) prevention of spreading of material by flooding to offsite areas (EPA, 1986). The selected remedy has met the RAOs for the site. No known changes to toxicity data, cleanup levels, or exposure assumptions were identified as part of this Five Year Review which would affect the validity of the RAOs.

Superfund Remedial Actions are required to meet all Federal standards that are determined to be legally applicable or relevant and appropriate requirements (ARARs) under Section 121 (d)(2)(A) of CERCLA, as amended by SARA. In addition to the Federal ARARs, all State ARARs enforced by ADEQ, which are equal to or more stringent than Federal regulations and laws, must be met.

The following Federal regulations and laws, as presented and identified in the Source Control ROD (EPA, 1986) and the First Five Year Review (EPA, 1997), were determined to have an impact on the remedy at the site:

RCRA: Applicable to the hazardous waste landfill and ground water monitoring program, RCRA establishes the minimum requirements for the construction and monitoring of hazardous waste landfills. A liner system, leachate collection system, and multi-layer cap were incorporated into the hazardous waste landfill design and construction according to RCRA regulations listed under 40 CFR Part 264. A ground water monitoring system was constructed according to RCRA regulations as listed under 40 CFR Part 264, Subpart F. An O&M program through the State of Arkansas was developed according to 40 CFR Part 264, Subpart N.

There were some minor revisions of 40 CFR Part 264, Subpart N in July of 2006. These minor revisions had no effect on the validity of the remedy.

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

The Five Year Review identified no other information, such as newly identified ecological risks or impacts from natural disasters that would call into question the protectiveness of the remedy.

The site was sold on 1/12/2005. Although this does not call into question the protectiveness of the remedy, it does highlight the need for periodic site inspections to ensure no prohibited activities are occurring at the site that may jeopardize the protectiveness of the implemented remedy.

### **6.4 Technical Assessment Summary**

Based upon the data reviewed as part of this Five Year Review, the site inspection, the interviews, and the ground water and leachate monitoring event, the Source Control remedy is functioning as intended by the ROD. A few minor maintenance issues should be addressed to ensure the remedy continues to function as intended. These include installation of additional weep holes and painting the protective casings of the monitoring wells, the replacement of missing rodent screens on cover drainage outlet pipes, reconfiguring the leak detection pump piping to allow the protective casing lid to be secured, and the replacement of locks with those less susceptible to corrosion. There have been no other observed changes in the physical condition at the site that would affect the protectiveness of the remedy. An institutional control in the form of a deed restriction is in place to prevent reuse of the site without prior approval. Continued annual inspections are recommended to ensure compliance with this control. The ARARs for the site have been met, and there have been no known changes to exposure routes, toxicity values, or cleanup levels that would affect the remedy. There is no other additional information that would call into question the protectiveness of the selected remedy.

## 7.0 Issues

No major issues were identified as part of this Five Year Review for the period covering January 2002 through August 2007. Minor maintenance issues and one monitoring issue were identified as a result of the site inspection, review of data, and interviews/discussions held as part of the five year review:

**TABLE 3: Issues**

Issue #	Issue	Affects Protectiveness (Y/N)	
		Current	Future
1	Monitoring Well Condition - Water has accumulated inside the above grade protective casings of two of the onsite ground water monitoring wells, wells A and E. Repainting of protective casings and bollards.	N	Y
2	Leak Detection Sump Cover - The leak detection sump had a PVC discharge pipe extending in from the sump. The presence of this pipe prevents the locking cover from being closed. Consequently, the well is open to precipitation and the potential for vandals to throw trash down the pipe.	N	Y
3	Cover Drainage Outlet Pipes - Rodent screens were missing from the south, southwest, northeast, and southeast outlet pipes. The southwest pipe was covered with water due to sedimentation in outlet drainage channel. About 1-inch of sedimentation in northern drainage pipe. The top of the northeast drainage pipe is missing about 6-inches back and also contains some sediment at the bottom.	N	Y
4	Padlocks – rust on the the existing padlocks for the monitoring wells make them difficult to open and to get closed.	N	N

## 8.0 Recommendations and Follow-Up Actions

Below is a list of recommended actions to address the issues identified in section 7.0 above.

Although none of the issues identified affect the current protectiveness of the remedy, failure to address these issues could lead to more serious conditions that are costly to repair or may lead to conditions that impact the protectiveness of the remedy.

**TABLE 4: Recommendations and Follow-Up Actions**

Issue #*	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
1	Monitoring Well Condition – drill 1/8 inch diameter seep holes just above interior protective casing grout in all of the monitoring wells. Repaint protective casings and bollards.	ADEQ	USEPA	June 2008	N	Y
2	Leak Detection Sump Cover – recommend that a flexible hose, similar to that used in the Leachate Collection sump be installed so that the lid to the Leak detection sump can be closed and secured.	ADEQ	USEPA	June 2008	N	Y
3	Cover Drainage Outlet Pipes – it is recommended that all outlet pipes be inspected and any accumulated sediments be removed. New rodent screens should be installed on the south, southwest, northeast, and southeast outlet pipes. Recommend that all wire mesh rodent screens be replaced with molded plastic drainage grates.	ADEQ	USEPA	June 2008	N	Y
4	Padlocks – recommend replacing all of the existing padlocks with ones that are more corrosion resistant.	ADEQ	USEPA	June 2008	N	N



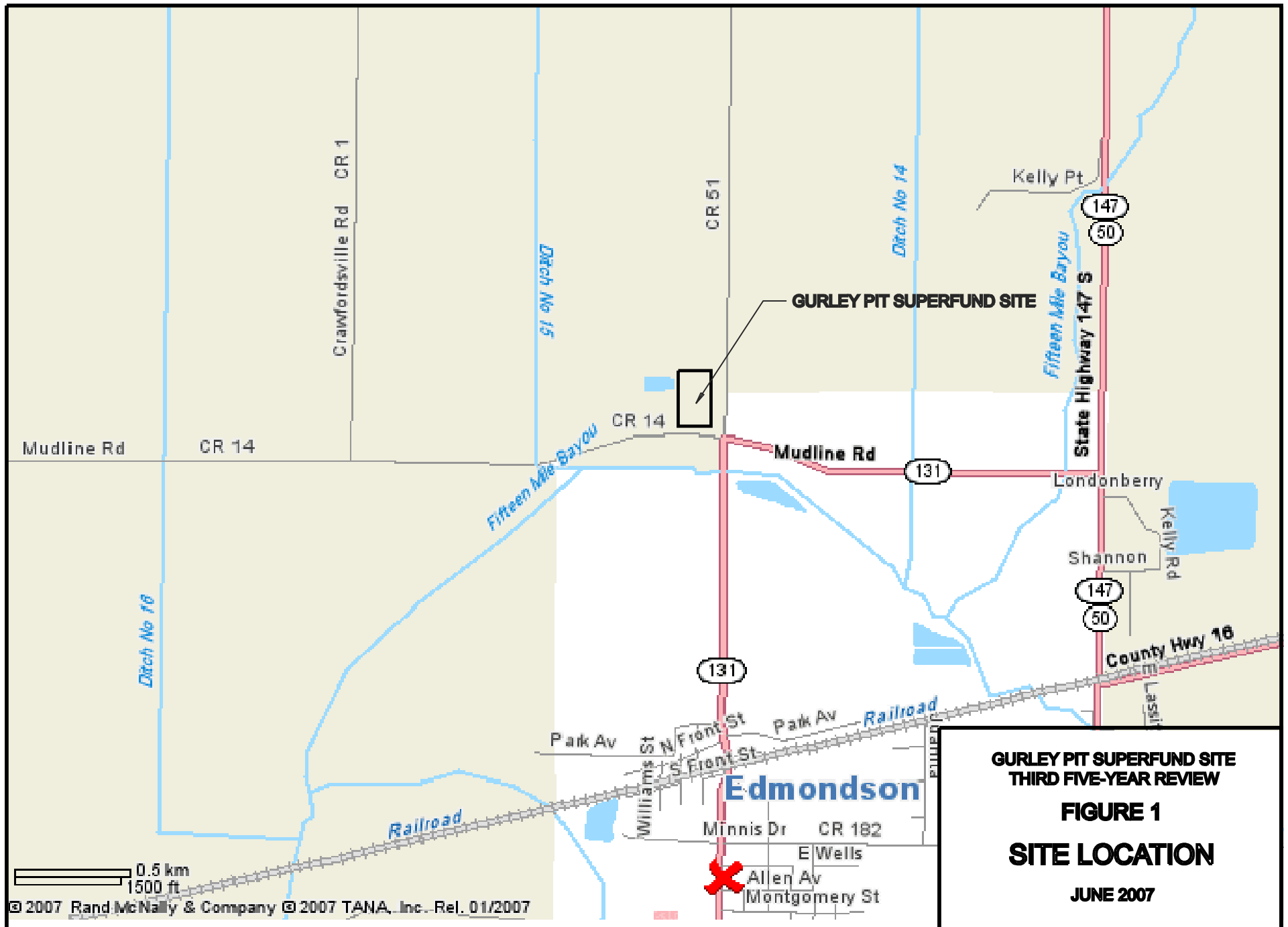
## **9.0 Protectiveness Statements**

The remedy for the Gurley Pit Superfund Site is protective of human health and the environment and will remain so provided the action items identified in this Five-Year Review Report are addressed.

## **10. Next Review**

The next five-year review for the Gurley Pit Superfund Site is required by September 2012, five years from the date of this review.

## **FIGURES**





## **TABLES**

**Table 1: Chronology of Site Events**

<b>EVENT</b>	<b>DATE</b>
The pit was excavated sometime prior to 1970 by the Arkalite Company	Prior to 1970
Gurley Refining Company leased the property from W.A. Caldwell	July 14, 1970 to July 13, 1980
Waste disposal permit was granted by Arkansas Department of Pollution Control and Ecology (ADPC&E), now known as the Arkansas Department of Environmental Quality, or ADEQ.	September 25, 1970
Gurley Refining Company used the site for disposal of secondary oil refining wastes, including PCBs, lead, and zinc, from 1970 until 1975, when Gurley Refining Company notified ADPC&E that disposal had stopped and the site was secure.	1970 until 1975
ADPC&E received citizen complaints regarding discharges from the pit.	March 1975
The Gurley Refining Company shut down the part of their refinery operation that generated the wastes disposed at the site.	October 1975
Gurley Refining Company abandoned the site.	1976
There were two releases from the pit requiring response actions by the EPA. It is estimated that as much as 500,000 gallons of oil were released during the second event.	1978 and 1979
The site was proposed for inclusion on the National Priorities List.	December 1982
The site was placed on the National Priorities List.	August 1983
The Source Area Remedial Investigation and Feasibility Study (RI/FS) Work Plan was completed by EPA.	May 1984
The Source Control RIPS was completed by EPA	April 1986
Public meeting was held.	May 27, 1986
The Source Control Enforcement Decision Document (EDD) was signed (pre-SARA).	Oct. 6, 1986
The Groundwater Remedial Investigation/Feasibility Study (RI/FS) Work Plan was prepared by EPA.	1987-1988
The Groundwater Final Remedial Investigation Report was completed by EPA.	August 1, 1988
The Record of Decision (ROD) for the Groundwater OU was signed and concluded that no further action was necessary for site ground water provided the source control measure was implemented.	September 26, 1988
The Health Assessment was completed by the Agency for Toxic Substances and Disease Registry (ASTDR).	January 6, 1989
The Government was awarded a judgment against William Gurley, Larry Gurley, and Gurley Refining Co., Inc., for all costs associated with this facility.	March 26, 1992
Under the direction of EPA, the U.S. Army Corps of Engineers (US ACE) entered into negotiations with the Small Business Administration, and a contract was awarded to a minority business, Mobley Contractors, Inc, for the Source Control Remedial Action construction.	July 31, 1992
Mobley Contractors, Inc., commenced Full-scale construction of the Source Control OU Remedial Action.	November 13, 1992
A letter to the USACE from EPA certified that Remedial Action construction activities were performed according to the remedial design	September 12, 1994

package.	
First year of operation complete; however, the site could not be considered operational and functional due to a significant volume of water in the leak detection and leachate collection systems.	September 1995
USACE conducted pumping operations removing non-contaminated water.	May 20, 1996 – January 1999
The EPA's First Five-Year Review was signed.	January 9, 1997
EPA sends letter to Arkansas Department of Environmental Quality (ADEQ) requesting ADEQ begin performance of Operation and Maintenance activities on March 1, 1998.	February 10, 1998
Completion of Final Close Out Report documenting Remedial Action activities at the site.	July 31, 1998
ADEQ Operations and Maintenance and Sampling and Analysis Plans were approved by EPA.	January 8, 1999
ADEQ concurred on site NPL deletion by letter to EPA.	October 11, 1999
EPA's Second Five-Year Review Report is signed	September 30, 2002
Deletion from the National Priorities List	November 6, 2003



**Table 2**  
**Groundwater Monitoring Results**

Well ID	Sample Date	Dissolved Barium (mg/l)	Dissolved Lead (mg/l)	Dissolved Zinc (mg/l)	Total Organic Carbon (mg/l)	pH-1 <sup>(1)</sup>	pH-2	pH-3	pH-4
<b>WELL A</b> Top of Casing El.= 202.87  Depth To: Top of Screen = 33.5 ft Bottom of Screen = 43.5 ft	10-Nov-94	0.262	0.006	0.091	4.20	8.30	8.10	8.00	8.00
	13-Feb-95	0.333	0.010	0.037	4.60	7.10	7.50	7.50	7.60
	25-May-95	0.293	0.006	0.050	4.10	7.28	7.30	7.26	7.29
	17-Aug-95	0.278	0.004	0.103	<3.0	6.50	6.54	6.82	7.03
	09-Nov-95	0.319	<0.003	0.026	4.10	7.31	7.01	7.04	6.98
	04-Apr-96	0.269	0.006	0.023	5.80	6.65	5.75	5.26	5.19
	30-Aug-96	0.270	<0.040	0.013	2.00	7.00	6.97	6.93	6.96
	Duplicate	0.270	<0.040	0.012	1.90	--	--	--	--
	Triplicate	0.263	<0.100	0.085	<1.0	--	--	--	--
	14-Nov-96	0.270	<0.040	0.008	1.90	7.18	6.97	6.94	6.93
	12-Mar-97	0.230	<0.04	0.002	1.60	7.24	7.18	7.20	7.19
	25-Jun-97	0.150	<0.04	0.100	3.70	7.09	7.12	7.13	7.08
	19-Jun-02	0.261	<0.003	<0.020	3.00	5.93	5.94	5.94	5.95
	22-Jun-06	0.291	<0.015	0.006	3.41	4.59			
<b>WELL B</b> Top of Casing El.= 206.25  Depth To: Top of Screen = 40.8 ft Bottom of Screen = 50.8 ft	10-Nov-94	0.648	0.025	0.147	3.5	8.30	8.10	8.10	8.10
	13-Feb-95	0.459	0.014	0.067	5.2	7.00	7.50	7.60	7.60
	25-May-95	0.348	0.004	0.048	4.7	7.40	8.02	7.41	7.40
	17-Aug-95	0.568	0.018	0.103	<3.0	6.15	6.74	6.97	7.14
	09-Nov-95	0.511	0.013	0.072	4.0	6.88	6.86	6.85	6.82
	04-Apr-96	0.363	0.006	<0.020	14.7	6.86	6.20	6.81	6.98
	30-Aug-96	0.330	<0.040	0.014	2.0	6.76	6.79	6.83	6.79
	14-Nov-96	0.320	<0.040	0.007	1.9	7.24	6.97	6.88	6.93
	12-Mar-97	0.320	<0.04	0.012	2.6	7.28	7.21	7.24	7.20
	25-Jun-97	0.330	<0.04	0.009	2.5	7.11	7.25	7.29	7.30
	19-Jun-02	0.330	<.003	<0.020	2.0	5.77	5.77	5.75	5.79
	22-Jun-06	0.322	<0.015	0.005	2.9	5.79			

**Table 2**  
**Groundwater Monitoring Results**

Well ID	Sample Date	Dissolved Barium (mg/l)	Dissolved Lead (mg/l)	Dissolved Zinc (mg/l)	Total Organic Carbon (mg/l)	pH-1 <sup>(1)</sup>	pH-2	pH-3	pH-4
WELL C  Top of Casing El.= 206.17  Depth To: Top of Screen = 34.5 ft Bottom of Screen = 44.5 ft	10-Nov-94	0.594	0.021	0.137	3.7	8.10	8.00	8.00	8.00
	13-Feb-95	0.421	0.009	0.036	5.6	7.30	7.50	7.70	7.60
	25-May-95	0.410	0.008	0.082	4.5	7.60	7.38	7.47	7.35
	17-Aug-95	0.373	0.004	0.050	<3.0	7.20	7.20	7.10	7.20
	09-Nov-95	0.377	0.006	0.046	4.9	6.77	6.79	6.72	6.70
	04-Apr-96	0.343	0.006	<0.020	4.8	6.99	6.97	6.98	6.99
	30-Aug-96	0.330	<0.040	0.043	2.3	6.88	6.89	6.89	6.88
	14-Nov-96	0.350	<0.040	0.015	2.0	7.20	6.99	6.94	6.92
	12-Mar-97	0.350	<0.04	0.004	1.6	7.16	7.11	7.15	7.10
	Duplicate	0.340	<0.04	0.004	1.8	--	--	--	--
	Triplicate	0.232	<0.03	0.012	<1.0	--	--	--	--
	25-Jun-97	0.230	<0.04	0.069	2.3	7.13	7.10	7.06	7.15
	Duplicate	0.280	<0.04	0.054	3.0				
	19-Jun-02	0.329	<0.003	<0.02	3.0	6.01	6.00	6.00	6.00
	22-Jun-06	0.417	<0.015	0.010	3.2	5.93			

**Table 2**  
**Groundwater Monitoring Results**

Well ID	Sample Date	Dissolved Barium (mg/l)	Dissolved Lead (mg/l)	Dissolved Zinc (mg/l)	Total Organic Carbon (mg/l)	pH-1 <sup>(1)</sup>	pH-2	pH-3	pH-4
<b>WELL D</b>	10-Nov-94	*	*	*	*	*	*	*	*
Top of Casing El.= 205.79	13-Feb-95	2.090	1.240	0.886	14.9	9.90	10.20	10.00	10.10
	25-May-95	0.104	0.011	0.028	38.0	12.32	11.86	11.64	11.60
Depth To:	Duplicate	0.121	0.018	0.031	34.2	--	--	--	--
	Triplicate	0.659	0.210	0.253	20.8	--	--	--	--
Top of Screen = 35.6 ft	17-Aug-95	0.244	0.038	0.076	13.6	11.80	11.30	10.90	9.50
Bottom of Screen = 45.6 ft	Duplicate	0.219	0.027	0.061	11.2	--	--	--	--
	Triplicate	0.172	<0.030	0.045	11.6	--	--	--	--
	09-Nov-95	1.180	0.344	0.454	25.4	7.65	8.09	8.33	8.15
	Duplicate	1.610	0.720	0.739	18.9	--	--	--	--
	Triplicate	0.885	0.306	0.335	46.8	--	--	--	--
	04-Apr-96	0.768	0.199	0.260	7.8	8.99	8.98	8.97	8.79
	30-Aug-96	0.260	<0.040	0.031	2.8	6.97	7.05	7.06	7.05
	14-Nov-96	0.300	<0.040	0.025	2.7	7.17	7.05	7.03	7.02
	Duplicate	0.300	<0.040	0.026	3.0	--	--	--	--
	Triplicate	0.330	<0.10	0.044	5.4	--	--	--	--
	12-Mar-97	0.290	<0.04	0.000	2.8	7.34	7.33	7.3	7.32
	25-Jun-97	0.280	<0.04	0.007	2.4	7.16	7.21	7.22	7.23
	20-Jun-02	0.240	<0.003	<0.020	3	6.63	6.64	6.58	6.56
	22-Jun-06	0.108	<0.015	0.005	4.44	6.27	--	--	--

**Table 2**  
**Groundwater Monitoring Results**

Well ID	Sample Date	Dissolved Barium (mg/l)	Dissolved Lead (mg/l)	Dissolved Zinc (mg/l)	Total Organic Carbon (mg/l)	pH-1 <sup>(1)</sup>	pH-2	pH-3	pH-4
<b>WELL E</b>  Top of Casing El.= 204.43  <u>Depth To:</u> Top of Screen = 39 ft Bottom of Screen = 49 ft	10-Nov-94	*	*	*	*	*	*	*	*
	13-Feb-95	0.831	0.029	0.147	6.8	7.50	7.60	7.60	7.60
	25-May-95	0.584	0.013	0.077	5.1	7.37	7.34	7.35	7.31
	17-Aug-95	0.362	<0.003	0.027	<3.0	6.81	7.02	7.23	7.14
	09-Nov-95	0.614	0.016	0.086	4.4	6.70	6.41	5.44	4.33
	04-Apr-96	0.436	0.009	0.038	4.6	7.10	7.20	6.85	6.70
	30-Aug-96	0.380	<0.040	0.013	1.7	6.98	6.76	7.00	6.99
	14-Nov-96	0.350	<0.040	0.026	1.8	7.16	7.01	6.97	6.96
	12-Mar-97	0.330	<0.04	<0.00	3.8	7.27	7.25	7.19	7.22
	25-Jun-97	0.260	<0.04	0.076	2.8	7.26	7.27	7.22	7.19
	20-Jun-02	0.423	<0.003	<0.020	3.0	6.11	6.12	6.14	6.15
	22-Jun-06	0.514	<0.015	0.005	3.3	5.34			
<b>WELL F</b>  Top of Casing El.= 202.37  <u>Depth To:</u> Top of Screen = 33.5 ft Bottom of Screen = 43.5 ft	10-Nov-94	1.210	0.068	0.413	3.6	8.20	8.00	8.00	8.00
	Duplicate	1.320	0.068	0.455	3.3	--	--	--	--
	Triplicate	0.957	<0.050	0.188	<1.0	--	--	--	--
	13-Feb-95	0.589	0.030	0.138	4.7	7.50	7.60	7.70	7.90
	Duplicate	0.562	0.027	0.126	6.9	--	--	--	--
	Triplicate	0.612	<0.050	0.166	1.9	--	--	--	--
	25-May-95	0.536	0.020	0.123	4.2	7.50	7.34	7.43	7.38
	17-Aug-95	0.344	0.008	0.051	3.1	7.80	7.50	7.40	7.60
	09-Nov-95	0.380	0.006	0.040	3.9	6.70	6.91	6.85	7.22
	04-Apr-96	0.321	0.004	<0.020	4.4	6.26	6.44	6.22	6.26
	30-Aug-96	0.330	<0.040	0.015	1.5	6.93	6.96	6.91	6.94
	14-Nov-96	0.310	<0.040	0.015	1.8	6.94	6.89	6.89	688.00
	12-Mar-97	0.320	<0.04	0.021	1.8	--	--	--	--
	25-Jun-97	0.250	<0.04	0.080	2.6	7.11	7.15	7.17	7.21
	20-Jun-02	0.367	<0.003	<0.020	2.0	6.58	6.58	6.59	6.59
22-Jun-06	0.384	<0.015	<0.005	2.9	3.95				

**Table 2**  
**Groundwater Monitoring Results**

Well ID	Sample Date	Dissolved Barium (mg/l)	Dissolved Lead (mg/l)	Dissolved Zinc (mg/l)	Total Organic Carbon (mg/l)	pH-1 <sup>(1)</sup>	pH-2	pH-3	pH-4	
<b>BG-30</b>  Top of Casing El.= 204.9  <u>Depth To:</u> Top of Screen = 11 ft Bottom of Screen = 21 ft	10-Nov-94	1.410	0.164	4.680	5.6	7.10	7.40	7.50	7.60	
	13-Feb-95	0.082	0.007	0.148	18.6	7.00	7.00	7.20	7.20	
	25-May-95	1.020	0.090	2.280	25.3	7.11	7.20	7.18	7.17	
	17-Aug-95	0.197	0.018	0.566	18.2	6.88	**	**	**	
	09-Nov-95	0.276	0.019	0.433	14.0	6.20	6.76	**	**	
	04-Apr-96	0.109	0.009	0.281	43.7	7.23	6.17	**	**	
	30-Aug-96	0.140	<0.040	0.340	22.0	6.42	6.38	6.39	6.37	
	14-Nov-96	0.250	<0.040	0.460	15.0	7.03	6.80	6.79	6.83	
	12-Mar-97	0.096	<0.04	0.180	31.0	7.06	7.06	7.12	7.02	
	25-Jun-97	0.100	<0.04	0.200	39.0	7.12	6.87	6.89	6.80	
	20-Jun-02	Not Sampled; insufficient volume of groundwater present					--	--	--	--
	22-Jun-06	Not Sampled; insufficient volume of groundwater present					--	--	--	--
	<b>BG-31</b>  Top of Casing El.= 204.85  <u>Depth To:</u> Top of Screen = 42 ft Bottom of Screen = 52 ft	10-Nov-94	1.310	0.100	2.020	14.8	8.10	8.20	8.10	8.00
13-Feb-95		0.754	0.091	1.940	15.6	6.40	6.70	7.10	7.20	
25-May-95		0.607	0.079	2.210	53.4	7.26	7.13	7.19	7.24	
17-Aug-95		0.301	0.041	2.740	8.5	6.88	7.04	7.15	7.08	
09-Nov-95		0.284	0.034	1.800	5.9	7.20	6.54	6.03	6.53	
04-Apr-96		1.220	0.186	7.820	31.5	6.23	6.78	6.55	6.33	
30-Aug-96		0.130	<0.040	0.700	4.2	6.81	6.81	6.77	6.78	
14-Nov-96		0.310	<0.040	3.200	17.0	6.84	6.80	6.78	6.71	
12-Mar-97		0.160	<0.04	0.470	52.0	7.33	7.36	7.40	7.35	
25-Jun-97		0.130	<0.04	0.900	53.0	7.00	7.58	7.88	7.95	
19-Jun-02		0.032	<0.003	<0.020	9.0	6.70	6.65	6.62	6.61	
22-Jun-06		0.076	<0.015	0.066	8.7	5.78				

**Table 2**  
**Groundwater Monitoring Results**

Well ID	Sample Date	Dissolved Barium (mg/l)	Dissolved Lead (mg/l)	Dissolved Zinc (mg/l)	Total Organic Carbon (mg/l)	pH-1 <sup>(1)</sup>	pH-2	pH-3	pH-4
<b>LEAK DETECTION SUMP</b>	10-Nov-94	0.061	0.006	<0.020	<3.0	9.90	9.50	9.30	9.10
	13-Feb-95	0.034	<0.003	<0.020	<3.0	--	--	--	--
	25-May-95	0.351	0.007	0.022	9.5	--	--	--	--
	17-Aug-95	0.534	<0.003	<0.020	29.5	--	--	--	--
	09-Nov-95	1.480	0.008	<0.020	131.0	--	--	--	--
	04-Apr-96	2.260	0.008	<0.020	67.1	--	--	--	--
	30-Aug-96	0.200	<0.040	0.007	310.0	--	--	--	--
	14-Nov-96	0.095	<0.040	0.002	270.0	--	--	--	--
	12-Mar-97	0.380	<0.04	0.002	240.0	6.79	6.70	6.71	
	25-Jun-97	1.400	0.093	0.045	250.0	7.59	8.06	8.23	8.43
19-Jun-02	0.146	0.018	0.138	78.0	--	--	--	--	
<b>LEACHATE COLLECTION SUMP</b>	20-Jun-02	0.057	0.022	0.098	103.0				

Notes:

mg/l = milligrams per liter

\* Obstructed Well

\*\* Dry Well

"--" Information Not Recorded/Not Available on Historic Records

11/10/1994 Incomplete Sampling Event, Not Accepted

(1) = pH values recorded for samples collected on June 19 & 20, 2002, are the last 4 measurements recorded during the purging process

**Attachment 1**  
**Documents Reviewed**

### **Attachment 1: Documents Reviewed**

- United States Army Corps of Engineers (USACE), 1992. *Sludge Solidification, Landfill Construction, and Water Treatment Drawings, Gurley Pits, Edmondson, Crittenden County, Arkansas*. 1992.
- United States Environmental Protection Agency (EPA), 2001. Office of Solid Waste and Emergency Response Directive 9355.7-03B-P, *Comprehensive Five-Year Review Guidance*. June 2001.
- United States Environmental Protection Agency (EPA), 2002. *Second Five-Year Review Report, Gurley Pit Superfund Site, Edmondson, Crittenden County, Arkansas*. September 2002.
- United States Environmental Protection Agency (EPA), 1986. *Record of Decision for Operable Unit 1 (Source Control Enforcement Decision Document), Gurley Pit Superfund Site, Edmondson, Arkansas*. October 6, 1986.
- United States Environmental Protection Agency (EPA), 1988. *Record of Decision for Operable Unit 2 (Groundwater Enforcement Decision Document), Gurley Pit Superfund Site, Edmondson, Arkansas*. September 26, 1988.
- United States Environmental Protection Agency (EPA), 1998. *Summary of Remedial Alternative Selection, Gurley Pit Site Groundwater Operable Unit, Edmondson, Crittenden County, Arkansas*. September, 1998.
- United States Environmental Protection Agency (EPA), 2003a. *Notice of intent to delete the Gurley Pit Superfund Site from the National Priorities List*. In: *Federal Register*, Vol. 68, No. 144, July 28, 2003.
- United States Environmental Protection Agency (EPA), 2003b. *Notice of deletion of the Gurley Pit Superfund Site from the National Priorities List*. In: *Federal Register*, Vol. 68, No. 215, November 6, 2003.
- United States Environmental Protection Agency (EPA), 2006. *Hazardous Waste and Used Oil; Corrections to Errors in the Code of Federal Regulations*. In: *Federal Register*, Vol. 71, No. 135, July 14, 2006.
- URS Corporation, 2006. *Groundwater Monitoring Report – Single Event, Gurley Pit Superfund Site*, June 30, 2006.



## **Attachment 2**

### **Site Inspection Checklist/Inspection Roster**

## Site Inspection Checklist

I. SITE INFORMATION													
<b>Site name:</b> Gurley Pit Superfund Site	<b>Date of inspection:</b> May 10, 2007												
<b>Location and Region:</b> Edmondson, Crittenden County, Arkansas	<b>EPA ID:</b> ARD035662469												
<b>Agency, office, or company leading the five-year review:</b> USEPA Region 6	<b>Weather/temperature:</b> Partly Sunny, Mid 80s												
<b>Remedy Includes:</b> (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Landfill cover/containment</td> <td><input type="checkbox"/> Monitored natural attenuation</td> </tr> <tr> <td><input checked="" type="checkbox"/> Access controls</td> <td><input type="checkbox"/> Groundwater containment</td> </tr> <tr> <td><input checked="" type="checkbox"/> Institutional controls</td> <td><input type="checkbox"/> Vertical barrier walls</td> </tr> <tr> <td><input type="checkbox"/> Groundwater pump and treatment</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Surface water collection and treatment</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other: _____</td> <td></td> </tr> </table>		<input checked="" type="checkbox"/> Landfill cover/containment	<input type="checkbox"/> Monitored natural attenuation	<input checked="" type="checkbox"/> Access controls	<input type="checkbox"/> Groundwater containment	<input checked="" type="checkbox"/> Institutional controls	<input type="checkbox"/> Vertical barrier walls	<input type="checkbox"/> Groundwater pump and treatment		<input type="checkbox"/> Surface water collection and treatment		<input type="checkbox"/> Other: _____	
<input checked="" type="checkbox"/> Landfill cover/containment	<input type="checkbox"/> Monitored natural attenuation												
<input checked="" type="checkbox"/> Access controls	<input type="checkbox"/> Groundwater containment												
<input checked="" type="checkbox"/> Institutional controls	<input type="checkbox"/> Vertical barrier walls												
<input type="checkbox"/> Groundwater pump and treatment													
<input type="checkbox"/> Surface water collection and treatment													
<input type="checkbox"/> Other: _____													
<b>Attachments:</b> <input checked="" type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached													
II. INTERVIEWS (Check all that apply)													
<b>1. O&amp;M site manager</b> _____        _____        _____ <div style="display: flex; justify-content: space-between; margin-left: 100px;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. _____ Problems, suggestions; <input type="checkbox"/> Report attached _____ _____													
<b>2. O&amp;M staff</b> _____        _____        _____ <div style="display: flex; justify-content: space-between; margin-left: 100px;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. _____ Problems, suggestions; <input type="checkbox"/> 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 ADEQ  
Contact Kin Siew Engineer Supervisor 05/10/07 501-682-0855  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

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


<b>III. ON-SITE DOCUMENTS &amp; RECORDS VERIFIED</b> (Check all that apply)			
1.	<b>O&amp;M Documents</b> <input checked="" type="checkbox"/> O&M manual <input type="checkbox"/> As-built drawings <input type="checkbox"/> Maintenance logs	<input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
Remarks <u>O&amp;M Manual on file in ADEQ offices</u>			
2.	<b>Site-Specific Health and Safety Plan</b> <input type="checkbox"/> Contingency plan/emergency response plan	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
Remarks _____			
3.	<b>O&amp;M and OSHA Training Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
Remarks _____			
4.	<b>Permits and Service Agreements</b> <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Effluent discharge <input type="checkbox"/> Waste disposal, POTW <input type="checkbox"/> Other permits _____	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
Remarks _____			
5.	<b>Gas Generation Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
Remarks _____			
6.	<b>Settlement Monument Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
Remarks _____			
7.	<b>Groundwater Monitoring Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
Remarks _____			
8.	<b>Leachate Extraction Records</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
Remarks _____			
9.	<b>Discharge Compliance Records</b> <input type="checkbox"/> Air <input type="checkbox"/> Water (effluent)	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
Remarks _____			
10.	<b>Daily Access/Security Logs</b>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
Remarks _____			

**IV. O&M COSTS**

**1. O&M Organization**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> State in-house | <input type="checkbox"/> Contractor for State            |
| <input type="checkbox"/> PRP in-house              | <input type="checkbox"/> Contractor for PRP              |
| <input type="checkbox"/> Federal Facility in-house | <input type="checkbox"/> Contractor for Federal Facility |
| <input type="checkbox"/> Other _____               |  |

**2. O&M Cost Records**

- Readily available       Up to date  
 Funding mechanism/agreement in place  
Original O&M cost estimate \$21,000/year       Breakdown attached

Total annual cost by year for review period if available

From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	

**3. Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**V. ACCESS AND INSTITUTIONAL CONTROLS**     Applicable     N/A

**A. Fencing**

- 1. Fencing damaged**       Location shown on site map       Gates secured       N/A  
Remarks Site fencing and gate in good condition with no signs of damage

**B. Other Access Restrictions**

- 1. Signs and other security measures**       Location shown on site map       N/A  
Remarks Signs are present at regular intervals along fence; signs are in good condition and were readily visible

<b>C. Institutional Controls (ICs)</b>				
1.	<b>Implementation and enforcement</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
	Site conditions imply ICs not properly implemented	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
	Site conditions imply ICs not being fully enforced	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
	Type of monitoring (e.g., self-reporting, drive by) <u>Site visits by ADEQ staff</u>			
	Frequency <u>Annual</u>			
	Responsible party/agency <u>ADEQ</u>			
	Contact <u>Kin Siew</u>	<u>Engineer Supervisor, Inactive Sites Branch</u>	<u></u>	<u>501-682-0855</u>
	Name	Title	Date	Phone no.
	Reporting is up-to-date	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
	Reports are verified by the lead agency	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
	Specific requirements in deed or decision documents have been met	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
	Violations have been reported	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
	Other problems or suggestions: <input type="checkbox"/> Report attached			
	_____			
	_____			
	_____			
2.	<b>Adequacy</b>	<input checked="" type="checkbox"/> ICs are adequate	<input type="checkbox"/> ICs are inadequate	<input type="checkbox"/> N/A
	Remarks _____			
	_____			
	_____			
<b>D. General</b>				
1.	<b>Vandalism/trespassing</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No vandalism evident	
	Remarks _____			
	_____			
2.	<b>Land use changes on site</b>	<input checked="" type="checkbox"/> N/A		
	Remarks _____			
	_____			
3.	<b>Land use changes off site</b>	<input checked="" type="checkbox"/> N/A		
	Remarks _____			
	_____			
<b>VI. GENERAL SITE CONDITIONS</b>				
<b>A. Roads</b>	<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A		
1.	<b>Roads damaged</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Roads adequate	<input type="checkbox"/> N/A
	Remarks _____			
	_____			

<b>B. Other Site Conditions</b>	
Remarks <u>Site appears to be in good condition. Vegetative cover is heavy and well established.</u>	
_____	
_____	
_____	
_____	
<b>VII. LANDFILL COVERS</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
<b>A. Landfill Surface</b>	
1.	<b>Settlement</b> (Low spots) <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Settlement not evident Areal extent _____      Depth _____ Remarks _____ _____
2.	<b>Cracks</b> <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Cracking not evident Lengths _____      Widths _____      Depths _____ Remarks _____ _____
3.	<b>Erosion</b> <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Erosion not evident Areal extent _____      Depth _____ Remarks _____ _____
4.	<b>Holes</b> <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Holes not evident Areal extent _____      Depth _____ Remarks _____ _____
5.	<b>Vegetative Cover</b> <input checked="" type="checkbox"/> Grass <input checked="" type="checkbox"/> Cover properly established <input checked="" type="checkbox"/> No signs of stress ■ Trees/Shrubs (indicate size and locations on a diagram) Remarks <u>Occasional woody type weeds on cover.</u> _____
6.	<b>Alternative Cover (armored rock, concrete, etc.)</b> <input checked="" type="checkbox"/> N/A Remarks _____ _____
7.	<b>Bulges</b> <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Bulges not evident Areal extent _____      Height _____ Remarks _____ _____

8.	<b>Wet Areas/Water Damage</b>	<input checked="" type="checkbox"/> Wet areas/water damage not evident	
	<input type="checkbox"/> Wet areas	<input type="checkbox"/> Location shown on site map	Areal extent _____
	<input type="checkbox"/> Ponding	<input type="checkbox"/> Location shown on site map	Areal extent _____
	<input type="checkbox"/> Seeps	<input type="checkbox"/> Location shown on site map	Areal extent _____
	<input type="checkbox"/> Soft subgrade	<input type="checkbox"/> Location shown on site map	Areal extent _____
	Remarks _____		
<hr/>			
9.	<b>Slope Instability</b>	<input type="checkbox"/> Slides	<input type="checkbox"/> Location shown on site map
	Areal extent _____	<input checked="" type="checkbox"/> No evidence of slope instability	
	Remarks _____		
<hr/>			
<b>B. Benches</b>			
	<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> 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.)			
<hr/>			
1.	<b>Flows Bypass Bench</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
	Remarks _____		
<hr/>			
2.	<b>Bench Breached</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
	Remarks _____		
<hr/>			
3.	<b>Bench Overtopped</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
	Remarks _____		
<hr/>			
<b>C. Letdown Channels</b>			
	<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> 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.)			
<hr/>			
1.	<b>Settlement</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of settlement
	Areal extent _____	Depth _____	
	Remarks _____		
<hr/>			
2.	<b>Material Degradation</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of degradation
	Material type _____	Areal extent _____	
	Remarks _____		
<hr/>			
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of erosion
	Areal extent _____	Depth _____	
	Remarks _____		
<hr/>			



4.	<b>Undercutting</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of undercutting
	Areal extent _____	Depth _____	
	Remarks _____		
	_____		
5.	<b>Obstructions</b>	Type _____	<input type="checkbox"/> No obstructions
	<input checked="" type="checkbox"/> Location shown on site map	Areal extent _____	
	Size _____		
	Remarks _____		
	_____		
6.	<b>Excessive Vegetative Growth</b>	Type _____	
	<input type="checkbox"/> No evidence of excessive growth		
	<input type="checkbox"/> Vegetation in channels does not obstruct flow		
	<input type="checkbox"/> Location shown on site map	Areal extent _____	
	Remarks _____		
	_____		
<b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1.	<b>Gas Vents</b>	<input type="checkbox"/> Active	<input checked="" type="checkbox"/> Passive
	<input type="checkbox"/> Properly secured/locked	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	
	<input type="checkbox"/> N/A		
	Remarks _____		
	_____		
2.	<b>Gas Monitoring Probes</b>	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	<input checked="" type="checkbox"/> N/A
	Remarks _____		
	_____		
3.	<b>Monitoring Wells</b> (within surface area of landfill)	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	<input checked="" type="checkbox"/> N/A
	Remarks _____		
	_____		
4.	<b>Leachate Extraction Wells</b>	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> N/A
	Remarks <u>The cover to the leak detection well cannot be closed due to presence of PVC discharge pipe extending out of the sump. Equipment (generator) was not available to test pump operation during site visit.</u>		
	_____		
	_____		
5.	<b>Settlement Monuments</b>	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed <input checked="" type="checkbox"/> N/A
	Remarks _____		
	_____		

<b>E. Gas Collection and Treatment</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Gas Treatment Facilities</b>	<input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____	
2.	<b>Gas Collection Wells, Manifolds and Piping</b>	<input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____	
3.	<b>Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings)	<input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____	
<b>F. Cover Drainage Layer</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	<b>Outlet Pipes Inspected</b>	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks <u>All outlet pipes appeared to be functioning. Rodent screens were missing from the south, southwest, northeast, and southeast outlet pipes. Animal chew marks were present on the southern pipe but damage was minimal. The southwest pipe was covered with water due to sedimentation in outlet drainage channel. About 1-inch of sedimentation in northern drainage pipe. The top of the northeast drainage pipe is missing about 6-inches back and also contains some sediments at the bottom.</u>			
2.	<b>Outlet Rock Inspected</b>	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A
Remarks _____ _____			
<b>G. Detention/Sedimentation Ponds</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Siltation</b> Areal extent _____ Depth _____	<input type="checkbox"/> N/A	
<input type="checkbox"/> Siltation not evident Remarks _____ _____			
2.	<b>Erosion</b> Areal extent _____ Depth _____		
<input type="checkbox"/> Erosion not evident Remarks _____ _____			
3.	<b>Outlet Works</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks _____ _____			
4.	<b>Dam</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks _____ _____			

<b>H. Retaining Walls</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Deformations</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Deformation not evident
	Horizontal displacement_____	Vertical displacement_____	
	Rotational displacement_____		
	Remarks_____		
<hr/>			
2.	<b>Degradation</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Degradation not evident
	Remarks_____		
<hr/>			
<b>I. Perimeter Ditches/Off-Site Discharge</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	<b>Siltation</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Siltation not evident
	Areal extent_____	Depth_____	
	Remarks <u>4 to 6 inches of sediment in ditch downgradient of southwest cover drainage outlet pipe. Causes water to back up and submerge southwest outlet pipe.</u>		
<hr/>			
2.	<b>Vegetative Growth</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Vegetation does not impede flow		
	Areal extent_____	Type_____	
	Remarks_____		
<hr/>			
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident
	Areal extent_____	Depth_____	
	Remarks_____		
<hr/>			
4.	<b>Discharge Structure</b>	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A
	Remarks_____		
<hr/>			
<b>VIII. VERTICAL BARRIER WALLS</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Settlement</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident
	Areal extent_____	Depth_____	
	Remarks_____		
<hr/>			
2.	<b>Performance Monitoring</b>	Type of monitoring_____	
	<input type="checkbox"/> Performance not monitored		
	Frequency_____	<input type="checkbox"/> Evidence of breaching	
	Head differential_____		
	Remarks_____		
<hr/>			

<b>C. Treatment System</b>		<input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A
1.	<b>Treatment Train</b> (Check components that apply) <input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation <input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers <input type="checkbox"/> Filters _____ <input type="checkbox"/> Additive ( <i>e.g.</i> , chelation agent, flocculent) _____ <input type="checkbox"/> Others _____ <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> Sampling ports properly marked and functional <input type="checkbox"/> Sampling/maintenance log displayed and up to date <input type="checkbox"/> Equipment properly identified <input type="checkbox"/> Quantity of groundwater treated annually _____ <input type="checkbox"/> Quantity of surface water treated annually _____ Remarks _____ _____	
2.	<b>Electrical Enclosures and Panels</b> (properly rated and functional) <input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____	
3.	<b>Tanks, Vaults, Storage Vessels</b> <input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance Remarks _____ _____	
4.	<b>Discharge Structure and Appurtenances</b> <input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____	
5.	<b>Treatment Building(s)</b> <input type="checkbox"/> N/A <input type="checkbox"/> Good condition ( <i>esp.</i> roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks _____ _____	
6.	<b>Monitoring Wells</b> (pump and treatment remedy) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____	
<b>D. Monitoring Data</b>		
1.	Monitoring Data <input type="checkbox"/> Is routinely submitted on time <input type="checkbox"/> Is of acceptable quality	
2.	Monitoring data suggests: <input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining	

<b>D. Monitored Natural Attenuation</b>			
1.	<b>Monitoring Wells</b> (natural attenuation remedy)		
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled
	<input type="checkbox"/> All required wells located	<input type="checkbox"/> Needs Maintenance	<input type="checkbox"/> Good condition
	Remarks _____		<input checked="" type="checkbox"/> N/A
<b>X. OTHER REMEDIES</b>			
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.			
<b>XI. OVERALL OBSERVATIONS</b>			
<b>A. Implementation of the Remedy</b>			
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.).			
<p>The objectives of the remedy were to protect against physical contact with the oily waste material and contaminated storm water; minimize damage to and protect groundwater from migrating contaminants; adequately protect against discharge of contaminated storm water to Fifteen Mile Bayou; protect against inundation by a 100-year flood of Fifteen Mile Bayou; protect against emissions into the air; and prevent spreading of material offsite by flooding. These objectives were accomplished by implementation of the Source Control Operable Unit remedy which included treatment of contaminated surface water; stabilization of contaminated sludge, sediments, and soil, and the placement of solidified material in a Resource Conservation and Recovery Act (RCRA) compliant vault; installation of appropriate monitoring wells; and implementation of a long-term operation and maintenance program. The Groundwater Operable Unit Record of Decision concluded that no further action was necessary for site groundwater provided the Source Control remedy was implemented. Construction of the Source Control remedy was complete on September 12, 1994.</p> <p>Based on the observations made during the site visit, the remedy appears to be functioning as designed.</p> <p>The most recent groundwater quality monitoring event was conducted in June 2006. The previous event was completed in June 2002 as part of the 2<sup>nd</sup> five-year review.</p>			
<b>B. Adequacy of O&amp;M</b>			

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.

Water had collected inside the above grade protective casings of two of the onsite ground water monitoring wells, wells A and E. The water may have entered the casing around the locked protective casing lids. Seep holes had been drilled in the side of the protective casings to prevent water from rising above the top of the PVC well casing.

An Operations and Maintenance Plan and Sampling and Analysis Plan were prepared by the ADEQ and approved by EPA on January 8, 1999. This plan was not reviewed as part of the 3<sup>rd</sup> five-year review, however it was indicated that both ADEQ and EPA have the plan on file in their office.

The most recent groundwater quality monitoring event was conducted in June 2006. The samples were analyzed for the site related contaminants of concern (COCs), barium, lead, zinc, and total organic carbon. There were no significant changes in COC concentrations from what had been observed in previous sampling events. See Attachment 5 for a copy of the groundwater sampling report.

In addition to analyzing the samples for the COCs, ADEQ elected to analyze for several constituents not identified as COCs in the Record of Decision. These included Arsenic, Beryllium, and Manganese. Well B had an arsenic level of 0.056 mg/l, which is above the ADEQ action level of 0.050 mg/l. It should be noted that the MCL for arsenic changed from 0.050 mg/l to 0.010 mg/l as of January 23, 2006. In addition to arsenic, manganese exceeded ADEQ action levels in all monitoring wells, including the upgradient well number GOP-31. The ROD noted the presence of these constituents but also noted they were not attributable to pit contaminants. Therefore, they will not be considered in assessing the protectiveness of the site.

**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.

**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

The OU2 Record of Decision (ROD) indicated that there were no contaminants in the groundwater attributable to contaminants in the pit. Groundwater data collected since that time for the COCs Barium, Lead, Zinc and TOC have been within the same range as results reported in the 1988 OU2 ROD. There have been no noticeable concentration trends either increasing or decreasing in any of the monitoring wells. It is understood that the approved O&M Manual calls for annual sampling of the monitoring wells, however actual sampling has been less frequent in the last ten years. Based on 20 years of consistent sampling results demonstrating no contribution of on-site contaminants to groundwater, it appears justification exists to reduce required sampling frequency. It is recommended that sampling frequency in the O&M Manual be revised from annual to once every 5 years. It is further recommended that this five year sampling frequency be timed to coincide with the five year reviews.

<b>Site Inspection Team Roster</b>		
<b>Personnel</b>	<b>Representing</b>	<b>Phone Number</b>
Ernest Franke, P.E	US EPA Region 6	214-665-8521
Kin Siew, P.E.	ADEQ	501-682-0855
Paul Speckin, P.E.	USACE	816-389-3592



**Attachment 4**

**Deed Notice of Capped Facility**

# Gurley Pits Superfund Site Crittenden County, Arkansas

Posted Site, within a 6 ft Chain Link Fence / Gate Entrance  
**"BURIED CONTAMINANTS" - STOP BEFORE YOU DIG!**

Any Reuse or Redevelopment involving Subsurface Utilities, Trenching, Excavation,  
 or Well Installation Requires Prior Approval by ADEQ, USEPA, and the Property Owner.



-90d 18' 43.29"  
35d 07' 17.35"

-90d 18' 40.04"  
35d 07' 17.37"

6.70 Acres  
See Book 11178,  
page 766.

**Gurley Pits  
Superfund Site  
Capped Area**

Mudline Rd  
14

-90d 18' 43.88"  
35d 07' 11.27"

-90d 18' 40.20"  
35d 07' 10.93"

175

131

131

To Edmondson, AR  
1 Mile (+/-)

Cap within 6.7 acre property purchased by Rama Prasad,  
 deed dated 01/12/2005 as recorded in Book 1178,  
 page 766 of Crittenden County Deed Records.  
 Prior owner: Barbara McCoy, 03/02/1999,  
 Book 954, page 633, of Crittenden County Deed Records.

## Deed Notice of Capped Facility

EPA ID# ARD035662469  
 Congressional District 1  
 Section 23, Township 6N, Range 7E



Image from GlobeExplorer  
11/01/2004 1:6,000

Map Created 04/27/06

