

**Five-Year Review Report**

for

**Johns' Sludge Pond Site**

**Wichita, Kansas**

**September 2007**

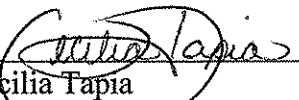
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**Region VII**

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Approved by:

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9/19/07

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## List of Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
BAT/BMP	Best Available Technology/Best Management Practices
CERCLA	Comprehensive Environmental Response, Conservation, and Liability Act
CFR	Code of Federal Regulations
Cm/second	Centimeters per second
EUC	Environmental Use Control
KDHE	Kansas Department of Health and Environment
MCL	Maximum Contaminant Level
mg/kg	Milligrams per kilogram
mg/l	Milligrams per liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NTU	Nephelometric Turbidity Unit
OSWER	Office of Solid Waste and Emergency Response
PCBs	Polychlorinated biphenyls
ppb	Parts per billion
ppm	Parts per million
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SMCL	Secondary Maximum Contaminant Level
TSCA	Toxic Substances Control Act
ug/kg	Micrograms per kilogram
ug/l	Micrograms per liter

## **Executive Summary**

The fourth five-year review of the Johns' Sludge Pond site (Site) in Wichita, Kansas, has been completed. The remedy of no further remedial action was selected in the Record of Decision which was agreed to by the Environmental Protection Agency (EPA) and the Kansas Department of Health and Environment (KDHE) on September 22, 1989. EPA and KDHE found the cleanup already conducted at the Site by the city of Wichita under EPA's oversight satisfied the criteria established in section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for the selection of remedial actions and was protective of human health and the environment. In 1986, the city of Wichita completed a site cleanup which consisted of (1) removal of contaminated sludge from the disposal cell and stockpiling on adjacent ground surface, (2) installation of a clay liner on the bottom of the disposal cell, (3) solidifying the stockpiled sludge with cement kiln dust, (4) re-depositing the solidified sludge in the lined disposal cell, (5) constructing a compacted clay cap over the sludge and on the sidewalls of the disposal cell, (6) installation of a soil cover over the clay cap and seeding with vegetation, (7) construction of a fence, (8) land use restrictions (specified in the property deed and Consent Order), and (9) post-closure groundwater monitoring and surface water monitoring.

The remedy has continued to be effective. The groundwater and surface water monitoring continue to be conducted semiannually by the city of Wichita, Department of Environmental Health; and the post-closure maintenance of the Site continues to be provided by the city of Wichita, Public Works Department and Park Service. As part of this five-year review, a site inspection was conducted on June 5, 2007. The site inspection revealed the landfill has been maintained well and has a thick vegetative cover, and the groundwater monitoring wells were in good condition and locked. Groundwater monitoring data collected by the city of Wichita are included in Attachment 2. The Site is protective of human health and the environment.

## Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): Johns' Sludge Pond		
EPA ID (from WasteLAN): KSD980631980		
Region: VII	State: KS	City/County: Wichita/Sedgewick
SITE STATUS		
NPL status: <input type="checkbox"/> Final <input checked="" type="checkbox"/> Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): <input type="checkbox"/> Under Construction <input type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete		
Multiple OUs? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Construction completion date: 09 / 23 / 1991	
Has site been put into reuse? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
REVIEW STATUS		
Reviewing agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
Author name: Catherine Barrett		
Author title: Remedial Project Manager	Author affiliation: EPA Region VII	
Review period: 11 / 2006 to 09 / 2007		
Date(s) of Site Inspection: 06 / 05 / 2007		
Type of review: <input checked="" type="checkbox"/> Statutory <input type="checkbox"/> Policy ( <input type="checkbox"/> Post-SARA <input 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)		
Review number: <input type="checkbox"/> 1 (first) <input type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input checked="" type="checkbox"/> 4 (fourth)		
Triggering action: <input type="checkbox"/> Actual RA On-site Construction at OU # ____ <input type="checkbox"/> Actual RA Start at OU# ____ <input type="checkbox"/> Construction Completion <input checked="" type="checkbox"/> Previous Five-Year Review Report <input type="checkbox"/> Other (specify)		
Triggering action date (from WasteLAN): 09 / 23 / 2002		
Due date (five years after triggering action date): 09 / 23 / 2007		

## **Five-Year Review Summary Form**

### **Issues:**

The existing deed restriction should be superceded with an Environmental Use Control covenant to address potential marketable title issues which may arise in the future prior to the next five-year review.

### **Recommendations and Follow-up Actions:**

The Site's groundwater, surface water, and sediment monitoring should continue to be conducted by the city of Wichita, Department of Environmental Health; and the Site's capped area and monitoring wells should continue to be inspected and maintained by the city of Wichita, Department of Public Works and Park Service. Groundwater, surface water, and sediment monitoring data have been consistent over the last five years since the last five-year review. It is recommended the frequency of groundwater, surface water, and sediment sampling be reduced from the current semiannual monitoring to annual monitoring.

### **Protectiveness Statement:**

All immediate threats at the Site have been addressed. Long-term protectiveness of the remedial action has been verified by groundwater, surface water, and sediment data. Current monitoring data indicate the remedy is effective. An institutional control has been placed on-site. The remedy for the Site is protective of human health and the environment.

## **Johns' Sludge Pond Site Five-Year Review Report**

### **I. Introduction**

The Environmental Protection Agency (EPA), in cooperation with the Kansas Department of Health and Environment (KDHE), has conducted a five-year review of the Superfund remedial action implemented at the Johns' Sludge Pond site (Site) in the city of Wichita, Sedgwick County, Kansas.

The five-year review report is completed pursuant to section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA); section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Contingency Plan (NCP); and EPA/Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-03B-P, Comprehensive Five-Year Review Guidance (June 2001).

The purpose of the five-year review is to ensure the remedy at the Site remains protective of human health and the environment. The five-year review report identifies any deficiencies found and provides recommendations.

This five-year review is required by statute and is implemented consistent with CERCLA and the NCP. CERCLA section 121(c), as amended, states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP Part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

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

This is the fourth five-year review for the Site. The triggering action for this review is the third five-year review.



## II. Site Chronology

Table 1 lists the chronology of events for the Site.

TABLE 1 Chronology of Site Events

Date	Event
1980	Initial discovery of the problem
12/30/1982	Proposal to National Priorities List (NPL)
09/08/1983	Final Listing on NPL
1983	Potentially Responsible Party (PRP) Search
02/1984	Preliminary Assessment
1983, 1985	Consent Orders
1986	PRP Removal
1989	PRP Feasibility Study
09/22/1989	Record of Decision
1991	Close-Out Report
1991	First Five-Year Review Report
1992	Deletion from NPL
1994	Cost Recovery Decision Document
1997	Second Five-Year Review Report
2002	Third Five-Year Review Report
04/03/2003	Groundwater Monitoring Report
04/15/2004	Groundwater Monitoring Report
10/19/2004	Groundwater Monitoring Report
04/09/2005	Groundwater Monitoring Report
10/11/2005	Groundwater Monitoring Report
04/20/2006	Groundwater Monitoring Report
10/09 and 26/2006	Groundwater Monitoring Report
04/13/2007	Groundwater Monitoring Report
02/07/2007	Public Notice to Initiate Five Year Review
06/05/2007	Five-Year Review Site Visit

### **III. Background**

#### **Physical Characteristics**

The Site is located at 29<sup>th</sup> and Hydraulic Streets in the northern portion of the city of Wichita in Sedgwick County, Kansas. The Site is approximately ½ acre and is in an area north of an industrialized section of Wichita. The Site is located in the 500-year flood plain of the Little Arkansas River and is about 1,100 feet east of the river. Surface water runoff from the Site drains into the East Fork of Chisholm Creek. Chisholm Creek then drains into a concrete-lined ditch or canal approximately 6,000 feet south of the Site. The ditch parallels the adjacent Interstate Highway 135 and receives runoff from the highway before discharging into the Arkansas River in the southern part of the city about 7.0 miles south of the Site.

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

Land uses immediately surrounding the Site include a large rail yard south and southwest of the Site, an interstate highway to the west, a large borrow pit to the north (excavated for the construction of the adjacent highway and now filled with water), and farm fields to the east and southeast of the rail yard. The nearest residences are approximately .5 mile south-southeast of the Site. Much of the land in the vicinity of the Site is industrialized and includes several large grain elevators, a rail yard, an oil refinery, and other industrial operations. A dirt road, which is elevated above the existing grade, separates the Site from the borrow pit and prevents any runoff from the Site from reaching the borrow pit.

The Arkansas River valley consists of unconsolidated alluvium and terrace deposits of Upper Pleistocene age (Wisconsin-Recent). These surficial deposits are composed of fine- to coarse-grained sands and fine- to coarse-grained gravels with clayey silt in the upper portions of the sequence. In the western part of the county, these deposits are an important groundwater source with the sands and gravels providing adequate water production rates. The rates decrease eastwardly as the percentage of clays and silts increases toward the eastern edge of the flood plain.

The alluvial deposits are underlain by the Wellington Formation which consists of calcareous shale, inter-bedded gypsum and anhydrite, and salt. In some western portions of the county, the salt thickness can reach as much as 300 feet.

Local groundwater flow direction has been calculated to be toward the south-southeast using the monitoring wells around the Site. The Wellington formation southeast of the Site yields less water than the alluvium found closer to the river.

The alluvium thickness is generally about 50 feet thick at the Site and consists of silty clay with sand intervals ranging from 5 to 15 feet in thickness. Eastwardly, the alluvium is thinner and eventually is truncated, outcropping at the surface. The Wellington Formation also

outcrops at the extreme eastern edge of the flood plain. Typically, any wells finished in the Wellington Formation would be completed between 40 and 50 feet deep, large in diameter (providing for adequate storage volumes), and used for limited domestic and livestock supplies or as process water. In general, the production rates in wells near the Site are low. Within the bedrock, water occurs in solution cavities, crevices, and openings in the weathered upper portions of the Wellington Shale formation and in the void spaces of the overlying alluvial soils.

Two municipal wells exist in the area but are located considerably upgradient (3.5 to 4.5 miles) and are not at risk of contamination by the Site. EPA completed a groundwater use survey and identified 13 private wells within 1.5 miles of the Site. Of these 13 wells only three were used for drinking water; and all three of these are upgradient and are, therefore, at little or no risk of contamination by any contaminant releases from the Site. All three of these wells appear to be above thicker alluvial deposits than are found downgradient of the Site. The alluvial deposits yield more water and are more productive than the underlying shale found near the surface in the absence of the alluvium.

Groundwater at the Site contains levels between 500 to 700 milligrams per liter (mg/l) total solids. Naturally occurring chloride concentrations also tend to be high and ranged between 38 to 227 mg/l. The chloride values are still less than the 250 mg/l Secondary Maximum Contaminant Level (SMCL) established by EPA under the Safe Drinking Water Act. The SMCL sets maximum levels for contaminants in water which could discourage or limit water use when present at sufficient concentrations. The SMCLs deal with taste, odor, color, and corrosiveness of the water. SMCLs are advisory and not legally enforceable. The distribution of dissolved solids in the groundwater is closely related to the geology and hydrology of the area. The high concentrations of dissolved solids in the water are attributable to the Wellington Formation where the shale contains large amounts of gypsum, anhydrite, and locally thin seams of salt. A zone of highly mineralized groundwater is found adjacent to the river. The zone is the result of movement of mineralized water from the river into the aquifer. Conductivity measurements taken in June 1987 indicated total solids concentrations ranging from 449 to 1,079 mg/l.

On-site groundwater from monitoring wells tends to be very turbid, containing a large amount of suspended or particulate matter. EPA analyzed groundwater for nephelometric turbidity units (NTUs) and reported a value of 101. EPA has established a Maximum Contaminant Level (MCL) for surface water supplies of 1.0 NTU. This turbidity measure of 101 NTUs in the on-site monitoring well water is an indication of the unsuitability of the groundwater as a drinking water source.

### **History of Contamination**

In the 1950s and 1960s up to 1970, the Site was used by the Super Refined Oil Company (also known as the Johns' Refinery) for the disposal of waste oil and oily sludge generated in its recycling/reclamation of motor oil and other oils at the Johns' Refinery, located on 21<sup>st</sup> Street, approximately 1.5 miles southwest of the Site in Wichita. The recycling process used sulfuric acid and clay to precipitate and adsorb contaminants from the oil thereby creating acidic sludge

containing elevated levels of lead. Polychlorinated biphenyls (PCBs) were introduced into the sludge through the recycling of dielectric fluids. The pond contained an estimated 15,000 cubic yards of oily sludge prior to cleanup. In 1970, the Johns' Refinery went out of business shortly after the death of the owner-operator (at the time of waste disposal), Ava Johns. By 1983, the city of Wichita had acquired a portion of the Site. The city had condemned and thereby acquired about one-half of the Site in order to provide drainage for the interstate highway being built, which is now located immediately west of the Site. The condemnation occurred before the Site was placed on the NPL by EPA. The Johns' estate owns the remainder of the Site.

The method of sludge disposal was to transport the semi-liquid, oily sludge to the Site via truck and transfer it into the pond. Sulfuric acid was used by the owner at the time in refining waste oil for recycling. The inflow of surface water into the disposal cell resulted in a very acidic layer of water over the sludge layer. The cell was unlined and had no leachate collection system. Originally, the cell lacked berms or any other measures to prevent the overflow and release of contaminated waters into nearby surface waters. During heavy rains, the Site would release contaminated water into the drainage of Chisholm Creek and the Arkansas River. Prior to EPA's involvement in the Site, the city of Wichita built a berm around the Site which prevented any additional contamination of surface waters.

### **Initial Response**

In 1983 during investigations by the city of Wichita and Sedgwick County, the sludge and water in the pond were found to be very acidic with a pH level as low as 1.0 in the water; the sludge was found to contain elevated concentrations of lead and low levels of PCBs, other metals, and other organics. Some of the wastes disposed of at the Site were flammable as evidenced by the occasional fires which reportedly occurred several years before EPA's involvement with the Site. Four shallow, alluvial monitoring wells surround the Site and are used for groundwater sample collection. Groundwater, surface water, and sediment samples were collected at the Site by EPA, the city of Wichita, and Sedgwick County Health Department.

EPA placed this Site on the NPL on September 8, 1983. In November 1983, EPA issued a Consent Order under section 106 of CERCLA to the city of Wichita, as the owner of the Site, requiring an interim cleanup action to be conducted by the city of Wichita for this Site. The city of Wichita submitted a work plan to EPA for this work which EPA approved.

### **Basis for Taking Action**

The principal hazard associated with the wastes disposed of in the pond was the acidity of the sludge and the water on top of the sludge. The water had a pH level as low as 1.0. The sludge also contained high concentrations of lead and low levels of PCBs, other metals, and other organics; some of the wastes disposed of at the Site were flammable.

Interim remedial measures were implemented primarily to prevent direct contact exposures to the acidic, lead-contaminated sludge and water in the sludge pond. A secondary objective was to mitigate the Site as a source of groundwater contamination.

#### **IV. Remedial Actions**

##### **Remedy Selection**

A Record of Decision (ROD) for the selection of the remedy was written and signed on September 22, 1989. The remedy recommended was the no further action alternative. EPA evaluated the adequacy of the interim remedial actions and determined these interim actions to be the final remedial actions. In addition, the ROD remedy included post-closure maintenance, groundwater, surface water, and sediment monitoring, and land use restrictions. The land use restrictions were included as part of the Consent Order.

##### **Remedy Implementation**

In 1985 and 1986, the Site remediation was completed by the city of Wichita under EPA oversight. The Site cleanup included the following remedy:

- (1) Sludge was removed from the existing disposal cell and stockpiled on the adjacent ground surface.
- (2) A compacted clay liner was constructed on the bottom of the disposal cell using clay soils of suitable density, plasticity, particle size, moisture content, compaction, and a permeability no greater than  $10^{-7}$  centimeters per second (cm/second).
- (3) Stockpiled sludge was solidified with cement kiln dust. A ratio of 2.5:1 (cement kiln dust to sludge) was initially selected for treatment of the upper sludge and a ratio of .5:1 for the lower sludge. During remedy implementation, it was evident portions of the sludge required additional quantities of cement kiln dust, which were used. Solidification of the sludge with cement kiln dust accomplished the following objectives:
  - It tied up the lead in the mixture of cement kiln dust and sludge and reduced the potential for lead to be released and contaminate groundwater.
  - It raised the pH level of the sludge mixture and further reduced the potential for lead to be released and contaminate groundwater. (As the pH level is raised, the solubility of lead in water is reduced.)
  - It improved the structural stability of the sludge-cement kiln dust mixture to support a low permeability cap and cover which reduced the potential for direct contact exposures and contaminant releases from the Site.
- (4) The sludge-cement kiln dust mixture was then redeposited back into the lined disposal cell. To further reduce the potential for direct contact exposures and to reduce the potential for water to percolate through the fixed sludge, a compacted

- clay cap over the top and on the sidewalls was installed. As with the clay liner, a permeability value no greater than  $10^{-7}$  cm/second was achieved.
- (5) To improve long-term stability and ensure continued encapsulation of the treated sludge, a soil and vegetative cover was installed above the clay cap. The soil cover consisted of silt and loam topsoil. A mixture of buffalo grasses was used as the vegetative cover.
  - (6) As the final step in the remedy after the installation of the cap and cover was completed, a woven wire fence four feet in height was installed around the perimeter of the Site. Warning signs were posted at various locations on the fence. The fence prevents dirt-bike riding and other activities which could damage the cap and cover. The fence also excludes unauthorized personnel from entering the Site. A land use restriction was obtained for the property. The land use restriction prevents or controls changes in land uses which could interfere with the effectiveness of the cleanup conducted or which would have the potential to release contaminants into the environment.

This remedial action during 1985 and 1986, resulting in the stabilization of the sludge with the pozzolanic material and the capping of the Site, created a chemical waste landfill under the Toxic Substances Control Act (TSCA), 15 U.S.C. 2600.

### **System Operation/Operation and Maintenance**

A Post-Closure Monitoring Plan was agreed to by EPA, KDHE, the city of Wichita, and the Sedgwick County Department of Health. The Environmental Health Division of the Wichita-Sedgwick County Department of Community Health was designated to be responsible for the Site monitoring with the Environmental Health Division Director serving as the point-of-contact for the monitoring activities. The monitoring under the Post-Closure Monitoring Plan was designated to be conducted for at least 20 years.

The Post-Closure Monitoring Plan required (1) monthly inspection of the physical features of the landfill such as cover integrity, vegetative cover, fences, warning signs, and inspection of the slope and cap of the landfill for the presence of leachate seeps; (2) semiannual monitoring including (a) groundwater monitoring of four monitoring wells surrounding the landfill, three of these wells downstream of the landfill and one well upstream to be analyzed for PCBs and lead; (b) surface water monitoring of the borrow pit adjacent to the landfill (about 50 yards north) to include eight grab samples, two at surface and two at depth to be analyzed for PCBs, lead, pH level, and specific conductance; and (c) sediment monitoring of the adjacent borrow pit to include two sediment grab samples collected using an Ekman dredge to be analyzed for PCBs; and (3) depth-to-water measurements in the four groundwater monitoring wells.

The evaluation standards for the inspection of the physical features of the landfill were specified as (1) clay cap – visually inspect for erosion or uneven settling and if detected notify the city of Wichita, Operations and Maintenance Division; (2) vegetative cover – visually inspect for bare or dead areas larger than one square foot and notify the city of Wichita, Operations and

Maintenance Division if found and inspect for trees or woody vegetation taller than one foot and remove by cutting if found; (3) warning signs – inspect for legibility and replace if needed; (4) fence – inspect for breaks and repair if needed; and (5) discharges – inspect for discharge of leachate from the sides and cap of the landfill, and any leachate found should be sampled (as well as adjacent soil) and analyzed for PCBs and lead, and EPA and KDHE should be notified if leachate is observed.

The Wichita-Sedgwick County Department of Health has been conducting the semiannual groundwater, surface water, and sediment monitoring. The Wichita Public Works Department provides post-closure maintenance at the Site of the cap, the vegetative cover, and the fence surrounding the Site.

During 1991 additional monitoring wells were installed, and data interpretation of contaminant flow sampling and analysis was provided by the U.S. Army Corps of Engineers through an Interagency Agreement with EPA.

The Site achieved construction completion when the Close-Out Report was signed on September 23, 1991.

The deletion of this Site from the NPL was completed, and the final deletion notice appeared in the *Federal Register* on January 6, 1992.

Table 2 shows a summary of the concentrations of lead in the groundwater over the years from 1982 through 1996 for MW1, MW2, MW4, MW5, MW6, MW7, MW8, and MW9. Figure 2 shows the Site including the locations of the monitoring wells and the sludge pond.

The Wichita-Sedgwick County Department of Health continued to conduct the required semiannual monitoring of groundwater from monitoring wells and monitoring of surface water and sediments from the borrow pit for lead and PCBs during 1997, 1998, 1999, 2000, and 2001. No significant contamination has been detected during these sampling events. Table 3 shows contaminant concentrations from 1997 through 2001.

Institutional controls for this Site were recorded in Sedgwick County by the Register of Deeds on February 27, 1987. The restrictive covenant required:

...the owners of the property, their successors and assigns, may not, without the express prior written consent of KDHE, EPA, and City of Wichita, use or develop such property in any way which would involve: (a) removal of waste material stored at the site, (b) construction of structures, permanent or otherwise but not including monitoring wells or security fencing, (c) changing of drainage patterns, (d) removal or disturbance of environmental monitoring stations installed thereon, (e) production, use or sale of food chain crops, (f) removal of security fencing,

signs or other devices installed or used to restrict public access to areas thereof used for waste storage or disposal, and (g) alteration of type of vegetation grown on the areas used for waste storage or disposal.

On July 30, 1996, a water well ordinance was recorded in Sedgwick County as follows:

(a) no new water well shall be constructed and used for personal use if the Health Officer determines that such well is in a contaminated area, and (b) any existing water well shall cease to be used for personal use if the Health Officer determines that (1) the well is in a contaminated area, (2) public water is available to the water well user, and (3) the cessation of use of the water well for personal use is in the best interest of public health, safety, and welfare.

## **V. Progress Since the Last Five-Year Review**

The last five-year review was completed on September 23, 2002. In the last five-year review, the remedy was determined to be protective of human health and the environment. No issues have been identified during this five-year review.

Since the last five-year review, the Wichita-Sedgwick County Department of Community Health, and more recently, the city of Wichita's Department of Environmental Health, has continued to conduct the semiannual groundwater monitoring of the Site's monitoring wells and the surface water and sediment sampling of the borrow pit, now known as Cruiser Lake. Over the last five years, the city of Wichita's Public Works Department has been responsible for the landfill inspections and the general maintenance of the Site including the maintenance of the monitoring wells and the landfill cap. A reorganization of the city and county offices allowed the city of Wichita's Department of Environmental Health to take over certain responsibilities from the Wichita-Sedgwick County Department of Community Health. The responsibilities for the sampling of groundwater monitoring wells, surface water, and sediment at the Site are now assigned to the city of Wichita's Department of Environmental Health due to the reorganization of the city and county offices.

Operation and maintenance costs have been \$2,704 for analytical laboratory (semiannual); \$1,920 for sampling labor; \$600 for mowing (four times per year); \$125 for fence repair and graffiti removal; total \$5,349 yearly—\$26,745 over five years. The city of Wichita's Public Works Department and Park Service has provided maintenance of the Site with the Department of Environmental Health coordinating work and scheduling the Site sampling.

## **VI. Five-Year Review Process**

### **Administrative Components/Community Involvement**

The Site five-year review has included the following team members: Catherine Barrett, EPA Remedial Project Manager; Travis Daneke, KDHE Project Manager; Doris Leslie,



Department of Environmental Health, city of Wichita; Leroy Willis, Landfill Inspector, Department of Public Works, city of Wichita; Bill Emmons, Landfill Inspector, city of Wichita; and the EPA Community Involvement Coordinator.

This five-year review consisted of the following activities: (1) a review of relevant documents (Attachment 1); (2) discussions among representatives of EPA, the state of Kansas, KDHE, and the city of Wichita's Department of Environmental Health and Department of Public Works; and (3) a site inspection attended by EPA and the city of Wichita's Department of Environmental Health and Department of Public Works.

A public notice regarding the initiation of the five-year review was placed in the local newspaper, the *Wichita Eagle*, on February 7, 2007. At the end of the five-year review, a notice will be placed in the newspaper indicating the availability of the five-year review report. The completed five-year review report will be available in the information repository at the City Hall, city of Wichita, Kansas; at EPA Region VII Records Center, 901 North 5<sup>th</sup> Street, Kansas City, Kansas; and at KDHE, Curtis State Office Building, 1000 SW Jackson Street, Topeka, Kansas.

### **Document Review**

Section 121(d) of CERCLA, as amended by SARA, requires remedial actions comply with applicable or relevant and appropriate requirements (ARARs) or standards under federal or state environmental statutes or regulations. Several ARARs have been considered in the ROD for this Site.

The ROD required if any groundwater impacted by the Site was used for water supply, drinking water must meet the MCL of 50 micrograms per liter (ug/l) for lead under the Federal Safe Drinking Water Act. There are no drinking water wells at risk of contamination by the Site.

Because of the setting of the Site with the highway to the west, the borrow pit to the north, and railroad tracks to the northwest and to the south, potential uses of the Site are limited. Land use restrictions have been placed on the property to prevent any change in the land use. The MCL for lead is not applicable at this Site because the Site has not contaminated public drinking water supplies. The MCL for lead would be relevant because MCLs are considered relevant to groundwater at Superfund sites. However, the MCL for lead is not considered appropriate because (1) lead found above the MCL in on-site groundwater is associated with the suspended solids and has not been found in the sediment-free groundwater; (2) the aquifer beneath the Site yields less than two gallons of water per minute which is insufficient for use as a public water supply; (3) the turbidity in groundwater is so high it is considered undrinkable; (4) the bicarbonates, carbonates, and sulfates in the groundwater are so high the water is unsuitable for domestic or commercial use; and (5) the iron concentrations in the Site's groundwater limit the potential uses of the water because of staining, disagreeable taste, and encrusting and clogging of pipes.

The remedy complies with state groundwater cleanup rules which require:

...use of best available technology and best management practices (BAT/BMP) as long as it is reasonable and practical to remove all contaminants, and in any event until water contamination remains below the action level for any contaminant.

Action levels are Lifetime Health Advisory Levels for noncarcinogens and the one-in-a-million cancer risk for carcinogens. The remedy is considered to be BAT/BMP for this Site.

The Resource Conservation and Recovery Act (RCRA) is not considered an ARAR for this Site because the sludge was neither a RCRA-listed nor a characteristic hazardous waste.

EPA Region VII considers the regulations on chemical waste landfills under the TSCA regulations to be ARARs for this Site. The average concentration of PCBs in the sludge was 44 milligrams per kilogram (mg/kg) which is less than the 50 mg/kg level at which TSCA regulates current disposal. (Past PCB waste disposal is currently regulated under TSCA at concentrations above 500 mg/kg.) Therefore, the TSCA regulations for chemical waste landfills are not applicable to this Site. Nevertheless, the TSCA regulations are relevant and appropriate. For that reason, the reconstructed disposal cell was designed and constructed to meet the technical requirements of a TSCA chemical waste landfill. PCBs have not been found in the groundwater in post-closure monitoring.

### **Data Review**

The historical and current concentrations of the contaminants of concern at the monitoring locations are presented in Table 2, Table 3, Table 4, and Attachment 2. Table 3 includes monitoring data collected during 1997 through 2001. Table 4 includes monitoring data collected during 2002 through 2006. Current analytical data are included. The most recent groundwater monitoring data, surface water monitoring data, and sediment data collected in April 2007 are shown in Attachment 2.

### **Site Inspection**

On June 5, 2007, a site inspection was conducted by Catherine Barrett, Remedial Project Manager, EPA; Doris Leslie, Department of Environmental Health, city of Wichita; Leroy Willis, Landfill Inspector, Department of Public Works, city of Wichita; and Bill Emmons, Landfill Inspector, Department of Public Works, city of Wichita. Prior to the inspection, Catherine Barrett, EPA, and Doris Leslie, city of Wichita, met at the Department of Environmental Health city offices. The city of Wichita's Public Works Landfill Inspectors Leroy Willis and Bill Emmons arrived at the Site and met with Doris Leslie and Catherine Barrett at MW-7.

The purpose of the inspection was to assess the protectiveness of the remedy including the maintenance of the Site, the landfill cap, the groundwater monitoring wells, the fence surrounding the Site, and the institutional controls. During the inspection, the groundwater, surface water, and sediment monitoring locations were observed. The groundwater monitoring wells and the Site property including the cap and the surrounding fence were inspected.

The Site was entered via 29<sup>th</sup> Street and New York Street to begin the inspection. The first monitoring well which was observed was MW-7. MW-7 was on the south side of the road southeast of the cap and was in good condition and locked. MW-8 was west of MW-7 and was in good condition. Next after city Landfill Inspectors Leroy Willis and Bill Emmons arrived on-site, the group crossed the Union Pacific railroad tracks and drove along the access road to the capped area. The access road has been well maintained. The cap was observed and had a thick growth of grasses which had been mowed recently. A fence surrounds the capped area and has been well maintained. MW-2 was located north of the capped area between the access road and the surface water borrow pit which is known as Cruiser Lake. The area around Cruiser Lake is part of Grove Park which extends to the north, east, and south of the Site. A *No Trespassing* sign was attached to the fence on the west side of the cap. MW-1 was located northwest of the access road, and the cap and was in good condition and was locked. MW-4 southwest of the cap was in good condition and was locked. Next the group traveled back east along the access road and south across the railroad tracks to locate other monitoring wells. MW-9 was on the south side of the road south of the cap and south of the railroad tracks and was in good condition. MW-6 was in good condition and located southwest across the railroad tracks from the cap between Interstate Highway 135 and a drainage ditch. MW-5 west of MW-6 and across and west of Interstate Highway 135 was in good condition and locked.

## **VII. Technical Assessment**

The following conclusions support the determination the remedy at the Site is expected to continue to be protective of human health and the environment.

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

Implementation of Institutional Controls and Other Measures – The city of Wichita continues to own the property which is the Site, and there are no current or planned changes in land use at the Site. A land use restriction has been obtained for the property, and this prevents changes in land uses which could interfere with the effectiveness of the cleanup conducted. A restrictive covenant was recorded by the Register of Deeds in Sedgwick County on February 27, 1987, and includes restrictions as follows:

...the owners of the property, their successors and assigns, may not, without the express prior written consent of KDHE, EPA and City of Wichita, use or develop such property in any way which would involve (a) removal of waste material stored at the site, (b) construction of structures, permanent or otherwise but not including monitoring wells or security fencing, (c) changing of drainage patterns,

(d) removal or disturbance of environmental monitoring stations installed thereon, (e) production, use or sale of food chain crops, (f) removal of security fencing, signs or other devices installed or used to restrict public access to areas thereof used for waste storage or disposal, and (g) alteration of type of vegetation grown on the areas used for waste storage or disposal.

A water well ordinance was recorded in Sedgwick County on July 30, 1996, which prohibits construction of a water well in a contaminated area and requires any existing well cease to be used for personal use if the Health Officer determines that (1) the well is in a contaminated area; (2) public water is available to the water well user; and (3) the cessation of use of the water well for personal use is in the best interest of public health, safety, and welfare.

Remedial Action Performance – The remedy has been shown to be effective. The monitoring has indicated the lead concentrations have been nondetect as shown in Table 3 and Table 4.

System Operations/Operation and Maintenance – System operation and maintenance procedures are consistent with the requirements of the Post-Closure Monitoring Plan.

Cost of System Operations/Operation and Maintenance – Costs of operation and maintenance have been within an acceptable range.

Opportunities for Optimization – The sampling frequency may be reduced because contaminants have been found to be nondetect.

Early indicators of Potential Remedy Failure – No early indicators of potential remedy failure were noted during the review. Costs and maintenance activities have been consistent with expectations.

**Question B: Are the assumptions used at the time of the remedy selection still valid?**

Changes in Standards and To Be Considereds – No new standards have been introduced which would be more stringent or which would affect protectiveness at the Site except the MCL for lead has been changed to 15 ug/l, and the MCL for arsenic has been changed to 10 ug/l.

Changes in Exposure Pathways – No changes in the Site's conditions that affect exposure pathways were identified as part of this five-year review. There are no current or planned changes in land use. No new contaminants, sources, or routes of exposure were identified as part of this five-year review. There is no indication hydrologic or geologic conditions are not adequately characterized. The contaminant levels in groundwater, surface water, and sediments are consistent with expectations at the time of the ROD.

Changes in Toxicity and Other Contaminant Characteristics – Toxicity and other factors for contaminants of concern have not changed.

Changes in Risk Assessment Methodologies – There are no changes in risk assessment methodologies since the time of the ROD’s approval which call into question the protectiveness of the remedy.

Other Changes – Since the filing of the deed restrictions, KDHE has created the Environmental Use Control (EUC) program which includes deed restrictions and periodic inspections. The existing deed restriction should be superceded with an EUC-conforming covenant to address potential marketable title issues that may arise in the future with the existing deed restriction.

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

No additional information has been identified that would call into question the protectiveness of the remedy.

**VIII. Issues/Deficiencies**

There were no deficiencies observed during this five-year review.

**IX. Recommendations for Follow-up Actions**

The existing deed restriction should be superceded with a KDHE EUC covenant. Because sampling results have shown little change during the last five years, it is recommended the frequency of sampling be reduced from semiannual to annual. The inspection of the landfill and mowing should continue at the same quarterly frequency.

**X. Protectiveness Statements**

The results of the five-year review indicate the remedy is protective of human health and the environment. The remedy has been shown to be effective. The solidification of sludge with cement kiln dust, the lining of the disposal cell, and the capping of the Site reduced the solubility of lead—the principal chemical contaminant—and eliminated the threat to direct contact exposure. The Site has not been shown to cause any significant adverse impact on the environment.

**XI. Next Review**

This is a statutory five-year review. Five-year reviews have been conducted in the years 1991, 1997, and 2002. The Post-Closure Monitoring Plan continues to be the plan for the monitoring of groundwater in monitoring wells and the monitoring of surface water and sediments in the borrow pit (Cruiser Lake). CERCLA section 121(c) and the NCP Part 300.430

(f)(4)(ii) of the CFR state if a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action. The next five-year review report will be conducted in the year 2012.

## **XII. Other Comments**

The city of Wichita, Department of Environmental Health, will continue to conduct the monitoring of groundwater, surface water, and sediments at the Site. Inspections and follow-up maintenance of the Site will continue to be conducted by the city of Wichita, Department of Public Works and Park Service.

**ATTACHMENTS**

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



## Documents Reviewed

“Consent Order In The Matter of Johns’ Sludge Pond, City of Wichita, Kansas”, by the city of Wichita and the Environmental Protection Agency, December 8, 1983.

“Removal Action Report” by the city of Wichita, May 1, 1986.

“Post-Closure Monitoring Plan, Johns’ Sludge Pond Chemical Waste Landfill, Wichita, Kansas” by the Wichita-Sedgwick County, Department of Community Health, October 8, 1986.

“Restrictive Covenant” recorded by the Register of Deeds in Sedgwick County, February 27, 1987

“Record of Decision for the Johns’ Sludge Pond, Wichita, Kansas” by the Environmental Protection Agency, September 22, 1989.

“Close-Out Report for the Johns’ Sludge Pond Site, Wichita, Kansas” by the Environmental Protection Agency, January 31, 1991.

“Five-Year Review Report for the Johns’ Sludge Pond Site, Wichita, Kansas” by the Environmental Protection Agency, June 21, 1991.

“Five-Year Review Report for the Johns’ Sludge Pond Site, Wichita, Kansas” by the Environmental Protection Agency, May 6, 1997.

“Five-Year Review Report for the Johns’ Sludge Pond Site, Wichita, Kansas” by the Environmental Protection Agency, August 2002.

“Groundwater Monitoring Report” by the city of Wichita, Department of Environmental Health, April 3, 2003.

“Groundwater Monitoring Report” by the city of Wichita, Department of Environmental Health, April 15, 2004.

“Groundwater Monitoring Report” by the city of Wichita, Department of Environmental Health, October 19, 2004.

“Groundwater Monitoring Report” by the city of Wichita, Department of Environmental Health, April 9, 2005.

“Groundwater Monitoring Report” by the city of Wichita, Department of Environmental Health, October 11, 2005.

“Groundwater Monitoring Report” by the city of Wichita, Department of Environmental Health, April 20, 2006.

“Groundwater Monitoring Report” by the city of Wichita, Department of Environmental Health, October 9, 2006, and October 24, 2006.

“Groundwater Monitoring Report” by the city of Wichita, Department of Environmental Health, April 13, 2007.

**Attachment 2**

**Site Tables and Figures**

**Public Notice for Initiation of Five Year Review**

**Covenant Recorded by the Register of Deeds, Sedgwick County**

Table 2. Groundwater Lead Concentrations through 1996 - Johns' Sludge Pond.

Ground Water Lead Concentrations through 1996-Johns' Sludge Pond

All data in ug/l or parts per billion (ppb)

MW1	MW2	MW4	MW5	MW6	MW7	MW8	MW9
1982 (EPA, total lead)							
ND	ND	655	NS	NS	NS	NS	NS
1984 (EPA, total)							
ND	56	121	NS	NS	NS	NS	NS
May 1987 (County, total)							
94	4.0	34	NS	NS	NS	NS	NS
November 1987 (County, lead)							
40	39	81	NS	NS	NS	NS	NS
January 1988 (EPA total/dissolved lead)							
180/ND	11/5	NS	ND/ND	260/ND	ND/ND	NS	NS
June 1988 (EPA total/dissolved)							
20/ND	11/6.5		74/15	14/ND	28/ND	NS	NS
		360, 210/9*					
1988 (County, total)							
6.0	7.0	133	7.0	8.0	6.0	NS	NS
Sept. 1990 (County, total)							
9.0	6.0	37	ND	6.0	8.0	6.0	ND
June 1990 (Corps of Engineers for EPA: total, dissolved, settled)							
ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND
	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND
August 1990 (COE for EPA: total, dissolved, settled)							
ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND
	ND/ND	ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND	ND/ND/ND
April 1992 (County, total lead)							
ND	ND	ND	ND	ND	ND	ND	ND
April 1993 (County, total lead)							
ND	ND	ND	ND	ND	ND	ND	ND (at detection limit of 3 ppb)
September 1993 (County, total lead)							
ND	ND	ND	ND	ND	ND	ND	ND (at detection limit of 3 ppb)
March 1994, (County, total lead)							
ND	ND	ND	ND	ND	ND	ND	det limit: 3ppb
<u>MW1</u>	<u>MW2</u>	<u>MW4</u>	<u>MW5</u>	<u>MW6</u>	<u>MW7</u>	<u>MW8</u>	<u>MW9</u>

September 1994 (County)

<u>MW1</u>	<u>MW2</u>	<u>MW4</u>	<u>MW5</u>	<u>MW6</u>	<u>MW7</u>	<u>MW8</u>	<u>MW9</u>	det limit:
ND	ND	ND	ND	ND	ND	ND	ND	3 ppb

September 1995 (County)

ND	ND	ND	ND	ND	ND	ND	ND	det limit: 3 ppb
----	----	----	----	----	----	----	----	---------------------

April 1996 (County)

ND	ND	ND	ND	ND	ND	ND	ND	det limit: 3 ppb
----	----	----	----	----	----	----	----	---------------------

September 1996 (County)

ND	ND	ND	ND	ND	ND	ND	ND	det limit: 5 ppb
----	----	----	----	----	----	----	----	---------------------

ND-not detected

NS-not sampled

\* duplicate sample analysis

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**Table 3. Groundwater, Surface Water, and Sediment Concentrations during 1997, 1998, 1999, 2000, and 2001**

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Monitoring wells and surface water samples continued to be nondetect as follows.

PCB in water	ND (0.5) ug/l
Aluminum, dissolved	ND (0.10) mg/l to ND (0.50) mg/l
Lead, dissolved	ND (0.005) mg/l to ND (0.010) mg/l

---

Sediment samples from the borrow pit (pond) ranged as follows

---

	Mud #1	Mud #2
PCB in Solid	ND (.05 - .07) mg/kg	ND (.05 - .07) mg/kg
Aluminum, Total	5840 - 19,500 mg/kg	3090 - 19,700 mg/kg
Lead, Total	8.4 - 80.6 mg/kg	7.9 - 60.8 mg/kg

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**Table 4. Groundwater, Surface Water, and Sediment Concentrations during 2002 through 2006**

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Monitoring wells and surface water samples continued to be nondetect as follows:

PCB in water	ND 0.5 ug/l
Aluminum, dissolved	ND 0.50 mg/l
Lead, dissolved	ND 0.005 mg/l

---

Sediment samples from the borrow pit (pond) ranged as follows:

	Mud#1	Mud#2
PCB in Solid	ND 0.06 - 0.6 mg/kg	ND 0.06 - 0.6 mg/kg
Aluminum, Total	7350 - 15100 mg/kg	1600 - 14500 mg/kg
Lead, Total	8.9 - 58.3 mg/kg	4.8 - 17.1 mg/kg

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**Table 5. Groundwater, Surface Water, and Sediment Concentrations – April 10, 2007**

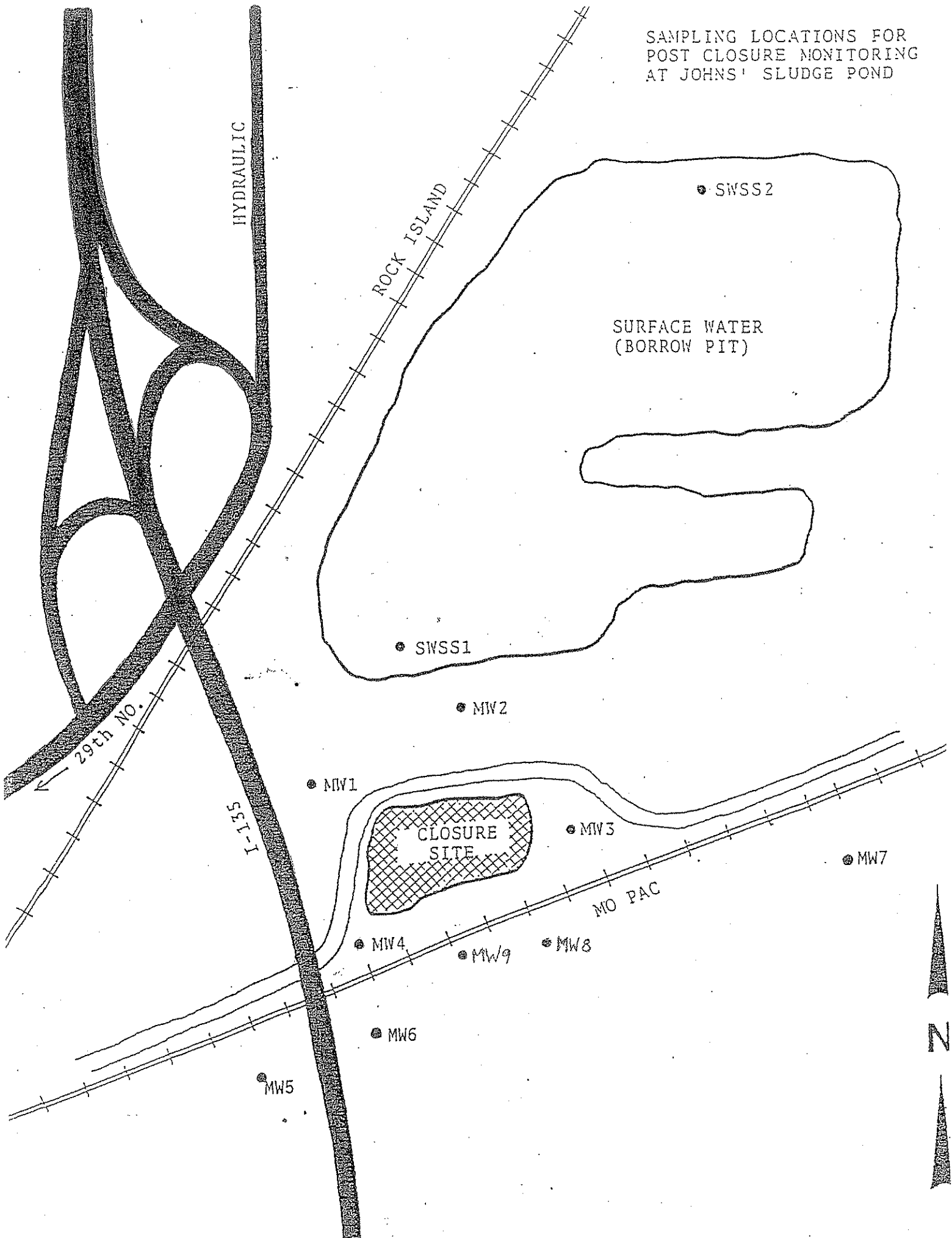
John's Sludge Pond Field Data Summary Table Sample Date 4/10/07									
Parameter	Well #1	Well #2	Well #4	Well #5	Well #6	Well #7	Well #8	Well #9	
Well Depth	39.07	32.5	30.7	49.85	52.08	50.4	48	53.25	
Water Level	21.6	19.18	21.89	20.4	20.44	22.38	18.8	23.2	
Water Column	11.5	9	6	19	20.5	18	19	19.5	
Bailed Volume	34.5	32.5	18	57	61.5	54	57	58.5	
pH	6.87	6.97	6.88	6.77	6.59	6.68	6.93	6.99	
Conductance (us)	1160	658	1300	1140	1989	1170	848	868	
Temp. Celsius	16.4	16.3	16.3	17.1	17	16.3	16.7	17.5	
PCBs 1016 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	
PCBs 1221 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	
PCBs 1232 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	
PCBs 1242 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	
PCBs 1248 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	
PCBs 1254 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	
PCBs 1260 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.5) ug/L	
Al. Dissolved (mg/L)	ND (0.50) mg/L	ND (0.50) mg/L	ND (0.50) mg/L	ND (0.50) mg/L	ND (0.50) mg/L	ND (0.50) mg/L	ND (0.50) mg/L	ND (0.50) mg/L	
Pb. Dissolved (mg/L)	ND (0.005) mg/L	ND (0.005) mg/L	ND (0.005) mg/L	ND (0.005) mg/L	ND (0.005) mg/L	ND (0.005) mg/L	ND (0.005) mg/L	ND (0.005) mg/L	
Temp. Celsius	15.1	15.1		14.5	14/5				
pH	8.17	8.28		8.41	8.38				
Conductance (us)	686	685		691	693				
PCBs 1016 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt			
PCBs 1221 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt			
PCBs 1232 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt			
PCBs 1242 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt			
PCBs 1248 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt			
PCBs 1254 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt			
PCBs 1260 (ug/L)	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt	ND (0.5) ug/L	ND (0.5) ug/L	ND (0.06) mg/kg dry wt			
Al. Dissolved (mg/L)	ND (0.50) mg/L	ND (0.50) mg/L	6900.0	ND (0.50) mg/L	ND (0.50) mg/L	5450.0			
Pb. Dissolved (mg/L)	ND (0.005) mg/L	ND (0.005) mg/L	241.0	ND (0.005) mg/L	ND (0.005) mg/L	17.4			
Solids (% by WT)			78.4			83.8			

**Figure 1. Location Map**



**Figure 2. Sampling Locations for Post Closure Monitoring at Johns' Sludge Pond**

SAMPLING LOCATIONS FOR  
POST CLOSURE MONITORING  
AT JOHNS' SLUDGE POND



**Public Notice for Initiation of Five Year Review**



**U.S. Environmental Protection Agency (EPA) Region 7  
and  
Kansas Department of Health and Environment (KDHE)  
to conduct  
Fourth Five-Year Review for the  
Johns' Sludge Pond Superfund Site  
Wichita, Kansas**

EPA and KDHE will conduct the fourth Five-Year Review at the Johns' Sludge Pond Superfund site. The review is required by the Superfund law to make sure the cleanup continues to protect human health and the environment.

The site Administrative Record is available at the following locations during normal business hours:

Wichita City Hall  
455 N. Main St.  
Wichita, Kan.

EPA Records Center  
901 N. Fifth St.  
Kansas City, Kan.

Questions or requests for information can be submitted to:

Fritz Hirter  
Community Involvement Coordinator  
EPA Region 7  
(913) 551-7003  
Toll free: (800) 223-0425  
e-mail: [hirter.fritz@epa.gov](mailto:hirter.fritz@epa.gov)



**Covenant Recorded by the Register of Deeds, Sedgwick County**

Approved by Board of Commissioners

COVENANT

this FEB 03 1987

WHEREAS, the City of Wichita is the owner of the following described real estate in Sedgwick County, Kansas, to wit:

All that part of the NW corner of the NW $\frac{1}{4}$  of Section 3, Township 27 South, Range 1 East lying north of the Missouri Pacific Railroad right-of-way.

Site: John's Dudge &  
ID #: KSD 98 06 319  
Block: 10.3  
Other: 2-5-8'

WHEREAS, the Environmental Protection Agency (EPA) and the Kansas Department of Health and Environment (KDHE) requested that the City of Wichita execute a restrictive covenant stating that any future use of the aforesaid property be conducted in a manner so as to preserve the integrity of the waste disposal site.

NOW, THEREFORE, the City does covenant and agree to certain restrictions being designed for the purpose of protecting public welfare burdening the aforesaid property as follows:

The owners of the above-described property, their successors and assigns, may not, without the express prior written consent of KDHE, EPA and City of Wichita, use or develop such property in any way which would involve:

- (a) removal of waste material stored at the site
- (b) construction of structures, permanent or otherwise but not including monitoring wells or security fencing
- (c) changing of drainage patterns
- (d) removal or disturbance of environmental monitoring stations installed thereon
- (e) production, use or sale of food chain crops
- (f) removal of security fencing, signs or other devices installed or used to restrict public access to areas thereof used for waste storage or disposal
- (g) alteration of type of vegetation grown on the areas used for waste storage or disposal

STATE OF KANSAS }  
SEDGWICK COUNTY }  
FILED FOR RECORD AT }  
2:00 }  
A }  
B }

FEB 27 1987

NO. 8 65458  
PAT KETTLER  
REGISTER OF DEEDS

*Ed Resal Deputy*

The City, KDHE and EPA shall have a perpetual right of ingress and egress at reasonable times over and across the above-described property to inspect and/or sample the site as part of the site closure activities.

Any new or future owners of this property shall be responsible for the site monitoring, inspection and maintenance that the City of Wichita has agreed to in order to ensure the continued integrity of the remedy implemented by the City of Wichita.

MICROFILMED  
OF RECORD

*city clerk*

*7.00*



**Attachment 3**

**Site Photos**



Cap - East Side





Cruiser Lake





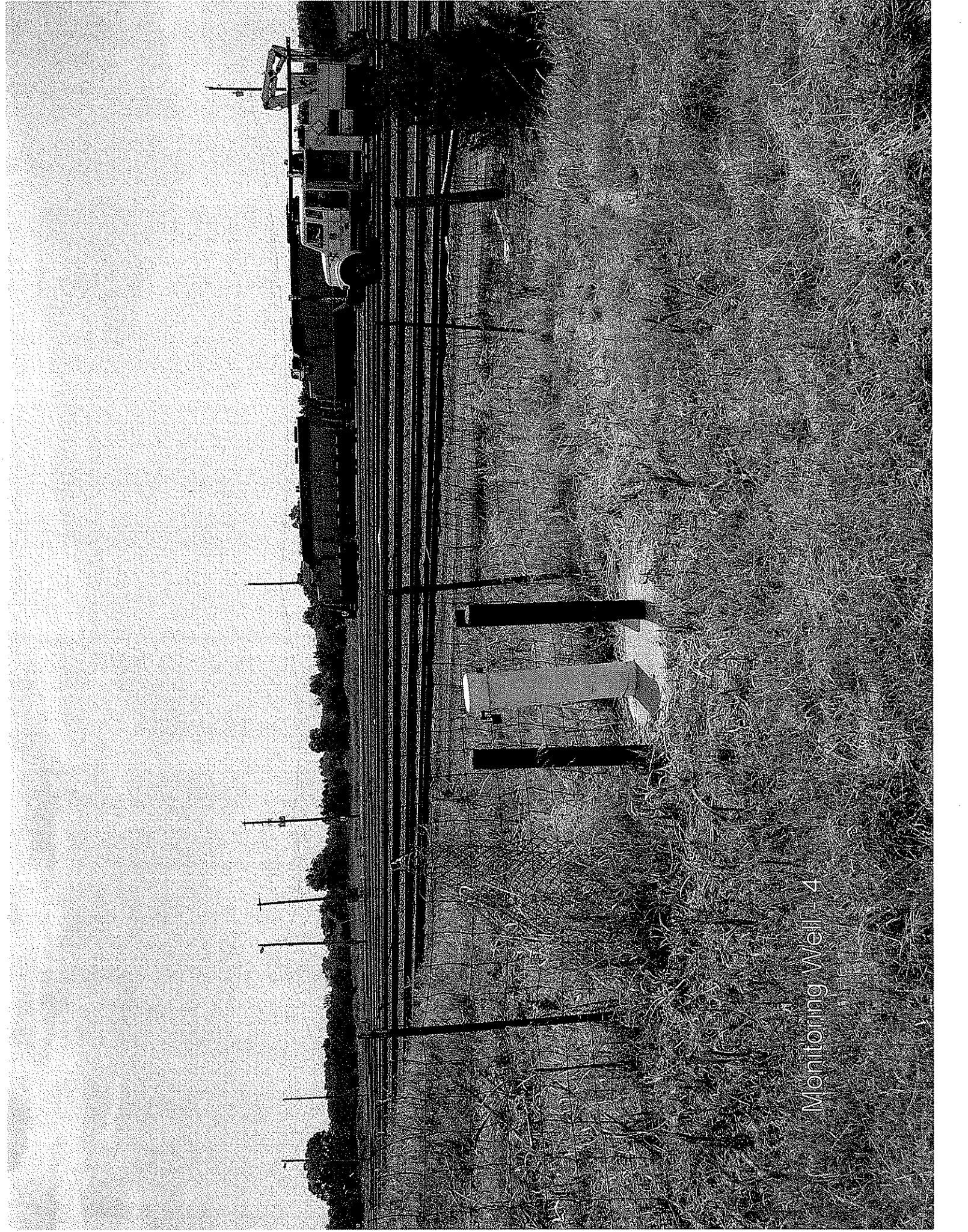
Cap - North Side





Cap West Side





Monitoring Well- 4