Second
Five-Year Review Report

Big River Sand Company Site
Wichita, Sedgwick County, Kansas

EPA ID: KSD980686174

February 2004

Prepared for:
U.S. Environmental Protection Agency
Region VII
901 North 5th Street
Kansas City, Kansas 66101

Prepared by:
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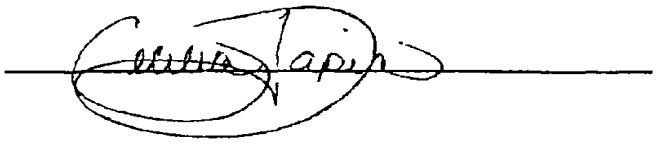
Approved by: Date:



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Abbreviations and Acronyms

ARAR	Applicable or relevant and appropriate requirements
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	below ground surface
BVSPC	Black & Veatch Special Projects Corp.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
FS	feasibility study
KDHE	Kansas Department of Health and Environment
MCL	maximum contaminant level
NCP	National Contingency Plan
NPL	National Priorities List
RA	remedial action
RAO	remedial action objective
RI	remedial investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act
TCE	trichloroethylene
ug/L	micrograms per liter
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

Executive Summary

The Big River Sand site is located in the south half of Section 2, Township 27 South, Range 1 West, Sedgwick County, Kansas. The site covers approximately 123 acres, half of which have been extensively mined for sand and gravel. The site is currently owned by Mr. Victor Eisenring. Sand and gravel operations are no longer active at the site. The Eisenring office and residence are located on the southern portion of the property.

A removal action was conducted by the site owner, Mr. Victor Eisenring, from 1982 to 1984. The removal action included disposal of hazardous paint sludges and solvent from the site. The Record of Decision (ROD) for the site, signed June 28, 1988, selected the No Further Action alternative as the final remedy for the Big River Sand Company site. The site was deleted from the National Priorities List (NPL) on October 14, 1992.

The first five-year review of the remedies at the site was completed in February 1999. The first five-year reviews concluded that the site remained protective of human health and the environment. The first five-year review recommended that a groundwater sample be either collected from monitoring well EMI S or in the immediate vicinity of E101 S during the next five-year review.

The assessment of this, the second, five-year review found that the remedies continue to be protective. The immediate threats have been addressed and the remedies remain protective of human health and the environment. Review of the analytical data from the groundwater sampling conducted as part of this review indicate that remedial action objectives (RAOs) identified in the ROD have been achieved. Specifically, the groundwater contamination has reduced to below the maximum contaminant levels (MCLs).

It is recommended that the five-year reviews be discontinued for the Big River Sand Company site.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site name *(from WasteLAN)* : Big River Sand Company Site

EPA ID *(from WasteLAN)*: KSD980686174

Region: 7	**State:** KS	**City/County:** Wichita/Sedgwick County

SITE STATUS

NPL Status: ☐ Final ☒ Deleted ☐ Other (specify) _____

Remediation Status (choose all that apply): ☐ Under Construction ☐ Operating ☒ Complete

Multiple OUs?* ☐ YES ☒ NO	**Construction completion date:** 06/28/1988

Has site been into reuse? ☒ YES ☐ No

REVIEW STATUS

Lead agency: ☒ EPA ☐ State ☐ Tribe ☐ Other Federal Agency _____

Author name: Genise M. Luecke

Author Title: Site Manager	**Author affiliation:** Black & Veatch

Review period: 10/01/2003 to 02/28/2004

Date(s) of site inspection: 12/19/2003

Type of review:
☒ Post -SARA ☐ Pre-SARA ☐ NPL-Removal only
☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead
☐ Regional Discretion

Review number: ☐ 1 (first) ☒ 2 (second) ☐ 3 (third) ☐ Other (specify) _____

Triggering action:
☐ Actual RA Onsite Construction at OU # ___ ☐ Actual RA Start at OU# ___
☐ Construction Completion (PCOR) ☒ Previous Five-Year Review Report
☐ Other (specify) _____

Triggering action date: *(from WasteLAN)*: 02/01/1999

Due date *(five years after triggering action date)*: 02/01/2004

*["OU" refers to operable unit.)
**[Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.)

Five-Year Review Summary Form, cont'd.

Issues:

No issues were identified.

Recommendations and Follow-up Actions:

It is recommended that this be the last five-year review conducted at the site. The selenium concentration in the groundwater sample collected in December 2003 from the direct-push boring completed 4 feet from monitoring well EIOIS was below the MCL. The remedial action objectives of the Record of Decision have been met.

Protectiveness Statement(s):

Because the remedial actions are protective, the site is protective of human health and the environment. The groundwater concentrations have reduced to below the MCL for selenium.

Other Comments:

None.

1.0 Introduction

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

The Agency is preparing this Five-Year Review report pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) § 121 and the National Contingency Plan (NCP). CERCLA § 121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after initiation of remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it- is the judgement of the President that action is appropriate at such a site in accordance with section [I04] or [106J, the President shall take or require such action. The President shall report to Congress a list of facilities for which such review is required, the results of such reviews, and any actions taken as a result of such reviews.*

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

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

The U.S. Environmental Protection Agency (USEPA) Region VII has conducted a five-year review of the remedial actions implemented at the Big River Sand Company site in Wichita, Sedgwick County, Kansas. This review was conducted by a contractor, Black & Veatch Special Projects Corp. (BVSPC), for the entire site from October 2003 through January 2004. This report documents the results of the review.

This is the second five-year review for the site. The first five-year review was completed by USEPA Region VII in February 1999. The triggering action for this second

statutory review is the completion of the previous five-year review. The five-year review is required because hazardous substances, pollutants, or contaminants remained at the site above levels that allowed for unlimited use and unrestricted exposure.

2.0 Site Chronology

Table 2-1 presents a summary of the major site events and relevant dates in the site chronology.

Table 2-1
Chronology of Site Events

Event	Date
Site discovery by the Kansas Department of Natural Resources (KDHE).	08/1982
Preliminary assessment completed.	10/01/1982
KDHE issued order to Mr. Eisenring to conduct a removal and site cleanup.	09/20/1982
Removal action and site cleanup completed by Mr. Eisenring.	1984
Proposed for the National Priorities List (NPL).	10/15/1984
Site inspection completed.	10/31/1985
Final listing on the NPL.	06/10/1986
Agency for Toxic Substances and Disease Registry (ATSDR) provided a Health Consultation for the Site	11/1987
Combined remedial investigation/feasibility study (RI/FS) completed.	06/28/1988
Record of Decision (ROD) selecting final remedy signed.	06/28/1988
Deleted from the NPL.	10/14/1992
KDHE conducted groundwater sampling.	11/1995
The first Five-Year Review was completed.	02/01/1999

3.0 Background

This section presents site background information including descriptions of the site physical characteristics, land use, and past response actions.

3.1 Physical Characteristics

The Big River Sand site is located in the south half of Section 2, Township 27 South, Range 1 West, Sedgwick County, Kansas. The site covers approximately 123 acres, half of which have been extensively mined for sand and gravel. The site is currently owned by Mr. Victor Eisenring. Sand and gravel operations are no longer active at the site. The Eisenring office and residence are located on the southern portion of the property. A vicinity map showing the general location of the site is included in Attachment 1.

3.2 Land and Resource Use

The land use for the site is commercial industrial. Part of the property site is used as a sand quarry. The remaining portions of site are used as a junk yard.

3.3 History of Contamination

During the 1970s, approximately 2,000 drums of paint-related wastes were disposed of on the Eisenring property, adjacent to a 5-acre sand quarry lake. In 1978, Mr. Eisenring sold about 80 acres of his property, which included the quarry lake and drum storage area, to the Big River Sand Company. As part of the sales agreement, Mr. Eisenring began to transfer the drums to his adjacent property in 1982. Nearly 200 barrels were transferred before the Kansas Department of Health and Environment (KDHE) halted the action because Mr.Eisenring did not have a permit to store or dispose of the waste.

KDHE conducted an initial site inspection in August 1982 and identified damaged, corroded, and leaking drums. KDHE sampled materials from several drums including solvents and paint sludges. Metals including arsenic, cadmium, chromium, lead and selenium, and volatile organic compounds (VOCs) including toluene, ethylbenzene, and trichloroethylene (TCE) were detected in the waste materials. Waste solvents from the barrels were determined to be hazardous waste due to the characteristic of ignitability. Paint sludges failed the EP Toxicity test for chromium.

3.4 Initial Responses

In September 1982, KDHE issued an order to Mr. Eisenring to conduct a removal and site cleanup. From 1982 to 1984, the State provided oversight of the removal and site cleanup activities performed by Mr. Eisenring. Approximately 40 cubic yards of hazardous paint sludges were landfilled offsite and 10,000 gallons of solvents were recycled.

Between 1982 and 1985, KDHE collected samples from the site soils, the quarry lake, residential drinking water wells, and monitoring wells. Arsenic, lead, and selenium were detected in drinking water wells at concentrations greater than the Maximum Contaminant Levels (MCLs) established by the Safe Drinking Water Act. Concentrations of several metals detected in the onsite monitoring wells also exceeded MCLs. VOCs, including toluene, were detected in the onsite soils and monitoring wells.

The site was proposed for the National Priorities List (NPL) in October 1984, and in May 1986 was placed on the NPL.

A remedial investigation (RI) was conducted in 1987. The RI found metals in soil and groundwater above background levels but not outside the range of metals that maybe found naturally occurring in the soil and groundwater in the area. Selenium was detected in monitoring well El 01 S at 62 ug/L which is above the MCL of 50 ug/L. Selenium was not detected in any other monitoring wells or drinking water wells sampled.

3.5 Basis for Taking Action

The Agency for Toxic Substances and Disease Registry (ATSDR) provided a Health Consultation for the site in November 1987. The ATSDR concluded that the site did not at that time appear to present a significant health threat based on the RI data and information. With this information, USEPA selected no. further action for the final remedy for the Big River Sand Company sites in the June 28, 1988, Record of Decision (ROD).

4.0 Remedial Actions

A ROD was signed on June 28, 1988, which selected the No Further Action alternative as the final remedy for the site. The USEPA, in consultation with KDHE, determined that the site did not pose significant threat to public health and the environment and, therefore, taking additional remedial measures was not appropriate.

4.1 Interim Remedial Measures Remedy Selection

In September 1982, KDHE issued an order to Mr. Eisenring to conduct a removal and site cleanup. From 1982 to 1984, the State provided oversight of the removal and site cleanup activities performed by Mr. Eisenring. Approximately 40 cubic yards of hazardous paint sludges were landfilled offsite and 10,000 gallons of solvents were recycled.

4.2 Final Remedy Selection

A ROD for the Big River Sand Company site was signed on June 28, 1988, which selected the final remedy for the site. The ROD selected a "no further action" remedy based on a review of the effectiveness, technical feasibility, cost effectiveness, and impact to the environment. The USEPA, in consultation with KDHE, determined that the site did not pose significant threat to public health and the environment and, therefore, taking additional remedial measures was not appropriate.

4.3 Post Remedial Action Activities

The Big River Sand site was deleted from the NPL on October 14, 1992.

KDHE was tasked by the USEPA to conduct the first five-year review of the groundwater contamination associated with the Big River Sand site. As part of the five-year review, groundwater samples were to be collected from two private drinking water wells and three monitoring wells to assess the current levels of metals contamination in the groundwater. In November 1995, KDHE conducted the field work, collecting groundwater samples from the drinking water wells at the Eisenring shop and residence and monitoring wells B101 S and E102S. An attempt was made to sample monitoring well El 01 S, but there was an obstruction in the well (possibly due to sediment buildup or a collapsed casing) and the sample could not be collected.

5.0 Progress Since Last Five-Year Review

The first five-year review (February 1999) determined that the response actions at the site continued to protect human health, welfare, and the environment at the site. The first five-year review recommended that during the second five-year review an attempt be made to collect a sample from monitoring well El 101 S or in the immediate vicinity of E101 S to assess the concentration of selenium in the groundwater at this location.

6.0 Five-Year Review Process

6.1 Administrative Components

KDHE was notified of the initiation of the five-year review in August 2003. The Big River Sand Company site five year review team was led by William Gresham of USEPA, the Remedial Project Manager (RPM) for the site. The five-year review site inspection was conducted by USEPA's contractor, BVSPC. The BVSPC team was led by Genise Luecke, Site Manager.

A schedule was developed for the five-year review extending through February 28, 2004, which included the following components:

- Document Review.
- Data Review.
- Site Inspection.
- Site Interviews.
- Five-Year Review Report Development and Review.

6.2 Community Notification and Involvement

A fact sheet announcing the five-year review for the Big River Sand Company site was developed in December 2003. The fact sheet was made available on the USEPA's web site and a notice was published in the Wichita Eagle on December 21, 2003.

6.3 Document Review

This five-year review consisted of a review of relevant documents including monitoring data for the site. A complete list of documents reviewed as part of the five-year review process is included in Attachment 2. Applicable cleanup standards were reviewed. The results of this review are listed in Attachment 3.

6.4 Data Review

Groundwater at the Big River Sand Company site was sampled during the RI in 1987 and again in 1995 as part of the first five-year review. In addition, as part of this five-year review site inspection, a groundwater sample was collected from a direct-push boring completed 4 feet from monitoring well El O1 S to assess the selenium concentration in the groundwater in this location. The groundwater sample was collected in accordance with the Quality Assurance Project Plan prepared by BVSPC for the site, dated November 7, 2003. Table 6-1 presents a summary of the analytical data from the 2003 sampling event as well

as the historical concentrations of selenium in monitoring well E101 S. Based on a review of the available data, it appears that the selenium levels in the groundwater at monitoring well E101 S have reduced to below the MCL of 50 ug/L.

6.5 Site Inspection

A site inspection was conducted on December 19 ,2003, by the BVSPC Site Manager. The site inspection was also attended by Daniel Gravatt with KDHE. The purpose of the site inspection was to assess the protectiveness of the remedy. As part of the site inspection, a groundwater sample was collected from the immediate vicinity of monitoring well E101 S as recommended by the first five-year review. The groundwater sample was collected from a direct-push boring because monitoring well El01 S was again found to be obstructed prohibiting collection of a sample from El01 S. Based on the boring log and monitoring well completion log for El01 S (provided in Appendix A), El01 S was screened from approximately 5 to 15 feet below ground surface (bgs). The water level in El01 S measured in 1987 was 5.6 feet bgs. Therefore, to intersect the middle of the screened interval in El01S and most closely simulate the RI sampling effort, the direct-push sampler was placed from approximately 8 to 12 feet bgs as specified in the QAPP. The results of the split sampling effort are discussed in Section 6.4.

6.6 Interviews

Interviews were conducted with various parties connected to the site. Mr. Daniel Gravatt with KDHE indicated that the state of Kansas would be in favor of discontinuing the five-year reviews. In addition, Mr. Victor Eisenring, the property owner, was interviewed. Mr. Eisenring indicated that he had performed all activities required of him and that regulatory activities at the site should cease.

Table 6-1

Groundwater Sampling Results for Monitoring Well E101 S

Analyte	2003 Result (December 2003)	RI Results (1987)	Cleanup Standard
Selenium	ND (35 ug/L)	62 ug/L	50 ug/L

Notes:

The 2003 results were obtained from a groundwater sample collected from a. direct-push sampling location installed 4 feet northwest of monitoring well E101 S.

ND - Analyte not detected above the detection limit provided in parentheses.

The cleanup standard for selenium is the MCL.

7.0 Technical Assessment

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

Review of documents, applicable or relevant and appropriate regulations (ARARs), risk assumptions, and results of the site inspection indicates that the remedies for the site are functioning as intended by the ROD. Analytical results from the groundwater sampling indicate that the selenium levels have reduced to below the MCL.

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

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedies. The ARAR for selenium, an MCL of 50 ug/L, has been met in the groundwater.

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

No new ecological targets have been identified at the site. No events have occurred since the last five-year review that would effect the protectiveness of the remedies. There is no other information that calls into. question the protectiveness of the remedies.

7.4 Technical Assessment Summary

According to the data reviewed, the site inspection, and the interviews, the remedies are functioning as intended by the ROD. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedies. The groundwater levels of selenium have reduced to below the MCL.

8.0 Issues

There were no major issues identified during the five-year review that effect the protectiveness of the remedies.

9.0 Recommendations and Follow-Up Actions

It is recommended that this be the last five-year review conducted at the site. Selenium concentrations in the groundwater in the vicinity of monitoring well E101 S during this five-year review were below the MCL. The remedial action objectives of the ROD have been met.

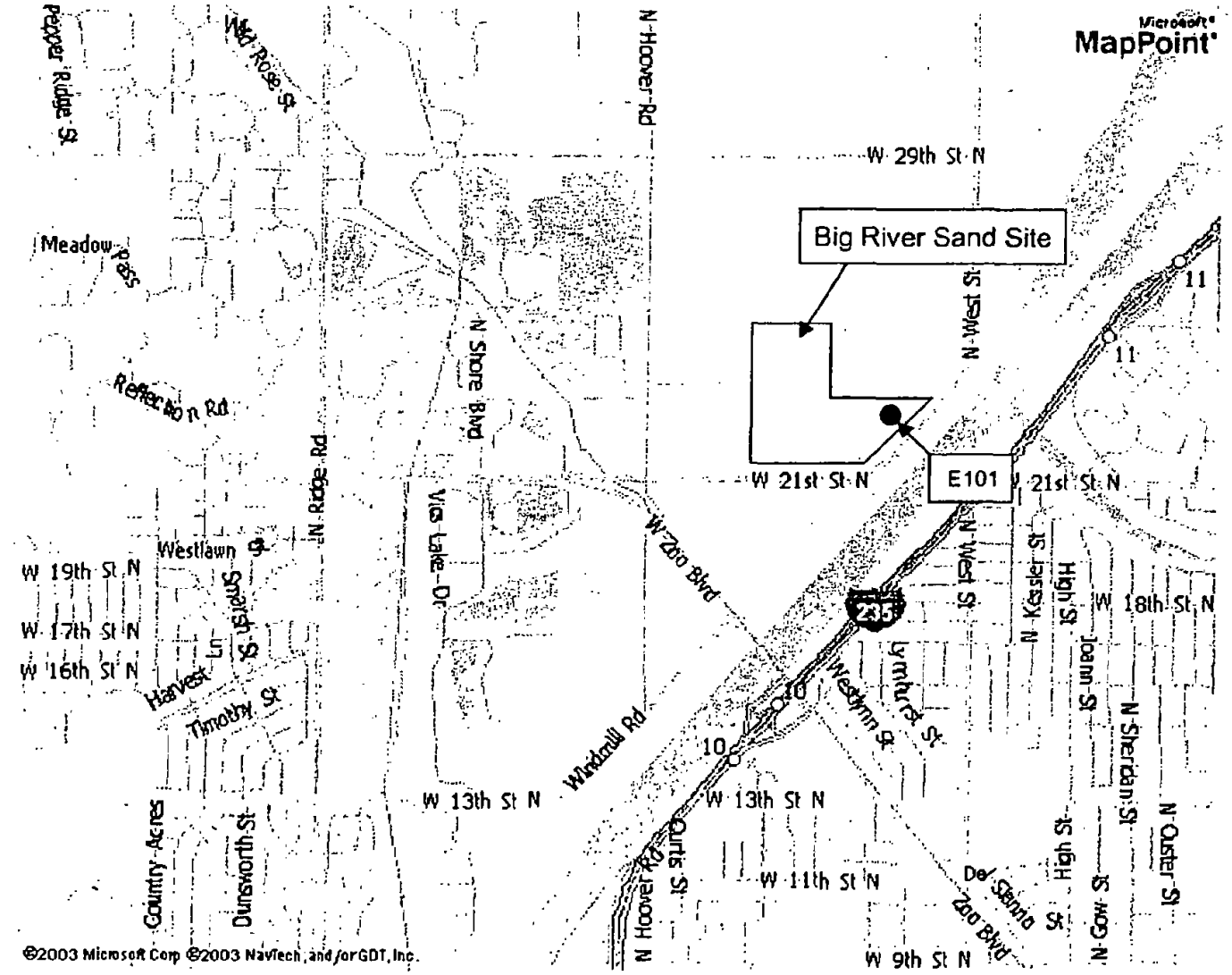
10.0 Protectiveness Statement

Because the remedial actions are protective, the site is protective of human health and the environment. The groundwater concentrations have reduced to below the MCL for selenium.

11.0 Next Review

No additional five-year reviews are recommended for the site. All the remedial actions are complete. The concentrations of selenium in the groundwater have reduced to below the MCL at monitoring well E101 S.

Attachment 1
Site Figures and Well Logs



NORTH

Legend

● Monitoring Well/Direct Push Sample Location

Figure 1
Site Location
Big River Sand Company Site

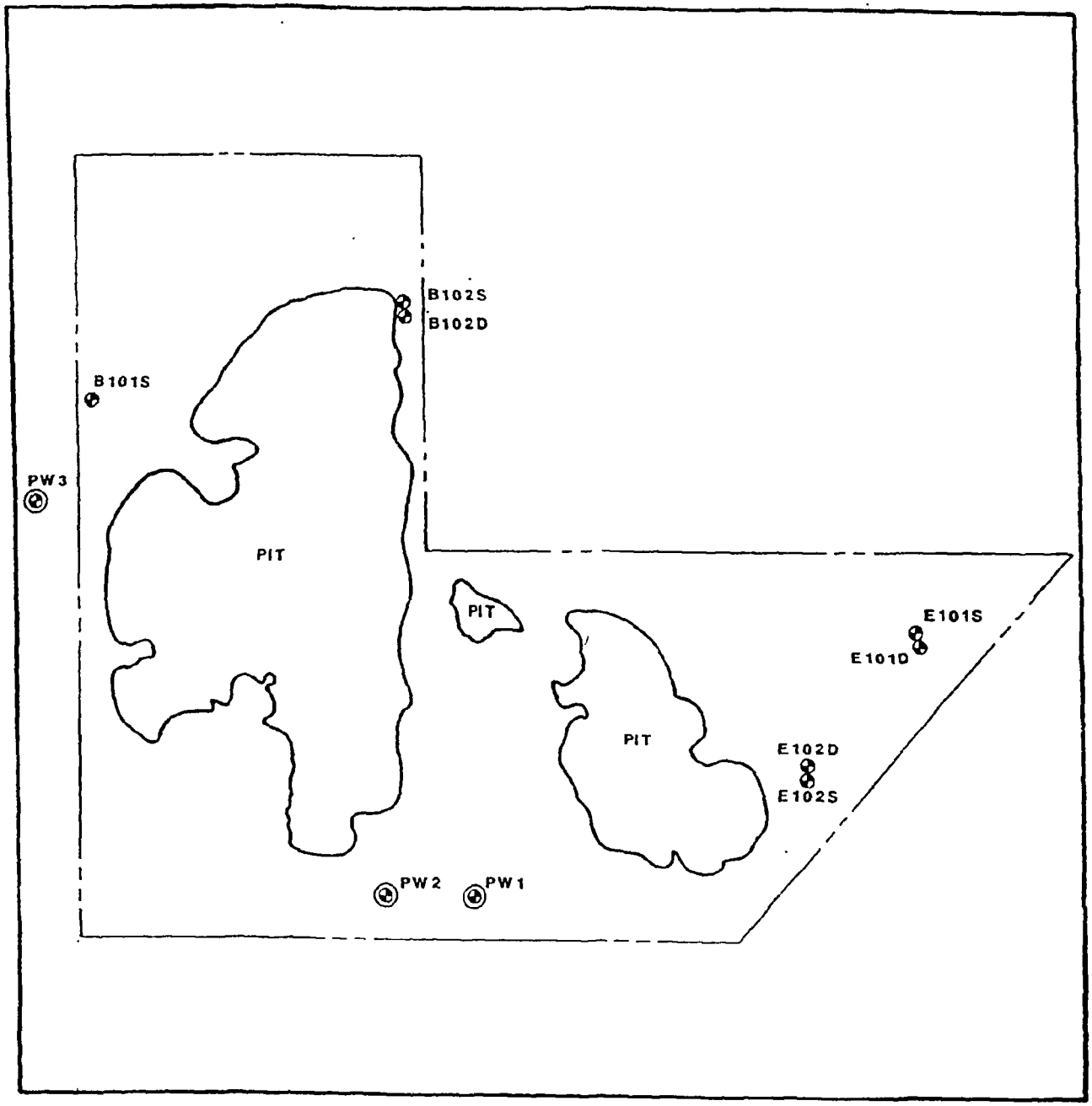


Figure A-1
Site Map
Big River Sand Company Site

JOHN MATHES & ASSOCIATES, INC.

GEOLOGIC LOG FOR BORING NO. E1015 **SERIAL #** **GL** 00007

DATE 4-30-87 / 0930 **PROJECT NO.** 12872749

PROJECT Big River Sand **MAJOR TASK** 2187 **SUBTASK** 2057

LOCATION Wichita, Kansas **GROUND SURFACE ELEVATION** 1315.0'

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL (ft)	SAMPLE TYPE	SAMPLE RECOVERY (in)	SAMPLE DESCRIPTIONS	DEPTH OF CHANGE	N/5"	REMARKS
					No Samples taken. For stratigraphy see E101D Geologic log.			
5								#1
								#2
10								
								#2
								#2
15					T.O.B @ 16.25			#3
20								
25								
30								
35								

DRILLING METHOD 4 ¼ " Hollow-Stemmed Augers (I.D.)

DATE DRILLED 4/30/87

DRILLED BY J. Breeding

LOGGED BY T. Fuhrhop

PIEZOMETER Yes

WI SERIAL # 00004

GROUNDWATER

Encountered at 60 **feet**

DATE/TIME OF COMPLETION

BORING 4-30-87 1015

WELL INSTALLATION 1100

WELL PROTECTION 1100

GEOLOGIC DRILLING COMMENTS

BORING NO. E101S JMA PROJECT NO. 12872749 DATE 4-30-87

REMARK NO	REMARKS
#1	Encountered water at ~ 6.0'
#2	Added water to auqers to control "blow-in" problems
#3	"Blow-in" up in augers. Auqers pulled to allow sand to fall out of augers. Augers at 16.3'. Set well used total of 35 gallons of water in borinq.

WATER LEVELS

REFERENCE POINT	DATE	TIME	DEPTH (ft)	COMMENTS	TECH.
Ground Surface	4-30-87	1030	6.0'	Water encountered during drilling	TEF

JOHN MATHES & ASSOCIATES, INC.

PAGE 1 OF 3

GEOLOGIC LOG FOR BORING NO. E101D **SERIAL #** **GL** 00005

DATE 4-29-87 / 0830 **PROJECT NO.** 12872749

PROJECT Big River Sand **MAJOR TASK** 2187 **SUBTASK** 2057

LOCATION Wichita, Kansas **GROUND SURFACE ELEVATION** 1315.2'

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL (ft)	SAMPLE TYPE	SAMPLE RECOVERY (in)	SAMPLE DESCRIPTIONS	DEPTH OF CHANGE	N/5"			REMARKS
	1	0' 4'	AS		Silty clay - brown - some sand; trace organics lenses of dark brown sand clay - CL					
5	2	4' 6'	SS	17"	SAA - some Fe stains seen; Changes to fine sand- brown - some silt, some med - coarse sand - sub- rounded,- Fe stains present - SP	5.7'	2	2	5	#1
10	3	9.0 11.0'	SS	20"	Fine Brown sand - SAA Brown sandy clay - sand fine - Med heavily stained (Red-brown Fe stains) - CL	10.4'	1	2	1	
15	4	14.9' 16.0'	SS	10"	Med - coarse sand - light brown sub- rounded; trace gravel; mostly quartz - SP		3	4	4	#2 #3
20	5	19.0' 20.5'	SS	17"	Med - coarse sand - brown; trace fines ; no gravel sub rounded - SP		8	11	18	#4 #2 #3
25	6	24.0' 25.5'	SS	12"	S.A.A.		8	10	8	#2 #3
30	7	29.0' 30.5'	SS	18"	Fine - med sand - brown; no fines or gravel; rounded; mostly quartz SP		7	10	14	#2 #3
35	8	34.0' 35.5'	SS	16"	Med - coarse sand - brown; sub rounded; trace gravel and fines reached yellow zone 35'-35' 3" No HNU readings SP.		5	7	11	#2 #3

DRILLING METHOD 4¼" Hollow-Stemmed Augers (I.D.)

DATE DRILLED 4-29-87 / 0830

DRILLED BY J. Breeding

LOGGED BY T. Fuhrhop

PIEZOMET ER Yes

WI SERIAL # 00003

GROUNDWATER

Encountered at 6.0 **feet**

DATE/TIME OF COMPLETION

BORING 4-29-87 1145

WELL INSTALLATION 1630

WELL PROTECTION 1630

JOHN MATHES & ASSOCIATES, INC.

PAGE 2 OF 3

GEOLOGIC LOG FOR BORING NO. E101D **SERIAL #** **GL** 00005

DATE 4-29-87 / 0830 **PROJECT NO.** 12872749

PROJECT Big River Sand **MAJOR TASK** 2187 **SUBTASK** 2057

LOCATION Wichita, Kansas **GROUND SURFACE ELEVATION** 1315.2'

DEPTH (ft)	SAMPLE NUMBER	SAMPLE INTERVAL (ft)	SAMPLE TYPE	SAMPLE RECOVERY (in)	SAMPLE DESCRIPTIONS	DEPTH OF CHANGE	N/5"			REMARKS
40	9	39.0' 40.5'	SS	18"	Med - coarse sand - brown; subrounded; trace gravel and fines. Seem 4" thick .fine brown sand; no -fines or coarse sand (39'8" - 40'0")- SP		5	7	11	#2 #3
45	10	44.0' 45.5'	SS	18"	Sandy clay - gray; some thin layers of gray clay (<1" thick). Some yellow leached areas-CL	45'	3	6	14	#5
	11	46.5' 47.5'	SS	12"	Sandy gravelly clay - brown - wet CL. Changes to Silty clay - brown - stiff; some fissures (filled with gray silty material); some gravel; 47.0'- None below that, no visable water in sample when . broken. Clay confirinq layer. CL	46.8'				#6 #7 #8
50					T.O.B @ 47.5					
55										
60										
70										
80										

DRILLING METHOD 4¼" Hollow-Stemmed Augers (I.D.)

DATE DRILLED 4-29-87 /0830

DRILLED BY J. Breeding

LOGGED BY T. Fuhrhop

PIEZOMETER Yes

WI SERIAL # 00003

GROUNDWATER

Encountered at 6.0 **feet**

DATE/TIME OF COMPLETION

BORING 4-29-87 1145

WELL INSTALLATION 1630

WELL PROTECTION 1630

BORING NO. E101D JMA PROJECT NO. 12872749 DATE 4-29-87

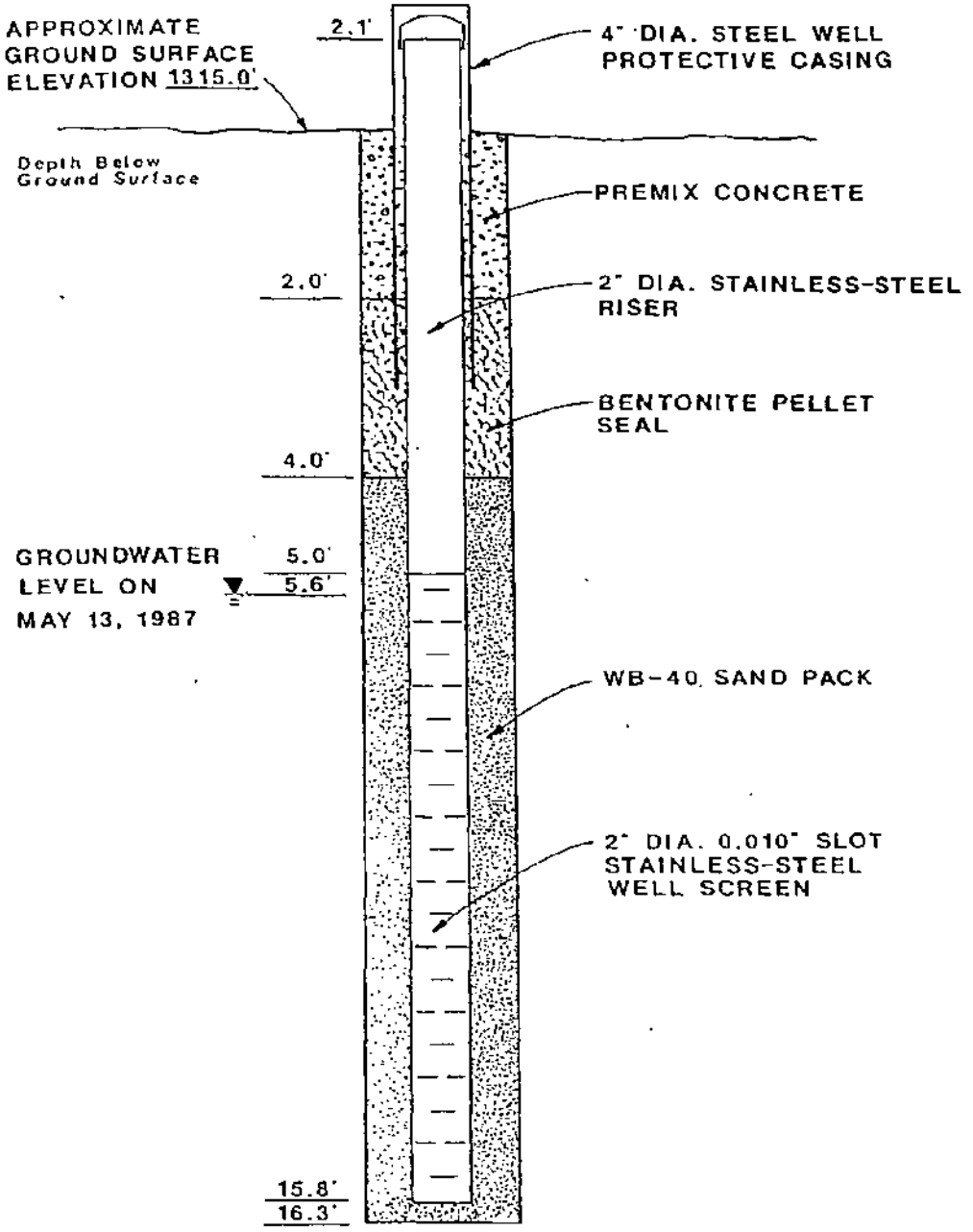
REMARK NO.	REMARKS
#1	Sample wet but not saturated.
#2	Water encountered @ ~ 6.0'. Very bottom of S.S. wet (~ 6.0').
#3	"Blow-in" encountered - augers lifted to allow sand to fall out
#4	Split spoons only driven 18" as opposed to 24" originally. Over driven to start
	(First 3 spoons) to assure adequate sample.
#5	Gray sandy clay on bottom of drag bit - drove - spoon to verify confining layer.
#6	Not good enough confining layer defined with S.S. #10. Instructed drillers to go
	another 2½ ' and drive another spoon.
#7	Jim Breeding felt difference in drilling @ 40.0'
#8	Spoon driven to 47.5'-clay confining layer defined. Well set at 46.5'. Water
	lost during drilling = 175 gallons.

WATER LEVELS

REFERENCE POINT	DATE	TIME	DEPTH	COMMENTS	TECH.
Ground Surface	4-29-87	0900	6.0'	Where drillers encountered water	TEF

PROJECT NO. 12872749 DRILLER J. BREEDING/J. BARKER

MONITORING WELL NO. E101S DATE INSTALLED 4/30/87



NOT TO SCALE

BOREHOLE DIAMETER 8" SANDPACK 12.3' WB-40

SCREEN LENGTH 10.8' RISER LENGTH 7.1'

Attachment 2

Site Documents Reviewed

Site Documents Reviewed
Big River Sand Company Site
Second Five-Year Review

Department of the Army, Kansas City District Corps of Engineers, Big River Sand Company Superfund Site Remedial Investigation Report, prepared by John Mathis & Associates, April 1988.

KDHE, Site Inspection Follow-Up Report, Big River Sand Company/Eisenring Site, Wichita, Kansas, October 9, 1985.

KDHE, Groundwater Analytical Results, Big River Sand Company Site, Wichita, Sedgwick County, Kansas, February 1996.

USEPA, Record of Decision, Big River Sand Company, EPA ID KSD980686174, Wichita, Kansas, June 28, 1988.

USEPA, Big River Sand Superfund Site, Five-Year Review Report for the Big River Sand Company Site, Sedgwick County, Kansas, February 1, 1999.

Attachment 3
Applicable or Relevant and Appropriate Requirements

ARARs Review

The records of Decision (ROD) for the Big River Sand Company site identified the federal maximum Contaminant level (MCL) for selenium as an applicable or relevant and appropriate requirements (ARAR). At the time the ROD was signed (June28, 1988), the MCL for selenium was 10 ug/L. In 1991, the MCL for selenium was raised to 50 ug/L. This raised MCL was identified in the first five-year review in 1999.

A review of the current standards show that the MCL for selenium has not changed since the first five-year review was conducted in 1999. Therefore, the MCL for selenium of 50 ug/L remains in ARAR for site.

Attachment 4
2003 Groundwater Sampling Data

United States Environmental Protection Agency
Region 7
901 N. 5th Street
Kansas City , KS 66101

Date: 01/15/2004

Subject: Transmittal of Sample Analysis Results for ASR #: 2251
Project ID: WG075N
Project Description: Big River Sand Company site

From: Dale I. Bates, Director
Regional Laboratory, Environmental Services Division

To: Bill Gresham
SUPR/IANE

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the enclosed Customer Satisfaction Survey and Data Disposition memo for this ASR.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Enclosures

cc: Analytical Data File.

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL # of pages ▶ 8

To Genise Luecke	From Bill Gresham
Dept./Agency BVSPC	Phone # 551-7804
Fax # 458-6633	Fax # 551-7063

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Project Manager: Bill Gresham **Org:** SUPR/IANE **Phone:** 913-551-7804

Project ID: WG075N

Project Desc: Big River Sand Company site

Location: Wichita **State**: Kansas **Program:** Superfund

Site Name: BIG RIVER SAND CO. - REMEDIAL ACTIVITIES **Site ID:** 075N **Site OU:** 01

Purpose: Site Characterization

Explanation of Codes, Units and Qualifiers used on this report

Sample QC Codes: QC Codes identify the type of sample for quality control purpose.

= Field Sample

Units: Specific units in which results are reported.

ug/L = Micrograms per Liter

Data Qualifiers: Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank)= Values have been reviewed and found acceptable for use.
U = The analyte was not detected at or above the reporting limit.

ASR Number: 2251 **Sample Information Summary** **01/15/2004**

Project ID: WG075N **Project Desc:** Big River Sand Company site

Sample No	QC Code	Matrix	Location	Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1 -	__	Water	Geoprobe	E101S Replacement	GP1015	12/19/2003	12:19			12/22/2003

Analysis	Comments About Results For This Analysis

1 Metals in Water by ICP
Lab: Contract Lab Program (Out-Source)
Method: CLP Statement of Work
Samples: 1-_

Comments:

ASR Number: 2251 **RLAB Approved Sample Analysis Results** **01/15/2004**

Project ID: WG075N **Project Desc**: Big River Sand Company site

Analysis/ Analyte	**Units**	**1**-_
1 Metals in Water by ICP Selenium	ug/L	35.0 U

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER (Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Bill Gresham	Big River Sand	19 / 12 / 03	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: CUBITAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	solid	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
2251-01	2					X					MS/MSD
											Cl. Temp. Rec'd bet. 3-5° C

DESCRIPTION OF SHIPMENT

_____ PIECE(S) CONSISTING OF _____ BOX(ES)

1 ICE CHEST(S) OTHER _____

MODE OF SHIPMENT

_____ COMMERCIAL CARRIER _____

_____ COURIER

X SAMPLER CONVEYED (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
DM Rueche ☐ SEALED ☒ UNSEALED	12/27/03	0855	Gary W Emerson ☐ SEALED ☒ UNSEALED	Rec'd @ EPA
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY

7-EPA-9262 (Revised 5/85)

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 2251 **Sample Number:** 1 **QC Code:** __ **Matrix:** Water **Tag ID:** 2251-1-__

Project ID: WG075N **Project Manager:** Bill Gresham
Project Desc: Big River Sand Company site
City: Wichita **State:** Kansas
Program: Superfund
Site Name: BIG RIVER SAND CO. - REMEDIAL ACTIVITIES **Site ID:** 075N **Site OU:** 01

Location Desc: Geoprobe E1015 Replacement

External Sample Number: GP1015

Expected Conc: (or Circle One. (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/19/03 12:19

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	HNO3 acid fy, 4 Deg C	180 Days	1 Metals in Water by ICP

Sample Comments:

(N/A)

Collected an MS/MSD also.
Geoprobe located ~4 feet NW of E1015.
Sample collected from 12 feet bgs

Sample Collected By: D M Lueske

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 2251 **Sample Number:** 2 **QC Code:** PE **Matrix:** Water **Tag ID:** 2251-2-PE

Project ID: WG075N **Project Manager:** Bill Gresham
Project Desc: Big River Sand Company site
City: Wichita **State:** Kansas
Program: Superfund
Site Name: BIG RIVER SAND CO. - REMEDIAL ACTIVITIES **Site ID:** 075N **Site OU:** 01

Location Desc: CLP QATS PE SAMPLE. METALS

External Sample Number: ___ _____

Expected Conc: Low (or Circle One. Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/22/2003 10:00
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1-Liter Cubitainer	HNO3 acidify, 4 Deg C	180 Days	1 Metals in Water by ICP

Sample Comments:

QATS SAMPLE ID # IS2565

SAMPLES AND INSTRUCTION SHEETS IN BACK DOCK REFRIGERATOR TO BE INCLUDED WITH THE FIELD SAMPLES 12-03-03 RKE

Sample collected by: GL

Attachment 5

Site Inspection Trip Memorandum with Checklist and Interview Forms

BLACK & VEATCH SPECIAL PROJECTS CORP.

TRIP MEMORANDUM

USEPA
Big River Sand Company Site
Second Five-Year Review Report
Site Inspection

BVSPC Project 46916.845
BVSPC File E.1
December 31, 2003

To: File

From: G.M. Luecke

Dates onsite: December 19, 2003
Personnel onsite: Genise Luecke, BVSPC

Trip Purpose: Conduct the site inspection and collect groundwater sample from monitoring well E101S or in the immediate vicinity of E101S in accordance with the quality assurance project plan (QAPP) prepared by BVSPC dated November 7, 2003.

The following is a summary of the activities completed during the site inspection. The site inspection activities were recorded on pages 1 through 3 of the Field Logbook. Two pictures were taken during the site inspection and copies are attached.

Friday, December 19, 2003
Met with Mr. Vic Eisenring, property owner, at 1030. Dan Gravatt with the Kansas Department of Health and Environment (KDHE) and BVSPC's direct-push subcontractor, BSG, also arrived onsite.

Mr. Eisenring provided site access and aided in' locating the monitoring well nest E101. Both wells were locked and appeared to be in good condition. No keys were available for the locks, so the locks were cut. Replacement locks were provided. Water levels and total depth of the wells were measured.to determine which of the two wells in the well nest was the shallow well (El01S). The northwesterly well was obstructed at about 10 feet below top of casing and no water was present. The other well in the well nest was approximately 49 feet deep and the water level was about 9.5 feet below top of casing. Based on the overall depth of the well compared to the well completion logs, it was determined that the northwesterly well was E101 S.

Because E101S. was obstructed, a direct-push boring was installed approximately 4 feet northwest of E101 S. The boring was installed to a total depth of 12 feet below ground surface (bgs). There was approximately 4 feet of water in the boring. The groundwater sampler was placed from 8 to 12 feet bgs and the boring was purged using a peristaltic pump. Readings for temperature, pH, and oxidation reduction potential (ORP) were recorded during purging. A turbidity meter was not available. Readings were recorded approximately every 5 minutes. It is estimated that 1.5 to 2 gallons of water were purged from the boring. After the readings stabilized (in accordance with the QAPP) and the water cleared, one groundwater sample (along with extra volume for a matrix spike/matrix spike duplicate) was collected for analysis of metals.

Following collection of the groundwater sample, the boring was backfilled with bentonite. The direct-push equipment was decontaminated and everyone demobilized from the site at 1300. Purge water and decontamination water was disposed of to the ground in the vicinity of the boring.

Copies of the Field Logbook pages, photographs, field sheet, and chain of custody are attached.

1

DM Luecke

12/19/03 1030 arrived at site
sunny 40° F
Talked with Mr. Vic Eisenring
He took us back to the
wells. E101S and E101D.
Mr. Eisenring talked with
Dan Gravatt about other
properties in the area
with problems.
BGS - Mike
KDHE - Dan Gravatt
also on site

DMZ

1115 cut lock on E101S.
No water to 10 feet and
well is blocked at
10 feet.
cut lock on E101D - water
at ~9.5 feet Well is 49
deep.

1130 Began installing boring
3 feet NW of E101S
installed to 12 feet then

2

DM Luecke 12/19/03

1130 checked for water
4 feet of water in the
well hole
1145 Began purging
1157 YSI calibrated Thru BGS
Reading Temp 16.39 °C
ORP 141.4
pH 6.92
Hose is about 6" from
bottom ~ 11.5' bgs
1204 Temp 15.93
ORP 124.4
pH 6.69
1209 Temp 16.07
ORP 114.3
pH 6.69
1214 Temp 16.18
ORP 104.3
pH 6.69
1219 Temp 16.29
ORP 91.7
pH 6.71
Collected sample for
metals analysis and
MS/MSD

DM Luecke

3

12/19/03 GM Luecke

1230 B65 decommissioned and broke down equipment. Pulled rods and backfilled boring

1800 Stopped to tell Mr. Eisenring that we were done onsite and leaving.

GM Luecke

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 2251 **Sample Number:** 1 **QC Code:** __ **Matrix:** Water **Tag ID:** 2251-1-__

Project ID: WG075N **Project Manager:** Bill Gresham
Project Desc: Big River Sand Company site
City: Wichita **State:** Kansas
Program: Superfund
Site Name: BIG RIVER SAND CO. - REMEDIAL ACTIVITIES **Site ID:** 075N **Site OU:** 01

Location Desc: Geoprobe E101S Replacement

External Sample Number: GP101S

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 12/19/03 12:19
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
- 1 Liter Cubitainer	HNO3 acidify, 4 Deg C	180 Days	1 Metals in Water by ICP

Sample Comments:

N/A)

Collected an MS/MSD also.
Geoprobe located ~4 feet NW of E101S.
Sample collected from 12 feet bgs

Sample Collected By: G M Trecke

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Bill Gresham	Big River Sand	9 / 12 / 03	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: CUBITAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receip other sample numbers etc)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
2251-C1	2					X					MS/MSD

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)

1 ICE CHEST(S) OTHER ____

MODE OF SHIPMENT

____ COMMERCIAL CARRIER ____

____ COURIER

X SAMPLER CONVEYED (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
SEALED ☐ UNSEALED ☒	12/29/03	1115	SEALED ☐ UNSEALED ☒	Lunch & Etc
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
SEALED ☐ UNSEALED ☐			SEALED ☐ UNSEALED ☐	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
SEALED ☐ UNSEALED ☐			SEALED ☐ UNSEALED ☐	

7-EPA 9262(Revised 5/85)

Photo 1 - 12/19/03
Big River Sand Company Site
Facing north. Well E101S and direct-push boring location.

Photo 2 - 12/19/03
Big River Sand Company Site
Facing northwest. Installing direct-push boring - 4 feet northwest of well E101S.

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Big River Sand Company Site	**Date of inspection:** December 19, 2003
Location and Region: Wichita, KS/ Region 7	**EPA ID**: KSD980686174
Agency, office, or company leading the five-year review: USEPA Region 7	**Weather/temperature:**

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☐ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- ☒ Other groundwater monitoring at the time of the five-year review

Attachments: ☐ Inspection team roster below ☒ Site map attached

Site Inspection performed by:
Genise M. Luecke with Black & Veatch Special Projects Corp.

II. INTERVIEWS (Check all that apply)

Dan Gravatt, Kansas Department of Health and Environment. Interview form attached.
Victor Eisenring, property owner. Interview form attached.

1. **O&M site manager** _____ _____ _____
Name Title Date

Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____

Problems, suggestions; ☐ Report attached _____

_____

2. **O&M Staff** _____ _____ _____
Name Title Date
Interviewed ☐ at site ☐ at office ☐ by phone Phone no._____
Problems, suggestions; ☐ Report attached _____
_____

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

Agency KDHE
Contact Dan Gravatt | Env. Geologist/PM | Various | 785/296-6378
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.

Victor Eisenring, Property Owner

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

1. **O&M Documents** N/A
   - ☐ O&M manual — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ As-built drawings — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Maintenance logs — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

2. **Site-Specific Health and Safety Plan** N/A ☐ Readily available ☐ Up to date ☒ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

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

   Remarks_____

4. **Permits and Service Agreements** N/A
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Other permits_____ — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

5. **Gas Generation Records** N/A ☐ Readily available ☐ Up to date ☒ N/A

   Remarks_____

6. **Settlement Monument Records** N/A ☐ Readily available ☐ Up to date ☒ N/A

   Remarks_____

7. **Groundwater Monitoring Records** ☐ Readily available ☐ Up to date ☒ N/A

   Remarks_____

8. **Leachate Extraction Records** ☐ Readily available ☐ Up to date ☒ N/A

   Remarks_____

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks_____

10. **Daily Access/Security Logs** ☐ Readily available ☐ Up to date ☒ N/A

    Remarks_____

IV. O&M COSTS

1. **O&M Organization** - NA

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____
_____

2. **O&M Cost Records** - N/A

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate _____ Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ 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_____
_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☒ N/A
Remarks_____
_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☒ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☒ N/A

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

Frequency_____

Responsible party/agency_____

Contact_____ _____ _____ _____

Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ☒ N/A

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

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

Violations have been reported ☐ Yes ☐ No ☒ N/A

Other problems or suggestions: ☐ Report attached

_____

_____

_____

_____

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☒ N/A

Remarks_____

_____

D. General

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

Remarks_____

_____

2. **Land use changes on site** ☐ N/A

Remarks None noted

3. **Land use changes off site** ☐ N/A

Remarks None noted

VI. GENERAL SITE CONDITIONS

A. Roads ☐Applicable ☒ N/A

1. Roads damaged ☐ Location shown on site map ☐ Roads adequate ☐ N/A

Remarks_____

_____

B. Other Site Conditions

Remarks_____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS ☐ Applicable ☒ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____
   _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

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

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks_____
   _____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____
   _____

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent_____
☐ Ponding ☐ Location shown on site map Areal extent_____
☐ Seeps ☐ Location shown on site map Areal extent_____
☐ Soft subgrade ☐ Location shown on site map Areal extent_____
Remarks_____

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

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

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

C. Letdown Channels ☐ Applicable ☐ 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 land fill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

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

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth _____
Remarks_____

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

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

D. Cover Penetrations ☐ Applicable ☐ N/A

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

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

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

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

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

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (e.g., gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement _____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____
   _____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____
   _____

1. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent _____Depth_____
   Remarks_____
   _____

2. **Vegetative Growth**. ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent _____Type_____
   Remarks_____
   _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent _____Depth_____
   Remarks_____
   _____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____
   _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent _____Depth_____
   Remarks_____
   _____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency _____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____
   _____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (e.g., chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____
   _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____
   _____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____
   _____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____
   _____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____
   _____

D. Monitoring Data - Required at the time of the five-year

1. Monitoring Data
   ☒ Is routinely submitted on time ☒ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. Monitoring Wells (natural attenuation remedy)
☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
☒ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks E 101S continues to be blocked. A direct-push groundwater sample was collected.

X. OTHER REMEDIES

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

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy .

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

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. No potential problems were identified during the site visit/site inspection.

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

INTERVIEW DOCUMENTATION FORM

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

Name	Title/Position	Organization	Date
Daniel Gravatt	Environmental Geologist/Project Manager	KDHE	Various
Victor Eisenring	Property Owner	N/A	12/19/03

INTERVIEW RECORD

Site Name: Big River Sand Company Site	**EPA ID No.:** KSD980686174	
Subject: Second Five-Year Review	**Time: 1030**	**Date: 12/19/03**
Type: ☒ Telephone ☒ Visit ☐ Other **Location of Visit:** Big River Sand Site, Wichita, KS	☐ Incoming ☐ Outgoing	

Contact Made By:

Name: Genise Luecke	**Title: Site Manager**	**Organization: BVSPC**

Individual Contacted:

Name: Daniel Gravatt	**Title: Envir. Geologist/PM**	**Organization: KDHE**
Telephone No: 785/296-6398 **Fax No: 785/296-4823** **E-Mail Address: dgravatt@kdhe.state.ks.us**	**Street Address: 1000 SW Jackson** **City, State, Zip: Topeka, KS 66612**	

Summary Of Conversation

Mr. Gravatt did not identify any concerns regarding the site.

INTERVIEW RECORD

Site Name: Big River Sand Company Site	**EPA ID No.:** KSD980686174	
Subject: Second Five-Year Review	**Time**: Various	**Date: Various**
Type: ☒ Telephone ☒ Visit ☐ Other **Location of Visit:** Big River Sand Site, Wichita, KS	☐ Incoming ☐ Outgoing	

Contact Made By:

Name: Genise Luecke	**Title: Site Manager**	**Organization: BVSPC**

Individual Contacted:

Name: Victor Eisenring	**Title: Property Owner**	**Organization: N/A**
Telephone No: 316/943-4372 **Fax No:** **E-Mail Address:**	**Street Address: 4620 W. 21st St. N** **City, State, Zip: Wichita, KS 67205**	

Summary Of Conversation

Mr. Eisenring provided us access to monitoring well E101S. Mr. Eisenring provided copy of a newspaper article from the Wichita Eagle detailing the delisting of the site.

Mr. Eisenring stated that he had done everything that the regulatory agencies had requested and the site has been deleted from NPL. He didn't understand why additional work was being conducted. He felt there were many other sites in the area mu ch worse than his and provided information to Dan Gravatt of KDHE.