

DER SCANNED

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**Title:** Final Agency Decision Statement

**Date:** May 18, 2011

**Prepared By:**




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05/18/2011

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**Project Name:** McGraw Trucking Site/C3-019-72493

**Location:** Frontenac, Crawford County

**Media Impacted:** Soil and Surface Water

**Land Use/Setting:** The property is currently developed for commercial use and is located in the 100-year flood plain of First Cow Creek. The surrounding properties are used for commercial/industrial purposes with the City of Frontenac wastewater lagoons and a nature park with trails nearby.

**Site Background:** The McGraw Trucking Site is located at 832 West McKay Road in Frontenac, Crawford County, Kansas (Figure 1). From 2004 to 2008, the Site was developed and used as a commercial trucking facility and parking lot. The low-lying land was filled in with various materials including native clay soil, concrete construction rubble, limestone, roofing granule materials, and coal combustion byproducts. A company building was constructed on the parking lot pad. The Site was first identified in 2007 by the KDHE Southeast District Office when iron staining of the soil was

observed to be emanating from the parking lot pad. In May 2008, a Notice of Non-Compliance was issued to McGraw Trucking by KDHE for the unlawful dumping of solid waste. Samples were collected by KDHE and by EPA during several site visits in 2008/2009 with results indicating that runoff emanating from the parking lot exhibited low pH. Sample results also indicated that there were elevated levels of arsenic in the fill material. Elevated levels of metals were detected in samples collected from ponded water located adjacent to the parking lot.

A Preliminary Removal Evaluation (PRE) was conducted by KDHE in July 2009. In late July, in response to KDHE's request, the EPA conducted an emergency response action to temporarily neutralize the leachate emanating from the parking lot. Limestone gravel and agricultural lime were placed along the west, north, and east sides of the elevated parking lot. EPA advised KDHE that the emergency response action was not a permanent solution.

In March 2010, outside of KDHE oversight, a preliminary investigation was conducted by Trigen-Kansas City Energy Corporation (Trigen) to determine the composition and distribution of materials. On April 20, 2010, Consent Order No. 10-E-0034 was executed between KDHE and Respondents Trigen, McCabe Industrial Minerals, Incorporated, McGraw Trucking LLC and the McGraws' for implementation of Interim Measures (IM) and conduct of a Removal Site Evaluation (RSE). In late June 2010, an IM was implemented at the Site where a berm lined with limestone gravel and silt fencing were constructed around the outside of the raised parking lot to provide hydraulic containment and neutralize leachate. The IM is currently maintained and monitored on a monthly basis. The interim measure was constructed to hydraulically contain surface water runoff from the McGraw Trucking parking lot pad. Water contained within the berm system is neutralized on a periodic basis with agricultural lime and/or limestone gravel. An area of ponded water located west of the parking lot pad outside of the berm on the adjacent property (known as the west ponded area) and the south ditch were neutralized with agricultural lime in December 2010. Ponded water is monitored on a monthly basis in and around the interim measure berm system and agricultural lime and/or limestone gravel replacements are made as necessary.

RSE investigation activities were conducted in July 2010. Soil, surface water, sediment, and parking lot fill samples were collected for characterization purposes. Fill materials were analyzed for metals, sulfate, pH, pyrite, and acid-base accounting. Surface soil samples were analyzed for metals, sulfate, and pH. Surface water samples were collected from First Cow Creek and adjacent ponded water. Surface water was analyzed for metals, sulfate, total hardness, and pH. Sediment samples were

collected from First Cow Creek and were analyzed for metals, sulfate and pH.

Results of the RSE investigation indicate that the parking lot fill consists of clay fill overlain by granular materials that include limestone gravel, bottom ash and coal combustion byproducts, waste coal and demolition debris (concrete and bricks). Arsenic and chromium were detected above the residential Tier 2 Level (soil pathway) as established in the October 2010 *Risk-Based Standards for Kansas RSK Manual* (Figure 2). Acid base accounting (ABA), including Net Neutralization Potential (NNP) data were collected to characterize the potential for the fill materials to produce acid due to the oxidation of pyrite. Surface soils surrounding the parking lot pad generally exhibited minimal impact by metals (Figure 2). Surface water samples from First Cow Creek did not indicate impact at the time of sampling (Figure 3 and Table 1). Sediment samples collected from First Cow Creek were compared to the EPA Region 5 Threshold Effect Concentrations and did not appear to be impacted (Table 2).

**Remedial Plan:**

Investigation results indicate that the parking lot fill is impacted with arsenic and chromium above the residential Tier 2 Level (soil pathway) and arsenic above the non-residential Tier 2 Level (soil pathway) at one isolated location. A bulk of the fill material is characterized as having a negative NNP which is indicative of likely acid production due to oxidation of pyrite.

The RSE Report contemplates three remedial strategies including: “no action,” which serves as a baseline for comparison to other alternatives, “neutralization with engineered cap”, and “excavation and offsite disposal.” The selected remedy is excavation and offsite disposal, and will necessitate post-excavation confirmation sampling and limited monitoring to verify that no additional acidic leachate is produced. It is anticipated that implementation of the selected remedy will achieve: removal of materials that have an unacceptable risk of producing acid; removal of materials that contain metals above the non-residential Tier 2 Level (soil pathway); neutralization of underlying and adjacent soil; and, grading of parking lot area to promote positive drainage. If all contamination is not removed to allow for unrestricted use (below the residential Tier 2 Level for the soil pathway), application of institutional controls will be required and will be implemented through KDHE’s Environmental Use Control (EUC) Program. If acid-producing materials are not fully removed during the initial excavation and offsite disposal, and appear to generate leachate, subsequent removal and/or neutralization may be necessary. If necessary, restrictions to the property will disallow residential use, limit exposure of future on-site workers/patrons, and

require proper management of impacted soil or wastes generated during future construction or development activities.

KDHE will review the Removal Action Design (RAD) to determine whether it is protective of human health and the environment. If new information suggests that contamination at or emanating from the Site poses a threat to human health and the environment, KDHE may require development and implementation of additional remedial measures. These measures may include additional characterization, evaluation of other remedial alternatives, and/or implementation of other remedial measures.

**Recommendation:** On the basis of information available in the Administrative Record and summarized above, KDHE recommends implementation of the proposed remedial plan.

**Community  
Involvement:**

A Public Information Strategy for the Site was developed by KDHE. Public notice of the availability of the Draft Agency Decision Statement was published in the *Pittsburg Post-Gazette* on February 22, 2011. A 15-day public comment period was held between February 22 to March 8, 2011 to solicit comments and questions from the public. Comments were received from Trigen Kansas City Energy Corporation.

**Responsiveness  
Summary:**

The purpose of this section is to review and provide responses to comments made by private citizens and other interested parties during the public comment period for the Draft ADS. One comment letter was received during the public comment period. Comments and KDHE's responses are included below.

**Comment #1:**

***Page 1, Land Use/Setting:** The ADS does not provide complete or accurate information regarding the use of properties surrounding the Site. Specifically, it is important to note that extensive historic mining activity occurred at both the Site and surrounding area prior to McGraw Trucking's operation of the Site. Additionally, the City of Frontenac approved construction of an elevated parking area with offsite fill material on the adjacent property to the west of the Site. That fill activity is currently in progress. In addition, the former Frontenac Aluminum plant is located northwest of the Site. This information, coupled with the industrial zoning at the Site, firmly establish the industrial setting of the Site.*

**Response #1:**

The ADS is meant to be a succinct explanation of the selected site remedy and only provides brief information about the site location. The additional information provided in Comment #1 is noted.

Comment #2: *Page 2, Third Paragraph, line 8: In its description of the Interim Measures, ("IM"), the ADS should state that the ponded water was neutralized as part of the IM. Specifically, the surrounding ponded water was neutralized using AG lime prior to the construction of the IM structure. This was done to protect the surrounding areas in the event onsite surface water migrated off site due to the construction activities.*

Response #2: For clarification, the interim measure was constructed to hydraulically contain surface water runoff from the McGraw Trucking parking lot pad. Water contained within the berm system is neutralized on a periodic basis with agricultural lime and/or limestone gravel. An area of ponded water located west of the parking lot pad outside of the berm on the adjacent property (known as the west ponded area) and the south ditch were neutralized with agricultural lime in December 2010. Ponded water is monitored on a monthly basis in and around the interim measure berm system and agricultural lime and/or limestone gravel replacements are made as necessary. The text of the ADS has been revised.

Comment #3: *Page 2, Fourth Paragraph, last line: The ADS should clarify that sediment samples were analyzed for metals, sulfate, and pH.*

Response #3: For clarification, the text has been modified to state "Sediment samples were collected from First Cow Creek and were analyzed for metals, sulfate and pH."

Comment #4: *Page 3, Remedial Plan, First Paragraph: The ADS states that arsenic and chromium were detected "to a limited extent." It would be more accurately reflect conditions at the Site to state that one sample contained arsenic in excess of non-residential levels. Significantly, this sample was from waste coal, not coal combustion byproducts ("CCB"). All other arsenic and chromium concentrations in the fill, soil, and sediment samples were below the KDHE standards for non-residential use. A detection in a single sample (coal, not CCB) does not warrant labeling the entire parking area as impacted with respect to arsenic and chromium.*

Response # 4: Regardless of the origin of the material, it is important to note that there were multiple detections of arsenic and chromium above the corresponding residential Tier 2 Levels in samples collected from the parking lot fill, with one detection of arsenic above the non-residential Tier 2 Level. This further substantiates the need to implement removal action at this Site and to determine the need for EUCs should residual contamination remain above threshold levels post-removal action.

Comment #5:

**Page 3, First Paragraph, Line 1 and 2:** *This statement does not accurately characterize the production capability of the media. Both the percent pyritic sulfur and concentration of the NNP should be considered in evaluating the acid potential of the media. Only samples with a NNP and significant concentrations of acid producing materials (pyrite) have the potential to produce a significant amount of acid. Low pH water simply migrating through soils with little to no buffering capacity will result in a NNP, but will not contribute to future acid production.*

Response #5: KDHE agrees that there are multiple factors that should be considered when determining whether the parking lot fill has the potential to produce acidic runoff. Since no specific standards have been promulgated in Kansas to determine whether a material is likely to produce acid, Acid-base accounting (ABA) criteria will serve as the basis for determining if fill materials and surrounding affected materials are likely to produce acid drainage and should be removed. Specifically, consistent with the practice of our BER Surface Mining Section, KDHE anticipates using the following criteria outlined in table below, derived from the *Prediction of Water Quality at Surface Coal Mines* (published by the National Mine Land Reclamation Center at West Virginia University) and the *Coal Mine Drainage Prediction and Pollution Prevention in Pennsylvania* (published by the Pennsylvania Department of Environmental Protection), to determine if acid production from a given material or medium could be toxic. These criteria should be evaluated with respect to ABA data collected at the site for preparation of the Removal Action Design. Data were collected for total pyritic sulfur rather than total sulfur at the site. The total sulfur criterion is more conservative than the total pyritic sulfur criterion; however, the total pyritic sulfur data will be acceptable for comparison to the total sulfur criterion of 0.5%. As identified in the RSE, the removal action goal for water will be to maintain a pH of between 6.5 to 8.5.

<b>Acid-Base Accounting (ABA) Criteria:</b>
<ul style="list-style-type: none"> <li>• Net Neutralization Potential (NNP) less than 12 tons/1000 tons of material;</li> </ul>
<ul style="list-style-type: none"> <li>• Neutralization Potential (NP) less than 21 tons/1000 tons of material; and/or</li> </ul>
<ul style="list-style-type: none"> <li>• total (or pyritic) sulfur more than 0.5%</li> </ul>
<ul style="list-style-type: none"> <li>• NP:PA of less than 2:1</li> </ul>

\*unit is CaCO<sub>3</sub> equivalent ton per 1000 tons

It should also be noted that the parking lot fill material is considered a solid waste, so comparison of metals data to the Tier 2 Levels for the soil

pathway is not directly applicable but will be useful in guiding the removal action design development and implementation.

Comment #6: **Page 3, Remedial Plan, First Paragraph, last sentence:** *This statement is no longer accurate. The standing water located west of the Site has shown a gradual increase on the pH leading up to December 2010. The owner of the adjacent property west of the Site began actively filling and expanding the elevated parking area toward the Site. As a result, the majority of the west ponded area has been filled. On December 17, 2010, AG lime was applied to the remaining portions of the standing water west of the Site, effectively neutralizing the pH. During a Site visit on February 16, 2011, the pH of the ponded water west of the Site ranged from 7.06 to 7.13.*

Response #6: The text has been revised to include the updated status of the interim measure consistent with Response #2.

Comment #7: **Page 3, Remedial Plan, Second Paragraph, line 7:** *Only one sample exceeded the KDHE non-residential standards for metals. As stated above, this sample consisted of waste coal and was not associated with CCB.*

Response #7: Comment is noted; however, as maintained by KDHE to date, sufficient data is not available to conclusively distinguish and/or attribute any of the fill to waste coal sources.

Comment #8: **Page 5, Figure 1:** *This figure depicts the Site in the wrong location.*

Response #8: The figure has been updated.

Comment #9: **Page 6, Figure 2:** *The arsenic concentration is incorrect at sample location E-5, 1.0 – 2.0, As = < 2.5 mg/kg, Cr = 59.8 mg/kg.*

Response #9: Figure has been corrected.

Comment #10: **Page 8, Table 1:** *Surface water data was provided but not discussed in the ADS. To accurately describe the Site Conditions, the ADS states that the data indicates that most of the metals detected were higher at locations upgradient from the Site.*

Response #10: KDHE does not agree with the conclusion that metals were detected at higher concentrations at *locations* upstream from the Site given that only one surface water sample was actually collected from an upstream location. Therefore, it would be inappropriate to conclude from such a limited dataset (i.e., single sample) that surface water in First Cow Creek contains higher concentrations in metals upstream of the McGraw

Trucking Site. KDHE does recognize that the screening surface water samples collected thus far do not suggest that the surface water of First Cow Creek requires remediation at this time.

However, if the hydraulic containment interim measure fails or is not fully effective, it may be necessary to continue monitoring surface water and sediment to determine if there is impact from runoff from the site and to remediate as necessary. Releases from surface water runoff from the McGraw Trucking Site may impact the surface water quality on a transient basis.

Comment #11: ***Page 9, Table 2: Sediment data was provided but not discussed in the ADS. As with the surface water data, the metals detections in sediment were higher at sampling locations upgradient from the Site.***

Response #11: KDHE does not agree with the conclusion that metals were detected at higher concentrations at locations upstream from the Site given that only one sediment sample was actually collected from an upstream location. It would be inappropriate to conclude from such a limited dataset (i.e., single sample) that sediments in First Cow Creek contain higher metals in upstream sediments than in sediments downstream of the McGraw Trucking Site. In general, the sediment screening data collected do not suggest the need to remediate the sediment in First Cow Creek at this time.

If the hydraulic containment interim measure fails or is not fully effective, it may be necessary to continue monitoring surface water and sediment to determine if there is impact from runoff from the site and to remediate as necessary. Releases from surface water runoff from the McGraw Trucking Site could impact sediment quality.

Comment #12: For Comment # 12, Trigen offers two general comments regarding the fill materials at the Site and the interim measure. Due to the length of these comments (5 pages total), the comments are not reproduced in this Responsiveness Summary. Instead, to summarize, the first comment discusses how various materials in the parking lot pad have differing characteristics and that it is important to consider the type and distribution of materials plays for the evaluation and selection for the Removal Action (RA); additional information about parking lot materials is included with the comment as discussed in the RSE Report. The second comment generally discusses the interim measure that was implemented in June and July of 2010 and subsequent operation and maintenance thereof.

Response #12: The two general comments are noted and will be included in the administrative record; however, no changes to the ADS are warranted based upon the information included in Comment #12. KDHE's position

on the nature of the material is that, regardless of the origin or classification of the parking lot fill material, removal of parking lot materials will be based upon Tier 2 Levels and ABA characterization. As described in Consent Order Case No. 10-E-034 BER, the solid waste material disposed of or placed at the Site has caused or threaten to cause environmental pollution and/or hazard to the soil or waters of the state and are a threat to public health and the environment. The comments as submitted to KDHE can be inspected upon request.

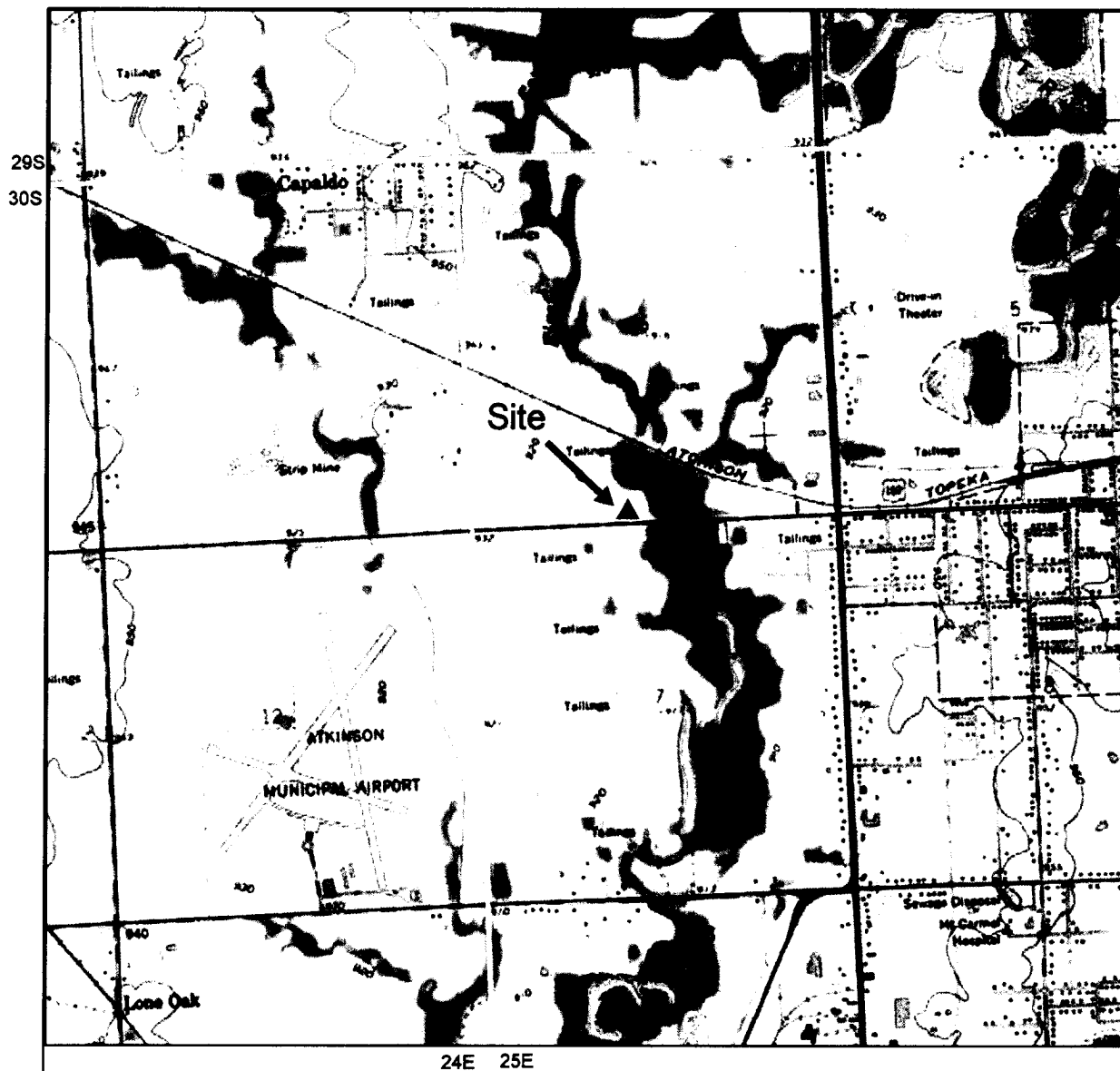
- Figures:** Figure 1 – Site Location Map  
Figure 2 – Parking Lot Fill and Soil Sample Locations  
Figure 3 – Surface Water Sample Locations
- Tables:** Table 1 – Summary of Surface Water Sample Analysis  
Table 2 – Summary of Sediment Sample Analysis

**Final Agency Approval:**

  
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Gary Blackburn, LG

Director, Bureau of Environmental Remediation

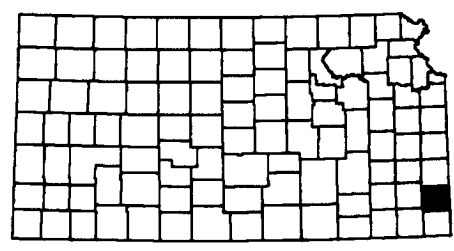
5/25/11  
Date



0 1,250 2,500 Feet  
Scale of 1:24,000  
when printed at 8.5 x 11



Crawford County



**Figure 1**  
Site Location Map  
McGraw Trucking  
Frontenac, KS



0 75 150 Feet



  
 Sample ID  
 Sample ID  
 Depth (in feet)  
 As: Arsenic mg/kg  
 Cr: Chromium in mg/kg


Sample Location  
 Arsenic and Chromium  
 reported below Residential Tier II RSK  
 Arsenic (As) and Chromium (Cr)  
 above Tier II RSK  
 Black text = Exceeds Residential Levels  
 Red text = Exceeds Non-Residential Levels  
 mg/kg = milligrams per kilogram

**Figure 2**  
 Parking Lot Fill and  
 Soil Sample Locations  
 McGraw Trucking  
 Frontenac



0 500 1,000 Feet



 Sample Location

**Figure 3**  
Surface Water  
Sample Locations  
McGraw Trucking  
Frontenac

**Table 1 – Summary of Surface Water Sample Analysis**

Analyte (ug/L)	Acute	Chronic	S Ditch-2	Creek-1-SW	Creek-2-SW	Creek-3-SW	Creek-4-SW	Creek-5-SW	SS-6-SW	SS-14-SW
Aluminum	--	--	729	290	102	73.1	365	137	784000	1680000
Antimony	88	30	< 50	< 50	< 50	< 50	< 50	< 50	< 250	<b>518</b>
Arsenic	340	150	< 25	< 25	< 25	< 25	< 25	< 25	< 125	< 250
Barium	na	na	66.4	106	106	101	89.4	79	< 25	< 50
Cadmium	19	1	< 2	< 2	< 2	< 2	< 2	< 2	<b>53.5</b>	<b>207</b>
Chromium	na	40	< 10	< 10	< 10	< 10	< 10	< 10	<b>432</b>	<b>2560</b>
Copper	106	59	< 10	< 10	< 10	< 10	< 10	< 10	<b>1230</b>	<b>6500</b>
Iron	--	--	1040	442	214	204	543	221 B	1370000	6430000
Lead	1263	49	< 40	< 40	< 40	< 40	< 40	< 40	< 200	< 400
Mercury	1.4	0.77	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Nickel	2897	322	10.7	< 10	< 10	< 10	< 10	< 10	<b>1650</b>	<b>3300</b>
Selenium	20	5	< 50	< 50	< 50	< 50	< 50	< 50	< 250	< 500
Silver	153	na	13.2	< 10	< 10	< 10	< 10	< 10	< 10	< 50
Zinc	742	742	20.5	12.2	< 10	< 10	< 10	< 10	<b>14000</b>	<b>28500</b>
Sulfate in mg/L	na	na	1310	753	768	774	625	932	8500	23600
Hardness as CaCO3 in mg/L	--	--	1300	860	860	860	700	1060	2700	2200
Lab pH	--	--	7.65	7.93	7.89	7.9	7.72	8.23	2.14	2.29

metals and sulfate are total measurements

Acute and Chronic Aquatic Life Support Criteria of the Kansas Surface Water Quality Standards

Acute and Chronic level based on hardness (cadmium, copper, lead, nickel, silver, and zinc) are calculated based Creek-1-SW hardness

Table 1b Hardness-Dependent Aquatic Life Support Criteria, Kansas Surface Water Quality Standards

na - criterion not available as outlined in the Kansas Surface Water Quality Standards

**bold** - exceedances of Kansas Surface Water Quality Standards

**Table 2 – Summary of Sediment Sample Analysis**

Analyte (mg/Kg-dry)	TEC	Creek-5-SD	Creek-1-SD	Creek-2-SD	Creek-3-SD	Creek-4-SD
Antimony		< 4.63	< 4.81	< 4.81	5.47	< 4.81
Aluminum		130000	27700	14100	15400	1200
Arsenic	9.79	9.52	<b>14.8</b>	5.79	4.58	7.95
Barium		180	98.3	46.6	377	154
Cadmium	0.99	<b>2.15</b>	0.44	< 0.2	0.42	0.82
Chromium	43.4	21	39.1	19	30.2	28
Copper	31.6	18.6	18.7	13	16.6	22.7
Iron		39600	46600	21700	91000	66500
Lead	35.8	33.1	<b>37.2</b>	16.8	15.1	<b>36.8</b>
Mercury	0.18	0.042	0.019	0.019	0.022	0.027
Nickel	22.7	<b>23.1</b>	<b>26.4</b>	12.7	13.2	<b>35.1</b>
Selenium		< 3.64	< 4	< 4	< 3.64	< 3.85
Silver		< 0.5	< 0.55	< 0.55	< 0.5	< 0.53
Zinc	121	<b>328</b>	113	47.4	61.8	<b>177</b>
Sulfate		349	496	354	887	229
Total Solids (%)		77	80.4	77.2	71.5	83.2
Percent Moisture (%)		23	19.6	22.8	28.5	16.8
pH (1:1)		7.4	6.46	6.89	4.16	7.19

TEC - EPA Region 5 Threshold Effect Concentration

**bold** - exceedance of TEC