Location Restrictions Demonstration

Report

Flue Gas Desulfurization (FGD) Landfill – Existing Phases 1A and 1B

Jeffrey Energy Center

Prepared for: Westar Energy, Inc.
Jeffrey Energy Center
Pottawatomie County, Kansas

Prepared by:
Haley & Aldrich, Inc.

October 2018

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1.0 INTRODUCTION AND PURPOSE

The Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule (CCR Rule) 40 CFR 257.60 through 257.64 requires owner/operators of existing CCR units to make demonstrations in the event a unit is located in certain areas. The purpose of this report is to demonstrate whether the Flue Gas Desulfurization (FGD) Landfill existing phases 1A and 1B (Unit) – existing phases prior to the effective date of the CCR Rule – are located in any of those location restriction areas as applicable and listed below.

The Unit is located at the Jeffrey Energy Center (JEC) in Pottawatomie County, Kansas approximately 4.5 miles north of Belvue, Kansas, as indicated in Figure 1 and Figure 2.

Haley & Aldrich, Inc. (Haley & Aldrich) has reviewed sufficient documentation provided in Section 3, related available resources, and completed site visit(s) to develop this report. This report provides the demonstrations documenting whether or not the Unit is constructed:

- ❑ in an unstable area (40 CFR §257.64).

We note that for existing Phases 1A and 1B, only the unstable area criterion needs to be evaluated per the CCR Rule. For any lateral expansions of the landfill following the effective date of the CCR Rule, evaluation of all location restrictions as defined in 40 CFR §257.60 through 40 CFR §257.64 will need to be evaluated.

The applicable CCR Rule requirement for the above is listed in Section 2 in italics, followed by an explanation of the review and determinations completed by Haley & Aldrich.

2.0 UNSTABLE AREAS (§257.64(a))

An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area unless the owner or operator demonstrates by the dates specified in paragraph (d) of this section that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted.

Haley & Aldrich evaluated the location of the Unit for the presence of on-site or local unstable areas as defined in §257.53. Evaluations of the conditions listed in §257.64 (b)(1) through (3) were evaluated and are discussed below.

Based on this review, Haley & Aldrich determined the Unit is not located within an unstable area as defined in §257.53. Consequently, no additional demonstration is necessary.

257.64 (b) The owner or operator must consider all of the following factors, at a minimum, when determining whether an area is unstable:

2.1 Unstable Factors Considered: Differential Settling §257.64(b)(1)

On-site or local soil conditions that may result in significant differential settling;

Haley & Aldrich has visited the Unit and evaluated site-specific reports detailing the conditions of the on-site and local soils for conditions that could result in significant differential settling (Burns & McDonnell, 2009). The near-surface geology of the site was characterized in the Phase II Site Investigation by Burns & McDonnell (Burns & McDonnell, 2008, revised 2009 – excerpts provided in Appendix A.1) as consisting of limestone and shale formations. Based on this description and a review of geotechnical data in the report(s), it is Haley & Aldrich's professional opinion that the soils on site will not experience significant differential settlement.

Based on this review, Haley & Aldrich determined the Unit is not located within an area with on-site or local soil conditions that may result in significant differential settling.

2.2 Unstable Factors Considered: Geologic/Geomorphologic Features §257.64(b)(2)

On-site or local geologic or geomorphologic features; and

Haley & Aldrich has visited the Unit and evaluated published data and site-specific reports for the presence of on-site or local geologic and geomorphologic features, to include karst terrain, steep slopes, and sinkholes. Published data generically indicate potential regional areas of Karst terrain, however the onsite investigations (Burns & McDonnell, 2008, revised 2009 – excerpt provided in Appendix A.1), and owner knowledge has shown no localized presence of Karst terrain or sinkholes. Also, this area of Kansas is not known to have karst features or sinkholes as confirmed with the Kansas Geological Survey. Haley & Aldrich has visited the site for a review of terrain at and near the Unit and observed no excessive steep slopes, terrain features, or other local geologic or geomorphologic features that could feasibly result in an unstable condition.

Based on this review, Haley & Aldrich determined the Unit is not located within an area with on-site or local geologic or geomorphologic features.

2.3 Unstable Factors Considered: Human-made Features or Events §257.64(b)(3)

On-site or local human-made features or events (both surface and subsurface).

Haley & Aldrich has visited the Unit and evaluated published data and site-specific reports for the presence of on-site or local human-made features or events (both surface and subsurface) (Burns & McDonnel, 2009) in strata that could feasibly impact the Unit. No surface or subsurface mining activities were identified near the Unit (USGS) as shown in Appendix A.2. Likewise, no gas or oil wells were identified near the Unit based the KGS database (KGS) of oil and gas wells in Pottawatomie County provided in Appendix A.3.

Based on this review, Haley & Aldrich determined the Unit is not located within an area with on-site or local human-made features or events (both surface and subsurface) that could feasibly result in an unstable condition at the Unit.

3.0 REFERENCES

1. Burns & McDonnell (2008, revised 2009), Phase II Hydrogeologic Investigation and Bottom Ash Characterization, Permit No. 359 Update, Jeffrey Energy Center Westar Energy, Inc. Pottawatomie County, Kansas. January 2008, Revised August 2009.
2. Burns & McDonnell (2009), Final Permit Update Documents Volume I and Volume II, Jeffrey Energy Center Industrial Waste Landfill Permit No. 359, St. Marys, Kansas. August 2009.
3. Kansas Geological Survey (KGS). Master List of Oil and Gas Wells, Pottawatomie County. https://chasm.kgs.ku.edu/ords/qualified.ogw5.SelectWells (Accessed September 2018).
4. United States Geological Survey (USGS). Mineral Resources Online Spatial Data available at: https://mrdata.usgs.gov/general/map.html accessed May 2018. (Accessed May 2018).

4.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION (§257.64(c))

The undersigned registered professional engineer is familiar with the requirements of the CCR Rule and has visited and examined the Unit and/or has supervised examination of the Unit and development of this report by appropriately qualified personnel. I hereby certify based on a review of available information and observations, that this report meets the requirements of paragraphs §257.64(a).

Name of Professional Engineer: Steven F. Putrich, P.E.

Company: Haley & Aldrich, Inc.

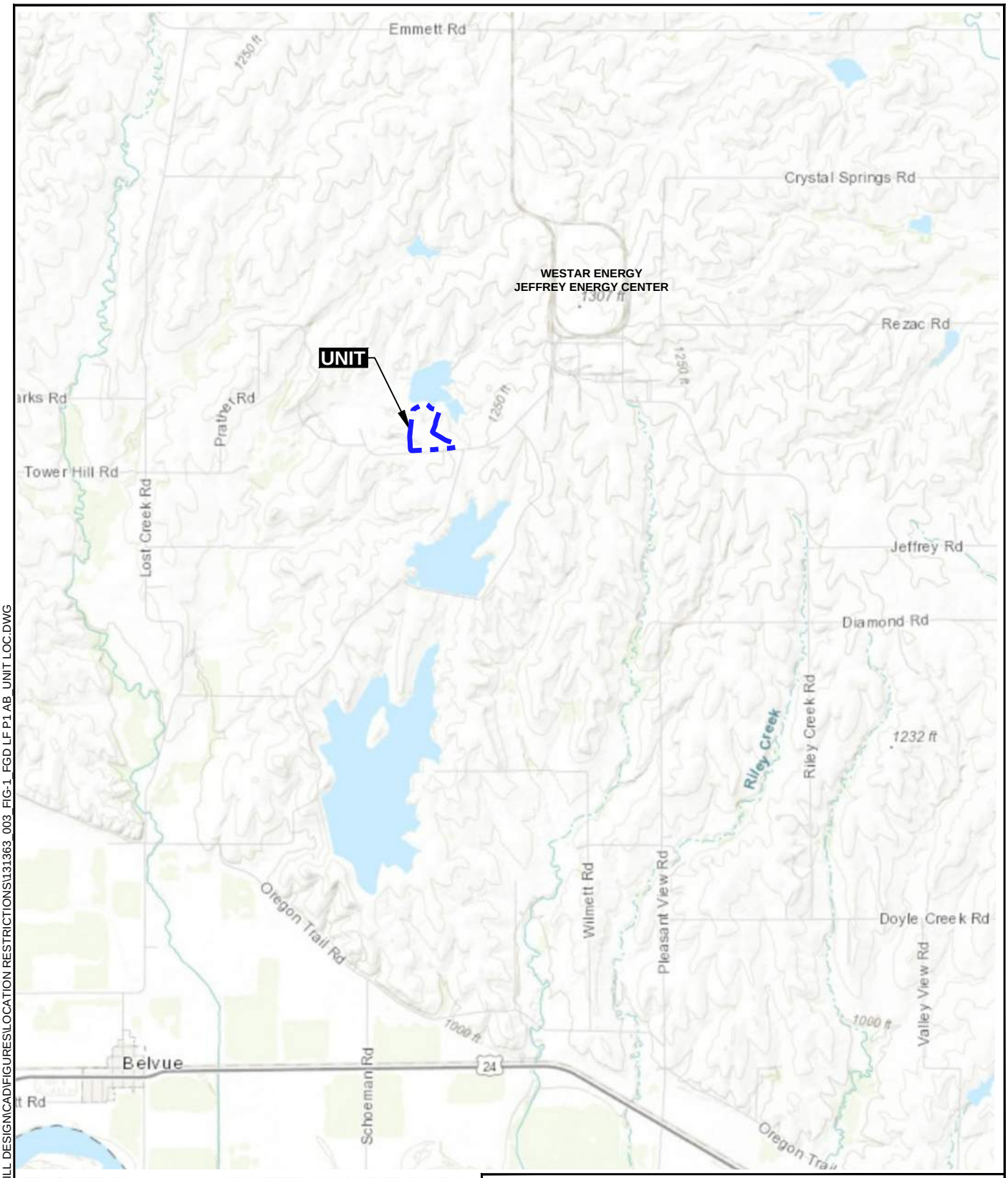
Signature:

PE Registration State: Kansas

PE Registration Number: 24363

Professional Engineer Seal:

Steven F. Putrich
Digitally signed by Steven F. Putrich
Date: 2018.10.17 15:56:58 -04'00'



MAP SOURCE: ESRI

SITE COORDINATES: 39°17'2"N, 96°7'37"W

HALEY ALDRICH

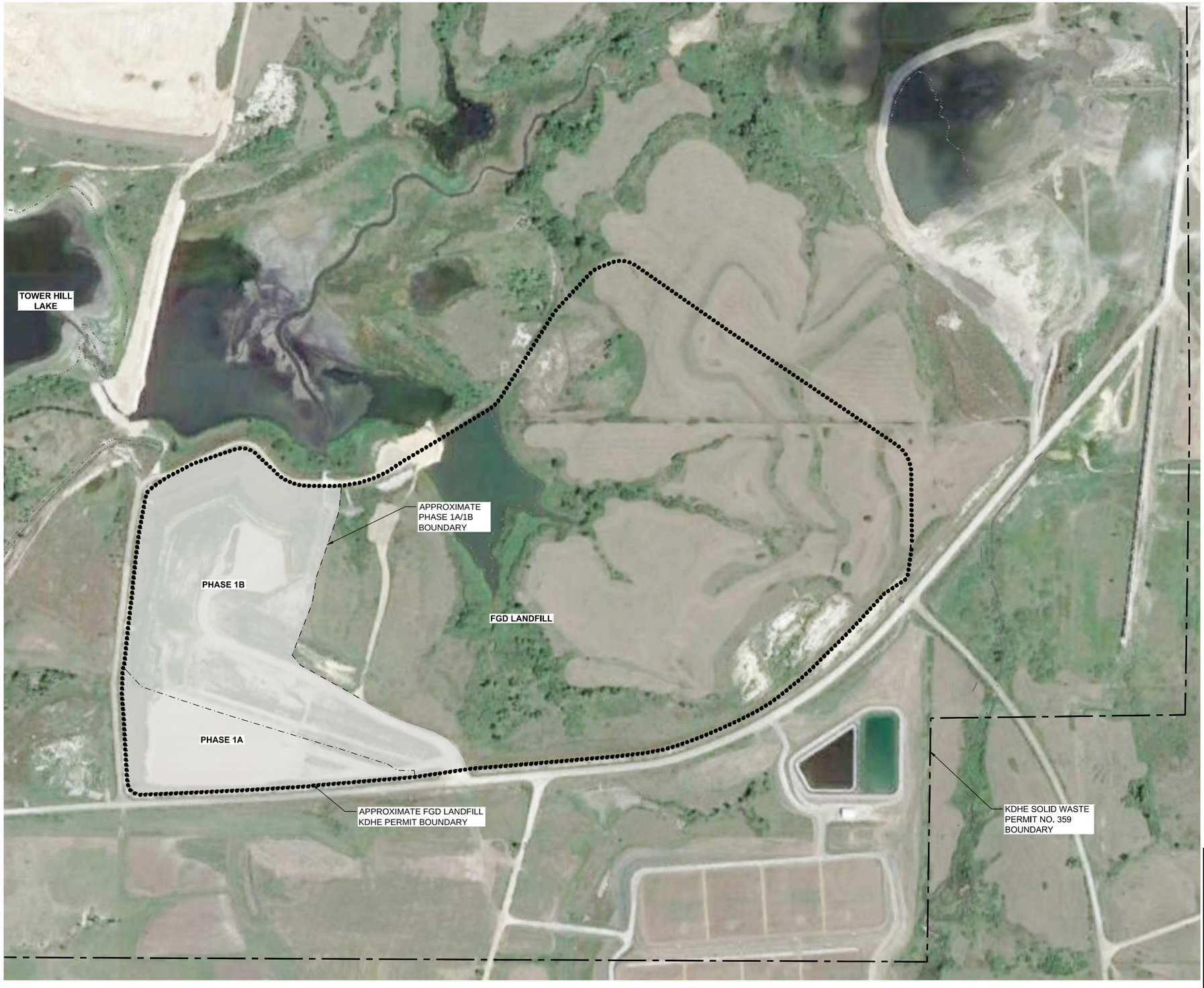
WESTAR ENERGY
JEFFREY ENERGY CENTER - FGD LANDFILL
ST. MARYS, KANSAS

UNIT LOCATION MAP

APPROXIMATE SCALE: 1IN = 5000 FT
OCTOBER 2018

FIGURE 1

SAUNDERS, LEE Printed: 10/11/2018 3:32 PM Layout: FIGURE 1
G:\131363-WESTAR-JEC FGD LANDFILL DESIGN\CAD\FIGURES\LOCATION RESTRICTIONS\131363_003_FIG-1_FGD LF P1 AB_UNIT LOC.DWG



LEGEND

PERMITTED LIMITS OF FGD LANDFILL

PHASE 1A/1B APPROXIMATE LIMITS

NOTES

1. AERIAL IMAGERY DATED 12 AUGUST 2014 OBTAINED FROM GOOGLE EARTH PRO.

N

0 500 1000

SCALE IN FEET

HALEY ALDRICH

WESTAR ENERGY
JEFFREY ENERGY CENTER - FGD LANDFILL
ST. MARYS, KANSAS

FGD LANDFILL PHASE 1A/1B UNIT OVERVIEW MAP

SCALE: AS SHOWN
OCTOBER 2018

FIGURE 2

SAUNDERS, LEE Printed: 10/11/2018 3:34 PM Layout: L
G:\131363-WESTAR-JEC FGD LANDFILL DESIGN\CAD\FIGURES\LOCATION RESTRICTIONS\131363_003_FIG-2_FGD LF P1 AB_UNIT OVERVIEW.DWG

APPENDIX A.1

Portions of Phase II Hydrogeologic Investigation and Bottom Ash Characterization, Permit No. 359 Update (January 2008, Revised August 2009) by Burns & McDonnell, Inc.

Range 12E are occurring based on an understanding, with KDHE and Westar Energy, that these areas will be legally defined and included in the permit update requested under the Special Conditions issued under Permit No. 359 on April 2, 2004. The permitted boundary depicted on Figure 1 is the approximate proposed boundary for the ongoing permit update. The permitted boundary is shown in relation to the JEC Power Plant on Figure 1.

1.5 SOILS, TOPOGRAPHY, AND SURFACE DRAINAGE

The JEC is covered with mostly silty clay loam, which has low to high plasticity (NRCS Soil Survey, 1987). The topsoil at the Permitted Landfill Site consists of terrace alluvium, glaciolacustrine deposits, and the Sandborn formation. The thickness varies over the JEC based on location in regards to hilltops and fill operations. The approximate thickness of topsoil is one to 16 feet below ground surface (bgs).

The natural highest soil elevation within the permitted landfill boundary, located along the northeast portion of the boundary, is approximately 1300 feet above msl. The lowest natural elevation within the permitted landfill boundary, located along the southwest portion of the boundary, is approximately 1100 feet above msl (See Figure 1).

Several small streams have their headwaters on the slopes surrounding the JEC property. Those to the north and east are tributaries of Bartlett and Cross Creeks, while those to the south merge to form Deep Creek, and streams to the west join either Lost Creek or Vermillion Creek. The tributaries within the permitted landfill boundary join with Lost Creek. At lower elevations around the streams, the grades are uniform with generally well developed alluvial flood plains and meanders. The upper elevations of the streams are generally youthful with small benches across limestone and deep V-shaped valleys incised into the shales and glacial deposits.

1.6 CLIMATE

The coldest month occurs in January where the average daily temperature is 32.2 degrees Fahrenheit (°F) and the warmest month occurs in July where the average daily temperature is 77.6 °F. Based on the precipitation record in Wamego, Kansas, for the years of 1951-1976, two years in ten will experience annual precipitation less than 16.45 inches. The average total annual precipitation is 33 inches, and of this, approximately 23.8 inches, or about 72 percent, of the annual precipitation falls during the period April through September. The average annual snowfall is 21.5 inches. The heaviest 24-hour rainfall event was 6.93 inches at Wamego on

1.7.2 Site Geology

Permian shale makes up approximately 70 percent of the stratigraphy below the JEC. The remainder of the stratigraphy consists of limestone beds and topsoil. In the area of the Permitted Landfill Site (shown in Figure 3) the following formations in the stratigraphic column (from youngest to oldest) were encountered during drilling: Blue Rapids shale, Crouse limestone, Easly Creek shale, Bader limestone, Stearns shale, Beattie limestone, Eskridge shale, Grenola limestone, Roca shale, Red Eagle limestone, Johnson shale, Foraker limestone, an the Janesville shale.

The shale formations are generally known to be medium to moderately hard, thin to very thin bedded, calcareous, widely jointed shale (Scott, Glenn R., 1959 and Shannon and Wilson, 1974). The limestone formations are generally known to be divided into alternating limestone and shale members. The limestone members can generally be described as hard, slightly weathered, sometimes exhibiting vugs and fracturing. The limestone formations become more massive with increasing depth and age. The limestone members are fairly individual in weathering pattern, with some members exhibiting blocky features while others have cavernous or cellular characteristics (Shannon and Wilson, 1974).

1.7.3 Regional Hydrogeology

Regionally, the groundwater occurs in the bedrock strata, but the shale units are so impermeable that there is little or no movement of groundwater. Some of the limestone units transmit small quantities of water that discharge in many small springs in the valleys of the intermittent creeks. The numerous small springs in the stream valleys discharge from 0.1 gallons per minute (gpm) to 10 gpm (Shannon and Wilson, 1974). Local recharge to the limestone aquifers is likely to come from snow drifts or other local concentrations of infiltrations. The low permeability of the limestone and shales in the region makes it difficult to identify a horizontally continuous saturated unit. Regionally, groundwater is supplied through alluvial and glacial outwash materials underlying the plains of the main valley floors of Vermillion Creek (five miles west of the JEC) and the Kansas River, located seven miles south of the JEC (Shannon and Wilson, 1974). Eleven domestic wells are within a three mile radius of the permitted landfill site and listed with the Kansas Geological Survey (KGS). All eleven wells are located upgradient from the permitted landfill site, within Sections 19 and 30, Township 9 South, Range 10 East. The wells range in estimated yield from 20 to 70 gpm and the depths range from 58 feet to 110 feet below ground surface (bgs). The majority of the wells are screened through alluvium and a few

APPENDIX A.2
Mines in the Vicinity of the Jeffrey Energy Center

Legend

Gravel Pit

NOTE:

1. USGS Mineral Resources Online Spatial Data available at: https://mrdata.usgs.gov/general/map.html.

HALEY ALDRICH

JEFFREY ENERGY CENTER
ST. MARYS, KANSAS

MINES IN THE VICINITY OF JEFFREY ENERGY CENTER

SCALE: NOT TO SCALE

MAY 2018

Appendix A.2

APPENDIX A.3
List of KGS Oil and Gas Wells in Pottawatomie County

KGS Oil & Gas | Oil and Gas Well Database

Select location of well to view details.

Click on column heading to sort.

Save Data to File

183 records returned--50 displayed at a time.

View page: **1** || 2 || 3 || 4

T-R-S	Original operator (current operator)	Well	API	Elevation Ascend. Desc.	Total Depth Ascend. Desc.	Field	Spud Date Ascend. Desc.	Plug Date Ascend. Desc.	Status
T6S R7E, Sec. 32, SW SE NW	VENUS OIL CO. (unavailable)	RYAN 1	Pottawatomie	1087 est.					OTHER ()
T6S R8E, Sec. 2, C NE NE	MCCULLOCH OIL ETAL (unavailable)	ARMSTRONG 1	15-149-20003 (Pottawatomie)	1370 GL	1954	WILDCAT	04-SEP-1970	30-SEP-1970	D&A Plugged and Abandoned
T6S R8E, Sec. 5,	CALVERT (unavailable)	FOX-MCCARTHY 1	Pottawatomie	1160 est.					OTHER ()
T6S R8E, Sec. 10, SE SE NE	SHAWVER-ARMOUR (unavailable)	BUDENBENDER 1	15-149-19000 (Pottawatomie)	1374 KB 1374 GL 1371 DF	1995	WILDCAT	11-NOV-1959	31-DEC-1959	D&A Plugged and Abandoned
T6S R8E, Sec. 14, W2 NW NW NW	MidAmerica Oil & Gas LLC (MidAmerica Oil & Gas LLC)	Holt 1	15-149-20067 (Pottawatomie)	1374 GL		UNNAMED			LOC Cancelled API Number
		Holt 1			2007	WILDCAT			

T6S R8E, Sec. 15, SE NE NE NE	MidAmerica Oil & Gas LLC (MidAmerica Oil & Gas LLC)		15-149-20068 (Pottawatomie)	1379 KB 1370 GL			23-SEP-2013	25-SEP-2013	D&A Plugged and Abandoned
T6S R8E, Sec. 30, SE SE SW NW	Kansas Geological Survey (unavailable)	Construction Material Inventory CMI site 2C	Pottawatomie	1402 est.	99				OTHER (STRAT)
T6S R8E, Sec. 31, SE SE NE	MCCULLOCH OIL ETAL (unavailable)	FAGERBERG 1	15-149-20010 (Pottawatomie)	1432 GL	2150	WILDCAT	03-SEP-1970	30-SEP-1970	D&A Plugged and Abandoned
T6S R9E, Sec. 3, SE SE NE SE	Kansas Geological Survey (unavailable)	Construction Material Inventory CMI site 17A	Pottawatomie	1370 est.	110	UNKNOWN			OTHER (STRAT)
T6S R9E, Sec. 16, C NE NW	BANKS ET AL (unavailable)	YOUNG 1	Pottawatomie	1465 est.	3179				OTHER ()
T6S R9E, Sec. 21, SW SW NE	CITIES SERVICE CO (unavailable)	OCONNOR 1	15-149-19001 (Pottawatomie)	1511 KB	1681	WILDCAT	12-SEP-1959	30-SEP-1959	D&A Plugged and Abandoned
T6S R9E, Sec. 23,	TRI STATE (unavailable)	PIERCE 1	Pottawatomie	1493 GL	1773				OTHER ()

C NW NW									
T6S R9E, Sec. 25, C NW NW SW	WOOD DALTON (unavailable)	MEEHAN 1	15-149-00044 (Pottawatomie)	1491 GL 1491 DF	1754	WILDCAT	18-JAN-1947	31-MAR-1947	D&A
T6S R9E, Sec. 25, NW NW SW	WOODS, DALTON J. (unavailable)	MEEHAN 1	15-149-00044 (Pottawatomie)	1509 est.	1756		17-JAN-1947	28-FEB-1947	D&A Plugged and Abandoned
T6S R9E, Sec. 32, SW SE NW	MCCULLOCH OIL ETAL (unavailable)	RYAN 1	15-149-20008 (Pottawatomie)	1497 GL	2031	WILDCAT	23-AUG-1970		D&A Approved Intent to Drill
T6S R9E, Sec. 33, SE SE SW	WENTWORTH, LEO V. (unavailable)	MOSER 1	15-149-00011 (Pottawatomie)	1496 est.	1818		04-OCT-1950	08-JUL-1951	D&A Plugged and Abandoned
T6S R9E, Sec. 33, C SE SE SW	WENTWORTH LEO DRLG (unavailable)	MOSER 1	15-149-00011 (Pottawatomie)	1462 DF	1818	WILDCAT	31-OCT-1950	08-JUL-1951	D&A
T6S R9E, Sec. 33, C NW NW NE	MALZAHN DRLG (unavailable)	SHEARER 1	15-149-00010 (Pottawatomie)	1484 GL 1484 DF	1915	WILDCAT	17-APR-1951		D&A
T6S R9E,	RUPP-FERGUSON (unavailable)	QUIGLEY 1	15-149-19002 (Pottawatomie)	1475 KB	1772	WILDCAT			

Sec. 34, SE SE NE							09-JAN-1960	31-JAN-1960	D&A Plugged and Abandoned
T6S R10E, Sec. 8, NE NE NW	MCCULLOCH OIL ETAL (unavailable)	FALK 1	15-149-20012 (Pottawatomie)	1420 GL	1483	WILDCAT	29-SEP-1970	01-OCT-1970	D&A Plugged and Abandoned
T6S R10E, Sec. 15,	PANHANDLE (unavailable)	MUNYON 1	Pottawatomie	1390 est.					OTHER ()
T6S R11E, Sec. 34, C SW NW	EMPIRE O REFG (unavailable)	ROKES 1	15-149-00055 (Pottawatomie)	1171 GL	1735	WILDCAT	20-AUG-1916		D&A
T6S R12E, Sec. 26, C SW NE	PENDLETON LAND & EXPLORATION, INC. (Pendleton Land and Exploration, Inc.)	MARCOUX 1	15-149-20044 (Pottawatomie)	1383 KB 1378 GL	3790	WILDCAT	22-JUL-1983	02-AUG-1983	D&A Plugged and Abandoned
T6S R12E, Sec. 32, SE	KDOT (unavailable)	16-75-K-7428-01 CD-1	Pottawatomie		20	UNKNOWN			OTHER ()
T6S R12E, Sec. 32, SE	KDOT (unavailable)	16-75-K-7428-01 CD-2	Pottawatomie		10				OTHER ()
T6S R12E, Sec. 34,	Wolf Operating LLC (Wolf Operating LLC)	Kopp Trust 1-34	15-149-20066 (Pottawatomie)	1328 KB 1322 GL	3509		01-FEB-2012	12-FEB-2012	OIL-P&A Plugged and Abandoned

NE SW SE SE									
T7S R7E, Sec. 10, NW NW NE	Vickers Petroleum Co. (unavailable)	Lutz 1	15-149-19003 (Pottawatomie)	1264 KB 1258 GL	2285	WILDCAT	23-NOV-1959	31-DEC-1959	D&A Plugged and Abandoned
T7S R8E, Sec. 4, C SW SW	SHAWVER-ARMOUR (unavailable)	STELTER 1	15-149-19004 (Pottawatomie)	1427 KB 1427 GL	2040	WILDCAT	19-NOV-1959	31-DEC-1959	D&A Plugged and Abandoned
T7S R8E, Sec. 13, NW NW NW	SENECA MFG CO AND GLICKMAN OIL (unavailable)	HENRY 1	15-149-19005 (Pottawatomie)	1388 KB 1388 DF	2030	WILDCAT	09-NOV-1959	30-NOV-1959	D&A Plugged and Abandoned
T7S R9E, Sec. 4, C NW NE	MCCULLOCH OIL ETAL (unavailable)	QUIGLEY 1	15-149-20013 (Pottawatomie)	1424 GL	1906	WILDCAT	07-OCT-1970	31-OCT-1970	D&A Plugged and Abandoned
T7S R9E, Sec. 8, SE SW SE	HAWLEY, J. W. (unavailable)	PENDERGAST 1	15-149-00003 (Pottawatomie)	1454 est.	1825		24-JAN-1951	05-FEB-1951	D&A Plugged and Abandoned
T7S R9E, Sec. 8, SE SW SE	HAWLEY E A (unavailable)	PENDERGAST 1	15-149-00003 (Pottawatomie)	1460 GL 1460 DF	1825	WILDCAT	27-JAN-1951	28-FEB-1951	D&A
T7S R9E, Sec. 12,	SHELL OIL CO (unavailable)	CORE HOLE 5	Pottawatomie	1305 GL	1709		01-JAN-1945	12-NOV-1947	OTHER-P&A (STRAT)

NE NE SW									
T7S R9E, Sec. 15, NW NW SE	BEDELL CORB ETAL (unavailable)	KOLTERMAN 1	15-149-19006 (Pottawatomie)	1315 KB	1587	WILDCAT	07-APR-1960	30-APR-1960	D&A Plugged and Abandoned
T7S R9E, Sec. 24, SW NW	MCCULLOCH OIL ETAL (unavailable)	MAGNETT 1	15-149-20009 (Pottawatomie)	1358 GL	1852	WILDCAT	08-SEP-1970	30-SEP-1970	D&A Plugged and Abandoned
T7S R10E, Sec. 1, NE SE SE	SHELL OIL CO (unavailable)	CORE HOLE 12-4	Pottawatomie	1365 GL	1463				OTHER (STRAT)
T7S R10E, Sec. 4, SW SE SW	SHELL OIL CO (unavailable)	CORE HOLE 12-6	Pottawatomie	1475 GL	1716				OTHER (STRAT)
T7S R10E, Sec. 7,	SHELL (unavailable)	TEST WELL 1	Pottawatomie	1391 est.					OTHER ()
T7S R10E, Sec. 14, SW NE NW	MCCULLOCH OIL ETAL (unavailable)	FIGGE 1	15-149-20004 (Pottawatomie)	1325 GL	1521	WILDCAT	09-SEP-1970	11-NOV-1970	D&A Approved Intent to Drill
T7S R10E, Sec. 17, SW SW NW	GLICKMAN OIL (unavailable)	MATZKE 1	15-149-19007 (Pottawatomie)	1433 KB 1418 GL	1732	WILDCAT	18-NOV-1959	30-NOV-1959	D&A Plugged and Abandoned

T7S R10E, Sec. 24, NW NW SW SE	Kansas Geological Survey (unavailable)	Construction Material Inventory CMI site 31	Pottawatomie	1277 GL	89		05-DEC-2006		OTHER (STRAT)
T7S R10E, Sec. 25, C NW SE	VICKERS PET ETAL (unavailable)	KELLY-FALKENSTIEN 1	15-149-19008 (Pottawatomie)	1178 KB 1178 GL	1408	WILDCAT	11-NOV-1960	30-NOV-1960	D&A Plugged and Abandoned
T7S R10E, Sec. 28, C NE NE	FIVE NATIONS DRLG (unavailable)	OSBORN 1	15-149-19009 (Pottawatomie)	1317 KB 1317 GL	1602	WILDCAT	04-APR-1961	30-APR-1961	D&A Plugged and Abandoned
T7S R10E, Sec. 29, NE NE NE	SHELL OIL CO (unavailable)	CORE HOLE 12-2	Pottawatomie	1395 GL	1709				OTHER (STRAT)
T7S R11E, Sec. 1, NE	KDOT (unavailable)	K-16 OVR Vermillion CRK	Pottawatomie	1210 est.					OTHER ()
T7S R11E, Sec. 12, NW NW SE	MCCULLOCH OIL ETAL (unavailable)	MCGUIRE 1	15-149-20026 (Pottawatomie)	1148 GL	1212	WILDCAT	02-OCT-1971	31-OCT-1971	D&A Plugged and Abandoned
T7S R11E, Sec. 19, NW NW SW	VICKERS PETROLEUM CO (unavailable)	HARTWICK 1	15-149-19010 (Pottawatomie)	1268 KB 1268 GL	1441	WILDCAT	14-NOV-1959	30-NOV-1959	D&A Plugged and Abandoned

T7S R11E, Sec. 24, SE SE SE	GAINES FRANK OIL TRUST (Gaines, Franklin D.)	SRNA 1	15-149-20058 (Pottawatomie)	1254 KB	3135	WILDCAT	04-JUN-1992	11-JUN-1992	D&A Plugged and Abandoned
T7S R11E, Sec. 33, NW SE NW SE	INCLINE RESERVES (unavailable)	FALKENSTEIN 33-1	15-149-20052 (Pottawatomie)	1070 KB 1062 GL	2555	WILDCAT	17-JUN-1986	30-JUN-1986	D&A Plugged and Abandoned
T7S R12E, Sec. 2, SE SE SW	BARNES OIL (Barnes Oil Company)	GARY HOLTHAUS 1	15-149-20040 (Pottawatomie)	1397 KB 1393 GL	3775	WILDCAT	24-JUL-1980	03-AUG-1980	D&A Plugged and Abandoned

View page: **1** || 2 || 3 || 4

Kansas Geological Survey, Oil and Gas Well Database
Comments to webadmin@kgs.ku.edu
URL=http://www.kgs.ku.edu/Magellan/Qualified/index.html
Well Database Programs Updated June 6, 2014. Data added continuously.