



**STATE COOPERATIVE DRAFT AGENCY DECISION STATEMENT
Kansas Department of Health and Environment
Bureau of Environmental Remediation**

SITE NAME: ONEOK FMGP - Topeka Site (C4-089-71643)

CITY/COUNTY: Topeka, Shawnee County

DATE: March 2021

MEDIA IMPACTED: Soil/Groundwater

LAND USE (Current): Utility

SITE BACKGROUND: The ONEOK FMGP – Topeka Site (Site) is an approximately 2.2-acre property located in the northwest ¼ of Section 32, Township 11 South, Range 16 East, Shawnee County, Kansas (Figure 1). It is located on the northeast corner of the intersection of NE Quincy Street and SE 1st Avenue and lies approximately 1/8 mile south of the Kansas River. Land use surrounding the Site includes commercial, industrial, and utility purposes. The property housed a former Manufactured Gas Plant (MGP) facility, operated by the Excelsior Coke and Gas Company of Topeka (Excelsior), which utilized the coal carbonization gas manufacturing process from approximately 1870 to 1908. In 1913, a second MGP known as the Consumer’s Light, Heat, and Power Company’s Gas Works (Consumer’s Gas Works) was present at the Site, however it is unknown how long the facility operated. Sanborn maps from 1913 indicate that the Excelsior coal carbonization facilities were not operational at that time; the Excelsior MGP buildings were being used for storage, while additional facilities to support Consumer’s Gas Works such as a purification house and meter room, gas house, two 19,000-gallon oil tanks, and a second 210,000 cubic foot capacity gas holder were constructed. By 1968 most of the buildings supporting MGP operations were demolished by the then-owners, the Gas Service Company, and an office, service buildings, and garages were constructed; the majority of the Site after that time was used for parking and storage. The Site is currently owned by Kansas Gas Service (KGS) and is used as a commercial office as well as a service repair center.

The facility operated by Excelsior manufactured gas from coal using the coal carbonization gas manufacturing process, in which coal was heated in an oven and the volatile constituents of the coal would be driven off as a gas. The gas was collected, cooled, and purified prior to being transported via pipelines, while the remaining solid material (coke) was collected for other uses. The second MGP, Consumer’s Gas Works, used the Carburetted Water Gas process (CWG). The CWG process involved heating coal or coke in a closed vessel and injecting the vessel with steam, producing methane and carbon monoxide gas. Petroleum products would then be sprayed into the gas mixture, “cracking” the petroleum products to form methane, which increased the value of the gas.

As manufactured gas cooled, less-volatile compounds would condense to form an oily liquid mixture known as coal tar. Coal tar would often be separated in an oil/water separator, and although much of the tar was collected, recovery was incomplete as the oil and water could not be completely separated; the resulting oil/water emulsion would have to be disposed as waste. Unrecoverable coal tar and other waste products such as purifier waste and coal ash, that could not be repurposed or sold, were often disposed or stored onsite at MGPs. Coal tar was sometimes stored in a tar well, which was a pit lined with brick or concrete, or a gas holder tank.

In 1993, identified FMGP facilities in Kansas underwent Preliminary Assessments (PA) to assess the potential, extent, and degree of contamination resulting from MGP operations. The 1993 PA did not identify any indications of site exposure concerns; however, no subsurface samples were taken at that time. An Amendment to Consent Order to add the Topeka FMGP location, along with seven other locations, to the existing Consent Order (94-E-0172) was executed on May 5, 2003.

A Site Investigation (SI) was conducted in late 2003 to verify the locations of the former gas holder tanks, tar well, non-MGP vault, and to collect soil samples around the structures to evaluate potential soil contamination. Surface and subsurface soil sample analyses indicated that polynuclear aromatic hydrocarbons (PAHs) and benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected above their respective KDHE RSK soil and soil-to-groundwater screening levels. PAHs that exceeded both listed RSK levels include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(k)anthracene, chrysene, dibenzo(a,h)anthracene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, and pyrene. In December 2004, three monitoring wells (TPMW-01 through TPMW-03) were installed and groundwater was sampled. Analytical results showed that PAHs, benzene, and arsenic exceeded their RSK levels in TPMW-03, which was cross-gradient of the former facility. PAHs and metals were detected below their respective RSKs in each of the three wells, while BTEX was detected below the RSKs in TPMW-01 (downgradient).

In 2004, an Interim Remedial Measure (IRM) consisting of the excavation and disposal of MGP residuals and impacted soil and debris from within the tar well, the oil/water separator vault, and four other areas in which impacted soils were identified. A total of 615 tons of impacted material was disposed offsite. Confirmation soil samples indicated that various PAHs were still present at concentrations exceeding their respective KDHE RSK levels. In addition, the location where benzene exceeded the RSK in soil identified during the SI was not excavated due to impediments.

In July 2005, an additional groundwater monitoring well (TPMW-4) was installed downgradient of TPMW-3 to assess potential off-site migration of benzene and PAHs. Analyses of groundwater samples from the four wells indicated that benzene and benzo(a)anthracene were present above their respective RSKs at TPMW-03, while lead was detected above its RSK level in all four wells. Subsequent

groundwater sampling in December 2005 indicated that benzo(a)anthracene was above its RSK in TPMW-03.

A Feasibility Study (FS) was completed in March 2007 by Corporate Environmental Solutions, LLC. The FS identified residential exposure via direct contact or vapor intrusion, and consumption of groundwater onsite as complete or potentially complete exposure pathways. In response to the IRMs as well as the FS, an Environmental Use Control (EUC) was placed on the property and filed with the Shawnee County Register of Deeds (08-EUC-0036) on January 27, 2010. The EUC prohibits residential use, groundwater use, places excavation restrictions on the property, and requires vapor intrusion evaluation prior to the change in use of onsite buildings.

Groundwater sampling that took place in October 2010 and May 2011 showed no exceedances of contaminants of concern, however TPMW-03 was not sampled during those events due to proximity to the gas holder tank.

In 2014, a Corrective Action Study (CAS), which identifies and assesses the feasibility, effectiveness, and cost of groundwater response actions, determined that Long Term Monitoring and the existing EUC was an appropriate remedy for the Site.

Subsequent to the CAS, in July 2015, all monitoring wells were sampled. PAHs benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were present above their respective RSKs in TPMW-01, while benzo(a)pyrene was the only PAH above the RSK in TPMW-03. Lead results from the sample collected at TPMW-01 exceeded the RSK. Naphthalene exceeded the RSK in TPMW-03.

Groundwater sampling that took place in July and September 2016 identified no compounds detected above their non-residential RSKs in any wells. Sampling events that took place after September 2016 (July 2017, June 2018, July 2019, August-September 2020) generally show that groundwater collected from TPMW-01, TPMW-02, and TPMW-04 during that time period does not exceed the RSK for any contaminant of concern; the samples collected from TPMW-03 in July 2019 and August-September 2020 showed naphthalene (July 2019, 10 µg/L) and benzene (September 2020, 19 µg/L) above their respective non-residential RSK levels.

The primary contaminants of concern are benzene, toluene, ethylbenzene, xylenes (BTEX), PAHs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(k)anthracene, chrysene, dibenzo(a,h)anthracene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, and pyrene in soil and groundwater, as well as the metals lead and arsenic in groundwater. The previous IRM addressed a majority of the soil contamination, however confirmation soil sampling indicated that residual benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd) pyrene, anthracene, and fluoranthene were still present in soil above their respective non-residential soil RSKs in the floor (5-6 feet bgs) of the excavation of Area 4. In addition, areas where benzene was identified

in two soil samples above the RSK during the SI was not excavated. Further excavation was not completed due to impediments. An EUC was applied to the property in 2010 to address the potential risk posed by residual soil contamination.

During the last four years of groundwater monitoring (2016 – 2020), analytical data from samples collected from three of four wells (TPMW-01, TPMW-02, and TPMW-04) showed no exceedances of contaminants of concern in groundwater. Groundwater samples collected from TPMW-03, which is directly downgradient of the FMGP facility, exhibited groundwater RSK exceedances a single time during that period for naphthalene (July 2019, 10 µg/L) and benzene (September 2020, 19 µg/L). Trend analysis of the data indicate that all contaminant concentrations except benzene are stable to decreasing. Although trend analysis shows benzene concentrations increasing, the August-September 2020 sampling event is the only event in which benzene was detected above the groundwater Maximum Contaminant Level (MCL). The lack of groundwater contaminant exceedances in the most downgradient well, TPMW-04, indicates that groundwater contamination is not migrating offsite.

REMEDIAL PLAN: An IRM consisting of the excavation of approximately 615 tons of contaminated soil from four areas at the Site was performed in 2004. An EUC was placed on the property in 2010 which prevents soil exposure for residual PAHs and benzene that were left in place due to structural impediments, as well as restricting groundwater use, excavation activities, and requiring vapor intrusion evaluation upon change of building usage or new construction. Groundwater monitoring activities were conducted from 2004 until September 2020.

The risk pathways evaluated include groundwater consumption, direct soil contact and ingestion, and vapor intrusion. The analytical data show that the Site risks are restricted to the property, and a combination of the IRM and EUC address the risk remaining from residual contamination.

RECOMMENDATION: On the basis of information available in the Administrative Record and summarized above, KDHE recommends that the site be Conditionally Closed.

COMMUNITY

INVOLVEMENT: Public notice of the availability of the Draft Agency Decision Statement (ADS) will be published in *The Topeka Capital-Journal* on March 7, 2021 and the Draft ADS will be available for review at the Topeka Public Library from March 8, 2021 through March 23, 2021 during the 15-day comment period held to solicit written comments from the public. Any comments received will be addressed in the final ADS.

TABLES: Table 1 - Maximum Contaminant Concentrations in Soil
Table 2 – Maximum Contaminant Concentrations in Groundwater

FIGURES: Figure 1 – Site Location
Figure 2 – Site Layout

TABLE 1: MAXIMUM CONTAMINANT CONCENTRATIONS IN SOIL

Contaminant of Concern	Non-Residential Tier 2 Level Soil Pathway* (mg/kg)	Tier 2 Level Soil to Groundwater Pathway* (mg/kg)	Sample Depth (ft BGS)	Maximum Concentration Detected (mg/kg) [date]
Benzo(a)anthracene	10.9	7.89	2-3	260 [11/6/03]
Benzo(a)pyrene	23.5	1.09	2-3	100 [11/6/03]
Benzo(b)fluoranthene	10.9	19.2	2-3	230 [11/6/03]
Benzo(k)fluoranthene	109	190	2-3	92 [11/6/03]
Dibenzo(a,h)anthracene	1.09	3.98	2-3	12 [11/6/03]
Fluoranthene	2,440	2,830	2-3	580 [11/6/03]
Indeno(1,2,3-cd)pyrene	10.9	45.5	2-3	92 [11/6/03]
Chrysene	1,090	805	2-3	210 [11/6/03]
Pyrene	1,830	2,190	2-3	350 [11/6/03]
Naphthalene	30.5	0.349	14-15	250 [11/6/03]
Benzene	15.9	0.168	14-15	4.1 [11/6/03]

mg/kg = milligrams per kilogram or parts per million (ppm)

*KDHE's Risk-based Standards for Kansas (RSK) Manual, October, 2010, revised September 2015.

Bold Red font indicates concentration exceeds specified threshold level.

TABLE 2: MAXIMUM CONTAMINANT CONCENTRATIONS IN GROUNDWATER

Contaminant Class	Contaminant of Concern	Non-Residential Tier 2 Level Groundwater Pathway* (mg/L)	Historical Maximum Concentration Detected (mg/L) [well name, year]	Recent Maximum Concentration Detected (mg/L) [well name, year]
Metals	Arsenic	0.0100	0.0300 [TPMW-02, 2005]	0.0075 [TPMW-01, 2020]
	Lead	0.0150	0.1300 [TPMW-04, 2005]	0.0026 [TPMW-01, 2020]
Volatile Organic Compounds	Benzene	0.0050	0.0190 [TPMW-03, 2020]	0.0190 [TPMW-03, 2020]
Polynuclear Aromatic Hydrocarbons	Benzo(a)anthracene	0.00075	0.0085 [TPMW-01, 2015]	0.00015 [TPMW-03, 2020]
	Benzo(a)pyrene	0.0002	0.0085 [TPMW-01, 2015]	0.00027 J [TPMW-03, 2020]
	Benzo(b)fluoranthene	0.000537	0.0075 [TPMW-01, 2015]	0.00028 J [TPMW-03, 2020]
	Benzo(k)fluoranthene	0.00543	0.0078 [TPMW-01, 2015]	0.00010 J [TPMW-03, 2020]
	Dibenzo(a,h)anthracene	0.000027	0.0020 [TPMW-01, 2015]	ND (0.000021) [2020]
	Indeno(1,2,3-cd)pyrene	0.000392	0.0062 [TPWM-01, 2015]	0.00015 J [TPMW-01, 2020]
	Naphthalene	0.00211	0.2200 [TPMW-03, 2013]	ND (0.000030) [±] [2020]

mg/L = milligrams per liter or parts per million (ppm)

*KDHE's Risk-based Standards for Kansas (RSK) Manual, October, 2010, revised September 2015.

Bold Red font indicates concentration exceeds specified threshold level.

ND indicates the analyte was not detected above the reporting limit indicated in parentheses.

± indicates the Laboratory Control Sample (LCS) or LCS Duplicate is outside acceptance limits.

FIGURE 1. SITE LOCATION

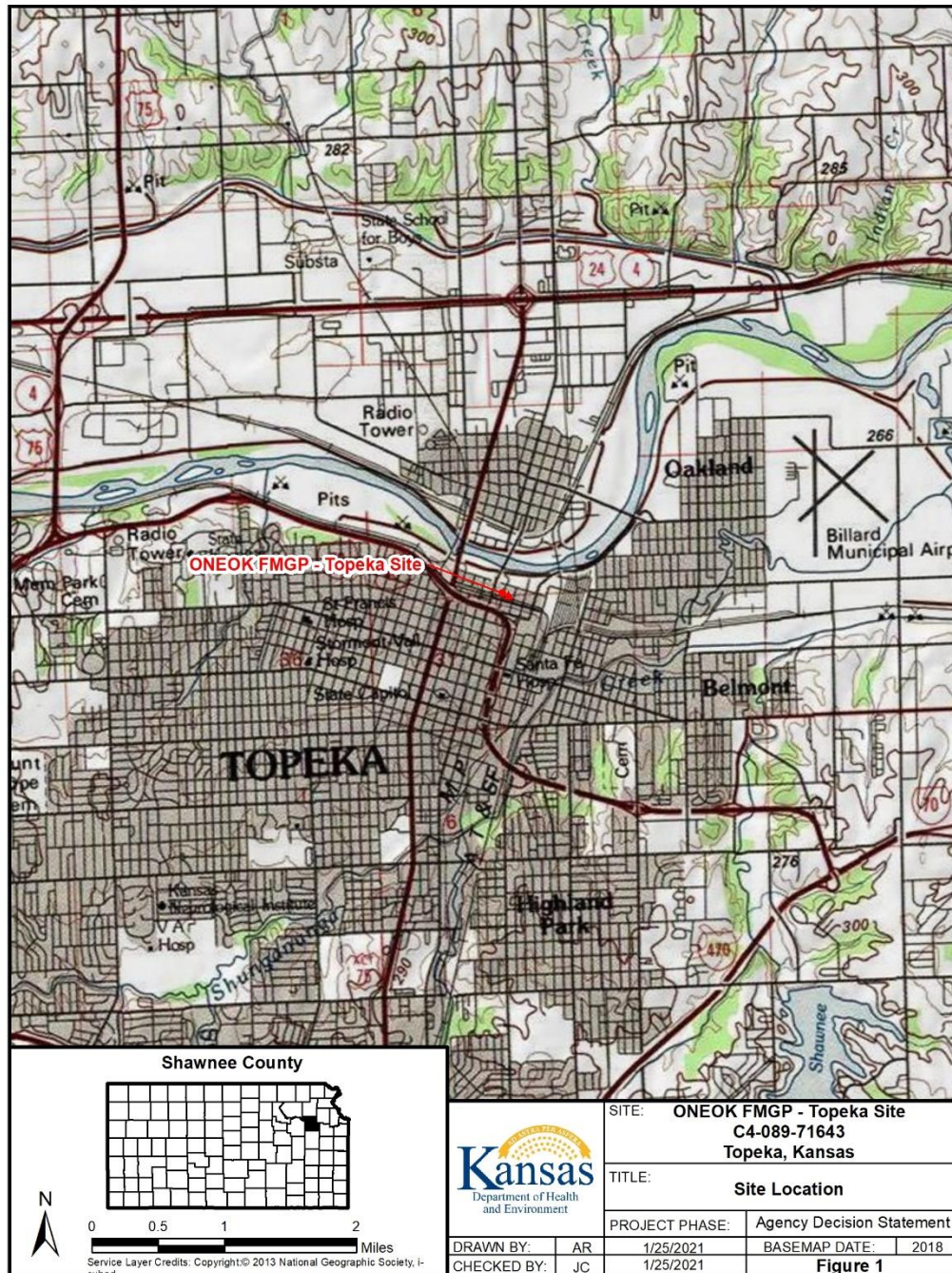


FIGURE 2. SITE MAP

