EAST KENTUCKY POWER COOPERATIVE

November 8, 2006

RECEIVED
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PUBLIC SERVICE COMMISSION

Ms. Elizabeth O'Donnell
Executive Director
Public Service Commission
211 Sower Boulevard
Frankfort, KY 40602

Re: PSC Case No. 2006-00033

Dear Ms. O'Donnell:

Please find enclosed for filing with the Commission in the above-referenced case an original and five copies of the feasibility study dated November 26, 2001, prepared for East Kentucky Power Cooperative, Inc., ("EKPC") by SCS Engineers in regard to the Pendleton County Landfill Gas to Energy Project. This report was intended to be a part of Exhibit A to EKPC's Application, in addition to the updated gas model information that was included under that tab of the Application. EKPC requests that this study, the key conclusions of which are referenced in Exhibit I, Section 2.0 of the Application, be added to the record in this case.

The omission of this study from the Application was discovered as a result of an information request made to the Commission by Buckeye Power, Inc. Please be advised that EKPC has been in contact with representatives of Buckeye Power, and will provide a copy of the feasibility study directly to them.

If there are any questions concerning this information, please contact me at EKPC headquarters.

Very truly yours,

Charles A. Lile
Senior Corporate Counsel

Enclosures

Cc: A.W. Turner, Esq.

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P.O. Box 707, Winchester,
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Exhibit A

November 21, 2001
File No. 05201013

Mr. Ralph Tyree
East Kentucky Power Cooperative, Inc.
4775 Lexington Road
Winchester, Kentucky 40391

Subject: Landfill Gas Modeling for the Rumpke Pendleton County Landfill
Butler, Kentucky

Dear Mr. Tyree:

This letter report has been prepared as part of a landfill gas investigation in connection with the potential development of a landfill gas to energy (LFGTE) facility at the Pendleton County Landfill located near Butler, Kentucky. This development is being considered by the East Kentucky Power Cooperative, Inc. (EKPC). EKPC is a local electric utility that services rural areas of eastern and central Kentucky. EKPC currently has a landfill gas development agreement with Rumpke of Kentucky, Inc. (Rumpke) to evaluate the feasibility of constructing an electric generation project at the Pendleton County Landfill.

INTRODUCTION

Rumpke owns and operates the active Pendleton County Landfill, which is located south of the town of Butler, northeast of Falmouth, in Pendleton County, Kentucky. The site primarily accepts municipal solid waste (MSW) from northern and central Kentucky, including the greater Cincinnati area at this time. The site also accepts a small amount of construction and demolition debris (CDD) waste. The landfill is located off of KY Route 17 in north central Pendleton County, west of U.S. Route 27. The currently permitted site has a proposed waste footprint of about 54 acres, which includes a 13-acre area where Phase II, the Contained Landfill, overlaps onto Phase I, the Residential Landfill. The site has future plans to expand the landfill and construct a Phase III, but has not made progress on formalizing the landfill expansion plans to date.

A landfill gas (LFG) collection system has been partially constructed as of the date of this letter report. Twenty-three LFG extraction wells are in place in the closed portion of Phase I. The site is currently passive venting the gas at each wellhead. Gary Saylor of SCS Engineers performed a site visit and interviewed Murray Caudill of Rumpke, the Landfill Manager, on October 15, 2001.

LANDFILL BACKGROUND

The Pendleton County Landfill is comprised of multiple disposal units with a combined permitted footprint of approximately 54 acres. The site was first opened in 1972 as a privately owned landfill to serve the town of Falmouth, Kentucky. Rumpke purchased the

landfill in 1980. Waste receipts at the site were minimal in the early years of operation, but began to increase in 1986. Most of the waste at the facility has been in place for 15 years or less.

The total remaining permitted waste capacity at the site is about 2.5 million cubic yards of landfill airspace as of the end of year 2000. The current active area is cell 3B/4B in Phase II, which began operating in 1995. Approximately 1.4 million cubic yards of waste has been placed in Phase II from 1995 through the end of 2000. Operations are planned to move to cell 6 of Phase II after cell 3B/4B is filled, then the overlap onto Phase I will be constructed and filled. Because of its uncertain permit status at this time, waste disposal beyond Phase II has not been considered as part of this landfill gas study.

The status and characteristics of the landfill site are summarized below in Table 1.

TABLE 1. LANDFILL CHARACTERISTICS

Landfill Phase	Approx. Waste Footprint (Acres)	Permitted or Proposed Airspace (C.Y.)	Estimated Filling Dates	Waste Tonnage In-place (thru 2000)	Current Status of Disposal Unit
Phase I	28.9	~1,200,000	1972-1994	900,240	Closed*
Phase II	38.9	3,910,841	1995-2010	1,002,228	Active
Total**	54.5	~5,100,000	1972-2010	1,902,468	--

Closed* = This Unit is still open to receive CDD waste only.
Total** = Total Acreage includes a 13.4 acre overlap between the 2 Phases.

LANDFILL GAS BACKGROUND

A passive LFG collection system has already been installed within in the closed residential landfill (Phase I). This consists of 23 vertical gas extraction wells and interconnected piping. The wells were originally installed as an active gas collection system, but to date it has only been used for passive venting. The system was installed with the future consideration of connecting the wells to a blower and flare unit, but the blower/flare has yet to be installed.

Available details on the landfill gas collection are as follows:

- A total of 23 vertical well were installed in Phase I in 1999. Total well depths are reported to range between 15 and 80 feet. The wells are constructed of 6-inch HDPE pipe in a 3-foot diameter borehole.

- ∃ In addition, header pipes consisting of 6 and 8-inch HDPE pipe along with 4-inch HDPE lateral pipes were installed at the time of well installation.

- ∃ Blind flanges were installed on the top of each well and lateral pipe for future connection of the wells to the header system. No LFG wellheads have been installed. To allow the wells to be used as passive vent, a perforated sleeve has been installed as a spacer beneath the blind flange on each well to allow the well to passively vent any gas build up in the wells.

As previously stated, the landfill gas system at the Pendleton County Landfill operates as a passive system only. No gas flow data or operating records are available to be reviewed for this system.

LANDFILL GAS MODEL

SCS models LFG recovery directly, eliminating the need to multiply LFG generation by an estimated recovery rate. The ultimate methane recovery rate (L_o) used as a model input parameter in the updated projections directly considers both methane generation and estimated recovery rate.

The LFG recovery projection for the Landfill is shown in the attached Exhibits. SCS prepared its model using the following input parameters:

- X **Refuse Filling History and Projections**: Rumpke provided the total waste tonnage to SCS for the period 1997 through 2000 during the site visit. Rumpke also provided a projection of future waste receipts. Waste receipts for years prior to 1997 were documented in a Tier 2 Report that was prepared by SCS for Rumpke in 1998. The current projected annual waste receipt for this landfill is about 200,000 tons per year. SCS used the updated disposal tons provided by Rumpke for years 1997 through 2000 in our gas model. A level disposal rate of 200,000 tons per year was used for 2001 through the time all airspace in the landfill will be filled. Under the existing permit, airspace would be fully consumed around year 2010 and the landfill would close. A conversion factor of 1,500 pounds per cubic yard was used.

- X **LFG Decay Rate Constant (k)**: A k value of 0.065 yr^{-1} was used based on precipitation data (43 inches per year) for the area.

- X **Ultimate Methane Recovery Rate (L_o)**: An Lo value of 3,540 ft^3/ton was used. This is also based on local average precipitation data.

- X **System Coverage**: System coverage of 70 percent was used starting in 2005. This assumes that a fully operational gas collection system will be installed in year 2004, and that a portion of the landfill will not be influenced by the LFG

system during operations. Upon the installation of a more comprehensive system at site closure, estimated system coverage increases to 90 percent. Future values assume that expansion and aggressive operations and maintenance (O&M) of the system will be regularly undertaken.

The reported landfill volume provided by Rumpke supports the tonnages used in the gas model. Given the gross cubic yards of waste in place as provided to SCS, the tons appear to be consistent with the waste density as provided by Rumpke. SCS typically uses a value of 1,200 pounds per cubic yard for all waste density conversions. The use of 1,500 seems reasonable for this site based on previous densities achieved by Rumpke, but may cause the model to slightly over estimate future gas production if this density is not achieved by Rumpke in future years.

Projected LFG recovery for the current waste receipt volumes in the existing permitted landfill is tabulated in Exhibit 1. A graph of the projected LFG recovery is included as Exhibit 2. Actual future gas recovery may be lower (or higher) depending on Rumpke's future operating practices.

The landfill gas model used by SCS Engineers is a first-order model, based on (and similar to) the U.S. Environmental Protection Agency (EPA) Landfill Gas Emissions Model (LandGEM). The model version developed by SCS Engineers calculates gas recovery or collection, not gas generation. The model uses input variables for methane generation potential (L_o) and annual gas generation rate (k) that have been developed specifically by SCS based on a data base of over 100 operational landfill gas collection systems.

The estimated accuracy of the desktop model, based on information provided by the operators and others, assumptions and data used for the input parameters, and SCS past experience is approximately ∀20 percent. SCS estimates the model to achieve this level of accuracy about 90 percent of the time over the next 10 years.

This recovery projection is based on our engineering judgment as of the date of this report. This report has been prepared in accordance with the care and skill generally exercised by reputable LFG professionals, under similar circumstances, in this or similar localities. No other warranty, express or implied, is made as to the professional opinions presented herein.

Changes in the landfill property use and conditions (for example, variations in rainfall, water levels, landfill operations, final cover systems, or other factors) may affect future gas generation at the site. SCS does not guarantee the quantity or the quality of available landfill gas. While the projection includes gas generated from future landfill operations, it should be noted that the Kentucky Division of Waste Management (DWM) would be required to renew the landfill's current operating permit prior to July 1, 2003.

This letter report has been prepared exclusively for the use of the East Kentucky Power Cooperative, Inc. No other party, known or unknown to SCS, is intended as a beneficiary of

this report or the information it contains. Third parties use this report at their own risk. SCS assumes no responsibility for the accuracy of information obtained from, or provided by, third-party sources.

CONCLUSIONS

Based on the data obtained and projections made for this site, SCS believes the Pendleton County Landfill may have some potential for a successful LFGTE facility. Currently, the site is not collecting its landfill gas on a regular basis but could be collecting good quantities of gas if an active gas collection system had been installed at the facility. The gas flow from an active gas collection system with 70 percent coverage, if installed in 2004, would generate a gas flow of about 970 scfm by 2005. Please note, however, that there are currently no plans to install an active gas collection system at this site and no regulatory requirements for the site to collect its landfill gas at this time.

The above estimated gas flow of 970 scfm could support a gas-to-energy plant consisting of two or three CAT 3516 gensets (1.6 to 2.4 MW gross generating capacity). The proposed gas-to-energy plant would have sufficient gas by about the year 2008 to adequately operate a three-engine plant with an acceptable factor of safety. Gas flow to sustain three engines should last about 10 years (until about 2017) under the current permitted waste volume. With a landfill expansion to generate additional gas, the life of the gas-to-energy plant would increase, and probably result in a higher capacity plant. Another option to increase gas flow above current estimates would be to install a more aggressive gas collection system with coverage greater than 70 percent. This is possible at this site, especially since some of the gas wells in Phase II could reach significant depths of 100 feet or more. The deeper waste mass and wells possible at this site will result in a more efficient gas collection system, and a greater radius of influence for the wells.

Please contact either Gary Saylor or Jim Walsh at (513) 421-5353 if you have any questions regarding this report.

Sincerely,

Gary L. Saylor, P.E., L.S.
Project Manager
SCS ENGINEERS

James J. Walsh, P.E.
Project Director
SCS ENGINEERS

GLS/JJW:rae

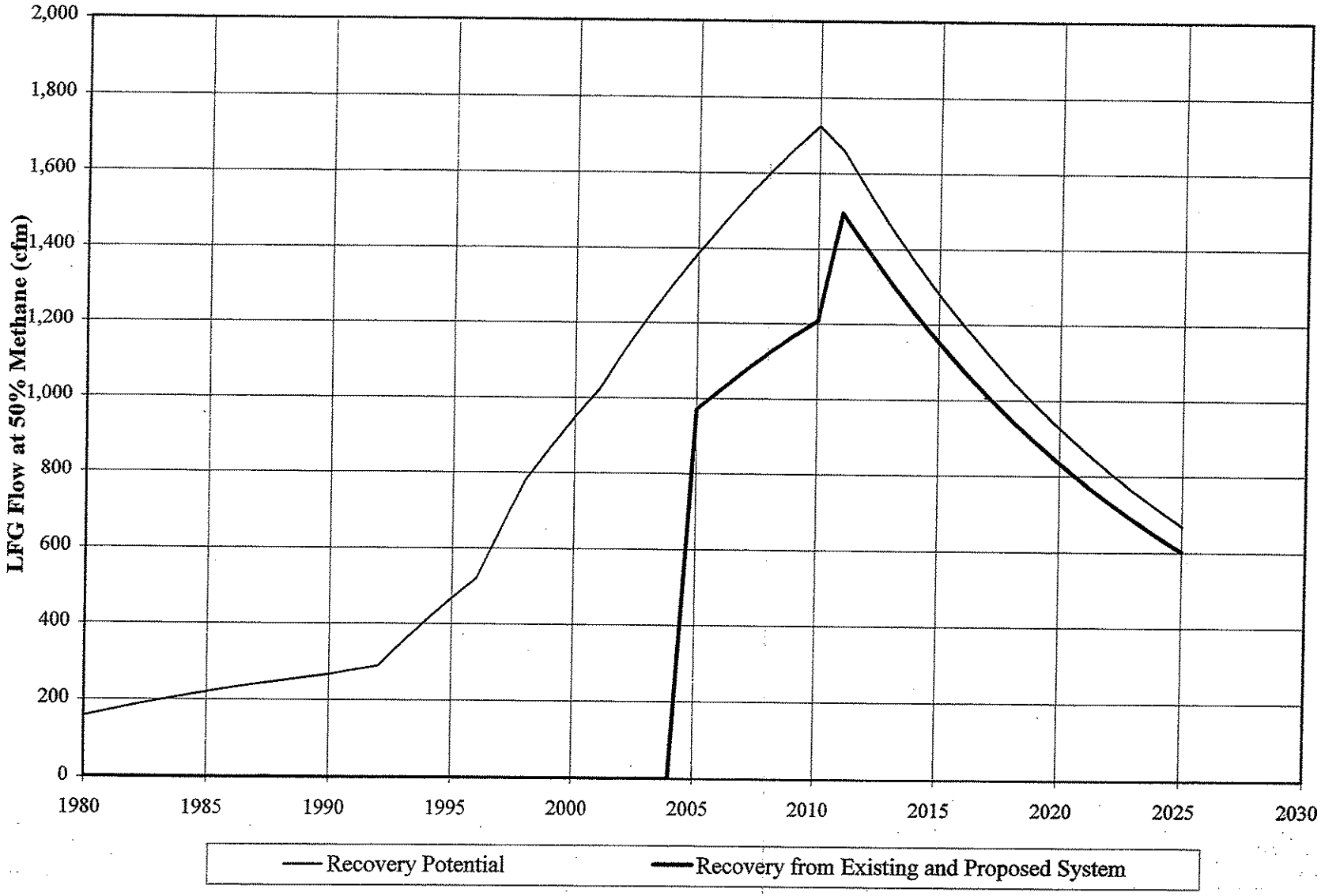
Enc.

EXHIBIT 1 - LFG RECOVERY PROJECTION
PENDLETON COUNTY LANDFILL - BUTLER, KENTUCKY

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	LFG Recovery Potential (scfm)	(mmcf/day)	(mmBtu/yr)	LFG System Coverage (%)	LFG Recovery from Existing and Proposed System (scfm)	(mmcf/day)	(mmBtu/yr)
1972	29,579	29,579	0	0.00	0	0%	0	0.00	0
1973	29,568	59,147	24	0.03	6,454	0%	0	0.00	0
1974	29,579	88,726	47	0.07	12,500	0%	0	0.00	0
1975	29,524	118,250	68	0.10	18,168	0%	0	0.00	0
1976	29,590	147,840	88	0.13	23,467	0%	0	0.00	0
1977	29,590	177,430	107	0.15	28,447	0%	0	0.00	0
1978	29,590	207,020	125	0.18	33,113	0%	0	0.00	0
1979	29,590	236,610	141	0.20	37,486	0%	0	0.00	0
1980	29,590	266,200	156	0.23	41,584	0%	0	0.00	0
1981	29,590	295,790	171	0.25	45,423	0%	0	0.00	0
1982	29,590	325,380	184	0.27	49,022	0%	0	0.00	0
1983	29,480	354,860	197	0.28	52,393	0%	0	0.00	0
1984	29,590	384,450	209	0.30	55,529	0%	0	0.00	0
1985	29,590	414,040	220	0.32	58,491	0%	0	0.00	0
1986	29,590	443,630	230	0.33	61,267	0%	0	0.00	0
1987	29,590	473,220	240	0.35	63,868	0%	0	0.00	0
1988	29,590	502,810	249	0.36	66,305	0%	0	0.00	0
1989	29,590	532,400	258	0.37	68,589	0%	0	0.00	0
1990	34,650	567,050	266	0.38	70,729	0%	0	0.00	0
1991	34,650	601,700	278	0.40	73,839	0%	0	0.00	0
1992	99,550	701,250	289	0.42	76,753	0%	0	0.00	0
1993	99,550	800,800	352	0.51	93,645	0%	0	0.00	0
1994	99,440	900,240	412	0.59	109,474	0%	0	0.00	0
1995	99,550	999,790	467	0.67	124,283	0%	0	0.00	0
1996	202,510	1,202,300	520	0.75	138,184	0%	0	0.00	0
1997	205,486	1,407,786	653	0.94	173,677	0%	0	0.00	0
1998	163,715	1,571,501	781	1.12	207,586	0%	0	0.00	0
1999	166,039	1,737,540	866	1.25	230,245	0%	0	0.00	0
2000	164,928	1,902,468	947	1.36	251,986	0%	0	0.00	0
2001	200,000	2,102,468	1,023	1.47	272,117	0%	0	0.00	0
2002	200,000	2,302,468	1,123	1.62	298,633	0%	0	0.00	0
2003	200,000	2,502,468	1,216	1.75	323,480	0%	0	0.00	0
2004	200,000	2,702,468	1,304	1.88	346,764	0%	0	0.00	0
2005	200,000	2,902,468	1,386	2.00	368,583	70%	970	1.40	258,008
2006	200,000	3,102,468	1,463	2.11	389,028	70%	1,024	1.47	272,320
2007	200,000	3,302,468	1,535	2.21	408,187	70%	1,074	1.55	285,731
2008	200,000	3,502,468	1,602	2.31	426,140	70%	1,122	1.62	298,298
2009	200,000	3,702,468	1,666	2.40	442,963	70%	1,166	1.68	310,074
2010	54,683	3,757,151	1,725	2.48	458,728	70%	1,207	1.74	321,110
2011	0	3,757,151	1,661	2.39	441,791	90%	1,495	2.15	397,612
2012	0	3,757,151	1,557	2.24	413,988	90%	1,401	2.02	372,589
2013	0	3,757,151	1,459	2.10	387,935	90%	1,313	1.89	349,141
2014	0	3,757,151	1,367	1.97	363,521	90%	1,230	1.77	327,169
2015	0	3,757,151	1,281	1.84	340,644	90%	1,153	1.66	306,579
2016	0	3,757,151	1,200	1.73	319,206	90%	1,080	1.56	287,286
2017	0	3,757,151	1,125	1.62	299,118	90%	1,012	1.46	269,206
2018	0	3,757,151	1,054	1.52	280,294	90%	949	1.37	252,264
2019	0	3,757,151	988	1.42	262,654	90%	889	1.28	236,389
2020	0	3,757,151	925	1.33	246,125	90%	833	1.20	221,512
2021	0	3,757,151	867	1.25	230,635	90%	780	1.12	207,572
2022	0	3,757,151	813	1.17	216,121	90%	731	1.05	194,509
2023	0	3,757,151	761	1.10	202,520	90%	685	0.99	182,268
2024	0	3,757,151	714	1.03	189,775	90%	642	0.92	170,797
2025	0	3,757,151	669	0.96	177,832	90%	602	0.87	160,049

ASSUMED METHANE CONTENT OF LFG: 50%
SELECTED DECAY RATE CONSTANT: 0.065
SELECTED ULTIMATE METHANE RECOVERY RATE: 3,540 cu ft/ton

EXHIBIT 2 - LFG RECOVERY PROJECTION GRAPH
PENDLETON CO. LANDFILL - BUTLER, KENTUCKY



11/26/2001