

## KANSAS GEOLOGICAL SURVEY

1930 Constant Ave., Campus West  
The University of Kansas  
Lawrence, Kansas 66047-3726  
phone 785-864-3965  
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February 22, 2005

James R. Carlson, CEM  
Sunflower Electric Power Corporation  
2025-75W. St. John St.  
Garden City, KS 67846

Re: Sunflower Holcomb Landfill Expansion project

Dear Mr. Carlson:

The Kansas Geological Survey (KGS) has received your notification in accordance with the requirements of the rules and regulations of the Kansas Department of Health and Environment (KDHE) for permit modifications to expand an existing industrial landfill (Section 10, Location Demonstrations of the KDHE *Permit Application for an Industrial Landfill*).

The Kansas Geological Survey received from you an Engineering Report for Holcomb Station, Unit 1 Solid Waste Disposal Site prepared by GAI Consultants dated June 1982, several pages from the Finney County Soil Survey describing the soil in the area of the landfill expansion, an aerial photograph showing the proposed and expanded boundaries of the landfill, and an excerpt from the KDHE Statutes that defines Industrial Waste Landfills. Additionally, a geologic map exists for Finney County (KGS Map 28). This map shows the surface geology of the site to be eolian (dune) sand.

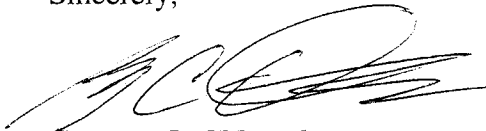
- The Engineering Report by GAI Consultants was produced for the original disposal site, and the utility of this report for the expanded disposal site proposed in this application needs to be addressed by KDHE.
- Since an operating disposal area exists at this site, it might be valuable to provide KDHE with data on the performance of the existing landfill and whether or not the design assumptions have proven valid. This should include ground-water chemistry data from monitoring wells.
- The landfill site is approximately 1 mile from the Arkansas River, and possible contaminant transport to the river from the existing landfill needs investigated. The elevation of the river is approximately 2860'. The water elevations in the wells reported in the Appendix A by Woodward-Clyde Consultants range from 2846' to 2856'. This suggests a potential connection between the ground water at the site and the river.
- The 1982 operation plan by GAI Consultants, Inc. called for placing a "two (2) foot layer of stabilized waste material" at the base of the landfill in order to "create an

impervious liner to prevent leaching of surface waters through the fill and possibly to groundwater." How has the layer of stabilized waste preformed as a liner?

- In many areas of western Kansas, macropore flow has occurred in eolian sand, loess, and alluvial deposits. Macropore flow could lead to rapid transport of unanticipated leachate away from the landfill site.
- The KGS has no data on possible landslide or subsidence (karst) hazards for this area.

Other geologic concerns that will need to be addressed may be encountered during detailed site characterization.

Sincerely,

A handwritten signature in black ink, appearing to read 'G. C. Ohlmacher', with a stylized, flowing script.

Gregory C. Ohlmacher  
Associate Scientist

**Sunflower Electric Power Corporation**

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January 20, 2005

Greg Ohlmacher  
Associate Scientist  
Kansas Geological Survey  
1930 Constant Avenue  
Parker 102  
Lawrence, KS 66047-3726

Re: Sunflower Holcomb Landfill Expansion Project

Dear Mr. Ohlmacher:

In accordance with our January 20, 2005 conversation, enclosed please find the following items:

- An engineering report for Holcomb Station, Unit 1 Solid Waste Disposal Site by GAI Consultants;
- A Soil Survey of our Holcomb, Kansas, site and the surrounding area;
- An excerpt from the Kansas Statutes Annotated, (KSA) 65-3401 (x) which defines industrial waste landfills;
- An aerial photograph depicting the existing and proposed expanded boundaries of our site.

These documents have been provided in support of the agency review process. It is necessary for Sunflower Electric Power Corporation to expand our industrial landfill as part of the construction of a second unit at our site. The current landfill is a 110 acre monofill which contains flyash and bottom ash from the combustion of coal. The landfill is legally described as being within the S ½ of Section 20 and the N ½ of Section 29, Township 24 South, Range 33 West, Finney County, Kansas.

Sunflower anticipates expansion of our Industrial Landfill to occupy an area of approximately 290 acres. The Industrial Landfill classification in Kansas includes flyash from coal-combustion processes, and in the case of our landfill, flyash and bottom ash are almost exclusively the wastes placed in our unit.

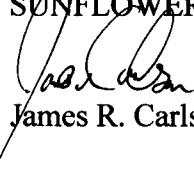
The landfill is located in the Sand Hills Region of Southwest Kansas, approximately 6,500 feet from the Arkansas River. The site and surrounding area consist almost exclusively of aeolian sands and gravels. The materials are found to depths of 100-150 feet and beyond. Tab Number 1 contains a GAI Engineering Report which presents a subsurface investigation undertaken at the site.

The Sand Hills region in the vicinity of the landfill site is devoid of Karst Terrain. Some Karst environments can present a stability problem due to solution formation, but this is not the case for our site due to the lack of Karst Terrain. Similarly, the landslide potential is low due to the relatively level topography. Because flyash and bottom ash wastes set up to the consistency of low-strength concrete, deposition of these materials in the Tivoli soils environment present minimal opportunity for foundational or base problems associated with other waste types.

As part of agency notification, we are contacting the Kansas Geological Survey requesting an agency review and comments of the attached documents and explanation. If possible, we are requesting the review process to be complete by February 18, 2005.

If you have any questions, comments or need further information, please contact me at 620-272-5467.

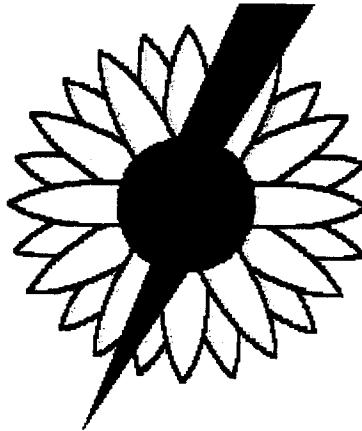
Sincerely,  
SUNFLOWER ELECTRIC POWER CORPORATION



James R. Carlson, CEM

JRC/ksh/Enclosures

*This book in  
Greg Ohlmache's  
Office.*



**SUNFLOWER ELECTRIC POWER CORPORATION**

**HOLCOMB STATION**

**Solid Waste Landfill Expansion**