

Appendix L

Landfill Life Estimate

**Ameren Missouri Labadie Energy Center
Proposed Utility Waste Landfill
Franklin County, Missouri**

January 2013

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The life of the proposed utility waste landfill (UWL) is estimated based on projected waste volume production rates and the calculated net UWL volume. The total UWL volume was estimated using CADD to measure the volume between a surface 2-feet below the final cover (to adjust for the final cover thickness of 2-feet) and a surface 1-foot above the top-of-liner (to adjust for the protective cover thickness of 1-foot). The net UWL volume was then determined by deducting a volume equal to the area of the relatively flat floor (146.6 acres) times a thickness of 1-foot, to account for the volume occupied by the leachate drainage aggregate layer.

Gross UWL Airspace Volume = 16,513,000 CY

Drainage Layer Volume = 1 ft x 146.6 AC x 43,560 SF/AC x 1 CY/ 27 CF = 236,500 CY

Protective Cover Volume = 1 ft x 166.5 AC x 43,560 SF/AC x 1 CY/ 27 CF = 268,600 CY

Final Cover Volume = 2 ft x 166.5 AC x 43,560 SF/AC x 1 CY/27 CF = 537,200 CY

Net Waste Volume = 16,513,000 – 236,500 - 268,600 - 537,200 = 15,470,700 CY

Two wet flue gas desulfurization (WFGD) systems will come on line at different times, increasing the rate of coal combustion product (CCP) generation over time. The generations rates projected are:

- 2015 to 2019, 2.3 MCY,
- 2020 to 2024, 2.9 MCY,
- 2025 to 2029, 3.6 MCY, and
- 2030 and after, 3.8 MCY every five year period or 760,000 CY/year.*

The amount of landfill volume remaining after the first 15 years would be:

$$15.5 \text{ MCY} - 2.3 \text{ MCY} - 2.9 \text{ MCY} - 3.6 \text{ MCY} = 6.7 \text{ MCY}$$

The years of life available in the remaining volume is:

$$6.7 \text{ MCY} / 760,000 \text{ CY/year} = 8.8 \text{ years}$$

The total landfill life is:

$$15.0 + 8.8 = 23.8 \text{ years}$$

* CCP production estimates are drawn from the Reitz & Jens Design Basis dated October 16, 2012.