



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Standard Procedures for Completing an Earthen Basin Geologic Collapse Potential Evaluation

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Standard Procedures began to better understand collapse in karst terrain

Early **1960s** Environmental geology as a practice becomes mainstream and MGS geologists begin studies on geotechnical challenges and groundwater protection in varied geologic settings

1967-1976 MGS geologists present initial results to various transportation forums including the Transportation Research Board in Washington, DC

SOURCES: Vinyard J. and Williams J. 1967. A Foundation Problem in Cavernous Terrain, Pulaski County, Missouri. 18th Annual Highway Geology Symposium.

Vinyard J. and Williams J. 1976. Geologic Indicators of Subsidence and Collapse in Karst Terrain in Missouri. Transportation Research Board. Washington, D.C.

Lagoon collapse drove creation of Standard Procedures

1978 West Plains Wastewater Lagoon Collapse became a catalyst for development of evaluation criteria

1988 began formally apply criteria and ratings to prevent significant collapses at earthen basin sites

Since that time, MGS has completed over **5,000** collapse potential evaluations for earthen basins



Photo from files of U.S. Geological Survey, Rolla, Missouri

Figure 103. Sinkholes, such as this one that formed in a sewage lagoon at West Plains, Missouri, in 1978, allow contaminants to rapidly enter carbonate-rock aquifers.

Where are we now?

The Standard Procedures for Completing an Earthen Basin Geologic Collapse Potential Evaluation provides internal guidance for applying scientifically-based procedures to complex geologic settings

Coordinated with DEQ-WPP to place this document on public notice from August 23, 2019 to September 23, 2019

2 Comment Letters were received and included regulatory, procedural, and technical comments

We anticipate the document to be reviewed and revised and will provide an update at the next Water Forum

Feedback received will help improve the document

Draft responses to comments are under review and will result in:

- Improved clarity and readability
- Addition of the rating to the liquid waste evaluation report
- Addition of a process for reviewing supplemental information submitted after an evaluation is completed and amending a report if appropriate



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Questions?