# SELECTION OF REMEDY (per 40 CFR 257.97)

STATION OWNER: Southern Illinois Power Cooperative (SIPC)

POWER STATION: Marion Power Plant

CCR UNIT: Emery Pond

DATE: June 19, 2019

In accordance with 40 CFR § 257.97, a CCR unit that has an exceedance of an Appendix IV parameter at a statistically significant level above the groundwater protection standard (GPS) must perform an Assessment of Corrective Measures. This assessment was performed earlier this spring, and a public meeting was held at 6:30 p.m. on May 23, 2019 at the Marion Public Library to discuss the assessment results.

Based on the results of this assessment and public input, a remedy must be selected that meets, at a minimum, the requirements of § 257.97(b). Table 1 lists the potential remedies relative to the requirements listed in § 257.97(b).

§ 257.97(c) requires an evaluation of the long- and short-term effectiveness of the optional remedies. Table 2 lists the potential remedies, risk reduction, long term management, short-term risks, expected completion date, potential exposure, and long-term reliability. No community concerns were voiced during the public meeting.

Table 3 lists the potential remedies and issues related to the implementation of each potential remedy. There is insufficient data at this time to complete a modeled study of recovery time(s). However, by completely removing the existing sources of contamination and installing a composite (low permeability, recompacted soil and geomembrane) liner system, future groundwater impacts will be minimized.

§ 257.97(d) discusses the selected remedy and a timeframe for implementation. Based on the site geology, groundwater, and timing, the selected remedy for the Emery Pond is to retrofit the pond and to remove any CCR from within the historical pond limits. This includes bottom ash found beneath the gypsum load-out area. A composite liner system will be constructed at the gypsum load out to restrict infiltration of the gypsum into the local groundwater system. The retrofit and cleanup activities are scheduled to begin with the fall 2020 plant outage. Removal is deemed the best solution to the groundwater exceedances and the most likely to achieve the remediation objectives with a low risk to human health and the environment. There is limited exposure risk to humans, wildlife, crops, vegetation, or structures from the retrofit of the Emery Pond.

Shallow groundwater at the Site is identified as a general resource groundwater, and does not meet the definition of an aquifer. No local use of the shallow groundwater has been identified in public records. Potable water for public use in the area around the Marion Power Plant is supplied by the Lake of Egypt Water and Sewer District.

**Table 1. Corrective Measures Options**

| Potential Remedies | Pros | Cons | Human Health | Attain GPS | Control Release | Material Removal | Manage RCRA Wastes |
|---|---|---|---|---|---|---|---|
| Do nothing | • Inexpensive | • Liability | No | No | No | n/a | n/a |
| Close in Place | • 40 CFR 257 compliant | • Loss of storm water storage | Somewhat | No | Some | n/a | Yes |
| Clean close | • 40 CFR 257 compliant | • Loss of storm water storage | Protective | Yes | Yes | Yes | Yes |
| Slurry wall | • Containment of COCs | • Still an unlined CCR impoundment<br>Working around buried utilities | Protective | Yes | Yes | n/a | n/a |
| Pump and Treat | • Removal of COCs | • Still an unlined CCR impoundment<br>Low hydraulic conductivity causes narrow capture zones at wells | Protective | Ukn | Ukn | n/a | n/a |
| Pump Station | • No dam or dam permit<br>• Smaller footprint | • Increased O & M<br>Additional measures to control CCR | Protective | Yes | Ukn | n/a | Yes |
| New Location | • 40 CFR 257 compliant | • Pond unusable during construction | Protective | Yes | Yes | No | No |
| Retrofit | • 40 CFR 257 compliant<br>Removes COC source | • Pond unusable during construction<br>Requires CCR removal | Protective | Yes | Yes | Yes | Yes |

**Table 2. Long and Short-term Effectiveness of Options**

| Potential Remedies | Reduce Existing Risk | Residual Risk | Long-term Management | | | Short-term Risk | Completion Date | Potential Receptor Exposure | Long-term Reliability | Need to Replace |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Monitoring | Operation | Maintenance | | | | | |
| Do nothing | No | No | No | n/a | n/a | High | Immediately | High | Low | Likely |
| Close in Place | Somewhat | No | Some | n/a | Yes | Moderate | Fall 2020 | Low | Moderate | Possibly |
| Clean close | Protective | Yes | Yes | Yes | Yes | Low | Fall 2020 | Low | Low | Unlikely |
| Slurry wall | Protective | Yes | Yes | n/a | n/a | Moderate | Fall 2019 | Low | Moderate | Possibly |
| Pump and Treat | Protective | Ukn | Ukn | n/a | n/a | Moderate | Fall 2019 | Moderate | Moderate | Possibly |
| Pump Station | Protective | Yes | Ukn | n/a | Yes | Low | Fall 2020 | Low | Low | Unlikely |
| New Location | Protective | No | Yes | Yes | Yes | Low | Fall 2020 | Low | Low | Unlikely |
| Retrofit | Protective | Yes | Yes | Yes | Yes | Low | Fall 2020 | Low | Low | Unlikely |

**Table 3. Implementation of Options**

| Potential Remedies | Construction Difficulties | Operational Reliability | Permits & Approvals | Specialty Equip./Eng. | Availability Treatment, Disposal & Storage |
|---|---|---|---|---|---|
| Do nothing | None | n/a | None | None | None |
| Close in Place | Nothing major | Good | None | None | None |
| Clean close | Nothing major | Good | None | None | Need disposal site |
| Slurry wall | Excavation & buried utilities | Good | None | Specialty Contractor | Unknown fill |
| Pump and Treat | Drilling & well installation | Good | NPDES | Drilling & Pumps | GW discharges |
| Pump Station | Drilled shafts | Good | Water Treatment | Drilling Contractor | Just like pond |
| Retrofit | Clean out existing pond<br>storm water during construction | Very Good | Water Treatment | Geosynthetics | None |