

INITIAL INSPECTION REPORT
ASH LANDFILL AREA
SPRINGERVILLE GENERATING STATION
SPRINGERVILLE, ARIZONA

Prepared for
Tucson Electric Power Company



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Project No. 1004.06

**Initial Annual Inspection Report
Ash Landfill Area
Springerville Generating Station
Springerville, Arizona**

The material and data in this report were prepared under the supervision and direction of the undersigned. This Plan has been prepared to comply with the requirements as specified in CFR §257.84(b), including certification by a professional engineer.

AMTECH Associates, L.L.C.



Expires 09/30/2016

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1 ANNUAL INSPECTION REPORT

1.1 Introduction

AMTECH Associates L.L.C. (AMTECH) has prepared this 2015 Annual Inspection Report for Ash Landfill area associated with the Tucson Electric Power's Springerville Generating Station (SGS) approximately 15 miles north of Springerville, Arizona (See **Figure 1**). This report was prepared to comply with annual inspection requirements as per the U.S. Environmental Protection Agency's Standards for the Disposal of Coal Combustion Residuals (CCR) in Landfill and Surface Impoundments, CFR Part 257 Subpart D. These standards are applicable to the facility's Ash Landfill as an "Existing CCR landfill" as defined in CFR §257.53 and receives CCR.

Additionally, in accordance with §257.105(g)(9), this report will be placed in the SGS's facility operating record and, in accordance with the requirement stipulated in §257.106(g)(7), noticed to the State Director and posted to the publicly accessible internet site.

1.1.1 Regulatory Requirements

As per CFR Part §257.84(b)(1), existing CCR landfill must be inspected on a periodic basis by a Qualified Professional Engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards.

1.1.2 Site Description and Location

The SGS is a four-unit, pulverized coal-fired, steam electric generating facility, operated by Tucson Electric Power Company (TEP), that began operations in 1985 and consists of a combined net generating output of approximately 1600-megawatts.

SGS is located approximately 15 miles northeast of Springerville, in Apache County, Arizona. The power plant area of SGS is located in Sections 27, 28, 33, and 34, of Township 11 North, Range 30 East of the Salt and Gila River Baseline and Meridian. The SGS site occupies 14,355 acres, which includes the power plant area, ash landfill area and the east and west well fields.

The Ash Landfill, located southwest of the power plant area, is primarily used for the disposal of fly and bottom ash, products of the coal-fired units at the plant. A delineated

portion of the Ash Landfill is used for the disposal of other items in lesser quantities, i.e. reactivator sludge, construction debris and power plant outage refuse, sump sludges, demineralizer resins, PCS, cooling tower sludge, lime, soda ash, sewage pond sludge, evaporation pond solids, miscellaneous pond clean-outs, cooling tower treated lumber, and other inert and non-hazardous materials. A site map showing the locations of the power plant area and ash landfill area is presented in **Figure 1**, Attached.

1.2 Regulatory Documents and Other Information §257.84(b)(i)

The Arizona Department of Environmental Quality (ADEQ) issued an Aquifer Protection Permit (APP) No.: P-101448 for the SGS (last modified on February 12, 2012) that authorizes the operation of its ponds, reservoirs, and other existing discharging facilities, including the Ash Landfill.

The ADEQ issued a Title V Air Quality Permit No.: 53418 for the SGS on September 4, 2012 (with expiration date of September 4, 2017) that authorizes the operation of the SGS as a Class I, major source under the Clean Air Act. The permit includes requirements for fugitive dust control. The following CCR fugitive dust emission sources are identified in the permit as Non-point sources of fugitive dust including open areas, roadways and streets, storage piles and material handling areas.

A *Fugitive Dust Control Plan*, per the CCR requirements, was developed for the Ash Landfill by CB&I Environmental & Infrastructure, Inc. in September 2015. The Fugitive Dust Control Plan contains a description of fugitive dust sources and operating measures to effectively minimize fugitive dust emissions from the CCR facility.

Weekly inspections by a qualified person have been conducted at the Ash Landfill area and recorded in the facility operating record as required in §257.84. As part of the facility site visit on January 14, 2016, AMTECH reviewed the weekly inspection records dated October 19, 2015 through December 28, 2015. Based on the weekly inspection reports, AMTECH observed that the following inspection items have met expectations and no comments/recommendations have been recorded.

- Run-on, Run-off Controls;
- Water Retention Structure;
- Fugitive Dust Controls on Roadways and Landfill;
- Structural Stability of Landfill; and
- Work Orders Generated by the Inspection.

An evaluation of the Ash Landfill area including geotechnical characteristics, fly ash and bottom ash characteristics, and computer modeling were presented in the original APP Application submitted to the ADEQ for the facility in April 1998. In addition, previous chemical analyses of the existing ash at the site indicate that the ash is relatively inert.

Drawings depicting the Ash Landfill layout, including the Landfill Operations Plan, was included as part of the April 1998 APP Application and subsequent APP submittals.

A drainage plan for the Ash Landfill area was also presented in the April 1998 APP Application and describes the retention structures constructed to retain run-off. The geotechnical evaluation found that the low permeability vadose zone in the vicinity of the ash landfill area hinders the seepage or migration of fluids into the subsurface. Depth of groundwater is approximately 600 feet below ground surface and reduces the possibility of seepage reaching the groundwater and no evidence of seepage has been observed in seepage wells installed west of the ash landfill area.

In addition, as part of the APP Application, an investigation utilizing the PCSTABL5 computer model as used to analyze the proposed final grades of the Ash Landfill to compute safety factors meeting the criteria for static and pseudostatic conditions. The results of the evaluation showed that the proposed final grades of the ash landfill area are stable.

1.3 Inspection Report §257.84(b)(2)

AMTECH and TEP conducted a visual site inspection at the SGS Ash Landfill area on January 14, 2016. Observations made during the site inspection are summarized below.

Changes in Geometry §257.84(b)(2)(i)

As this is the initial annual landfill inspection, the evaluation of any changes in geometry of the structure since the previous annual inspection is not applicable to the site. The current geometry of the landfill consists of approximate 8-foot ash/waste material lifts with benches that slope inwards towards the toe of the landfill slopes.

Approximate Volume §257.84(b)(2)(ii)

The approximate volume of CCR disposed of in the Ash Landfill area is approximately 28 million tons. This volume is based on the 1985 to 2015 haul truck logs provided by TEP.

Structural Evaluation §257.84(b)(2)(iii)

AMTECH and TEP did not observe any obvious signs of actual or potential structural weakness within the Ash Landfill.

Any Other Changes §257.84(b)(2)(iv)

As this is the initial annual landfill inspection, other changes observed at the Ash Landfill since the previous annual inspection is not applicable to the site.

Other Comments

The landfill inspection verified that the landfill's grading and drainage system prevents surface water from surrounding areas from entering the landfill and that stormwater run-off from the bottom benches of the landfill is effectively routed into the stormwater runoff retention pond, located northwest of the Ash Landfill.

The Ash Landfill is operated in accordance with its existing permits and approved plans and specifications, including fill areas, slopes, height, liner/cover system, access roads, seepage monitoring wells, etc.

Fugitive dust is effectively controlled as described in the *Fugitive Dust Control Plan* dated September 2015.

TEP has applied a soil cover over the inactive areas of the landfill that is at least 2 feet in thickness. This soil cover has been hydroseeded to accommodate the growth of native plants/species that will assist in erosion control. Site photographs depicting the soil cover at the site are presented in **Appendix A**.

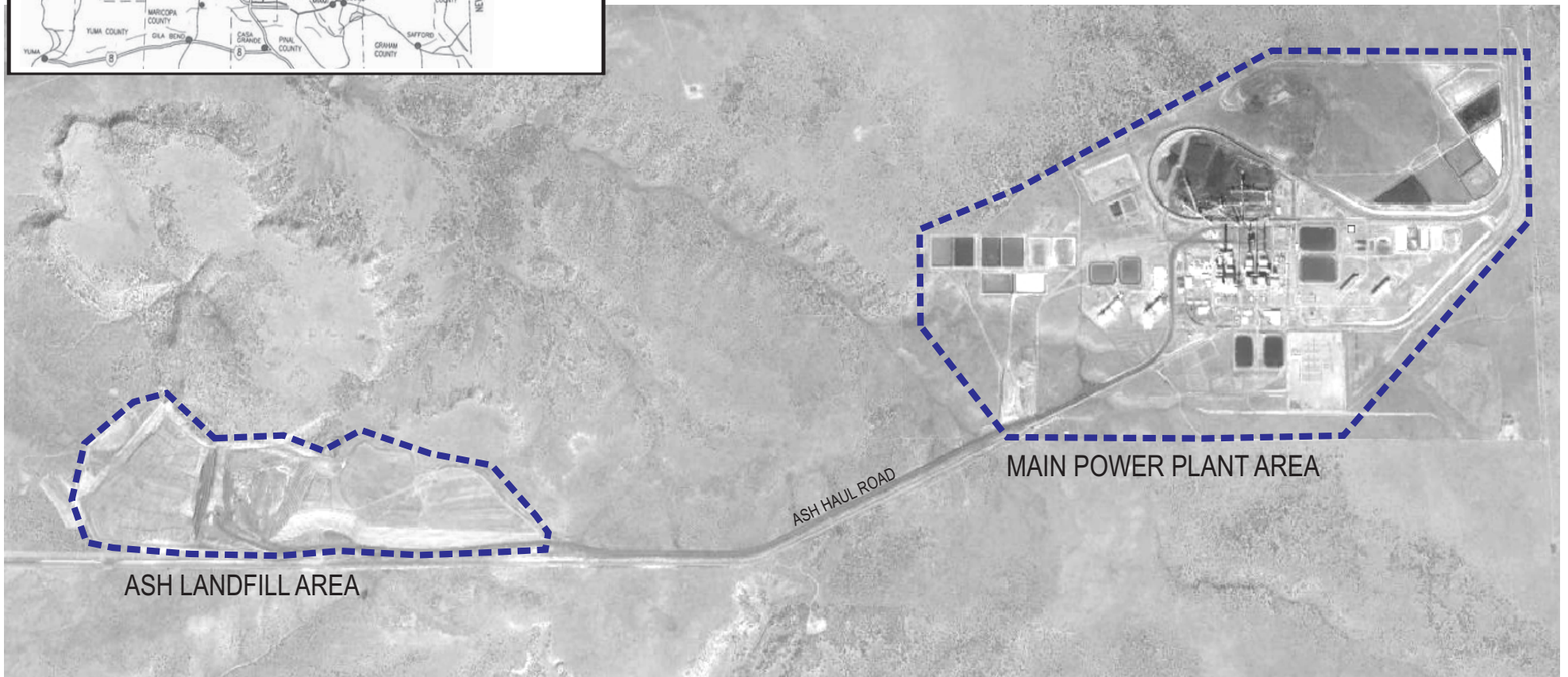
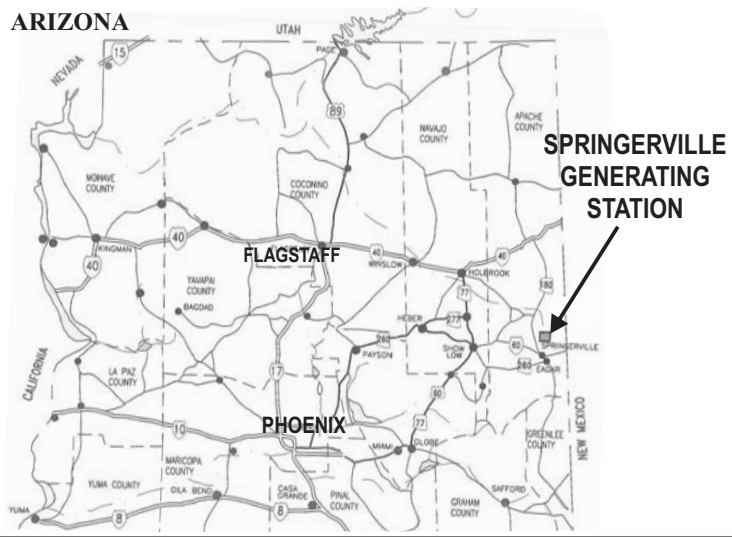
Establishment of the groundwater monitoring system at the Ash Landfill area, as required in CFR §257.90, is currently on-going. Upgradient and downgradient groundwater monitoring well locations have been staked and a Notice of Intent (NOI) to drill a groundwater monitoring well has been completed for the initial well installation. Additional well installations are anticipated to be completed in 2016.

1.4 Conclusion

Based on AMTECH's review of the facility's regulatory documents, inspection records, and observations noted during the site visit, TEP is in compliance with all the design, construction, operation, and maintenance of the relevant CCR unit (Ash Landfill area) is consistent with recognized and generally accepted good engineering standards.

FIGURE
Location and Site Map

ARIZONA



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SITE LOCATION MAP MAIN PLANT AND ASH LANDFILL AREA

Springerville Generating Station
Tucson Electric Power Company
Springerville, Arizona

Figure
1

APPENDIX A

Site Photographs



PHOTOGRAPH 1.

Ash Landfill with soil cover and hydroseeded soil cover on slopes. View looking Southwest to Northeast.



PHOTOGRAPH 2.

Ash Landfill with soil cover and hydroseeded soil cover on slopes. View looking East to West.