



## Kansas 1993 Steel Tanks

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**Manufacturer:**

Raven Lining Systems  
13105 E. 61st Street,  
Suite A  
Broken Arrow, OK 74012  
(918) 615-0020

**Location:**

Kansas

**Date of Project:**

1993

**Product(s):**

[Raven 405](#)

**Type of Structure(s):**

Eight 46' diameter by 21' deep steel scrubber tanks

**Condition of Structure(s):**

Structural failure from limestone abrasion and accelerated corrosion

**Description of Application:**

The largest coal fired electric generating facility in the State of Kansas was faced with a decision to rehabilitate or replace its eight 46' diameter by 21' deep scrubber tanks in 1993. The steel tanks contained 10% limestone slurry for cleaning coal exhaust. The tanks were experiencing structural failure due to abrasion from the limestone slurry and accelerated corrosion resulting from 185°F 10% slurry and captured sulphur dioxide. The 3/8" steel walls had numerous leaks from corrosion, the worst of which resulted in large welded patches to compensate for surrounding weak and thin areas. Previous coatings had been moderately successful in preventing corrosion but required multiple coats with narrow windows of time, weather conditions, re-coatability, etc. The only remaining alternative was to line the tanks with stainless steel.

The tanks were rehabilitated using Raven 405, a 100% solids ultra-high build epoxy. Surface preparation consisted of sandblasting the interior surfaces to SSPC-10 specification. An ultrasonic thickness gauge was utilized to scan the sandblasted surfaces for structurally deficient thin spots (less than 50% of the original 3/8" thickness). Areas identified for "patchwork" received a structural epoxy patch consisting of a 60 mil tack coat of Raven 405 inlaid with 18 oz/yd<sup>2</sup> fiberglass woven roving fabric. The structural repair areas and remaining tank surfaces were then lined with a monolithic 75 mil single coat of Raven 405, at a rate of approximately 800 sq. ft. per hour in high humidity conditions. Five tanks (5,000 sf each) were turnkey prepared, structurally patched, lined, spark tested for holidays and pinholes, then touched up in



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10 working days.

This project was performed in the summer of 1993. The tanks were inspected one year later and required minimal patching around welds, joints, and areas where mechanical damage had occurred. Patching was simply performed by cleaning and lightly abrading designated areas, then brush applying Raven 405. Raven has outperformed all other coating systems used to date, and the client has specified Raven's coatings for future work.

