

CASE STUDY / **SAN JUAN GENERATING STATION**

# A COST-EFFECTIVE, INNOVATIVE SOLUTION FOR ASH HANDLING AND DEWATERING

With critical ash handling equipment at the end of life, the San Juan Generating Station needed an immediate replacement option that would also provide an excellent return on investment. A Submerged Grind Conveyor was identified as the strategic solution.



# SITE-SPECIFIC SOLUTION CONVEYS COST SAVINGS FOR STATION

Capitalizing on new technology helps plant address equipment challenges economically and with minimal disruption to operations.

## PROJECT STATS

### CLIENT

Public Service Company of New Mexico

### LOCATION

Waterflow, New Mexico

### COMPLETION DATE

Unit 1: July 2018  
Unit 4: October 2018

# 12

MONTHS FROM BID TO COMPLETION

# 1<sup>st</sup>

SGC INSTALLATION IN THE U.S.

# 2

WEEKS OF OUTAGE TIME FOR UNIT 4

## CHALLENGE

While two of San Juan's four coal boilers were decommissioned in 2017, Units 1 and 4 remained in service. But they needed immediate attention as the dewatering component of the bottom ash system reached the end of its serviceable life, posing ongoing safety concerns.

Not only that, but the cost of replacing or repairing the ash pumps and clinker grinders every six months would be unsustainable. The setting and surge tanks were also at the end of their usable life, and the pipe was in poor condition. The coal in this area produces substantial amounts of ash, putting additional burdens on the system.

The operator needed a solution that would reduce capital costs, meet an accelerated schedule and provide efficient operation.

## SOLUTION

In evaluating options, the project team considered the plant's unique site and operational factors, including the location of the dewatering bunker, the current condition of hoppers and associated equipment, and the operations of truck traffic in the hauling of ash. Water supply issues also fed into the analysis, from water supply to site water redirection and water balance.

Public Service Company of New Mexico (PNM) first considered a more typical Submerged Chain Conveyor (SCC) solution. A simple and robust piece of equipment, it's been a standard option for more than 30 years. But this solution can be difficult to fit, and so installation can cause longer outages. It also would have been more expensive. PNM needed customer payback by 2022.

A newer technology — a Submerged Grind Conveyor (SGC) — emerged as the preferred choice to upgrade this particular plant quickly and cost-effectively with minimal operational impact. An SGC offered several benefits:

- By replacing the sluice pipe with submerged drag chain conveyers, it allowed for the economical







reuse of the station's existing hoppers, clinker grinders, ash gates, crushers and other current equipment on the bottom of the boiler.

- It didn't require ash transport water, which eliminated some potential regulatory risk in the event of a discharge.
- Its smaller, more flexible design meant the team could plan a retrofit that minimized the need for demolition and moving of major equipment — greatly reducing operational downtime.

## RESULTS

An SGC is an easier fit when a smaller footprint is required or where the boiler room is crowded with existing equipment. And while other systems needed a straight pathway to an outside boiler building, these conveyers could be oriented at angles to avoid existing structures. At San Juan, previous downsizing created ample room, so it was a simple, straight shot to the bunker outside.

The reduced need for conveyers lowered material costs, while reuse of key components in the existing

system reduced installation costs. The simplified approach conserved more than resources — it saved valuable time. A straightforward design, minimal demolition needs, short lead times and an uncomplicated installation process helped meet an aggressive schedule. For example, the outage time for installing the SGC system that supports Unit 4 was just two weeks. From bid to commissioning, the entire project took just 12 months — roughly half the average estimated time to design, procure and install an SCC system.



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