



OFFICE OF THE CITY AUDITOR COLORADO SPRINGS, COLORADO

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15-39 Drake Scrubber Audit

December 2015

Purpose

The purpose of this audit was to monitor the construction of the Neumann NeuStream™ sulfur dioxide (SO₂) scrubber project as construction continues at the Martin Drake Power Plant.

The Office of the City Auditor (OCA) has audited the project annually since 2013. The scope of this 2015 audit was August 2014 through August 2015, with construction of Unit 7 as the focus.

Highlights

We conclude appropriate policies and procedures were in place relating to project management, governance, and reporting. Appropriate budget, financial and schedule controls have been implemented within the scrubber project. We monitored the procurement process for two construction/installation contracts; Colorado Springs Utilities policies were followed and the selection process was fair and competitive. There were no reportable recommendations.

The installation of NeuStream™ sulfur dioxide (SO₂) scrubbers on Units 6 and 7 at the Martin Drake Power Plant is a multi-year construction project of Colorado Springs Utilities. We issued two prior reports on this project. All audit recommendations from the April and November 2014 audit reports have been implemented.

The OCA provided real-time feedback to the project team on any potential issues identified. Some minor items were verbally communicated during the audit and corrected prior to the issuance of this report. These verbal comments related to organization and clarity of recordkeeping.

Background

In 1999, the U.S. Environmental Protection Agency (EPA) announced a major effort to improve air quality in national parks and wilderness areas. The Regional Haze Rule called for state and federal agencies to work together to improve visibility in 156 national parks and wilderness areas. The rule required states to develop and implement air quality protection plans to reduce the pollution that causes visibility impairment. The EPA required states to submit source-specific plans for regional haze reduction in 2012. Colorado's plan included the requirement for the Martin Drake and Ray Nixon Power Plants to have a compliance schedule filed in 2013. Equipment to control particulate matter, sulfur dioxide and nitrogen oxides was required to be installed and operating no later than December 31, 2017 for Drake's units 6 and 7. This audit covered only the sulfur dioxide emissions controls (scrubbers) for Drake 6 and 7, including the systems to be used to support both Drake 6 and 7. The sulfur dioxide emission control system at Nixon will be covered in a separate audit. Colorado Springs Utilities coal fired plants already met the particulate matter standard established, and separate projects have been created for nitrogen oxide emission controls at both plants.

In anticipation of these requirements, Colorado Springs Utilities analyzed various emission control system options. In 2008, Colorado Springs Utilities contracted with Neumann Systems Group, Inc. (NSG) to perform a series of tests

(Continued on page 2)

15-39 DRAKE SCRUBBER AUDIT

to determine the effectiveness of the experimental NeuStream™ emission control system. The final pilot test at 20 megawatts in size was deemed successful and a contract for NSG to provide development, design, engineering, and procurement for the installation of a sulfur dioxide emission control system at Drake Units 6 and 7 was executed on September 29, 2011. The NSG contract was amended and restated as of February 18, 2015 to clarify project management roles, control costs, and update schedule and deliverables.

2015 Results

Major project activities during 2015 related to construction and installation of the Drake 7 scrubber and common systems. Our audit work focused on project controls including financial and schedule controls, project management, and governance activities as construction and installation progressed. We observed the procurement process for the Drake 6 scrubber construction and installation contract. We found the selection process to be fair and competitive. An owner's engineer contract was in place, and three contracts for construction and installation had been executed. There were no reportable recommendations.

Project closeout for both Drake 6 and Drake 7 scrubbers was scheduled to be completed by February 2017, ahead of the December 2017 Colorado regional haze plan compliance deadline. Drake 7 scrubber and common systems substantial completion was scheduled for July 30, 2015 and final completion was scheduled for August 28, 2015. As of November 30, 2015 the schedule had not been updated and final completion had not occurred. Considering the amount of lead time built into the project schedule, Utilities management was confident the total project will be completed before the December 2017 deadline. Construction of the Drake 6 scrubber began with site mobilization in April, and was not a focus of this year's audit.

As of the February 18, 2015 Emission Controls Update to the Utilities Board, the estimated cost of the Drake 6 and 7 SO₂ scrubber systems was \$170 million. As of November 1, 2015, \$147.3 million in costs had been incurred, \$39.8 million of which was 2015 spending.

The OCA intends to audit the Drake Scrubber project through completion. Our 2016 audit is planned to focus on start-up and commissioning of the Drake 7 scrubber unit and continuous monitoring of Drake 6 scrubber construction and installation.

We appreciate the cooperation of project personnel during the course of this audit.