Dresden Nuclear Station

Dresden Hardened Containment Ventilation System (HCVS) Project Profile

Sargent & Lundy LLC

Client:	Exelon Generation
Project Name:	Dresden Hardened Containment Ventilation System (HCVS)
Location:	Morris, Illinois
Schedule:	November 2014 – November 2016

Description:

The purpose of the project is to install a reliable Hardened Containment Ventilation System (HCVS) at Dresden Station Units 2 & 3 to meet the requirements of NRC Order EA-13-109, NRC Interim Staff Guidance JLD-ISG-2013-02, NEI 13-02 and related Regulatory Guidance documents.

Scope of Services:

S&L performed engineering activities necessary for the installation of a reliable HCVS in Dresden Station Units 2 & 3, meeting the requirements of NRC Order EA-13-109, NRC Interim Staff Guidance JLD-ISG-2013-02 and NEI 13-02 considering the applicable station-specific design and licensing basis requirements. The HCVS design activities were broken down into multiple tasks resulting in two (2) ECs for each unit; one outage and one non-outage for a wetwell vent issued to support installation during the D3R24 outage and the D2R25 outage. The HCVS design activities included the following major design tasks:

- HCVS vent piping addition
- Primary containment isolation valve (PCIV) pneumatic supply
- Vent stack temperature and radiation monitoring
- PCIV valve controls and position indication
- DC power supply system
- Argon purge system for hydrogen detonation prevention

For the HCVS design activities, walkdowns were performed to determine pipe/pneumatic line routing details, proposed support locations, determination of core hole locations, locations for pneumatic and argon bottle stations and battery bank and cable routing. The design includes provisions for operation of the HCVS from a primary (main control room) and remote operating station. An argon purge system was designed to prevent hydrogen detonation/deflagration.

Several design requirements for the Dresden Station lead to some unique features being included in the design. The location of the Remote Operation Station (ROS) was vulnerable to tornado winds and tornado drive missiles. The ROS components needed to be designed for the winds and protected from tornado-driven missiles. The vent line external to the building also needed to be designed for the tornado winds. This design included a tower to support the vent line above the concrete walls of the Reactor Building. Note that S&L is designing the HCVS Systems for several stations in the Exelon Fleet (e.g., Dresden, Quad Cities, LaSalle, Peach Bottom and Nine Mile Point).

Highlights:

S&L worked closely with Exelon Nuclear's design engineering, system engineering, maintenance, operations, and installation organizations to ensure all stakeholder requirements were met.

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