

Duquesne Light – Forbes 138 kV GIS

PPE Requirements:

- *Close-toed, non-slip sole shoes (no tennis shoes, sandals or high-heels).*
- *100% natural fiber pants/shirts (i.e. cotton or wool) required for this tour.*
- *Other PPE will be provided to attendees (safety glasses, hard hats and FR).*

An existing 69 kV Air Insulated Substation (AIS) was converted to a 138 kV Gas Insulated Substation (GIS). Since the substation serves critical loads and was to be built in the confined area of the existing 69 kV switchyard, demolition of the AIS and installation of the new GIS required multiple stages to keep a portion of the station in service at all times.

The new 138 kV GIS is a 6-circuit breaker, ring-bus rated at 3000 A, 63 kA with three underground HPFF-to-GIS transmission line circuit terminations and three SF₆-to-air connections to 138-11 kV transformers. Why GIS was chosen, as well as challenges with in-situ replacement of an existing substation will be part of the presentation. Attendees are welcome to ask questions during the guided tour.



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Cleaveland/Price entered the disconnect switch market in 1974 when Westinghouse Electric Corporation withdrew from the switch business. Our company began by supplying renewal parts for Westinghouse outdoor and indoor switches, with an eye toward developing a line of switches that would address problems that our engineers saw with switches. New side break, vertical break, and hookstick operated switch designs soon followed. We took an inventive approach to switch design by eliminating castings, a potential failure point that was a prevalent problem with switches.

From our meager beginnings, the company has grown from three employees to two hundred employees. Our manufacturing plant has grown from a 7500 sq. ft. pole building to a 125,000 sq. ft. facility, where we apply the most modern metal fabricating techniques and machinery while using state of the art production management methods. With its fabricating capabilities, Cleaveland/Price has become the most vertically integrated high voltage disconnect switch manufacturer in the country.



Research and development have been keys to the growth of Cleaveland/Price. Our continuing R&D program has enabled Cleaveland/Price to expand its product line to include 345 kV vertical break, center break, and double break switches. It has also led to the creation of innovative and ground breaking products such as the TP-C2 motor operator with solid state controls, the ILO-C inline transmission switch, and the Superwhip™ that will consistently interrupt high levels of capacitive current on transmission lines.



Cleaveland/Price looks forward to hosting the IEEE Substation Committee on a tour of our plant where you will see how quality procedures are applied as we fabricate parts and assemble switches.