

Nuclear
Decommissioning:
Connecticut Yankee

LOCATION
Haddam Neck, CT

CUSTOMER
Bechtel Power
Corporation

DESCRIPTION
Diamond wire
sawing concrete
and massive steel
structures; carbon
steel reactor nozzles,
safe ends, as well
as concrete cutting,
heavily reinforced
entrance hatch, fuel
canal, bio shield,
and charging floor.



In order to facilitate removal of the reactor vessel, numerous concrete structures had to be cut and removed as well as cutting off the reactor nozzles and safe ends so the reactor could be lifted and placed into its specially designed canister.

First, the circular equipment hatch had to be enlarged. The hatch was ten and a half feet thick with sixteen horizontal and vertical layers of number eighteen reinforcing steel and a one inch thick steel liner. Bluegrass widened the bottom half of the hatch by approximately six feet to provide clearance for the vessel.

Concrete removal included the majority of the charging floor, a portion of the refueling canal and one entire side of the reactor cavity walls. The refuel canal was six feet thick and was cut into forty thousand pound pieces for removal. The reactor cavity wall ranged from three and a half to five feet thick and was removed in forty sections weighing approximately thirty thousand pounds each.

The six reactor nozzles and safe ends were the last items to be cut. The nozzles were fifty-four inch outside diameter with a wall thickness of fifteen inches and a stainless cladding on the inside surface. The safe ends were twenty three inches in diameter and three inches thick. To control the spread of contamination, the use of water was prohibited. Bluegrass utilized a system of liquid carbon dioxide which was atomized into snowflakes and sprayed onto the wire. The CO₂ kept the wire cool and also cleaned the metal shavings off of the wire. Precision diamond metal cutting was required to meet the tight tolerances necessary for reactor cask fit. Completed ahead of schedule, with worker exposure rates well beneath estimates, the nozzle cutting proved diamond wire sawing technology as a key tool in nuclear decommissioning.

