



UNITED STATES
ATOMIC ENERGY COMMISSION

DIVISION OF COMPLIANCE
REGION I
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September 4, 1969

J. P. O'Reilly, Chief, Reactor Inspection & Enforcement Br.,
Division of Compliance, Headquarters

INQUIRY MEMORANDUM

CONSOLIDATED EDISON COMPANY, INDIAN POINT NO. 2 (IP-2), 247/69-A
POLAR CRANE POWER FAILURE

A recent visit to the IP-2 facility by our assigned inspector revealed that on August 8, 1969, the polar crane encountered partial loss of electrical supply while core internals were being handled. Pertinent information relating to this occurrence follows:

1. The lower core internals were being positioned into the reactor vessel. The internals weigh 150 tons.
2. The first sign of trouble was an audible indication of motor overspeed. The crane operator noted the condition and cut electrical power to the crane as per previous instructions.
3. Investigation revealed that one phase of the electrical supply was lost due to loss of contact at the carbon collector shoes.
4. The crane movement stopped promptly with the removal of all electrical power. Upon questioning, Con Ed indicated a belief that the mechanical brakes stopped the movement; however, the electromagnetic overspeed braking device may have assisted in slowing the travel.
5. The lower core internals came to rest with the radial support keys lacking 18 inches from entry into the keyway joints on the reactor vessel.
6. Inspection of the core internals and the reactor vessel cladding revealed no evidence of physical damage.

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7. The crane was subsequently reactivated and the lower core internals were removed from the reactor vessel to the reactor cavity storage position. No adverse conditions were noted during this operation.
8. As a result of this crane failure, Con Ed requested Westinghouse to provide information relating to the cause of failure, corrective actions taken, and plans for improvement. Answers received from Westinghouse included the following:
 - a. The failure was associated with the carbon collector shoes. Some of the carbon shoes have since been replaced with bronze. The remaining shoes will be replaced with bronze at a later date.
 - b. The gear ratio of the crane at the time of the occurrence was 1 to 16. It has since been changed to a 1 to 32 ratio and will remain at that ratio. This change was made to reduce electrical current requirements and reduce resistance overheat, a condition that had been previously noted during handling of large vessels at this site.
 - c. Additional evaluations relating to the crane's adequacy will be performed and pertinent information will be included in the manufacturer data catalog.
9. The polar crane with the 1 to 32 ratio was previously employed for lifting the reactor vessel and accompanying skid - total weight about 485 tons. For this operation the crane girders were supported with four pedestals; however, the motor, cables, and hooks were employed for this lift.
10. The pressurizer, about 100 tons, was previously handled using the polar crane with the 1 to 16 gear ratio. Some resistance overheating was noted during this operation.
11. The normal load rating for the crane is 175 tons, which is

limited by the girder strengths. No additional load testing of the crane is planned.

R. T. Carlson

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Senior Reactor Inspector

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