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Edison**

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September 24, 1982
EF2-59395

Mr. James G. Keppler, Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

50-341

Subject: Final Report of 10CFR50.55(e) on 3/4" Carbon Steel Pipe
Cracking (#64)

Dear Mr. Keppler:

The final report on the cracking of 3/4" Carbon Steel pipe has been prepared to provide you with the final status of this problem.

The problem was originally reported to Mr. J. Konklin of NRC Region III by Project Quality Assurance's Mr. E. L. Thompson, Acting Supervisor-Construction Quality Assurance, on April 30, 1982.

As previously reported, this item deals with a length of 3/4" Carbon Steel pipe that cracked during a flushing operation even though the Certified Mill Test Report showed an acceptable hydrostatic test pressure of 2,500 psi.

The manufacturer, Quanex Corporation, Gulf States Tube Division, was contacted and responded via a letter dated March 19, 1982, that the flaw appeared to be an I.D. rib caused by a score or pit in the extrusion mandrel. When the re-draw shell was extruded, this rib could crack in the subsequent cold drawing operation. The manufacturer stated that the crack would be very difficult to see in a visual inspection and, presumably due to human error, was missed on the hydrostatic test. Quanex's letter stated that an eddy current tester was being installed in the mill to aid in the Quality Control system and they were hoping to have the test in operation by mid-year. The tester will help detect flaws that could elude detection on hydrostatic tests or visual inspection.

The hardness tester was being repaired and testing on the cracked pipe would be delayed until the next week. Test results would be forwarded. Quanex stated that a section taken through the flawed area indicated the metal is uniform in structure, therefore, no foreign steel, such as tool steel, was drawn into the tube wall.

Since our last report to the NRC dated August 27, 1982, we have received a letter from the Quanex Corporation dated August 26, 1982 addressing our additional inquiries. In this latest response, Quanex stated that their procedure is to inspect extrusion tooling after usage to determine if such tools should

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be repaired or scrapped. Records of particular tools are not maintained, but it can be assumed that the mandrel in question has been either repaired or scrapped.

To our question, "Did you report the tube in question to the NRC under 10CFR Part 21?" Quanex responded that they did not report the tube, since they interpret 10CFR Part 21 as not applicable to commercial grade products and the pipe in question was furnished as commercial grade ASTM/ASME SA 106 Grade B pipe. They went on to state they do not furnish material specified to comply to 10CFR 21.

Quanex also stated that the micro-hardness test in the cracked or split area read 192 KNOOP @ 500 G load and a reading of 165 KNOOP away from the affected area. This hardness difference would be due to more cold work caused by excess material from the I.D. rib of the extruded shell.

In regard to the eddy current tester, Quanex stated that work has proceeded on the installation of the tester, however, they are still 60 to 90 days away from completion. In the interim, they are insisting that all quality control personnel be more observant to preclude repetition.

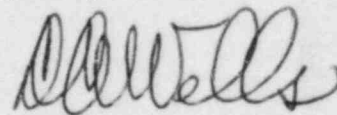
As far as the Enrico Fermi 2 job site is concerned, this 3/4" schedule 80 SA-106 Grade B Pipe was originally ordered as Quality Level I ASME Section III Class B by Detroit Edison on April 27, 1981 from Marmon/Keystone of Lemont, Illinois. A total of 200 ft. was received on site with acceptable Certified Material Test Reports from the manufacturer, Quanex Corporation, Gulf States Tube Division traceable to the Heat Number JB 6311.

The section of pipe that was found with the crack, has been cut out and replaced with acceptable material. Detroit Edison Engineering has taken the position to use-as-is all other pipe provided by this manufacturer and installed in other locations since it will be field hydrostatic tested. Any other test failures will be documented as required on separate Nonconformance Reports.

Therefore, this deviation is no longer considered to be a condition that would create a substantial safety hazard and no further Corrective Action is required.

If you have questions concerning this matter, please contact Mr. G.M. Trahey, Assistant Director-Project Quality Assurance.

Very truly yours,



DAW/DF/cp

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cc: Mr. Richard DeYoung, Director
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