The Light company Houston Lighting & Power P.O. Box 1700 Houston, Texas 77001 (713) 228-9211

April 23, 1984
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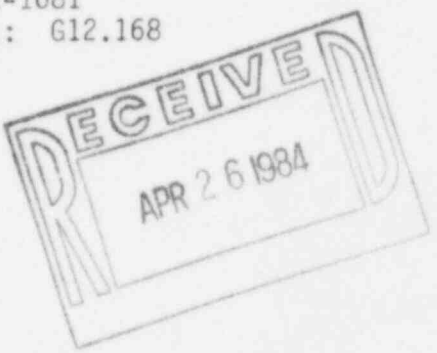

Mr. John T. Collins
Regional Administrator, Region IV
Nuclear Regulatory Commission
611 Ryan Plaza Dr., Suite 1000
Arlington, Texas 76012

Dear Mr. Collins:

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Second Interim Report Concerning
Corrosion in a Safety Injection System Weld

On October 20, 1983, pursuant to 10CFR50.55(e), Houston Lighting & Power Company (HL&P) notified your office of an item concerning corrosion in a pipe weld at the South Texas Project (STP). Attached is the second interim report concerning this item. We will provide a detailed schedule for the activities associated with the resolution of this item to the NRC Resident Inspector within the next few days. The next report will be submitted to your office by August 10, 1984.

If you should have any questions concerning this matter, please contact Mr. Michael E. Powell at (713) 993-1328.

Very truly yours,

J. H. Goldberg for

G. W. Oprea, Jr.
Executive Vice President

MEP/mpg
Attachment: 2nd Interim Report Concerning Corrosion in a Safety Injection System Weld

W2/NRC2/k

IE 27

cc:

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South Texas Project
Units 1 and 2
Second Interim Report Concerning
Corrosion in a Safety Injection
System Weld

I. Summary

During re-examination of field welds in safety-related piping as part of the reinspection and repair program for ASME safety-related welds, voids were discovered in two welds. The affected piping is the portion of the Safety Injection System (SIS) piping between the Refueling Water Storage Tank (RWST) and the SI pumps located in the Fuel Handling Building (FHB). A portion of one weld was removed for analysis to determine the extent of the defects and the cause. Investigations of the defects showed through wall penetration. Analysis of the physical appearance of the pipe section and microscopic analysis of samples taken from defects indicated the presence of Gallionella. (Gallionella is a type of so-called "iron-bacteria." These bacteria sometimes initiate pitting and tuberculation in metal). The possibility of the presence of other bacteria has not been ruled out. Gallionella bacteria have been previously implicated in the corrosion of austenitic stainless steel in industrial facilities.

Investigation measures have been initiated as described below.

An expert in the field of microbiologically influenced corrosion has been retained to determine the source of the bacteria and assist in the formulation of a recurrence control program. A closed circuit television inspection program has been initiated to investigate the interior of installed and laydown area piping.

II. Description

On October 20, 1983, pursuant to 10CFR50.55(e), Houston Lighting & Power Company (HL&P) notified the NRC Region IV of an item concerning corrosion in an SIS weld. During the re-examination and repair program of ASME safety-related welding, certain field welds in the SI piping from the RWST were being repaired to eliminate defects identified in the radiographs taken by Brown & Root, Inc. (B&R). During examination of the weld metal in two welds, voids were found that exhibited signs of corrosion. From comparison of recent radiographs to the original radiographs, it is evident that the indications present in the new radiographs were not present in the original films. One weld was sectioned and a sample sent for laboratory analysis. After metallographic examination and microscopic analysis of scrapings from the corrosion sites, microbiologically influenced corrosion (MIC) resulting from the action of bacteria (including Gallionella) was determined to be the probable cause of corrosion. This determination was further strengthened by the fact that the SI pipe had been observed to be partially filled with standing water, thus providing a suitable growth medium for bacteria.

III. Investigative Measures

An expert in the field of microbiologically influenced corrosion has been retained to determine the source of the bacteria and assist in the formulation of a recurrence control program. The sampling program indicates corrosion causing bacteria are present in both the well water and soil at the plant site. The low points of the buried 30" diameter aluminum-bronze essential cooling water system have been visually examined for MIC. Four small deposits have been discovered at one backing ring. These deposits may or may not indicate areas of corrosion. The piping material in the area of these deposits is being examined to determine if there is any resulting corrosion.

An inspection program using a closed circuit television and direct visual examination has been initiated to investigate the interior of installed and laydown area piping and tanks. Approximately fifteen percent of installed safety-related stainless steel piping low points will be investigated. Additionally, fifteen percent of laydown area piping with indications that dirt or water could have been introduced have been investigated for indications of microbiologically influenced corrosion (MIC).

The laydown area piping investigation has been completed and no indications of MIC have been found. Seventy-two subassemblies of stainless steel piping and twenty-three of aluminum bronze piping were identified with indications that dirt or water could have been introduced. Eleven stainless steel and four aluminum bronze subassemblies were inspected and no indications of MIC were found.

Results from the visual inspections of installed piping are not yet complete. However, two additional "suspect" welds have been identified in two Containment Spray System (CSS) lines, which are located in the same area in the Fuel Handling Building as the SIS line discussed in Section I above. This piping will be further examined to determine if there is any resulting corrosion.

A visual inspection criteria has been developed for detection of MIC in stainless steel tanks. The stainless steel tanks will be visually inspected and any indications will be appropriately dispositioned.

If visual inspection results indicate "suspect" corrosion, an additional physical examination will be performed to characterize the physical damage. Following physical examination, established criteria will be used to determine the extent of any necessary repair work.

Evidence of MIC in a non-safety grade stainless steel pipe has been discovered, and is mentioned here for information only.

IV. Recurrence Control

Recurrence control aspects will be addressed in the Final Report.

V. Safety Analysis

Safety Analysis aspects will be addressed in the Final Report.

W2/NRC2/k