# U.S. NUCLEAR REGULATORY COMMISSION OFFICE OF INSPECTION AND ENFORCEMENT

### REGION IV

Report: 50-498/81-24; 50-499/81-24

Docket: 50-498; 50-499

Category A2

Licensee: Houston Lighting & Power Company Post Office Box 1700 Houston, Texas 77001

Facility Name: South Texas Project, Units 1 and 2 Investigation at: Bay City, Matagorda County, Texas Investigation conducted: July 14-15, 1981

Investigator:

Herr, Investigator Investigation and Enforcement Staff

Inspector:

J. I Tapia, Reactor Inspector Engineering and Materials Section

Approved:

J. E. Gagliardo, Director Investigation and Enforcement Staff

R. E. Hall, Acting Chief

Engineering and Materials Section

Investigation Summary

Investigation on July 14-15, 1981 (Report 50-498/81-24; 50-499/81-24) Areas Investigated: Allegations of falsification of painting records, use of out-of-specification welding rod, and uneven settlement of the Unit 2 Reactor Containment Building. This investigation involved twenty-eight investigative man-hours by one NRC investigator and one NRC inspector. Results: The allegations were not confirmed.

7-28-81 Date

7-28-81 Date

Date

## SUMMARY

Investigation disclosed that no documents pertaining to the preparation of walls in the Unit 1 Reactor Containment Building were falsified. According to the accused falsifier, the only documents changed during any painting activities were the time cards in order to reflect the actual time worked. It was determined that a power shortage at Material Issue Substation No. 5 did occur, but the welding rods in question were not used in any safetyrelated welding, but rather were sent to the on-site welding school for use in practice welding by students. The actual settlement measurements of the Unit 2 Reactor Containment Building were reviewed and found to be generated by, and the responsibility of, the Geotechnical Department. The values which resulted in an expressed concern by a field engineer (surveyor) were data used in the construction erection process and are not values generated from the monuments used by the Geotechnical Department.

### BACKGROUND

On June 24, 1981, an individual contacted a Region IV Reactor Inspector and alleged that, according to his sources, painting records were falsified; that a power shortage had resulted in the use of out-of-specification welding rod; and that the Unit 2 Reactor Containment Building was experiencing uneven settlement.

DETAILS

### 1. Persons Contacted

# Principal Brown & Root (B&R) Employees

G. Martin, Project Construction Manager

F. Miller, Chief Welding Engineer

S. McGrew, Material Distribution Station Attendant

R. McKee, Material Control Supervisor

E. Vasquez, Electrical Department Superintendent

C. Lafayette, Painting Department Superintendent

T. Dunham, Painting Department General Foreman

T. Mullin, Lead Site Geotechnical Engineer

E. J. Thormaehlen, Geotechnical Monitoring Engineer

R. Markey, Assistant Chief Field Engineer

B. Schoonover, Calibration Supervisor

Other Individuals

Individual A Individual B

Investigation of Allegations

Allegation No. 1

According to Individual A, painting records were falsified. Specifically, that Individual B was allegedly overheard stating, "I had to change some documents so that we could paint tonight." The allegation also identified the alleged falsified documents as pertaining to the required preparation of the walls in the Unit 1 Reactor Containment Building (RCB) in anticipation of the application of paint, and as having occurred in March 1981.

### Investigative Findings

All documents generated by the B&R Painting Department during the month of March 1981 and pertaining to the preparation of both concrete and steel surfaces for the application of paint in the Unit 1 RCB were reviewed by NRC personnel. Procedurally, two documents are generated in order to document the application of paint in Category I structures; a "Coating Applicator's Record" generated by the Painting Department and the Quality Control Department's "Quality Control Inspection Report," (QCI). Thirty-four "Coating Applicator's Records" were signed by Individual B during the month of March 1981. Only four pertaining to the application of paint, the other thirty related to ongoing sandblasting that did not result in the application of paint. Individual B did not participate in the generation of any QCIs. The four documents pertaining to the application of paint involved only small structural steel embedments and did not relate to any walls. Only the QCIs are considered final acceptance of any surface prior to the application of paint. Investigation disclosed that none of Individual B's activities could be related to the application of paint on any wall in Unit 1 RCB during March 1981.

### interview of Individual B

Individual B was interviewed and categorically denied the allegation. He also stated that the only documents that he changed were overtime cards to allow his men to complete painting operations.

### Allegation No. 2

That the 13.8 kilovolt (kV) line "blew-out" at a substation on Thursday, June 24, 1981, and knocked out most of the temporary power for twelve hours which resulted in the loss of power to the "welding rod issue shacks." The alleger further stated that as a result of the power loss, 3000 to 4000 dollars worth of unheated welding rods were impermissibly used when "they should have been thrown away."

#### Investigative Findings

### Interview of Chief Welding Engineer

Interview of the B&R Chief Welding Engineer disclosed that during the month of June 1981, two power outages were experienced at Material Issue Substation No. 5. He further stated that whenever power is lost for an indeterminate amount of time or for more than four hours the welding rod is downgraded in accordance with procedure by placing the welding rod in green colored cans. These rods are subsequently sent to the on-site welding school for use in practice welding by students. The Chief Welding Engineer supplied an internal memorandum addressed to himself from the Electrical Department, documenting the loss of power on June 22, 1981, at Material Issue Substation No. 5. This Substation also suffered an intermittent loss of power on June 13, 1981.

#### Interview of Electrical Superintendent

Interview of the Electrical Department Superintendent in charge of temporary electr cal power disclosed that on June 13, 1981, leg No. 1 of three-phase group No. 1 (one of two) tripped at the on-site "slave" or breaker station. This resulted in the loss of power to Material Issue Substation No. 5 for approximately two hours. On June 22, leg No. 1 of three-phase group No. 2 also tripped, but in addition, caused a primary fuse at the 13.8 kV substation to blow. This resulted in a loss of temporary power for four and one-half hours according to the Superintendent and as per Attachment 1.

# Interview of Material Distribution Station Attendant

Interview of the Material Distribution Station Attendant assigned to Material Issue Substation No. 5 in June 1981 disclosed that on or around June 22, 1981, power was lost for four and one-half hours and that all the welding rod in the ovens at the time was downgraded. The attendant stated she removed all rods from the ovens and placed the rods in green cans that are designated for downgrading. She stated that shortly thereafter the Material Control Supervisor came to her office and removed the green cans containing the downgraded rods. The attendant also referred to the memorandum from the Electrical Department to the Chief Welding Engineer documenting the loss of power on June 22, 1981.

### Interview of Material Control Supervisor

Interview of the Material Control Supervisor disclosed that he personally transported two hundred and twenty-five pounds of downgraded welding rod from Material Issue Substation No. 5 to the on-site welding school on June 22, 1981. The Supervisor also provided his daily logbook which contained documentation of the transfer of the material to the welding school.

## Interview of Plant Construction Manager

Interview of the Project Construction Manager disclosed that on or around June 22, 1981, he was made aware by one of his subordinates that approximately 200 pounds of welding rod were downgraded due to a loss of power at Material Issue Substation No. 5. The manager could not place a monetary value on the 200 pounds of welding rod.

Investigation disclosed that a four and one-half hour power loss was experienced at Material Issue Substation No. 5, and that the affected welding rod was downgraded in accordance with Procedure No. MECP-8, Revision 5, "Control of Welding Materials," and subsequently sent to the on-site welding school. The two individuals identified by the alleger as having been "disturbed by this sequence of events" were identified as being members of the Electrical Construction Department and would therefore not be familiar with the Welding Department material issuance requirements and procedures.

# Allegation No. 3

That, based on the setting of bench marks on June 28, 1978, and the subsequent taking of elevation readings on the same bench marks on May 9, 1979, by the Field Engineering Department, the Unit 2 RCB is settling faster on one side than the other.

# Investigative Findings

Individual A submitted an internal B&R memorandum which he felt warranted investigation. The memorandum dated August 15, 1979, was from a Field Engineering Department surveying crew Party Chief to the then Chief Construction Engineer. The memorandum expressed a belief on the part of the Party Chief that the Unit 2 RCB was settling faster on one side than on the other. His conclusion was based on readings taken on construction control bench marks on the shell liner of the Unit 2 RCB. These bench marks were established to set elevations on all construction inside the Containment Building. Based on readings taken June 28, 1978, and May 9, 1979, the Party Chief reported an elevation change of one-quarter inch from one side of the building to the other. The specific surveying information is recorded in Field Book No. 37-D, pages 308-310 and Field Book No. 37-H, pages 636-638. These pages were attached to the submitted memorandum.

### Interview of Lead Site Geotechnical Engineer

Interview of the Lead Site Geotechnical Engineer served to identify the procedures and responsibilities for on-site geotechnical monitoring. The interview disclosed that geotechnical monitoring is performed by his subordinates and not by the Field Engineering Department. He explained that Engineering Procedures Manual STP-PE-002-D, "Administration of Geotechnical Field Activities," and Technical Reference Document No. 5Y310SQ011, "Geotechnical Field Engineering," were the documents which controlled the acquisition of bench mark data for input into the computer program entitled, "Geotechnical Monitoring Information System," (GEMIS). The output of this program is subsequently used in calculations of differential settlement. The Lead Site Geotechnical Field Engineer then supplied the most recent (as of December 1980) calculation of differential settlement for the Unit 2 RCB. This calculation (No. 3Y310SC264-L/PCN #6, Subpart 18) was reviewed and showed the end to end tilt of the Unit 2 RCB in the east-west direction as 0.00 inches and 0.15 inches in the north-south direction. The general structural design criteria specifies a maximum differential of 0.5 inches at time of piping connections.

### Interview of Geotechnical Monitoring Engineer

Interview of Geotechnical Monitoring Engineer disclosed that bench mark readings are taken every month and that the bench marks which are used are six brass caps set in the concrete Tendon Gallery floor. The engineer explained that these bench marks are not susceptible to damage or movement from construction activities and are more accurate since they are located on the top of the RCB base mat. The engineer supplied the raw data from readings taken in April and then in December of 1979. A review of this data by NRC personnel did not disclose an uneven settlement trend.

# Interview of Assistant Chief Field Enigneer

Interview of the Assistant Chief Field Engineer disclosed that geotechnical monitoring is not a responsibility of his department and that he recalled the events documented in the memorandum. He stated that the Party Chief was only responsible for setting elevations for the crafts and that while doing so he noticed a difference of one-quarter inch across the building and that he then reported this for additional verification. The Assistant Chief Field Engineer stated that subsequent measurements on the brass caps in the Tendon Gallery floor did not reflect the measurements taken by the Party Chief. The Assistant Chief Field Engineer felt that the measurements resulting in the memorandum from the Party Chief were not reliable to indicate the performance of the foundation.

## Additional Concern

An additional memorandum submitted by Individual A is dated August 13, 1979, from the Chief Field Engineer to the Calibration Supervisor. The memorandum referred to the potential impact on the calibration of the K&E Paragon tilting levels from the adverse handling involved in sending the instruments by airplane to the Dallas-Fort Worth area for calibration. Individual A stated that this was not a specific concern, but rather, only wanted to know if this item was related to the uneven settlement concern.

# Interview of Calibration Supervisor

Interview of the Calibration Supervisor disclosed that the memorandum addressing the calibration of K&E Paragon tilting levels resulted in cancellation of calibration services in the Dallas-Fort Worth area, and that the instruments were now being calibrated in Houston. He stated that recalibration occurs every two months, and that the instruments are handcarried to and from Houston by his own personnel. The Supervisor supplied all the "Deficient Controlled Material and Testing Equipment Evaluation Reports" issued for the K&E Paragon tilting level identified in the memorandum (No. ST-CC-0947). These reports are generated in accordance with instrument calibration Procedure No. ICP-3, Revision 5, "General Calibration Procedure," every time an instrument goes out of calibration. A review of these reports by NRC personnel did not disclose an relationships to the alleged uneven settlement.

#### Document

The following document identified herein as Attachment 1 is maintained in the NRC Region IV Office:

Attachment 1 - B&R QA/QC Field Action Request No. 10344, dated June 22, 1981