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

REGION IV

Report No. 50-445/79-11; 50-446/79-11

Docket No. 50-445; 50-446 Category A2

Licensee: Texas Utilities Generating Company
2001 Bryan Tower
Dallas, Texas 75201

Facility Name: Comanche Peak, Units 1 & 2

Investigation at: Comanche Peak Steam Electric Station, Glen Rose, Texas

Investigation Conducted: April 2-3 and April 13-23, 1979

Inspectors: for R. G. Taylor, Resident Reactor Inspector, Projects Section — Date 5/10/79

for D. P. Tomlinson, Reactor Inspector, Engineering Support Section (April 13, 1979, Interview) — Date 5/10/79

for A. B. Beach, Reactor Inspector, Engineering Support Section (April 23, 1979, Interview) — Date 5/10/79

Approved: W. A. Crossman, Chief, Projects Section — Date 5/10/79

R. E. Hall, Chief, Engineering Support Section — Date 5/10/79

434 217

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Investigation Summary:

Investigation on April 2-3 and April 13-23, 1979 (Report 50-445/79-11; 50-446/79-11)
Areas Investigated: Special investigation of allegations received indicating that concrete had been placed on the Unit 1 dome during a rainstorm in January 1979, without QC or documentation; that pipe with sandblasted-off markings was being used in Unit 1; that steam system pipe was damaged by a handling accident and covered up; and that welders were not being properly qualified. The investigation involved thirty-six inspector-hours by the Resident Reactor Inspector and three inspector-hours by two Region IV based inspectors.
Results: The allegation relative to the concrete placement was confirmed (noncompliance - failure to implement the QA program - infraction). No items of noncompliance or deviations were identified relative to the balance of the allegations.

INTRODUCTION

Comanche Peak Steam Electric Station (CPSES), Units 1 and 2, are under construction in Somerville County, Texas, near the town of Glen Rose, Texas. Texas Utilities Generating Company is the Construction Permit holder with Brown and Root, Inc., as the constructor and Gibbs and Hill, Inc., as the Architect/Engineer.

REASON FOR INVESTIGATION

The Region IV Reactor Construction and Engineering Support Branch office received a telephone call from a former CPSES employee who reported several allegations indicating a potential breakdown in the CPSES Quality Assurance program.

SUMMARY OF FACTS

On March 30, 1979, the Region IV Reactor Construction and Engineering Support Branch received a telephone call from a party who identified himself as a former CPSES employee. The call was taken by an on-duty Reactor Inspector in the Projects Section who in turn provided the information to the assigned Resident Reactor Inspector at CPSES on April 2, 1979. The allegations, as received on March 30, 1979, were:

1. During a concrete pour on the Unit 1 containment dome in January 1979, a rain occurred which washed away part of the concrete. The affected area was repaired by the use of grout. Workers involved were requested to "keep it quiet." Two workers, who are still at the site, have knowledge of this occurrence.

2. The identity of a lot of "Q" and "non-Q" pipe (6" or less) being used for Unit 1 has been lost due to obliteration of heat numbers by sandblasting and loss of identifying tags. Workers are guessing as to the proper identification of the pipe.

3. A steam pipe intended for the Unit 1 turbine fell off of a truck and struck a railroad track. It was taken back to a storage area and hidden.

4. Third class helpers are being qualified in less than three months and are being used for safety related welding on Unit 1.

On April 13, 1979, the Resident Reactor Inspector assigned to CPSES and accompanied by another Region IV inspector interviewed the alleger in an effort to obtain additional information on the allegations. The additional information is summarized as follows:

1. The concrete used for the repair was not grout as originally indicated but was known to contain gravel. The concrete came from the batch plant where it was mixed on the ground and carried in a bucket to a tower crane at the Unit 1 Containment Building and hoisted to the dome area. The work was accomplished sometime during the middle of the second shift, possibly around 10:00 to 10:30 p.m. (January 1979, no day specified).

2. The pipe in question was not prefabricated pipe but rather bulk pipe joints. Sometimes, the pipe is sandblasted on the outside (rate of occurrence not identified) which removes all of the heat marking used for traceability.

3. The steam pipe was being moved during the second shift from the "Dodd's Spur" storage area to the plant area when it was dropped off the truck. A couple of the large "cherry-picker" type cranes were dispatched to the indicent to pick up the pipe and place it back on the truck. The crew with the truck decided instead to put the pipe back into the storage area and leave it there for another shift to pick up and perhaps be blamed for damaging the pipe. The alleger did not know if the pipe had actually suffered any damage. He was aware the pipe in question was "non-Q" but expressed a concern that if the craft could get away with a cover-up on "non-Q," they probably are also doing it on the "Q" pipe and other equimpment.

4. The alleger indicated he was concerned with what must be incompetent welders working on "Q" welds, since they could not have very much experience and still only be considered third class labor.

CONCLUSIONS

Research of various records and interviews with both craft labor and Brown & Root QC personnel produced the following conclusions:

1. The allegation relative to the concrete placement on the dome of Unit 1 is essentially correct and is evidence of a breakdown in the licensee's Quality Assurance program. The incident will be considered an item of noncompliance.

2. The allegation relating to the loss of pipe traceability markings could not be confirmed. The Resident Reactor Inspector's finding was that on occasion, the sandblasting, with attendant loss of readily visible markings, probably does occur through human error, but that there are other means which will re-establish the identity of the pipe without guessing on the part of the craft labor force.

3. The piping in the "Dodd's Spur" storage area is for the turbine portion of the plant and is not safety related from a nulcear standpoint and is therefore not within the jurisdiction of the NRC inspection program. The more generalized concern of cover-up of improper handling practices is not consistent with the observations of the Resident Reactor Inspector and other NRC inspectors made during the course of routine inspections. The allegation cannot be verified or refuted at this time, but should subsequent observations verify that the alleged situation is occurring, appropriate action will be taken.

4. Welders are qualified in accordance with the provisions of the ASME Boiler and Pressure Vessel Code, Section IX, "Welding and Brazing Qualifications," as required by NRC regulations and the licensee's commitments as contained in the Safety Analysis Report submitted to obtain a Construction Permit. The labor classification, and therefore the pay, of the welders is not an element of the ASME Code welder qualification program, only the ability of the person being tested to weld on a specified weld coupon.

DETAILS

1. Persons Contacted

Non-Licensee or Contractor Persons

The alleger is a former employee of Brown & Root (the site general contractor). The person identified himself as a former equipment operator and foreman of equipment operators.

Principal Licensee Employees

Construction Manager, Texas Utilities Generating Co.
Supervisor of Product Assurance, Texas Utilities Generating Co./ Gibbs & Hill

Brown & Root, Inc.

Project General Manager
Construction Project Manager
General Foreman, Building Department
Superintendent, Building Department
Quality Control Inspector, Civil

2. Preliminary Investigation - April 2-3, 1979

a. Allegation 1: The Resident Reactor Inspector (RRI) initiated a preliminary investigation of the allegation as soon as received. The RRI was aware that a number of concrete placements had been necessary to complete the dome area of Unit 1 and that a substantial portion of these placements occurred in January 1979. Schedule completion data indicated that five of the total of thirteen dome placements occurred in January 1979. Rainfall data for January was then obtained from the licensee's meteorology unit which indicated rain had fallen on Janaury 15, 1979 (with the rainfall totalizer reset to zero) and again in the period between January 15 and 22, 1979, when the totalizer was again zeroed. The data suggested that placement 101-8805-013, the final placement on the dome, was the most likely candidate since 2.72 inches of rain had occurred about the placement date of January 18, 1979. The RRI then examined the QC inspection records for the placement which stated, "Pour stopped at 8:00 p.m. 1/18/79 due to inclement weather. Pour was topped out all but to a 30' radius which was cleaned up and finished 1/19/79."

The RRI then interviewed the QC inspector of record for the placement and was informed that the placement had started under good weather conditions on January 18, but that the

weather subsequently developed into a light mist and drizzle which did not interfere with the placement. By late evening, the weather deteriorated further and became a full rainstorm with thunder and lightning. By 7:30 p.m. or so it was decided that the placement would have to be stopped for reasons of personnel safety. The placement area was covered to keep the rain off the fresh concrete and the second shift was instructed to water blast and clean up the area so the placement could be resumed the following day.

b. Allegations 2, 3 & 4: No attempt was made to perform a preliminary investigation of these allegations since the information was too vague.

3. Licensee/Contractor Report of Allegations

During the course of the above preliminary investigation, personnel of the licensee's management and QA organizations approached the RRI and stated that they too had received an allegation relative to the dome placement. It was stated that licensee management had received a telephone call on or about March 19, 1979, on the subject and that licensee management had visited the alleger at his home on March 20, 1979, to ascertain the facts of the allegation. The alleger then was invited to visit the site and discuss the allegation, which the alleger is reported to have done on March 26, 1979. On the basis of these interviews, the licensee's Product Assurance personnel undertook an investigation which concluded that the allegation had no merit.

4. Interview with Alleger by NRC Personnel

The Region IV office made several attempts to establish contact with the alleger during the period following March 30, 1979, when the allegation was received, through April 12, 1979, when the interview date and location were established. The RRI and another NRC inspector met with the alleger and a friend on April 13, 1979.

The alleger provided the following information about himself:

a. He had been employed by Brown & Root at CPSES for 2-1/2 to 3 years and had quit in mid-March because he was dissatisfied with how the night shift equipment operators were being dispatched and supervised.

b. He had been an equipment operator, primarily on cherry-pickers, and also a foreman for equipment operators at an earlier time.

c. He stated that he had made the allegations to licensee management and Brown & Root management earlier but had not been at all satisfied with the answers he had received to his allegations.

The alleger provided the following additional information relative to each of the allegations:

Allegation 1: The incident occurred well after the time that the placement had been stopped. He could not be sure of the time but thought it was probably 10:00 to 10:30 p.m. when some equipment was dispatched to the concrete batch plant to bring down a bucket of concrete to Unit 1 and thought it strange. The concrete was taken to the dome by a tower crane. He was sure that the concrete was not batched by the batch plant and certainly was not delivered by the usual concrete mix truck.

Allegation 2: The alleger made it clear that he was not referring to completed pipe spools but rather to bulk pipe. The cherry-picker operators routinely move the pipe from one location to another on the site and that the pipe involved was bulk pipe or joints. He stated that the pipe was sometimes sandblasted in such a way as to obliterate the heat number markings or tags and that he was pretty sure that there was a lot of unidentified pipe in the safety systems in Unit 1. This sandblasting sometimes happened to various steel forms used to make supports.

Allegation 3: The alleger described being dispatched with his equipment out to "Dodd's Spur" to pick up a length of pipe that had fallen off a truck after being unloaded. The pipe had fallen on the spur railroad track. The alleger was not familiar with the term "Dodd's Spur." The alleger stated it was the area were the turbine components are stored. When he (the alleger) arrived at the site of the incident, he was told not to reload the pipe on the truck but to take it back into the storage area and put it down. The pipe crew indicated to him that they hoped that a day shift crew would come for the pipe and would probably be blamed for any damage that might have occurred to pipe when it fell. He stated that he did not know if the pipe had been damaged. He stated that he knew it was "non-Q" pipe but thought the NRC should be aware that such things were going on at the site.

5. Final Investigation - April 16-23, 1979

a. Allegation 1. The RRI obtained the craft labor time sheets for both shifts for January 18 and 19, 1979. Review of the time sheets for the day shift on January 18 indicated that a portion of that shift worked on placement 101-8805-013. The records indicated that the day shift was terminated at approximately

434 229

8:30 p.m. relative to the placement as were the personnel at the concrete batch plant. The batch plant has no second shift operators. The RRI found that a large number of people, well in excess of fifty, had then worked on the placement during a substantial portion of the second shift. One crew of twelve people was shown by the time sheets to have been placing concrete, a notation not consistent with the fact that the batch plant was closed during the shift. The RRI then utilized the time sheets to develope a list of persons to be interviewed in connection with the incident with special concentration on the persons listed on the time sheet indicating "placing concrete 101-8805-013." The B&R personnel office records indicated that eight of the ten names included in this specific crew had been terminated at various times since January 18; the records did not suggest that any action was being taken to get rid of possible confirmatory personnel.

Late on April 17, 1979, two of the senior B&R construction management personnel very informally asked the RRI how the investigation of the allegations was coming along. The RRI responded that the on-site phase appeared to be complete and that NRC personnel would undertake the effort to locate and interview selected personnel immediately since it appeared that the allegation might be well founded. They asked the RRI if they could check with their people down to the General Foreman level as to the incident the night of January 18. The RRI indicated that such an inquiry on their part would probably not interfere with any future investigative action by the NRC.

On April 18, 1979, the licensee's Product Assurance Supervisor informed the RRI that he had information which indicated that the incident had occurred and that the craft General Foreman was the person responsible.

On April 23, 1979, the RRI, accompanied by another NRC Inspector, interviewed the General Foreman and his immediate supervisor, the night shift B&R Building Department Superintendent. These men related that on the night of January 18 the weather seemed to worsen and got to the point where the rain was so heavy that the people could hardly see. The freshly placed concrete developed into a problem when the plastic cover could not take the rainfall water load. Some of concrete began to sag back down the dome slope and one small area actually washed out and fell to the ground below. These men related that they and their entire crew of up to about one hundred-fifty worked on into the night trying to save a very bad situation. The sagged concrete was worked back into position and the crew protected it in any way they could to allow it to take a set.

The General Foreman went to the batch plant, got it open and operated the plant himself to make enough material to patch the washed out area. He stated that he found the design mix data used for the concrete on the dome and calculated the necessary weight of ingredients to prepare a half a cubic yard of concrete. The required data was put into the control system for the back-up dry batch plant, dropped into a skiff, and carried over to the quarter yard concrete mixer at the site test laboratory. It was mixed in two batches and placed into a skiff and carried to the dome where most of the half yard was used as a patch in the washed out area.

Both the General Foreman and his Superintendent were aware that there were no Quality Control personnel around to observe any of these actions since they had all gone home when the weather got really bad. Both men related to the RRI a picture of almost panic proportions in which the presence or absence of Quality Control simply did not matter; they were going to save a concrete placement from what they considered a disasterous situation, regardless. They indicated that while the night shift Assistant Construction Project Manager was generally aware of the situation on the dome that night, he probably was unaware of the fact that Quality Control personnel were not there or of the batching of the concrete under the conditions indicated.

In response to a question from the General Foreman as to "what happens now" the RRI stated that the NRC had no choice but to issue a Notice of Violation to the licensee since it had become very clear that the licensee's Quality Assurance program had broken down for the entire evening of January 18, 1979, and that a substantial amount of concrete on the dome was of an unknown quality.

b. Allegation 2. The RRI visited the paint shop sandblasting area during the course of the final investigation to ascertain if this allegation could reasonably happen. The RRI interviewed a foreman of painters who is also in charge of the sandblasting activity and was told that three main categories of piping material routinely are sandblasted. These are:

(1) Completed carbon steel spool pieces which are blasted on the outside prior to painting. The identity of these pieces is on an attached stainless steel band on which the identifying is encoded by stamping. Should the band come off, the spool piece identity can be re-established by the pipe fabrication shop since each spool is unique and is fully described by isometric drawings.

434 226

(2) Carbon steel cut lengths, but otherwise in an unfabricated condition, are sent to sandblasting to have the inside cleaned prior to further fabrication. The outside, which usually carries the heat marking in paint is supposed to be untouched.

(3) Bulk carbon steel pipe materials used for making equipment stands and supports is blasted and painted prior to fabrication. The material is used for such items as instrument supports.

The RRI found a number of examples of each of the above categories as well as steel shapes in the sandblast area. During the tour of the area, the RRI did not find any material that could not be identified except that in category three. The RRI interviewed one of the sandblasting personnel and came to the conclusion that the person might make an occasional mistake on category 2 material since he seemed c fused when asked what he was going to do with a number of pieces ready for him to work on. It appeared that he might well blast the outside of a pipe when he should blast the inside.

Subsequent discussions with the paint shop foreman and with a Brown and Root Quality Control inspector in the pipe fabrication shop revealed that all cut, but unfabricated material, is transferred to the paint shop by memo which details the size, schedule and length of the cut section and the pipe spool isometric drawing involved. Should the outside of the pipe be inadvertently blasted, the piece can be reidentified relatively easy by measuring its size, schedule and length. The isometric drawing used to make the cut length is annotated with the pipe heat number prior to the cutting operation and verified by QC. It appeared most unlikely to the RRI that two otherwise identical pieces but with different heat numbers would be inadvertently blasted within the same time period.

The RRI concluded that the allegers remark that "workers are guessing on the identity of pipe" might be true, but that there was an adequate cross-check system built into the quality assurance program to preclude untraceable pipe from being installed in the safety related systems.

All of the steel shapes used in safety related supports for pipe and cable tray that have been examined by the RRI and other NRC inspectors have been sufficiently marked to establish their origin. These materials are also subject to a system of quality control verifications at various stages of fabrication sufficient to make it very unlikely that any improperly identified or unidentified material is used and installed.

c. Allegation 3: Based on the interview with the alleger, no further action was taken to investigate the specifics of the allegation since the pipe in question was clearly not safety related and therefore not within the jurisdiction of the NRC inspection program. The more general concern that the pipe handling incident was a possible indicator of the general attitude of the craft personnel, particularly the riggers and pipefitters, appeared to be unfounded. The RRI has observed during many plant tours over the past nine months (since August 1978) that the material handling activities of the craft personnel have been accomplished under well controlled conditions in so far as they relate to safety related equipment and materials. An allegation of possible cover-up of improper actions by the craft personnel in behalf of other craft personnel is almost impossible to either confirm or completely refute.

d. Allegation 4: No further investigation was made into the charge that third class welders are being used to perform safety related piping system welds on the basis that the welders are all qualified under a program prescribed by the ASME Boiler and Pressure Vessel Code Section IX, "Welding and Brazing Qualification." The application of the Section IX program has been reviewed a number of times by the RRI and other NRC inspectors since it was implemented at CPSES. The implementation has been found to be consistent with the requirements. These requirements, however, do not address themselves to the experience or inexperience of the person seeking qualification as a welder, but rather to whether he can accomplish a weld in one or more of the Code prescribed positions that will pass the test criteria imposed by the Code. The terminology "third class," as it applies to the labor force, relates primarily to the pay category in which a person is hired and previous experience is a factor in this determination.

434 228