



GULF STATES UTILITIES COMPANY

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File Code G9.5,
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Mr. K. V. Seyfrit, Director
U.S. Nuclear Regulatory Commission
Region IV, Office of Inspection & Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Dear Mr. Seyfrit:

River Bend Station - Unit 1
Docket No. 50-458

Gulf States Utilities Company (GSU) has completed its investigation of the reportable 10CFR50.55(e) deficiency concerning the overturning of the Primary Shield Wall during a construction movement. The final results of our assessment and the corrective actions taken are attached.

The principal area of damage to the shield wall was limited to the base plate. Repairs are being made in the field to restore the shield wall to its specified design conditions.

GSU has reviewed the procedures involved and has concluded that this type of incident was an isolated case and should not recur. Since the investigation revealed no significant damage, GSU has determined that the safety of operations will not be adversely affected at the River Bend Station.

Sincerely,

E. Linn Draper, Jr.
Vice President
Nuclear Technology

ELD/RJK/te
Attachment

cc: Director of Inspection and Enforcement, U.S. Nuclear
Regulatory Commission, Washington, D.C. 20555

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ATTACHMENT1. Description of Deficiencya. Cause of Accident

The front transporter of the rig carrying the shield wall strayed to the edge of the road and was about 3 feet onto the shoulder. In this position the load assumed the full transverse slope of the road.

The king pin joining the transporter body and the swivel bolster was assembled with vertical play which allowed the plate to partially lift off the transporter body.

The bolster swivel plate assembly was stressed due to the moment caused by the inclined shield wall. The top flange of the angles welded to the bolster plate started to yield and then buckled. The bolster swivel plate ultimately failed in a brittle manner.

The bolster frame connecting the front and the rear transporters twisted due to the moment of the inclined shield wall.

The above events gradually and cumulatively increased the inclination of the shield wall from the vertical. Consequently:

1. The restraining moment due to the transporter weight was unavailable to resist the overturning moment until the vertical play in the king pin assembly was completely taken up.
2. The redistribution of the load to the edge of the transporter tread due to the eccentric loading increased the intensity of loading on the soil in the shoulder. The shoulder was not capable of supporting the high intensity local loading and yielded.
3. The increasing inclination of the load combined with the local soil yielding at the edge of the tread, resulted in the transporter/load pivoting about the edge of the tread and overturning.

b. Damage to the Shield Wall

As reported earlier, the base plate of the shield wall was locally damaged where it tore from the clips holding the wall to the bolster frame. Several attachments welded to the shield wall were bent. The base plate was bent in a few other areas.

The shield wall was impacted in two areas of the shell as it hit the railroad and the West Creek embankment. There was no observed damage to the shell due to the impact.

2. Safety Evaluation

The safety functions performed by the shield wall from the view points of structural integrity and radiation shielding were enumerated in our Letter No. RBG-9739.

The structural integrity of the shield wall has not been impaired by the accident. The radiation shielding safety has not in any way been affected because the high density concrete material which provides the shielding had not been placed in the shield wall compartments at the time of the accident.

3. Corrective Action

a. Rework of Damages

The base plate is being reworked to restore it to its original design conditions. Portions of the baseplate which were torn are being replaced using originally specified material and approved welding and inspection procedures.

The base plate will be ground off to remove the undulations from one face and built up to the design thickness by weld deposition on the other.

The attachments which were bent were removed and the base metal was inspected by magnetic particle testing. Replacement attachments fabricated to the original specification requirements will be installed.

The rework of the damaged baseplate is being performed at the River Bend Job Site.

b. Evaluation of the Impact on the Shell

The shell was evaluated in the following manner to verify the visual observation of no damage caused by the impact:

1. The overturning and fall of the assembly of the transporting rig and the shield wall was analytically modeled; the soil properties in and around the impact area were determined and utilized to derive the reaction pressure on the wall; and a stress analysis was performed on the structure.

The structural analysis has established that the stress levels in the shell were sufficiently low as not to create any permanent deformations.

2. Dimensional checks of the shell diameter have proved that the circularity of the shell has not been affected. The shell diameters measured in the fabrication shop and after the accident were found to be comparable and within design tolerances.

3. The impacted contact areas on the shell plus a surrounding area extending to a distance equivalent to one compartment of the structure were inspected by magnetic particle testing methods. Both the inner and outer skin plates were inspected in this manner. There were no cracks detected, providing additional assurance that the impact due to the accident did not affect the structural integrity of the shield wall.