

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

REGION IV

Investigation Report No. 50-458/81-03

Docket No. 50-458

Licensee: Gulf States Utilities
Post Office Box 2951
Beaumont, Texas 77704

Facility: River Bend Station, Unit No. 1

Inspection at: St. Francisville, West Feliciana Parish, Louisiana

Dates of Investigation: February 18-20, 1981

Investigator:

D. D. Driskill

D. D. Driskill, Investigator

4-27-81

Date

Reviewed by:

J. E. Gagliardo

J. E. Gagliardo, Director
Investigation and Enforcement Staff

4/24/81

Date

Approved by:

W. A. Crossman

W. A. Crossman, Chief
Reactor Projects Section No. 3

4/29/81

Date

Investigative Summary:

Investigation on February 18-20, 1981, (Report No. 50-458/81-03)

Area Investigated: Investigation was conducted regarding an apparent incorrect addition of water into a truckload of concrete and the alleged falsification of the respective records documenting water added to that load of concrete. This investigation involved 19 investigator hours by one NRC investigator.

Results

Interviews disclosed three individuals who observed 12 gallons of water being added to a National Mobile Concrete Corporation (NMCC) truckload of concrete at 2:45 p.m., January 26, 1981. Records associated with that respective load of concrete were found to have been changed to document only 9 gallons of water (the maximum water addition allowed) being added to that particular load.

Interview of the responsible NMCC supervisor disclosed that he had ordered 12 gallons of water added to the load; however, upon realizing only 9 gallons were supposed to be added, he verbally corrected his instructions and changed the documentation to reflect that 9 gallons were added. He admitted having not personally confirmed that the correct amount of water was, in fact, added subsequent to changing the documentation. No evidence was found to indicate the documentation was knowingly falsified.

SYNOPSIS

1. An investigation was conducted at River Bend Station (RBS) regarding an apparent falsification of records, by the National Mobile Concrete Corporation (NMCC) site QA Manager (Individual A), concerning the actual amount of water added to a load of concrete mixed and placed on the afternoon of January 26, 1981. Witnesses were interviewed who confirmed that 12 gallons of water were added to the load, which was 3 gallons in excess of the maximum allowable water which could be added to the load and which should have resulted in the load being rejected and the cost charged to NMCC. Interview of one Stone and Webster Engineering Corporation (S&W) supervisor disclosed that Individual A admitted not knowing the actual amount of water added to the concrete load and that the associated documentation regarding the water added did not concur. Individual A was interviewed and admitted incorrectly, but not knowingly, documenting 9 gallons of water being added to the load.

BACKGROUND

2. On February 6, 1981, Mr. A. B. Beach, the Nuclear Regulatory Commission (NRC) Resident Reactor Inspector (RRI) notified NRC, Region IV, of a possible record falsification in regard to water addition to concrete Batch No. 16547 during placement CB12-W-111-D2 on January 26, 1981. Mr. Beach reported that NMCC concrete Batch Ticket No. 16574 indicated the amount of water "jogged" at the batch plant was 16 gallons, with 9 gallons allowed to be added in the field. Reportedly Individual A misread the ticket and added 12 gallons in the field and then apparently crossed off the "12" and wrote in "9" on the ticket. Mr. Beach stated that licensee management representatives had investigated the circumstances of the incident and were unable to determine whether the batch ticket was purposely falsified in order to prevent the truckload of concrete from being rejected and the cost charged to NMCC.

Interview of GSU QA Supervisor

3. On February 19, 1981, Individual B, a Gulf States Utilities (GSU) Quality Assurance Supervisor was interviewed regarding the possible falsification of NMCC concrete records. Individual B related that subsequent to being advised of the possible falsification of an NMCC Batch Ticket No. 16574, he had conducted an investigation into the circumstances related to the incident. He stated that on January 26, 1981, 16 gallons of water had been added to the load of concrete contained in NMCC truck No. 87, with 9 gallons allowed to be added in the field. He stated NMCC QA apparently misread the ticket and added 12 gallons of water. He stated that the truckload of concrete was not, however, rejected by either the NMCC QA Manager (Individual A) or the S&W Field Quality Control inspector (Individual C). After the truck was partially discharged, it was discovered by Individual D, the S&W FQC field placement inspector. Individual B stated that test cylinders were made and that a Type C

inspection report was initiated. Individual B stated he and another GSU QA representative had conducted interviews of individuals associated with the incident and had been unable to determine whether Individual A had intentionally falsified the batch ticket.

Examination of Pertinent Documents

4. On February 19, 1981, a copy of the NMCC Batch Ticket No. 16574, was examined. The batch ticket reflects that 16 gallons of water were added to the load at the plant and that the maximum allowable water which could be added to the load in the field was 9 gallons. The "water added in field" portion of the ticket is noted to have indicated that 12 (gallons) were added; however, the "12" was scratched out and "9" was placed in that respective block. It is also noted that illegible initials were placed adjacent the scratched out "12." The NMCC Batch Ticket No. 16574 is Attachment (1).
5. Also examined was the S&W Field Quality Control Inspector's worksheet which was prepared at the concrete pretest area concerning each load of concrete sent to placement areas. This worksheet had, under "water added," been marked "12" gallons; however, this was scratched out and "9" was written in this block. No initials were placed adjacent to the scratch out. This S&W worksheet is Attachment (2).

Interview of S&W Placement Inspector

6. On February 19, 1981, Individual D, an S&W concrete placement QC inspector was interviewed. Individual D stated that at about 3:30 p.m. on January 26, 1981, he had been contacted, via radio, by Individual C, the S&W QC inspector at the concrete pretest area, and told to reject the load of concrete on Truck No. 87. Individual D stated he had told Individual C the load had already been emptied. Individual D stated he had taken three "reject cylinders" of the concrete for testing. Individual D stated he had then asked the driver of Truck No. 87, how many gallons of water had actually been added to the load. Individual D stated the driver told him 12 gallons were added to the load and additionally stated that Individual A, the NMCC QA Site Manager, had instructed him to add the 12 gallons of water. Individual D stated he then notified his supervisor concerning the incident.

Interviews of Witnesses

7. On February 19, 1981, Individual C, the S&W QC inspector at the concrete pretest area, was interviewed. Individual C stated that at 2:50 p.m., January 26, 1981, NMCC Truck No. 87 had arrived at his station for inspection of the concrete it contained. Individual C stated a slump test on the concrete indicated it needed to have water added and he had notified Individual A of this fact. He stated

Individual A had come to the pretest area and instructed the driver to add 12 gallons of water to the truck. Individual C stated he observed the driver, add the 12 gallons to the truck and this fact was subsequently confirmed by the water meter on the truck. Individual C stated about 30 minutes later he had discovered that someone had changed his worksheet to read 9 gallons rather than 12 gallons. He stated he had immediately realized what had happened and had notified Individual D to reject that load of concrete and obtain "reject cylinders" for testing. Individual C stated his assistant, Individual E also observed that 12 gallons were entered into Truck No. 87.

8. On February 19, 1981, Individual E employed as a laborer by S&W and who currently works as a helper at the concrete pretest area, was interviewed. Individual E recalled that on the afternoon of January 26, 1981, Individual A had ordered 12 gallons of water added to the NMCC Truck No. 87 while it was at the pretest point. Individual E stated he had watched Individual F, the truck driver, put the 12 gallons of water into the truck. Individual E stated he was standing near Individual F when this was done and he did not hear Individual A change his instructions regarding how much water was to be added to the truck. Individual E also recalled having observed Individual A go into the S&W FQC shack and write on the clipboard which contained Individual C's worksheet.

Interview of NMCC Truck Driver

9. On February 19, 1981, Individual F, a concrete truck driver for NMCC, was interviewed. Individual F stated that on January 26, 1981, he was driving NMCC Truck No. 87. He stated that at about 2:45 p.m., January 26, 1981, he drove the truck to the pretest area where it was determined that additional water needed to be added to the load of concrete. Individual F stated that Individual A had approached and instructed him to add 12 gallons to the load and he complied. He stated he was absolutely positive that he added 12 gallons as instructed. He further stated he did not hear Individual A change his instructions regarding the amount of water to be added to the load. Individual F stated that when the batch ticket was given to him by Individual A, he did not look at it or notice that the batch ticket did not correspond with the actual amount of water added to the truck. Lastly, Individual F stated he did not know of any occasions when records had been intentionally falsified.

Interview of S&W Batch Plant Supervisor

10. On February 20, 1981, Individual G, the S&W concrete batch plant supervisor, was interviewed. Individual G stated that on January 27, 1981, he received an Unsatisfactory Inspection Report relating that the concrete contained in NMCC Truck No. 87 at 2:45 p.m., January 26, 1981, was alleged to have contained too much water. Individual G stated

he had questioned Individual A regarding the incident and Individual A had admitted to him having instructed the truck driver to add 12 gallons of water into the Truck No. 87 prior to his (Individual A's) having looked at the batch ticket. Individual G stated that Individual A told him, when he realized only 9 gallons were allowed to be added to the load, that he had instructed the driver to stop at 9 gallons. Individual G stated Individual A told him he had then changed the batch ticket to read 9 gallons and had allowed the truck to proceed to the placement point without having checked the meter to insure that only 9 gallons had been added.

Interview of NMCC Site QA Manager

11. On February 20, 1981, Individual A the NMCC Quality Assurance Site Manager at River Bend was interviewed. He stated that at about 2:45 p.m., January 26, 1981, he had been told by Individual C that Truck No. 87 needed to have water added to it. Individual A stated he had instructed the truck driver to add 12 gallons of water to the load of concrete, without having checked the batch ticket to see how much water was allowed to be added to that load. Individual A stated that a few minutes later he had looked at the batch ticket after having written 12 gallons on it and noticed that 9 gallons were the maximum allowed for addition. He stated he had then verbally instructed the driver to stop adding water at 9 gallons. Individual A, in reflection, stated it was possible the driver had not heard him due to his having not spoken loud enough or due to noises in the area. Individual A admitted having made two errors with regard to the incident. He stated he should have confirmed, by checking the truck water meter, that only 9 gallons were added to the load and secondly, that he should have checked the batch ticket to determine the amount of water allowed prior to instructing the driver to put 12 gallons into the truck. Lastly, Individual A noted that had he known 12 gallons were added to the truck, he is authorized to modify the calculations, for water addition, to reflect a tolerance of plus or minus three percent of the total water established by the mix design, which would have allowed him to add as much as 15 gallons to that load.

Reinterview of Individual A

12. On February 20, 1981, Individual A was reinterviewed concerning his previous statement indicating he was authorized to utilize a plus or minus three percent tolerance in computing water additions for acceptability of concrete. Individual A stated S&W Specification RBS-210.350-C134 utilizes standards provided in ASTM C-94 for all concrete work at River Bend Station. Individual A stated his interpretation of ASTM C-94 gives him the authority to utilize the plus or minus three percent tolerance.

Receipt of Concrete Test Report

13. On February 26, 1981, the S&W Compressive Strength Test Report, based on testing of concrete which was contained in NMCC Truck No. 87 on January 26, 1981, was received at NRC Region IV. The test report, which is amended as Attachment (3), disclosed the concrete exceeded the required concrete strength.

The following is a list of documents used in this report:

1. NMCC Concrete Batch Ticket No. 16574 . . . 01-26-81
2. S&W FQC Worksheet . . . 01-26-81
3. S&W Comprehensive Strength Test Report . . . 02-23-81

BATCH TICKET

national mobile concrete corp.

P.O. BOX 225 BERRIEN SPRINGS, MICHIGAN 49103 616-471-7707

16574

CUSTOMER COPY

NET

HOLD
LOAD

SAK

SOLD TO:
01 GSH RIVER LEAD STATION
RES-212-3-18-0134
STONE-WEESTER

LOCATION OF PLACEMENT:
CE12-1-111-02
5233
CONTROL BUILDING

PRESS FIRMLY YOU ARE MAKING 5 COPIES

MONTH	DAY	YEAR	CONSECUTIVE BATCH NUMBER	BATCH CODE NUMBER	% SAND MOISTURE	WATER TRIM	CU YARDS THIS LOAD	CUBIC YARDS ORDERED	CUBIC YARDS DELIVERED INCLUDES THIS LOAD	TRUCK NUMBER
01/25/81			0000	011	-1		2.00	2231.00	0017-00	087

CHECK IF FROM BACK UP PLANT ☐

TEMPERATURE DATA

INDICATE CHANGES ONLY

WEATHER CONDITION			TEMPERATURE	HEATED	YES
NORMAL	HOT	COLD	SPECIFIED		NO
				COOLED	YES
					NO

SAFETY RELATED

AUTHORIZED PLANT INSPECTOR SIGNATURE

BATCH DATA

AGG 26100001.500
AGI 14450004.500

CEI 3400

WATER 1915
AG/VAT 428
TOT/VAT 13.1216

AGI 015

AGG TARE 0000 0000
OUT TARE 0000 0000
W/V TARE 0000 0000

TIME: 1433
MAX WAT 156/25

MIXER TRUCK INFORMATION

ACTIVITY	TIME	REVS.	COMMENTS
DISPATCHED AT PLANT			
ARRIVED PLACEMENT			
STARTED DISCHARGE			
COMPLETED DISCHARGE			

FIELD TEST PERFORMED

ATTRIBUTE	LOCATION		LOCATION		SPECIFICATION REQUIREMENT
	RESULT	TIME	RESULT	TIME	
AIR CONTENT					
SLUMP	3 3/4	320			
TEMPERATURE	68				
UNIT WEIGHT					
OTHER					

WATER JOGGED 11 GALS. (AT PLANT)

WATER ALLOWED 25 GALS. (IN FIELD)

WATER ADDED 47 GALS. (IN FIELD)

REVS. 60 FINISH 0000 0000 30 OR MORE

AUTHORIZED SIGNATURE

NEW LOCATION OF PLACEMENT

REJECT CODE NO

WASTED

Arch

AUTHORIZED SIGNATURE

USED

REJECTED BY X

TEST AREA

ATCH (2)

51 I.R.#-51000824
51000327
COMPRESSIVE STRENGTH
TEST REPORT

Pour#-CB-12-W-111 D2-5233

File - SC07

STONE & WEBSTER ENGINEERING CORPORATION

THIS FORM MUST BE COMPLETELY FILLED IN AND MUST ACCOMPANY EACH TEST SPECIMEN SENT TO THE LABORATORY

PROJECT: River Bend Unit 1
PROJECT LOCATION: St. Francisville, La.
JOB ORDER: 12210.50
CONCRETE MIXED BY: NMCC
SPECIMENS TAKEN BY: L. Whitte, D. Johnson
SPECIFIED CONCRETE STRENGTH: 4000 PSI 28 DAYS
DESIGN MIX NO.: G'
DATE SAMPLED: 1-26-81
HOUR: 4:10 PM
WEATHER: Clear
LOCATION OF CONCRETE PLACEMENT: NA
CONCRETE MIXING: ☒ CENTRAL ☐ SHRINK ☐ AGITATED
☐ TRANSIT MIXED ☐ NON-AGITATED
TRUCK TICKET NO.: 16524
TRUCK NO.: 87
TRUCK MIXER CAP.: 12 CU YD
LOAD SIZE: 5 CU YD
TIME OF MIXING AT CENTRAL PLANT: 1 1/2 MIN
REVOLUTIONS OF TRUCK MIXER OR AGITATOR: 60
SAMPLE TAKEN AT: ☒ POINT OF PLACEMENT ☐ TRUCK ☐ MIXER
METHOD OF PLACING: ☒ PUMP ☐ TROWEL ☐ CHUTES ☐ BUGGIES ☐ CONVEYORS ☐ BUCKET
ENGINEER APPROVED MIX DESIGN SPECIFICATIONS
MAX. WATER/CEMENT RATIO: .460
SLUMP: 0-4 IN
AIR CONTENT: 0-7 %
UNIT WEIGHT: 7138.5 PCF
METHOD OF PACKING SAMPLE FOR SHIPMENT: Padded Box
CURING AT JOB: Plastic caps/Curing Tr. 1 DAY
LOCATION OF SAMPLED BATCH WITHIN THE PLACEMENT: Top Lift

MIX GIVE QUANTITY PER BATCH
COMPLETE (A) AND (B)
(A) MOIST AGGREGATE: FINE AGGREGATE 8350 LBS, WATER CONTAINED 360 LBS, COARSE AGGREGATE 6100 LBS, WATER CONTAINED 60 LBS, ICE ADDED 0 LBS, WATER ADDED 1038 LBS
(B) SURFACE DRY AGGREGATE: FINE AGGREGATE 7990 LBS, COARSE AGGREGATE 6040 LBS, TOTAL WATER USED 1558 LBS
QUANTITY OF CEMENT: 3400 LBS
FLY ASH: NA LBS
WATER/CEMENT RATIO: .458
MEASURED SLUMP: 23/4 IN
AIR CONTENT: NA
UNIT WT.: N/A PCF
TEMPERATURES: *F
AIR 40, CONCRETE 68
REMARKS: Water Added in The Field 129cl = 100
AD MIXTURES: AIR ENTRAINING 15 OZ, WATER REDUCING NA OZ
CEMENT BRAND/TY: Type-2 Missouri Portland
FLY ASH BRAND: N/A
COARSE AGGREGATE SIZE/SOURCE: NO 8 Bayou Sara
FINE AGGREGATE SOURCE: Bayou Sara
REMARKS: Curing Box temps. Low 72 High 74
Yield - N/A
AD MIXTURE BRANDS: AIR ENTRAINING MBVR P/A 2-20-81, WATER REDUCING MB POZZ. 300N

TESTING LABORATORY: FQC
LOCATION: River Bend
DATE RECEIVED: 1-27-81

TYPE OF BREAK: 1, 2, 3, 4, 5

SPECIMEN NO.	DIAMETER (in.)*	AREA (sq. in.)	BREAKING LOAD (lb.)	STRENGTH (psi)	TEST DATE	AGE AT TEST	TYPE OF BREAK
61-17 5233							
A	6.02	28.46	82,000	2880	2-2-81	7	3
B	6.02	28.46	140500	4940	2-23-81	28	2
C	6.01	28.37	137000	4830	2-23-81	28	4

TEST RESULTS
AVERAGE: 2880 LBS PER SQ INCH AT 7 DAYS
AVERAGE: 4830 LBS PER SQ INCH AT 28 DAYS
REMARKS: M & TE Used - 10397, 10607, 10952, 10798
CONDITION OF SPECIMENS: SATISFACTORY
Reviewer: J. Anderson, Level II
ATCH (3)
DATE: 2/7/81
David H. Jackson 2-23-81

* This water was recorded by that date.

TEST NO.	DATE SAMPLED	VALUE (PSI)	VALUE (PSI)	VALUE (PSI)	LOCATION OF POUR
1	1-26-81	2880	4940	4830	12210.50
2	2-2-81	2880	4940	4830	
3	2-23-81	2880	4940	4830	
4	2-23-81	2880	4940	4830	
5	2-23-81	2880	4940	4830	