Dr. File

Dravo

(46)

Pad. 21
sent to RIV
RI
RII

January 26, 1981

Mr. James G. Keppler, Director, Region III
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Report of Possible Defective Piping Subassemblies

Gentlemen:

We wish to report the fabrication and shipment of piping subassemblies by Dravo which may not be in accordance with the applicable design drawings and which, if installed, may constitute a safety hazard.

The following details are reported below:

1. INDIVIDUAL REPORTING

   W. A. Molvie
   Manager - Quality Assurance and Technical Services
   Dravo Corporation
   Pipe Fabrication Division
   1115 Gilman Avenue
   Marietta, Ohio 45750

2. SUPPLYING FIRM

   Dravo Corporation
   Pipe Fabrication Division
   1115 Gilman Avenue
   Marietta, Ohio 45750

3. NATURE OF PROBLEM

   A Dravo inspector was found to be conducting a magnetic particle inspection of a weld on a nuclear piping assembly using a technique not in accordance with the Dravo Magnetic Particle Procedure. The procedure called for the area of interest to be covered in two (2) directions 90 degrees apart, where as the inspector was examining with coverage in one (1) direction only.

JAN 29 1981

Mr. James G. Keppler, Director, Region III
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799 Roosevelt Road
Glen Ellyn, Illinois 60137

As a result of this incident, all the magnetic particle and dye penetrant examinations performed by that inspector on that date were re-examined. No rejectable indications were found.

During the next two (2) weeks, over 200 re-examinations were accomplished on work originally performed by the inspector in question. Four (4) indications (1/16 inch long or less) were found in stainless base material adjacent to welds. These would be acceptable under today's Code but are rejectable under the Code of record for that job. Two (2) rejectable indicatins in carbon steel base material were found where fitting lugs had been ground off. A number of rejectable indications were found in stainless welds attaching support plates to a pressure broundary. All of the indications found were minor surface defects.

4. FACILITY IDENTIFICATION

We have shipped piping subassemblies to the following facilities in the past six (6) months.

UTILITY	ARCHITECT ENGR.	STATION
Kansas Gas & Electric Co. Kansas City P & L Co.	Bechtel Power Corp.	Wolf Creek Gen. Station Unit # 1
Union Electric Company	Bechtel Power Corp.	Callaway Gen. Station Unit #1
Long Island Lighting Co.	Stone & Webster	Shoreham Unit # 1
Detroit Edison	Detroit Edison	Fermi # 2
Public Service Elec. & Gas	Bechtel Power Corp.	Hope Creek Gen. Station
Public Service Co. of NH	UE&C	Seabrook Nuclear Station Units # 1 and # 2

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UTILITY	ARCHITECT ENGR.	STATION
Carolina Power & Light	UE&C	Brunswick Steam Elec. Plant Units # 1 and # 2
Iowa Elec. Light & Power	Iowa Elec. Light & Power	Duane Aronld Energy Center

5. DATE DISCOVERED

Inspector was found not performing to the procedure on December 30, 1980. We have not yet fully evaluated the extent of the problem.

6. OTHER COMPONENTS WITH IDENTICAL DEFECTS

See list of facilities in # 4 above. No problems are known to exist in fabrications shipped to these sites from our plant.

7. CORRECTIVE ACTION

A. Provisions shall be added to our inspection procedures to require our Chief Inspector (SNT-TC-1A - Level III) to monitor the work of each inspector once each week. Records shall be maintained to attest to this surveillance.

B. All accessible surfaces in Class 1 fabrications which were originally mag particle or dye penetrant inspected by the inspector in question will be re-examined prior to shipment to the job site.

8. NOTIFICATION GIVEN TO PURCHASER OR LICENSEE

A detailed report of our investigation and findings will be sent to the parties with whom we have a contractual relationship for the nuclear sites listed in item four (4) above by the week ending January 30, 1981.

We do not know of any defective material shipped to any job site because of this incident. In addition, although some indications found during re-examination were greater than the acceptance standards would permit, none of the indications were the result of serious defects in the welds or base material and it is our opinion that, if the defects had not been removed, they would not have affected the safety or reliability of the fabrication.

These two (2) conditions would eliminate the necessity of reporting this matter under 10 CFR Part 21. However, in the opinion of several of the recipients of our fabrication, it is a reportable incident and thus the reason for this letter.

Respectfully,

DRAVO CORPORATION

Gustav Schwab
by W A Molino in Mr Schwab's absence.

Gustav Schwab
Vice President and General Manager
Pipe Fabrication Division

WAM/blw

(Submitted in Quintuplicate)

cc: Mr. Victor Stello Jr., Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

FORM 3500

Reference (2)
Attachment to SBU-43465

MEMORANDUM

united engineers & constructors inc

J.O.	9763.006	OFFICE:	Philadelphia
DEPT.	NDE - Quality Service	DATE:	March 3, 1981
TO:	D.E. McGarrigan 14U7	COPIES:	BB Scott 14U6 EW Sulek 14U7 NDE File 14U7 QA File 14U6
FROM:	J.A. Werner 14U7		

SUBJECT: Public Service Company of New Hampshire
Seabrook Station - Units 1 and 2
Magnetic Particle and Liquid Penetrant
Reexamination of Circumferential Welds (Seabrook Site).
Initially performed by Homer F. Shankland (Dravo)

Magnetic particle and liquid penetrant reexamination was performed by Pullman-Higgins certified NDE Level II personnel from 2/9/81 thru 2/23/81. Witnessed by UE&C NDE test examiners D. Reinert and J. Werner.

The following Pullman-Higgins procedures were utilized to perform reexamination.

Magnetic Particle	IX-MT-3-W77 Rev. 01 dated 1/6/81
Liquid Penetrant	IX-PT-1-W77 Rev. 03, dated 10/30/80

A total of 16 indications were recorded during reexamination of which 15 are surface base metal linear indications and 1 weld crater. See attached Pullman-Higgins reports and sketches for reported type indication, spool pieces and weld locations.

Note: Initial Pullman-Higgins reexamination on spool number E2936-298 indicated on weld C or D a linear surface indication having a crack like appearance. An additonal examination was requested by UE&C Level III examiner J. Werner of all welds on spools E2936-298 and E2936-297. The examination did not duplicate the reported indication.

Magnetic Particle

The yoke used for reexamination was a Parker hand contour probe. Calibration was performed prior to examination in accordance with ASME Section V, Article 7, para. 752.3. Adequacy and direction of the magnetic particle field was confirmed by use of a magnetic particle field indicator. The examination was carried out in two separate directions approximately perpendicular to each other and sufficient overlap to assure 100% coverage.

Magnetic particle reexamination performed on 29 spools consisting of 75 circumferential welds revealed a total of 15 relevant indications.

Liquid Penetrant

The liquid penetrant reexamination was carried out below 60°F which is required by ASME Section V, Article 6, however, Pullman-Higgins requalified the procedure to 40°F in accordance with ASME Section V, Article 6, para. T-663. The temperature ranged from 50 to 55°F during reexamination.

Liquid penetrant reexamination performed on 23 spools consisting of 86 circumferential welds revealed a total of 1 relevant indication.

John A Werner

J. A. Werner

JAW/Et

FORM 3500

Reference (3)
Attachment to SBU- 43465

MEMORANDUM

united engineers & constructors inc

No.	9763.006	Office:	Philadelphia / MM# 6912A
Dept.	NDE - Quality Service	Date:	March 23, 1981 / File: 11.7.7
To:	D.E. McGarrigan 14U7	Copies:	JB Silverwood/RH Leonard 14U5
			BB Scott 14U5
			GF Cole 06U0
			JF Vought Site
From:	J.A. Werner 14U7		JR Dmytryk 12U4
			JJ Parisano 06U5
			DC Lambert Site
			RC Lesnefsky 14U6
			EW Sulek 14U7
			QA File 14U5
			No Response Required

SUBJECT: Public Service Company of New Hampshire
Seabrook Station - Units 1 and 2
Inspection of Piping at Seabrook to evaluate
indications revealed by re-examination of
circumferential weld areas (Shankland)

Re-examination and removal of reportable indications was performed at Seabrook site from 3/12/81 to 3/17/81. The magnetic particle and liquid penetrant examination was performed by C. Wilkins, Pullman-Higgins NDE Level II. The NDE examination and indication removal was witnessed by UE&C R. Swift NDE Level II and J. Werner NDE Level III.

Each reported indication was re-examined to confirm location prior to removal by grinding. As grinding proceeded random ultrasonic thickness measurements were performed to prevent violation of minimal wall thickness requirements. All of the indications reported by UE&C Nonconformance Report No. 860 were removed (see note below). Of the indications removed, the base metal was above minimal wall thickness requirements. The area surrounding the removed indications were blended to prevent sharp transition of base metal thickness as per JS-IX-14. Prior to removal of the indications, the indications were in excess of the acceptance standards and regarded as defects which were to be re-examined to verify whether actual defects exist. The indications as witnessed during removal were shallow in depth and considered to be nonrelevant indications.

Note: Spool E-2936-297 was reported by Pullman-Higgins to have a reportable indication located in weld. All welds on spools E-2936-297 and E-2936-298 were re-examined and the indications could not be duplicated.

The wall thickness measurements are recorded below of the 15 indications removed from 11 spools.

Minimal Wall	Nominal Wall	Actual Wall	Thickness After Removal
E-2936-321-.[illegible]	.375	.441	.411
E-2936-371-.328	.375	.531	.500
E-2936-374-.328	.375	.550	.484

Minimal Wall	Nominal Wall	Actual Wall	Thickness After Removal
E-2936-380-.328	.375	.375	.353
381-.328	.375	.551	.449
416-.320	.365	.380	.351
816-.245	.280	.285	.261
1047-.328	.375	.393	.368
1079-.189	.216	.239	.235

215 - No cavity created weld blended to base metal
287 - Crater in weld removed and blended.
E-2936-297 - Original indication could not be duplicated.

J.A. Werner /EWS 3/25/81
J.A. Werner

JAW/Et

Reference (4)
Attachment to SBU- 43565

N.C. [illegible]
1400

MAR 11 '81 E.H.Case
157

MAR 13 '81 [illegible]

Dravo

March 5, 1981

CC: DHR
GFC
JJP
DEM
DE [illegible] 1400
R[illegible] 1404
JBS [illegible] 1405
KR [illegible] 1407

United Engineers and Contructors
30 South 17th. Street
Philadelphia, PA 19101

Attention: Mr. E. H. Case

Subject: Inspection Problem Report (E2936 thru E2939, E2954 and E3098)

Gentlemen:

With our letter of January 26, 1981, you received a report of a problem concerning Dravo Inspector Homer Shankland. This letter constitutes an update on that report and proposes that no further action is required concerning this matter.

Since the date of that report (January 23, 1981), we have reexamined at our facility a total of 1060 items - an item being an examination previously performed by Shankland on piping subassemblies fabricated for nuclear facilities. These reexaminations have been generally (but not 100%) observed by our ANI, Chief Inspector or Resident Inspectors. In addition, at a nuclear field site to which we shipped fabrication, reexamination has been performed on 161 carbon steel and stainless pressure retaining welds previously examined by Shankland.

To date, we have a history of the reexamination of 1221 items which were initially examined by Shankland during the last four (4) months of 1980. These reexaminations revealed no rejectable indications in pressure retaining welds and nothing but minor defects in non-pressure retaining welds and base material. It is therefore our conclusion that some non-destructive examinations were conducted not in strict accordance with our procedures but were conducted in such a manner that no injurious defects would have remained undetected. It is also our conclusion that although some indications found were greater than the acceptance standards would permit, none of the indications were the results of defects in welds or base material which, if they had remained undetected, would have affected the safety or reliability of the fabrications.

No reject in press. retain welds
minor defects in non pressure
retain welds

We feel that sufficient evidence exists, as detailed below, to support these conclusions. In the 1221 items reexamined, the following indications were found:

A. In Pressure Retaining Welds:

Two (2) indications, 1/4" and 5/16" long, were found in separate automatic welds. Both of these indications were across the weld and located where the weld stop had been ground. The indications were the result of incomplete removal of the automatic weld stop and are considered non-relevant. Additional light grinding to remove all of the stop removed the indication.

B. In Attachment Welds:

One tack weld on four (4) code plates was found not fused to the code plate. The three (3) other tack welds on each plate were acceptable.

Indications were found in 23 of 107 welds attaching 1" stainless support plates to a pressure boundary. It was the discovery of these indications and the explanation by Shankland that led us to the conclusion that, although he may not always have followed our procedure, he was experienced enough to conduct the testing in such a manner so that no serious defects would remain undisclosed. For instance, in performing a liquid penetrant examination, after proper application of dye and developer, any unacceptable indications were marked and the areas ground to remove the defects. To determine if the defects had been removed, rather than clean the weld, apply the red dye and clean before spraying with the developer, the developer alone was used. It is a fact that any surface defect, other than the most shallow, will again bleed and be revealed on the developer. What may have happened, although denied by Shankland, was that the second application of developer on a weld was used as a final examination and some shallow defects were not revealed. It can be seen that using this sequence of events would not permit a serious defect to go undetected. All of the indications found on the support plate welds were in this category.

C. In Base Material:

There were 24 base material indications found during the reexamination of Class 2 and 3 welds. The Code would require evaluation of these indications using the acceptance standards for surface imperfections from the material specification. These indications were evaluated and judged acceptable during the reexamination. Shankland states that this is what he did during the initial examination.

Indications were found in two (2) areas adjacent to welds where temporary attachments had been removed. These areas had been ground and the indications could have been interpreted as non relevant grind marks considering the actual depth of the indications which was determined after removal.

It must be noted that all of the magnetic particle indications found during reexamination (with the exception of those found in backing rings discussed in Paragraph D below) would have been revealed by the prod or yoke utilized in one direction at 45 degrees to the weld. It was the use of this technique by Shankland that necessitated this investigation.

D. In Welds in Backing Rings:

Backing rings on a particular system were required to be welded across the split to form a solid ring which was inserted into the pipe at field welds. The welds in these rings were to be MP examined. Of the welds reexamined, seven (7) presented indistinct, non-typical indications. Further evaluation of these areas to determine the exact nature of the possible defect causing the indication was performed by radiography (not contract requirement). This radiograph revealed a broad subsurface defect. The indications caused by these defects could easily have been overlooked at initial examination.

United Engineers and Contructors
30 South 17th. Street
Philadelphia, PA 19101

Considering the type , size and location of the indications found to date, Dravo can see no need to continue to reexamine work performed by Shankland. Further effort of this nature would only serve to further substantiate the conclusions presently drawn. We therefore cannot authorize the expenditure of money after this date to further investigate this problem.

We request that you instruct your inspection personnel in our shop that there is no restriction on shipping fabrications examined by Shankland. This action on your part will prevent further delay in shipping material against subject orders.Very truly yours,

DRAVO CORPORATION
Pipe Fabrication Division

WA Molvie

W. A. Molvie
Manager - Quality Assurance &
Technical Services

WAM/blw

UNITED STATES NUCLEAR REGULATORY COMMISSION

FORM NRC 766
FEBRUARY 1978
(MC 0535)

INSPECTION & ENFORCEMENT – STATISTICAL DATA

FACILITY NAME: SEABROOK 1 — INSPECTOR(S): W. SANDERS — PRINCIPAL INSPECTOR: [illegible]

LICENSEE/VENDOR: Public Service N.H. — S. REYNOLDS — REVIEWER:

AE

- TRANSACTION TYPE 1 (CHECK ONE): ☐ Delete ☒ Insert ☐ Modify
- DOCKET NUMBER (A) 2–9: 05000443
- OR LICENSE NO. (BY PRODUCT) 2–14:
- REPORT NO. (B) 15–18:
- DATES INQ/INVEST/INSP FROM (C) 19–24: 0 6 0 8 8 1 (M M D D Y Y)
- TO (D) 25–30: 0 6 1 1 8 1 (M M D D Y Y)
- REGION CONDUCTING ACTIVITY (E) 31: 1

F INSPECTION PERFORMED BY: 32
1 ☒ REGIONAL OFFICE STAFF 2 ☐ RESIDENT INSPECTOR 3 ☐ PERFORMANCE APPRAISAL TEAM

G TYPE OF ACTIVITY CONDUCTED (CHECK ONE BOX ONLY) 33-34

INSPECTION:
02 ☒ SAFETY
03 ☐ INCIDENT
04 ☐ ENFORCEMENT
05 ☐ MANAGEMENT AUDIT
06 ☐ MANAGEMENT VISIT
07 ☐ SPECIAL
08 ☐ VENDOR
09 ☐ MATL ACCT.
10 ☐ PLANT SEC.
11 ☐ INVENT. VERIF.
12 ☐ SHIPMENT/EXPORT
13 ☐ IMPORT

OTHER:
14 ☐ INQUIRY
15 ☐ INVESTIGATION
(IF INVEST. ALSO CHECK BLOCK S)

H INSPECTION OR INVESTIGATION WARNING: 35
1 ☐ ANNOUNCED 2 ☒ UNANNOUNCED

I INSPECTION SHIFT: 36
1 ☒ DAY SHIFT 2 ☐ OFF-SHIFT 3 ☐ WEEKEND/HOLIDAY

J INSPECTION/INVESTIGATION NOTIFICATION (CHECK ONE BOX ONLY) 37
1 ☐ 591 2 ☒ REGIONAL OFFICE LETTER 3 ☐ REFERRED TO HQS FOR ACTION 4 ☐ REGION LETTER & HQS FOR ACTION

K INSPECTION/INVESTIGATION FINDINGS (CHECK ONE BOX ONLY) 38
1 ☒ CLEAR 2 ☐ NONCOMPLIANCE 3 ☐ DEVIATION 4 ☐ NONCOMPLIANCE & DEVIATION

L ENFORCEMENT CONFERENCE HELD: 1 ☐ 39

M NUMBER OF NONCOMPLIANCE ITEMS IN LETTER TO LICENSEE: 40 41 —

NOTE: CHANGE MUST BE SUBMITTED ON 766 WHENEVER PREVIOUSLY CITED ITEM OF NONCOMPLIANCE IS OFFICIALLY DELETED FROM THE RECORD.

N NUMBER OF DEVIATION ITEMS IN LETTER TO LICENSEE: 42 43 —

O NUMBER OF LICENSEE EVENTS 44 45 —

P 46 INSPECTION FEE
1 ☐ NON-ROUTINE/VENDOR (No Fee) 2 ☐ ROUTINE (No Fee) 3 ☐ ROUTINE (Fee) 4 ☐ ROUTINE (Fee Reduced)

Q 47 CONTENTS 2.790D INFORMATION ☐ 'S' YES

R REGIONAL OFFICE LETTER OR REPORT TRANSMITTAL DATE FOR INSPECTION OR INVESTIGATION

- 591 OR LETTER ISSUED TO LICENSEE 48–53: M M D D Y Y
- REPORT SENT TO HQS FOR ACTION 54–59: M M D D Y Y
- IMMEDIATE ACTION LETTER DATE 60–65: M M D D Y Y

S SUBJECT OF INVESTIGATION (CHECK ONE BOX ONLY) 66-67

TYPE A 10 CFR 20.403	TYPE B	10 CFR 20.405	MISC.	
01 ☐ INTERNAL OVEREXPOSURE	06 ☐	11 ☐ INT. OVEREXPOSURE	15 ☐ CRITICALITY	21 ☐ EQUIP. FAILURE
02 ☐ EXTERNAL OVEREXPOSURE	07 ☐	12 ☐ EXT. OVEREXPOSURE	16 ☐ LOSS/THEFT	22 ☐ ALLEGATION/ COMPLAINT
03 ☐ RELEASE TO UNREST. AREA	08 ☐	13 ☐ EXCESS RAD. LEVELS	17 ☐ MUF	23 ☐ PUBLIC INTEREST
04 ☐ LOSS OF FACILITY	09 ☐	14 ☐ EXCESS CONC. LEVELS	18 ☐ TRANSPORTATION	24 ☐ SABOTAGE
05 ☐ PROPERTY DAMAGE	10 ☐		19 ☐ CONTAM/LEAKING SOURCE	25 ☐ ABNORMAL OCCUR.
			20 ☐ ENVIRONMENTAL EVENT	26 ☐ OTHER

HEADQUARTERS ENTRIES

T HQS ACTION ON INSP/INVEST REFERRED BY REGION: 68 69
(See Reference List for Code)

U DATE HQS ENFORCEMENT LETTER, NOTICE, ORDER ISSUED: 70–75 M M D D Y Y

V CIVIL PENALTY ISSUED: 1 ☐ 76

W DATE 766 ENTERED INTO COMPUTER FILE (MO/YR): 77–80 M M Y Y

NOTE: BLOCKS K TO N MUST BE VERIFIED BY IE: HQS WHENEVER ENTRIES ARE MADE IN BLOCKS T, U AND V

AITS REFERENCE: