Dravo

February 14, 1979

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Attention: Mr. Karl V. Seyfrit
Director

Subject: Docket No. 99900017/78-02
Program No. 51300
Inspection Report No. 99900017/78-02

Dear Mr. Seyfrit:

This letter is in response to your letter on the subject Docket dated December 19, 1978 and received by us December 22, 1978. We have requested and received an extension to February 15, 1979 in order to give us time to further discuss our responses and outline programs to prevent recurrence.

Regarding the specific findings of your November 27-30, 1978 audit, we are attaching our responses, including steps taken to correct the specific deficiencies, action taken or to be taken to preclude recurrence (when applicable), and date on which these actions will be completed.

With regard to your comments concerning Deviation A (page 2 of your 12/19/78 letter) please refer to our response to Finding A, attached.

We trust that our attached responses are satisfactory and will be locking forward to your evaluation and comment.

Very truly yours,

DRAVO CORPORATION
Pipe Fabrication Division

G. Schwab
Vice President and Gen[illegible]

RLM/mrb

2250 169

7906230062

Finding A. A Dravo corrective action response letter dated November 23, 1977, states in part with respect to item I.D.3a(1) of IE Report No. 77-01, ". . . The welding foremen have been instructed and trained to include all variables over which a welder can exercise control on the Weld Joint Data card before giving to the welders . . ."

Contrary to the above, the inspector observed that all variables over which a welder can exercise control were not being included by the welding foremen on Weld Joint Data cards supplied to the welders, as illustrated by the following example:

> The Weld Joint Data cards applicable to Welds, B,C,D & E on Job No. 3002, Sketch 904, and Weld A on Job No. 2804, Sketch 6391, did not specify the required purge gas flow rate and maximum wire feed speed of the relevant welding procedure specification (WPS), 1-1-W6104-L5, Revision 6.

This is a repeat deviation resulting from ineffective corrective action. (See details Section I, B.1.)

Response:

1. The specific deviations identified in this finding were isolated to one foreman. On November 21, 1978 he was brought into the Chief Metallurgist's Office and re-instructed in the proper generation of the weld joint data sheet. This meeting was documented by a "Memo to File".

2. Corrective action taken, related to this subject after each of the last two NRC audits, consisted of system and procedure changes. We consider that, because of the large number of people and production variables involved, we are on a learning curve approaching full implementation. Procedures and documentation of nuclear welding are being monitored by Welding Engineering in the "Welding Engineering Audit of Production Welding" program and by our normal QA review of documentation. Deviations are dispositioned on a case basis normally through discussion with the shop foreman involved and/or by changes in Weld Procedure Specifications (WPS's) or modifications to production equipment. Incidents of deviations have decreased and we consider that we are approaching a level of normal human error. None of the deviations noted to date have been determined to create a substantial safety hazard, although some nonconformance reports have been processed to provide for customer concurrence.

   On November 16, 1978, prior to your audits a general meeting was held with the shop foremen to discuss the parameters to be included on the Weld Joint Data sheet. A review of the list of attendees indicated that the foreman in question was absent on that day. A review of attendees will be made after future indoctrination meetings and absentees will be indoctrinated upon their return.

Finding B. Criterion V of Appendix B to 10 CFR 50 states in part, "Activities affecting quality shall be prescribed by documented . . . procedures . . . and shall be accomplished in accordance with these . . . procedures . . ."

Paragraph 4.3.4 in procedure GWS-6, Revision 2 states in part with respect to Welding Engineering audit of production welding, "Parameters - Physically check and record the following: . . . 4.3.4.3 Travel Speed (for WPS's which contain specified travel speed) . . ."

Contrary to the above, the travel speed was not recorded by Welding Engineering during the October, 1978, audit or production welding for two (2) audited welding operations, in which the applicable WPS, 1-1-A1502-P7, Revision 1 and 1-1-1502-P6, Revision 1, specified travel speed range requirements.

Response: Welding Engineers who perform audits in accordance with GWS-6 have been instructed to review the document and comply with the requirements. Oral instructions, the review and compliance were accomplished the week of November 27, 1978.

Finding C. Criterion IX of Appendix B to 10 CFR 50 states in part, "Measures shall be established to assure that special processes, including welding, heat treating, . . . are controlled and accomplished . . . using qualified procedures in accordance with applicable codes . . ."

WPS 1-1-H1502 N9, Revision 1, which was utilized in the fabrication of Job No. 3000, Sketch 481 (ASME Section III Class 2, Main Steam System), requires performance of a postweld heat treatment at 1100-1250°F for one (1) hour per inch of thickness.

Contrary to the above, a weld repair was made on Weld S utilizing the referenced WPS without performing a postweld heat treatment. The inspector further noted that the fabricated assembly had been accepted and an ASME Data Report signed without detection of the discrepancy by Quality Assurance.

Response:

1. On 12/14/78 Nonconformance Report #E3000 QA35 was written identifying this deviation. The piece was then re-stress relieved and the total heat treat time evaluated against the maximum allowable time permitted by the weld procedure. It has been determined that the maximum allowable time was not exceeded by the additional heat treat time.

2. Dravo is presently working on a procedure for the documented evaluation of weld repairs with emphasis on the need for post weld heat treatment and the effect of the additional time at temperature on the total fabrication. This procedure will assign responsibility, define implementation and provide a "highlight" to QA to minimizing the chances of QA missing this requirement.

3. The procedure will be written and implemented by March 30, 1979.

2250 172

Finding D. Criterion IX of Appendix B to 10 CFR 50 states in part, "Measures shall be established to assure that special processes, including heat treating . . . are controlled and accomplished . . . using qualified procedures in accordance with applicable codes, standards, specifications, criteria . . ."

Paragraph 3.2.1 in Section 9 of the QA Manual states in part, "The postweld heat treatment cycle shall be as specified by ASME Section III and the qualified weld procedure . . ." Paragraph 3.2.3 states, "The cycle instructions shall be entered on a heat treatment card by the foreman in charge of the furnace." Sub-paragraph 3.2.5.1 states, "The charts shall be reviewed by inspection for confomance to the written cycle instructions."

Contrary to the above, Inspection review of furnace charts did not assure conformance to written cycle instructions, as evidenced by:

1. Acceptance of Furnace Schedule 7879 with an actual maximum rate of heating of 600° to 910°F in one (1) hour, when the written cycle instruction permitted a rate of rise of 280°F per hour above 600°F.

2. Acceptance of Furnace Schedule 7822 with an actual maximum cooling rate of 1080°F to 600°F in one (1) hour, when the written cycle instruction permitted a cooling rate of 400°F per hour to 600°F.

Response:

1. Heating & cooling cycles, which comply with the average heating or cooling rates over the time involved without precipitous rises or drops, have been accepted by our inspection & QA personnel, as were the charts in question.

   An evaluation was made of the heating and cooling cycles cited and it was determined that there was no technical reason to believe that the fabricated assemblies were not adequately post weld heat treated nor was there any technical reason to believe that the fabrications were damaged as the result or the post weld heat treatment performed.

2. The finding was discussed with the Shop Foreman who supervises the furnace operators. He will instruct the furnace operators to provide a tolerance on the heating and cooling rates so that steps can be taken to correct thermocouples that are recording temperatures rising or falling faster than normal before they exceed the specified cycle. In addition, we are evaluating the heating and cooling rates over 1 hour intervals rather than over the entire heating or cooling cycle. This action was completed on February 9, 1979.

Finding E. Criterion IX of Appendix B to 10 CFR 50 states in part, "Measures shall be established to assure that special processes, including welding . . . are controlled and accomplished . . . using qualified procedures in accordance with applicable codes, standards, specifications, criteria . . ."

Paragraph 2.2.11.1 in Section 9 of the QA Manual states, "For covered (stick) electrode, and all other welding materials on which impact properties are required, the foreman, or his designee shall enter the appropriate alpha-numeric weld numbers on the Weld Joint Data Form." Sub-paragraph 2.2.11.1.a states, "The operator presents the form to the assigned individual for procurement of supplies." Paragraph 2.2.12 states, "Following completion of assigned welds, the operator shall enter his stamp number on the Weld Joint Data Form and return it to his foreman. Paragraph 2.2.13 states, "The foreman uses the entries for completion of required sketch documentation."

Contrary to the above, the inspector observed the following with respect to Weld Joint J in Job No. 2803, Sketch 329:

1. The alpha-numeric weld number designating the identity of the electrodes used had not been entered on the Weld Joint Data Form.

2. The weld had been completed seventeen (17) days prior to the inspector's review.

3. The Weld Joint Data Form had been returned to the foreman and required sketch documentation had not been completed.

Response:

1. The situation described in this finding (a build-up on the ID of the pipe) is in violation of our Nuclear Quality Assurance Manual, as you have indicated. This deficiency would have been detected and corrected in the normal system of Quality checks had it not been first discovered by the NRC inspector.

   On Dec. 1, 1978 Nonconformance Report number E2803-QA100 was generated addressing this finding. Further research into other shop records has resulted in corrected documentation and the resolution of the Nonconformance Report.

   The welding foreman and welder involved have been re-instructed in the necessity for prompt completion of welding records.

2. Dravo does not believe that this finding represents a generic break down in our Quality System, and therefore, no Corrective Action to prevent recurrence is indicated.

Finding F. Deviation from Commitment

Criterion V of Appendix B to 10 CFR 50 states in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

Contrary to the above, certain activities affecting quality were not performed in accordance with the QA Manual requirements, as evidenced by:

F.(1) Section 3 of the QA Manual, paragraph 4.2. states, "To insure accuracy the sketches shall be checked, initialled and dated by one other individual in Engineering prior to issuance."

The inspector noted, however, that accuracy of sketches was not assured by checking, in that the weld joint identification on sketches E3099-160 and E3099-76, which were used for recording inspection results, did not correlate with the weld joint identification on applicable sub-assembly sketches used for performance and documentation of welds.

Response: F.(1) The practice of augmenting final assembly drawings with sub-assembly sketches is rather unusual at Dravo and therefore this problem of conflicting weld joint identifications occurred.

This problem had been identified by Quality Assurance and corrective action initiated, but not yet complete, at the time of your audit.

The sketches involved have now been revised to establish uniformity of weld joint indentification and the backup documentation corrected accordingly.

All cognizant individuals have been made aware of this problem and its adverse affect on the ease of documentation identity.

We believe that this does not represent a generic breakdown in our Quality Program and therefore no corrective action to prevent recurrence is indicated.

Finding: F.(2) Section 6 of the QA Manual, paragraph 3.2.4.1 states, "Transmittal of all revised procedures and project addenda will be accompanied by a revised FPI incorporating the revisions."

The inspector noted that the revised procedure did not accompany a revised FPI incorporating ASME-II-MP, Revision 7 for project 3035, in that the procedure maintained in the up-to-date file of standard procedures was ASME-III-MP, Revision 5.

Response: F.(2) John Moore, Dravo's Chief Inspector, stated that at the time of your audit Standard Procedure ASME-III-MP Revision 7 was in the file of Standard Procedures. QA has subsequently inspected the Standard Procedure file and determined that as of this date Revision 7 is in Inspection's Standard Procedure file.

The individual Inspectors often use personal note books which indicate the latest approved revision for each contract. It is possible that the Inspector interviewed had a personal note book which was not current.

An evaluation of ASME-III-MP, Revision 5 versus Revision 7 has been made and the changes determined to be editorial in nature.

Problems with incorrect procedure and examination revision numbers have occurred with sufficient frequency in both internal audits and customer, ASME and NRC audits to indicate the need for Corrective Action to Prevent Recurrence.

Beginning February 15, 1979, the Shop sketches will have the current revision numbers for listed procedures and inspections added to the sketch.

This information will be added just prior to the sketch being put into fabrication by individuals using a controlled copy of the Fabrication Procedure Index.

Finding: F.(3) Section 9 of the QA Manual, paragraph 4.3.4 states, "Verification of the completion and acceptance of the test shall be noted on the sketch in the appropriate boxes by the initials of the inspector and the date of approval."

The inspector noted that the verification of completion and acceptance of a magnetic particle test was not noted on sketch E3035-224 by the initials of the inspector and the date of approval for welds B and C, although an inspection report had been completed.

Response: F.(3) The inspection report, "Chit Sheet", is the official document for reporting NDT performed on each spool. The notations on the sketch itself serve to indicate what tests have been performed thus minimizing the possibility of duplicate testing or a test being missed until final QA clearance.

The Inspectors have been re-instructed in the importance of completing all documentation requirements as soon as the operation is performed.

2250 177

Finding F.(4) Section 10 of the QA Manual, paragraph 3.4.1 states, Each nondestructive examination procedure to be used including revisions shall be entered either on the NDE inspection records or the sketch."

The inspector noted that each nondestructive examination procedure to be used, including revisions, was not entered either on the inspection records or the sketch, in that the inspection reports could not be located at the time of the review of sketch E3133-101 and the procedure and revision was not listed on the sketch for a penetrant examination conducted on November 22, 1978.

Response: The missing inspection report, "Chit Sheet", does put Dravo in violation of our Manual. It should be remembered, however, that the fact that an inspection report was missing would have been detected as a part of our normal QA Documentation check, and corrective action taken at that time.

The missing "Chit Sheets" have now been located and are a part of the documentation package for sketch E3133-101.

Corrective action to prevent recurrence is outlined in our response to finding F.(2). This corrective action will provide the inspector with access to the correct procedure number and revision at the work station.

2250 178

Finding G. Criterion VIII of Appendix B to 10 CFR 50 states in part, "Measure shall be established for the identification and control of materials, parts, and components . . . The measures shall assure that the identification of the item is maintained by heat number, part number, serial number . . . either on the item or on records traceable to the item . . ."

ASME Code Section III, Subsections NB, NC, ND, paragraph 4231.2 states in part, "Attachments which are welded to the component during construction but which are not incorporated into the final component, such as alignmnet lugs . . . are permitted, provided the requirements of (a) . . . below are met.

Response: Dravo General Fabrication Procedure SP-1, has been revised to provide for the following requirements to be met for temporary attachments used during fit up and alignment.

(a) Temporary attachments used for fit up and alignment aids shall be compatible with the base metal.

(b) Fit up and alignment lugs used for P-1 group materials (Carbon Steel) shall be P-1 material. Lugs used for P-4 and P-5 (1 1/4 - 9CR) shall be P-1 Carbon Steel.

(c) Fit up and alignment lugs used for P-8 (Stainless Steel) shall be P-8 group materials.

(d) Qualified welders using approved tack weld procedures shall be used for welding attachments.

(e) Attachments used for manipulation during the welding operations shall be compatible with base materials as described in B & C above.

(f) Issuance of tacking lugs bars and draw plates shall be performed by the tool crib under the direction of the fitter-foreman.

(g) Tacking Stock is purchased, stored and segrated per P-groups, P-1 stock is used for ferritic materials. P-8 stock is stainless steel, stamped with an "S" and used for stainless materials.