

U. S. ATOMIC ENERGY COMMISSION
REGION II
DIVISION OF COMPLIANCE

Report of Construction Inspection

CO Report No. 50-302/71-2

Licensee: Florida Power Corporation
Crystal River Unit 3
License No. CPPR-51
Category A

Dates of Inspection: May 11-14, 1971

Dates of Previous Inspection: February 9-12, 1971

Inspected By: W. D. Kelley 7/26/71
W. D. Kelley, Reactor Inspector (Construction) Date

Reviewed By: F. J. Long 7/26/71
F. J. Long, Senior Reactor Inspector Date

Proprietary Information: None

SCOPE

A routine announced inspection was made by W. D. Kelley on May 11-14, 1971, of the Crystal River Unit 3 located ten miles northwest of Crystal River, Florida, on the Gulf of Mexico. The plant is a Babcock and Wilcox Company (B&W) pressurized water reactor designed for a maximum power level of 2560 Mwt (885 Mwe). The purpose of the inspection was to continue the audit of the records of the containment liner (Attachment C), Class I piping (Attachments F and G), and other Class I components (Attachment L), in accordance with PI 3800/2; review construction logs onsite; and review with the licensee the Open Items List.

SUMMARY

Safety Items - None

Nonconformance Items -

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1. Chicago Bridge & Iron Company (CB&I) was performing their measurements of the diameter of the containment liner without verifying the accuracy of their prism on the theodolite. (See Section D.)
2. CB&I was welding large gaps as much as 1-1/2 inches in 1/4-inch plate using their wide-gap welding procedure without documenting. (See Section D.)
3. M. W. Kellogg Company (MWK) shop fabricated pipe spool pieces contained welds that had been ground excessively, welds that required radiography that were in the as-welded condition, and welds that had weld reinforcement that exceeds code limits. (See Section I.)

Unusual Occurrences - None

Status of Previously Reported Problems -

1. Decay Heat Service Heat Exchanger Channel Heads (CO Report No. 50-302/70-4)

During the stress relieving of the channel head for the decay heat service heat exchanger by Struthers Wells Corporation (SW), the dimensional tolerances were exceeded due to warpage. The foundry was held liable for holding dimensional tolerances; therefore, a new channel head casting was to be supplied to SW for machining which must be installed at the site by SW. To date, SW has not installed the new head on the decay heat service heat exchangers and the item will remain open.

2. Reactor Coolant Bleed Tanks (CO Report No. 50-302/70-4)

Pittsburgh-Des Moines Steel Company (PDM) did not apply the "N" stamp to the nameplate on the reactor coolant bleed tanks in their shop. Their representative has been onsite and applied the "N" stamp and this item is closed.

Other Significant Items -

1. Florida Power Corporation (FPC) is developing a quality control manual for nuclear and fossil-fired plants. The quality control manual will be divided into three divisions consisting of (1) quality manual which will state the corporate policy, (2) quality operating procedures which give the instructions to the second level of management of how the quality assurance program is to be carried out, and (3) quality control procedures which will be

developed by both FPC and their contractors. Section 3 (the quality control procedures) will contain the difference between the nuclear and fossil plants. All the quality assurance and quality control procedures and forms presently used for nuclear plants and developed for nuclear plants are inserted in the quality assurance manual for fossil plants. The only difference of the quality assurance/quality control program for nuclear and fossil plants will be the amount of documentation that will be filed for a fossil plant. Presently, General Electric Company, Apollo System Division is under contract to FPC to develop the quality manual procedures. Approximately 30 procedures are currently being developed.

2. Weldor qualifications are kept current by a daily input into the computer onsite. A weekly or biweekly printout of the computer will be issued to each craft superintendent in order to be assured that all weldors are qualified. FPC (Pedrick) stated that they will use the computer onsite as much as possible for recording documentation.
3. The reactor vessel was hydrostatically tested at B&W's Mount Vernon, Indiana, plant on April 17, 1971; the test was witnessed by FPC's T. Lutkehous, Maintenance Engineer.

Management Interview - A management interview was held on May 14, 1971, at 10:00 a.m. in the FPC construction office at the Crystal River Nuclear Plant Unit 3 site. The meeting was attended by the following FPC personnel:

H. L. Bennett - Manager, Power Construction
E. E. Froats - Quality Engineer
B. W. Pedrick - Engineer, Quality Program
M. T. Kleinman - Manager, Quality Programs Department

The following items were discussed:

1. Channel Head for the Decay Heat Service Heat Exchanger

FPC was informed that the channel head for the decay heat service heat exchanger would remain an open item until the head was received, installed, and tested in accordance with the applicable specifications. (See Status of Previously Reported Problems, Item No. 1.)

2. Reactor Coolant Lead Tank ASME "N" Stamp

FPC was informed that the Region II inspector had reviewed with the quality engineer (Froats) the application of the "N" stamp by PDM to the reactor coolant bleed tanks at the site and the item is considered closed. (See Status of Previously Reported Problems, Item No. 2.)

3. Construction Deficiency Notice (CDN) Issued by Region II on March 16, 1971

FPC was informed that their letter of April 12, 1971, signed by J. T. Rodgers, Assistant Vice President and Nuclear Project Manager, to J. G. Davis, Director, CO, Region II, regarding the deficiency of the quality assurance/quality control program of the erection of the containment liner by CB&I was satisfactory and had been forwarded to Headquarters for their concurrence.

4. Construction Logs

FPC (Bennett) was informed that the Region II inspector had requested their manager of the quality control department (Kleinman) for a list of the construction logs and that he had deferred answer of this until the management interview. FPC (Bennett) informed the Region II inspector that there were basically four construction logs kept on the site: (1) the weekly report, which is written by the construction superintendent of his area of responsibility, i.e., electrical, mechanical, structural, etc.; (2) the monthly summary report, which is a summation of the weekly reports for the month; (3) a weekly photograph log, which is photographs of the construction activity for the week; and (4) the deviation report log, which is a chronological order and serialized data of the deficiencies reported on the project.

5. ROE and CER

FPC was asked by the Region II inspector if they desire additional copies of the ROE or CER reports. FPC (Bennett) stated that they were currently receiving sufficient copies and that additional copies were not desired.

6. Wall Section Thickness of Valves

FPC was asked by the Region II inspector if they had a program of verifying the wall thickness of valves received at their project.

No program is currently used for valve wall thickness verification; however, it was stated that they were aware of some of the difficulties encountered on other projects and they did not have Darling or S&K valves on the project. They stated they were aware of the Aloyco valve weld end preparation problem and had notified B&W that the valves received at their site were to have weld ends that conform with B16.25. This will remain an open item.

7. Main Coolant Pump Flywheels

FPC was asked what their program was for the ultrasonic testing of the flywheels for the main coolant pump. FPC (Kleinman) stated that the castings for the main coolant flywheels had been ultrasonically tested prior to machining. The present plans for ultrasonic testing of flywheels in service is that one pump flywheel will be ultrasonically tested in five years and four pump flywheels will be ultrasonically tested at the end of the ten-year period.

8. Containment Liner Erected by CB&I

FPC was informed that the inspector had discussed with CB&I personnel their repair of the gap between the toriconical section and the straight cylindrical section of the containment liner. However, he had not reviewed the spot radiographs because FPC (Pedrick) had not reviewed the radiographs and evaluated them. The inspector stated that the workmanship and the records of the repair were adequate and met the code requirements and that he would review the radiographs on the next inspection. FPC was informed that the accuracy of the diametrical measurements had been reviewed with CB&I (Herman and Leyman) and that they had checked the accuracy of the prism on their theodolite and had found that it was not a true 90°. However, they would note the corrections of the measurements on their record sheets and from the appearance of the tolerances there was no problem. FPC was informed that the flat spots had been measured by CB&I using a straight edge to measure the distance from the containment shell to the cord straight edge. CB&I had not taken into consideration the effect that waviness of the shell would have on their measurement. CB&I had performed calculations and a layout to determine the accuracy of their measurement and the maximum dimensions that would be acceptable and their new procedure was acceptable. FPC was informed that CB&I had explained to the satisfaction of the inspector that they were not using the +3-inch tolerance on the circumference and adding to this the +1 1/2-inch tolerance for local flat spots.

9. Coating of Tendon Wires

FPC informed the inspector that Prescon Corporation (Prescon) had not solved the problem of coating each tendon wire prior to its insertion into the tendon sleeves. The coating of the tendon wires will remain an open item.

10. Class I Piping

FPC was asked by the Region II inspector if they had means of determining that the interface between the design concept of piping and structural for pipe hangers did not present a problem where piping was more conservative. FPC was informed by the Region II inspector of several incidents where the civil engineers had used higher allowable stress values in designing hangers than that permitted by the piping codes. The Region II inspector informed FPC that the fabrication shop and the documentation appeared to need study and reevaluation by their mechanical superintendent. FPC stated that they felt their fabrication shop was adequate and that if additional space were needed, piping could be fabricated in the open by pouring a slab outside the fabrication shop. FPC was informed by the Region II inspector that the MWK shop fabrication was poorly stored and that the storage area appeared to be inadequate. FPC (Bennett) agreed that the storage area where the pipe was presently located was inadequate and that a five-acre secondary storage area was being prepared. The Region II inspector stated that he had observed shop fabrication of MWK where welds had been ground excessively and other areas where it appeared that weld requiring radiography had not been ground and contained weld reinforcements that exceeded the allowable code. FPC (Bennett) stated that the excessive weld reinforcement would be measured and that they would investigate and reinspect the MWK shop fabrication. This will remain an open item.

11. Radioactive Waste Tanks

FPC was informed that the inspector had been advised that the coating for the radioactive waste tanks had been deleted to permit shipment of the tanks so they could be installed to permit concrete placement. The tanks had been damaged during shipment and were in quarantine. FPC was informed that this would be an open item.

12. AEC Contact

FPC (Kleinman) stated that it was their wishes that all communications from AEC Region II office be through him in their St. Petersburg office. FPC was informed that Region II would abide by their wishes.

13. Containment Leak Rate Test

FPC was asked how they intended to perform their containment leak rate test. FPC (Bennett) stated that it was their intention to subcontract out the leak rate testing to some organization that had the instruments and experience to conduct the test. He stated that CB&I would have a representative on-site during the test period to represent their company and that the Gilbert Associates, Inc. (GAI), test engineer experience in containment leak rate tests would represent FPC. The Region II inspector informed FPC that historically dew cells and thermocouples failed during containment overpressure tests and leak rate tests and that they should give some consideration into having spare instruments or instruments that were insensitive to pressure for testing.

14. Qualification of Construction Inspectors

FPC was asked if they intended to certify their construction inspectors in accordance with N45 3.6 when it became an official document. FPC (Bennett) stated that he was a member of this particular committee and that it was his intention to qualify and certify all their inspectors to this document when it became a final document. He stated that it had been resubmitted to the full committee for their approval because the members of the subcommittee thought too many teeth had been removed by the full committee.

15. Movement of Major NSSS Equipment

FPC was informed that the inspector wished to follow the handling and setting of their major NSSS equipment and would appreciate being informed of its scheduled delivery date at the site and the date it would move from the storage area to the reactor building for erection. FPC (Bennett) stated that this information, when firm, would be available.

16. Seismographic Requirements for Electrical Equipment

FPC was asked by the inspector if they required certifications for test of their electrical equipment for seismographic requirements. FPC (Kleinman) stated that it was a requirement of the purchase orders for electrical equipment to meet the seismographic requirements.

17. Cable Pulling Verification

FPC was asked how they would verify their cable pulling. FPC (Bennett) stated that they used a computer program on their fossil-fired plants Units 1 and 2 and found that it was satisfactory. The Region II inspector informed him that on another site a computer program was used but had failed because there was insufficient followup in the field to determine its accuracy. The Region II inspector asked if there would be some type of statistical analysis made of the computer program after the cable pulling was initiated to determine its accuracy. FPC (Bennett) said no program was planned and that they were satisfied with the present computer program as they had not encountered difficulty with it at fossil-fired plants.

DETAILSA. Persons ContactedFlorida Power Corporation (FPC)

H. L. Bennett - Manager, Power Construction
D. W. Pedrick - Engineer, Quality Program
E. E. Froats - Quality Engineer
M. T. Kleinman - Manager, Quality Programs Department

Chicago Bridge and Iron Company (CB&I)

J. R. Herman - QA Engineer
J. Leyman - QA Audit Engineer, Birmingham

Livsey Company (LC)

W. Kalb - Mechanical Manager

B. Construction Status

There were 730 employees onsite during the week of April 26-30, 1971. There were 207 carpenters, 113 ironworkers, 139 laborers, 51 operating engineers, 4 painters, and 4 cement finishers employed by J. A. Jones Construction Company (JAJ); 26 electricians employed by E. C. Ernst Company (ECE); 45 pipefitters and 30 boilermakers employed by LC; and 28 boilermakers employed by CB&I. CB&I has erected the containment building liner to the eighth course of

plate and has completed the repair of the toriconical in accordance with their special repair procedure. The placement of reinforcing steel concrete for the auxiliary building, turbine building, and reactor building floors, walls, and columns continues. Forming of the turbine room walls has started. Approximately 750 cubic yards of concrete were poured the week of April 26-30, 1971, and a total of 5000 cubic yards for the month of April.

FPC (Bennett) estimates Unit 3 to be approximately 25% complete, based on a composite evaluation.

C. Administrational and Organizational Changes

FPC

A quality programs department has been formed by the FPC and Kleinman has been employed as Manager. Froats and Pedrick now report to Kleinman. Kleinman is located in the St. Petersburg corporate office. This completes the requirements of the FSAR Figure 1-28. Kleinman pointed out that a correction is to be made to this chart because someone failed to remove the line showing the Quality Engineer, Froats, reporting to the Manager of Construction.

Kleinman was employed for the past eight years by United Engineers and Constructions, Inc., and his most recent experience was Mechanical Superintendent on Three Mile Island and Startup Engineer on Indian Point Unit 2.

Rodgers has been promoted to Assistant Vice President from Director of Power Engineering and Construction; however, he retains the same duties.

Pedrick presented a paper "Proposal for a Quality Assurance Committee within the Production Section" in New Orleans on April 30, 1971, to the Southeastern Electrical Exchange, Engineering & Operation Division. He presented the proposal to the Executive Committee informally on April 28, 1971, and the program was adopted and given full committee status. Also, Pedrick was selected as Chairman of the Quality Assurance Committee, Southeastern Electrical Exchange, under the production section of Engineering and Operation Division. The next meeting of this Quality Assurance Committee is scheduled for the month of July at Crystal River.

W. Zimmerman has been transferred to the Anticot Plant as Manager, and he has been replaced as Construction Superintendent by C. Jackson.

J. Hobbs is now Construction Superintendent of both electrical and mechanical systems. G. Pachos is Construction Supervisor of the structural and architectural branch.

JAJ

W. H. Recker has been employed as a Receiving Inspector assigned to the receiving department.

B&W

L. Watson, Field Superintendent, has reported onsite and supervised the unloading of two steam generators. Tentatively, he has been assigned to the project as the Field Superintendent; however, this may be subject to change.

PTL

R. L. Mix, who is a NDT specialist, Level II, for magnetic particle liquid penetrant, and Level I for radiography, has reported onsite.

CB&I

G. O. Simmonds, certified to Level II in radiography, has reported onsite.

D. Containment - Attachment C

1. Review of QC System (5405.04.d.2&f,3)

The CB&I boilermakers have refused to work on the containment liner with ironworkers placing reinforcing steel and laborers placing concrete beneath them. They are now working the second shift from 3:30 p.m. to 11:30 p.m. FPC project manager (Bennett) is now attempting to work out an agreement with CB&I where FPC provides plywood covering over the area where ironworkers and laborers are working so that CB&I can continue erection of the containment liner during the daylight hours.

The structurals and supports items, such as the equipment hatch, personnel airlock, penetrations, and polar crane supports, are received fabricated from either CB&I's Greenville or Birmingham shops, are identified by piece mark, and are stored in the assembly yard. The personnel airlock has been covered with tarpaulins and the other items stored on dunnage. There are no special procedures for installing these components as all information concerning their erection is on the erection drawings.

Presently, CB&I will not be involved in the pneumatic test of the completed reactor building as their responsibility is limited to the erection of the liner. However, it is understood that a representative of CB&I will be present during the containment test. The containment test will be performed under the supervision of FPC's Test Group. FPC does not believe that their Test Group has sufficient manpower to perform the test and it is anticipated that a contract will be let to a company who has sufficient trained personnel, experience, and instrumentation to perform the containment leak rate test. A preliminary system description of reactor building leak rate system test has been written by GAI.

2. Followup Record Review (5405.05a.1-3)

An audit was made of the records by the Region II inspector. Material certifications for the physical, chemical, and non-destructive testing of materials are available at the Greenville and Birmingham shops of CB&I. Upon completion of the contract, all documentation will be forwarded to their Memphis plant where they will be microfilmed and filed as is standard CB&I practice on nuclear structures. After microfilming the documentation, as required by FPC contract, it will be sent to FPC at the site. There are no receipt records as such at the site. A shop release for shipment checklist accompanies each shipment to the site and the CB&I quality control engineer inspects the material upon receipt for shipping damage and releases it for erection if no damage is observed or notes his findings on the shop release. If there is damage to a piece of fabrication, it must be reviewed and evaluated by the engineering department and repair recommendations made by them. If a repair of the damage is required, a special repair procedure is written. A review was made of the erection measurements of the containment up to the seventh shell course. The GAI Specification SP5566 for reactor building liner, penetrations, and personnel access lock states the erection tolerances in paragraph 4.09. An out-of-roundness of plus or minus three inches, a deviation from round in ten feet of 1-1/2 inches except at seams, and an overall deviation from plumb of plus or minus three inches is permitted. All measurements taken at rings 1, 3, 5, and 7, as required by the specification, were within tolerance. A discussion was held with CB&I (Leyman and Herman) regarding the accuracy of the prism used on the theodolite for taking the measurements. Herman stated that he did not know the accuracy of his prism as he had assumed it was 90°. Leyman and Herman stated they would check the theodolite and prism accuracy by taking a reading from the center benchmark

vertically to a tape stretched across the diameter and rotating the theodolite 180 degrees. It was discovered that the prism deviation was 1/8 inch in 90 feet from true vertical. Herman and Leyman stated that they would so note the effect of the prism accuracy on their measurements on the record sheets. A discussion was held with FPC (Pedrick) and CB&I (Leyman and Herman) and they were in agreement that the deviation from round in ten feet of 1-1/2 inches was not in addition to the permitted out-of-roundness of plus or minus three inches.

3. Followup Observation of Work (5405.06a.2&3)

The Region II inspector inspected the containment liner and the repair of the toriconicle section. The repair area in the toriconical section was satisfactory and met the requirements of the GAI specification. CB&I had welded temporary angle iron bracing where there were flat spots at penetrations in the containment. Due to the poor fitup on some of these penetrations it was necessary to use their wide gap welding procedure. The CB&I quality control engineer had not documented on the rollout drawing that this procedure had been used, but stated that it would be done. The area that had been spot radiographed was recorded on the rollout drawings.

CB&I had joined four dome plates together to be used as the position form for subsequent prefabricated section. The plates had been propped into place with dunnage, which is the identical method used for the toriconical fabrication which resulted in deformation. (See Exhibit A, Photo Nos. 1 and 2.) When the Region II inspector was observed taking the photographs by the CB&I corporate QA engineer he (Leyman) stated that the fabrication was being stopped and a cradle would be fabricated from angle iron and dimensional checked before fabrication continued.

In a discussion with FPC construction manager (Bennett), he admitted that there were problems with CB&I and that the erection superintendent insisted on erecting the liner plates without giving due consideration to the tolerances and erection sequence. The containment liner meets the specification and the reference code sections, but it is being accomplished in an awkward and time-consuming manner.

CB&I has discontinued the use of their horizontal submerged arc welding due to problems during the starting and stopping of the welding process. All welding is now being performed by the manual metal arc method.

E. Main Coolant Loop - Attachment F

The main coolant loop, fabricated and supplied by B&W, will be erected by B&W. No material has been received onsite, and there are only four hangers for the entire system which will be furnished by B&W.

F. Class I Piping, Attachment G (5005.04.b.1-3, f.3)

All Class I piping above two inches is shop fabricated by MWK and shipped to the site. Material, chemical, physical, and NDT certifications are received by JAJ after receipt of the material. All material is held in quarantine until the documentation is received onsite. The GAI QC inspector audits all shipments 100% at MWK prior to releasing it for shipment. At the site, receiving inspection performs a spot check of the certifications.

All hangers, bellows, and snubbers are purchased by FPC from Power Piping Company (PPC), Pittsburgh, Pennsylvania, on their purchase order PR 3-1403 dated April 10, 1970. The purchase order requires PPC to furnish a quality control of purchased parts, fabrication processes, changes to documentation, material identification, disposal of nonconforming items, and record of inspection and testing. It is required that all welding be done with low hydrogen electrodes stored at 150° F after removal from sealed containers and baked at 400° F for four hours before using. The purchase order references the GAI Specification RO-2943, "Requirements Outlined Piping Supports," as the governing document. This specification covers the furnishing, delivering to the jobsite of all piping supports, pipe guides, pipe snubbers, anchors, restraints, vibration eliminator assemblies, loose hanger material, supplementary structural steel and seismigraphic restraints. This specification requires that shop drawings include all essential information pertaining to location, parts list, and description of material of each piece. All hangers are to be designed for a seismographic stress resulting from the response to an acceleration of 0.10 g horizontal and 0.067 g vertical.

PPC is required to submit welding procedures for approval. All procedures are for the manufacturing of pipe supports and are to be in accordance with SP58, SP69, B31.1.0-1967, ASME Code, PFI (Pipe Fabricators Institute), and the AWS (American Welding Society). Locked nuts are required on all threaded supports. The pipe supports are to be designed in accordance with B31.1.0-1967.

All material for the hangers and attachments is to be in accordance with B31.1.0-1967, Table 126.1, and Paragraph 121.1.2b, except for attachments for N-1 piping which must be material listed in Table 1-724 of USAS B31.7. All bolting for nuclear piping supports must be of material listed in Part 6 of the Table 1-724 of B31.7.

G. Steam Generators, Attachment L (4905.04.b.2, b.6, b.7, 4905.05.a.2)

The two steam generators manufactured by B&W, Barberton, Ohio, had been received onsite. The two steam generators were shipped by rail on B&W's own special cars for handling heavy components. Steam Generator No. 1 was received at Crystal River on May 6, 1971, and inspected on the same date by B&W's site inspector, (Watson). Steam Generator No. 2 was received on May 7, 1971, and inspected on May 10, 1971, by B&W (Watson). The documentation of the receiving inspection is recorded on B&W inspection receiving form and states that the manway covers, handhold covers, feed and steam connection covers, humidity indicators, holddown cable, blocking and connections between cars were all in good condition.

Steam Generator No. 1 had been unloaded by B&W and was stored under a temporary covered structure. Steam Generator No. 2 had been unloaded from the B&W special car BAWX-102 and 103 using their jacking frame. (See Exhibit A, Photo Nos. 3 and 4.) B&W had used special precautions in unloading the steam generator to be assured that the cables did not bite into the steam generator shell.

The documentation of the steam generator will be sent to the B&W site quality control and all data will eventually be at the site and FPC will audit the data when received. Eventually, all documentation will be turned over to FPC onsite, although this is not a requirement of the contract. There was no nonconforming components; therefore, no quarantine was necessary.

H. Instrumentation and Electrical, Attachments H and I

FPC is making a major effort to revise all electrical and instrumentation specifications to fit the format of the quality control and quality assurance manuals. Some of the quality assurance/quality control work procedures are being rewritten to fit the quality assurance manual.

I. MWK Shop Fabrication, Attachment G (4805.04.2.1, 3, and 5)

The piping fabrication was purchased on FPC document PR3-1219, which specifies that the piping shall be fabricated in accordance with B31.7. Shop detail drawings are furnished to FPC, which have the heat number of the material for the pipe and fittings recorded. Adjacent to the heat number is an index number which is a MWK identification of the supplier. FPC has a list of the suppliers and their index number where it is possible to identify the mill certifications. The mill certifications are checked at MWK by the GAI inspector and are audited at the site by FPC designated inspector. The Region II inspector visited the storage area and identified certain pieces of fabrication that appeared not to meet the requirements of B31.7, namely fabrication spool piece DH-31 exhibited poor welding and excessive reinforcement, spool piece FS-68 exhibited overgrinding of the welding, and SF-4 was pointed out to FPC quality engineer as a weld that was ground properly. The DH designates the decay heat removal system piping and SF designates the spent fuel system. The excessive weld reinforcement did not meet the requirements of B31.7 Table 1-727.4.2(b). Most welds were not ground as required by Appendix B-1, Paragraph B-1-120.1 of B31.7. Most of the welds did not merge smoothly into the base metal as required by this code. The surface of the as-welded condition would be extremely difficult to dye penetrant inspect meaningfully. An inspection report on fabrication spool piece DH-31 stated that it had been inspected and released by F. Bullock, who is rated as a Level II in radiography per SNT-TC-1A. He stated that he had seen the radiographs.

Attachment:
Exhibit A (CO:HQ cy only)

POOR ORIGINAL

Photo 1



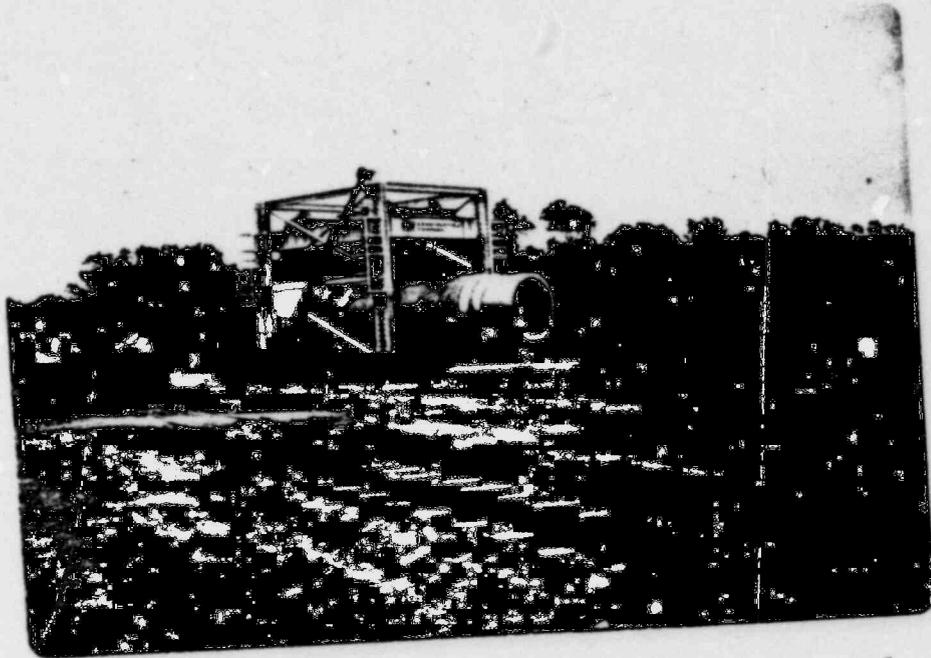
The joining together of plates for dome section prior to being lifted into place. Note the use of dunnage for holding plate in position.

Photo 2



POOR ORIGINAL

Photo 3



Unloading of steam generator by B&W Construction Co. using jacking frame. Note B&W's special rail-road cars & protective covering in Photo 3 and special protection to keep wire rope slings from biting into steam generator in Photo 4.

Photo 4

