

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

REGION III

Report No. 50-440/79-06; 50-441/79-06

Docket No. 50-440; 50-441

License No. CPPR-148; CPPR-149

Licensee: Cleveland Electric Illuminating
Company
P. O. Box 5000
Cleveland, OH 44101

Facility Name: Perry Nuclear Power Plant, Units 1 and 2

Inspection At: Perry Site, Perry, Ohio

Inspection Conducted: August 8-10, 1979

Inspector: *K. D. Ward*
K. D. Ward

8/27/79

Approved By: *D. H. Danielson*
D. H. Danielson, Chief
Engineering Support Section 2

8/27/79

Inspection Summary

Inspection on August 8-10, 1979 (Report No. 50-440/79-06; 50-441/79-06)

Areas Inspected: Newport News Industrial Corporation and Pullman Power Products nondestructive examination (NDE) procedures, personnel certifications, equipment and review of radiographs. The inspection involved a total of 16 onsite inspector-hours by one NRC inspector.

Results: Of the two areas inspected, no apparent items of noncompliance were identified in one area; one apparent item of noncompliance was identified in one area (infraction - failure to qualify liquid penetrant examination procedures - Paragraph 2.e.(6)).

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DETAILS

Persons Contacted

Cleveland Electric Illuminating Company (CEI)

*M. Edelman, Manager Nuclear QA Department
*G. Groscup, Manager NED
*W. Kacer, General Supervisor Engineer
*P. Martin, General Supervisor Program Quality
H. Walls, Project Inspector

Gilbert Associates Incorporated (GAI)

*T. Arney, Program Manager
*J. Connelly, Lead Civil QE
*R. Crofton, Lead Piping QE
J. Mehaffey, Lead Mechanical QE
W. Pardee, Quality Engineer

Kaiser Engineers Incorporated (KEI)

*D. Fitzpatrick, Construction Manager
*P. Gibson, Construction QC Supervisor
*D. Cooper, CQSS - Supervisor

Pullman Power Products (PPP)

J. Miller, QA Manager
R. Walter, Resident Manager
J. Steele, NDE Supervisor

Newport News Industrial Corporation (NNIC)

T. Bond, QA/QC Operations Manager
T. Payne, NDE Manager

*Denotes those present at the exit interview.

The inspector also contacted and interviewed other licensee and contractor employees.

Functional or Program Areas Inspected

1. Review of Pullman Power Products NDE Activities

- a. PPP was contracted to perform radiography (RT) and liquid penetrant examinations (PT) on Class II pipe welds in accordance with ASME Section III, 1974 Edition, Winter 1975 Addenda.

- b. GAI, PPP, and the Authorized Inspector (AI) have reviewed 100% of the Class II pipe welds to date.
- c. The inspector reviewed audits performed by GAI on PPP and audits of PPP on PPP.
- d. The PPP QA Manual No. 10, May 16, 1978, was reviewed.
- e. Preservice inspection (PSI) may start the Summer of 1980.
- f. The inspector reviewed the following procedures and NDE personnel certifications in accordance with SNT-TC-1A, 1975 Edition.
 - Nondestructive Examination Personnel - Control and Administration of Training, Examination, Qualification and Certification, No. 11-2, November 12, 1976.
 - Control and Administration of Examination, Qualification and Certification of Nondestructive Examination of Level III Personnel, No. 11-3, April 8, 1978.
 - Inspection and Test Personnel Qualification and Certification, No. 11-4, January 12, 1979.

<u>Name</u>	<u>Methods</u>	<u>Level</u>
J. Steele	VT-RT-UT-PT-MT	III
J. Miller	VT-RT-UT-PT-MT-LT	III
D. Denlinger	PT	II
I. Havard	PT-VT	II
J. Wilcox	LT-PT-VT	II
J. Wilcox	RT	I

- g. The inspector made a tour of the PPP facilities escorted by the GAI Lead Civil QC and the PPP Manager. The following are the inspector's findings.

(1) Radiograph Examination (RT)

- The NRC License expires May 31, 1984, No. 37-08042-01 and covers IR 192 up to 100 curies and CO 60 up to 50 curies.
- PPP does not have a CO 60 source or a X-ray machine on site.
- The lab has one IR 192 source stored in a locked, brick, lead lined box in a storage area.

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- A hand film processing tank and an automatic processor are used to process film.
- Survey meters are calibrated every three months.
- Pocket dosimeters are read and recorded every day when performing RT.
- Film badges are processed and recorded every week.
- Acceptable color rope and signs were available for securing areas when RT is being performed.
- Decay curves of the IR 192 source are posted for the NDE personnel to use.
- The lab uses Kodak industrial radiographic film only, Types I and II.
- No outdated film was observed.
- Film cassettes were in acceptable condition.
- Lead screens are checked and replaced when needed.
- Fluorescent screens are not used nor are there any onsite.
- The films are stored in the dark room prior to exposure.
- PPP uses lead numbers for the number belt and a flasher for the identification.
- The lab uses a Macbeth densitometer.
- PPP uses a film density step wedge traceable to the Bureau of Standards for the calibration of the densitometer.
- ASTM penetrameters are the only penetrameters used onsite. They were in acceptable condition and had certifications.
- PPP had various thickness of shims to be used under the penetrameters.
- The lab uses a high intensity viewer for interpreting radiographs.

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- The inspector also reviewed Radiographic Inspection of Weldments, Procedure No. IX-RT-5, February 12, 1979.
- PPP has radiographed only the following nine welds to date.

<u>ISO No.</u>	<u>Weld No.</u>	<u>Thickness</u>	<u>Diameter</u>	<u>Date RT</u>
1-E21-6	06	.500"	14"	5/1/79
1-E22-7	13	.625"	16"	5/14/79
1-P11-8	03	.500"	18"	4/24/79
1-P11-8	04	.500"	18"	4/5/79
1-P11-8	05	.500"	18"	4/5/79
1-P11-8	09	.500"	16"	4/5/79
1-P11-8	11	.500"	16"	2/16/79
1-P11-8	12	.500"	16"	3/5/79
1-P11-8	13	.375"	16"	5/14/79

The above systems are:

E21 - Low Pressure Core Spray (LPCS).
 E22 - High Pressure Core Spray (HPCS).
 P11 - Condensate Transfer and Storage.

In reviewing the above radiographs, the inspector found that the welds had heavy root reinforcements. In most cases the result of this heavy root reinforcement in the weldment was because of an offset or mismatch of the pipes and fittings when welded together. The above welds are acceptable, but if a slight more reinforcement was induced the welds could be unacceptable and be judged as to have an, "elongated indication," which is unacceptable in accordance with the Code. An excessive root reinforcement results in a rolled edge of the root bead possibly masking a real defect, an "abrupt change," is also unacceptable in accordance with the Code. Welds with excessive root reinforcement have been cut out at nuclear power plants trying to prove the acceptability of the weld to the NRC, AI and Licensees. Metallographic examinations have revealed minor imperfections associated with the rolled edge of the root bead where it joined unfused base material and had the appearance of a very small tear/crack. The depth of the imperfections ranged up to 0.010 inches. Welders can be trained or upgraded to put in a flat root bead and eliminate potential problems. The inspector discussed this matter in detail at the exit.

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(2) Liquid Penetrant Examination (PT)

- The lab uses Magnaflux and Turco materials and receive certifications.
- Reviewed procedures, Liquid Penetrant Examination IX-PT-1, February 12, 1979, and NDE Procedure Qualification Record Liquid Penetrant No. PQP-PT-1, March 1, 1976.

(3) Magnetic Particle (MT), Ultrasonic (UT), Eddy Current (ET) Leak Testing (LT)

- To date PPP does not perform MT, UT, ET and LT onsite.

The inspector reviewed the following procedures:

Magnetic Particle Examination Dry Power Continuous Prod Method, IX-MT-I, March 29, 1970.

Ultrasonic Examination of Weldments, IX-UT-1, August 14, 1975.

Ultrasonic Examination of Seamless and Welded Tubular Materials IX-UT-2, August 20, 1975.

Ultrasonic Thickness Measurement, IX-UT-3, September 1, 1976.

No items of noncompliance or deviations were identified.

2. Review of Newport News Industrial Corporation NDE Activities

- a. NNIC was contracted to perform radiography (RT) on containment welds in accordance with ASME Section III, Subsection NE, 1974 Edition, with no Addenda.
- b. The inspector reviewed audits performed by GAI on NNIC and audits performed by NNIC on NNIC.
- c. Reviewed QA Manual Rev. C, Copy 28.
- d. The inspector reviewed the following procedures and NDE personnel certifications in accordance with SNT-TC-1A, 1968 Edition.
 - Qualification of Personnel, Rev. A, September 15, 1977 (ANSI N45.2.6).
 - Qualification of Nondestructive Examination Personnel, Rev. E, August 30, 1977 (SNT-TC-1A, 1968 Edition).

<u>Name</u>	<u>Methods</u>	<u>Level</u>
T. Payne	RT-MT-PT-UT-LT	III
D. Vigne	RT-UT-MT-PT	III
J. Rodriguez	MT-PT-RT	II
S. Land	MT-PT-RT	II
J. Goodenough	UT	II
L. Oberacker	PT	II
"	RT	I
T. Avelone	RT-MT	II
K. Collins	PT	II
J. Gester	UT	II

J. Gester does not have previous experience documented in accordance with NNIC written procedures above or in accordance with SNT-TC-1A. The licensee has requested Gester's resume which will be included as part of his certification. Until Gester's previous experience is reviewed, this is an unresolved item. (440/79-06-01; 441/79-06-01)

- e. The inspector made a tour of the NNIC facilities escorted by the GAI Quality Engineer and the NNIC Manager. The following are the inspector's findings.

(1) Radiography Examinations (RT)

- The NRC license expires March 31, 1981, No. 34-16805-01 and covers IR 192 up to 100 curies and CO 60 up to 30 curies.
- NNIC does not have a CO 60 source or a X-ray machine onsite.
- The lab has one IR 192 source, stored in a locked 2" thick steel, 1200 lb. vault, located in a locked fenced in room in a warehouse.
- A hand film processing tank or an automatic processor is used to process film.
- Survey meters are calibrated every three months.
- Pocket dosimeters are used and recorded every day when performing RT.
- Film badges are processed and recorded every month.
- Acceptable color rope and signs were available for securing areas when RT is being performed.

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- Decay curves of the IR 192 source are posted for the NDE personnel to use.
- The lab uses Kodak industrial radiographic film only, Types I and II.
- No outdated film was observed.
- Film cassettes were in acceptable condition.
- Lead screens are checked and replaced when needed.
- Fluorescent screens are not used nor are there any onsite.
- The films are stored in the dark room prior to exposure.
- The exposed film is stored in the viewing room.
- NNIC uses lead numbers or a flasher for the identification.
- The lab used a X-Ray - Model 301 densitometer.
- ASTM and ASME penetrameters are used onsite. They were in acceptable condition.
- The lab uses a high intensity viewer for interpreting radiographs.
- NNIC had various thickness of shims to be used under the penetrameters.
- The inspector also reviewed procedure, Radiograph Inspection, Rev. C, 465-NC-N002, November 18, 1976 (ASME Section III, NE, 1974 Edition with no Addenda).
- The following radiographs were reviewed.

<u>Weld No.</u>	<u>Thickness</u>	<u>Date</u>
1-77	1.5"	3/16/79
1-178	1.5"	7/29/79
WN2-33	1.5"	7/12/79
WN2-6	1.5"	2/5/79
WN2-125	1.5"	7/10/79
WN2-102	1.5"	3/26/79
1-54	1.5"	8/6/79
WN1-18	1.5"	6/26/79
WN1-40	1.5"	7/27/79
1-25	1.5"	5/30/79
Penetration 1-45	1.5"	6/4/79
NN1-42	1.5"	6/11/79

- The lab has a film density step wedge that has been used every work day for approximately two and one half years. The film density step wedge is traceable to the Bureau of Standards for the calibration of the densitometer. The step wedge was last calibrated two and one half years ago. The lab has a procedure that was approved for use May 1979. The procedure states in part, items which can be calibrated including reference standards, will be calibrated every 12 months. The inspector was informed that there will be an annual calibration of the step wedge in accordance with the procedure, No. 701-NC-5001, Rev. F, April 23, 1979. Until an NRC inspector has varified that the step wedge has been calibrated, this is an unresolved item. (440/79-06-02 and 441/79-06-02)

(2) Magnetic Particle Examination (MT)

- The lab has eleven field prod units and eight yoke units.
- NNIC uses finely divided, red, gray and black mangetic particles.
- The inspector reviewed procedure, Magnetic Particle Inspection, 465-NC-N004, Rev. D, April 10, 1979, yoke, ASME Section III, 1974 Edition, with 1975 Addenda.
- Also reviewed was Magnetic Particle Inspection Procedure, 948-N-N003, Rev. D, April 11, 1979, Prod and Yoke, AWS D1.1-75.

(3) Ultrasonic (UT)

- The lab has four ultrasonic instruments and variou calibration blocks.
- The couplant onsite is cellulose gum and exosen.
- NNIC has 2 and 2.25 MHZ transducers, various sizes, straight and angles.
- The inspector reviewed Liquid Penetrant Inspection Procedure, 948-N-N005, Rev. E, April 12, 1979.

(4) Leak Testing (LT)

- The lab performs vacuum box and pressure testing.

- Reviewed procedure, Instruction for Leak Testing of Welds, Rev. B, May 13, 1977.

(5) Visual (VT)

- The inspector reviewed the following procedures.

Visual Inspection of Welds, 701-N-N003, Rev. A, March 8, 1978, ASME Section III, 1974 Edition with no addenda.

Visual Inspection, 948-N-N002, Rev. B, May 9, 1977 AWS D1.1-75.

(6) Liquid Penetrant (PT)

- The lab uses Magnaflux materials with certifications.
- The inspector reviewed the following procedures.

Liquid Penetrant Procedure 948-4-N004, Rev. C, AWS D1.1 75.

Liquid Penetrant Procedure 465-NC-N003, Rev. 3, August 15, 1977, ASME Section V, 1974 Edition with no Addenda.

In reviewing the above two liquid penetrant procedures, the inspector found that the procedures are not qualified down to a temperature of 40°F as required by ASME Section V and AWS. The Manager of the lab did not know if the procedure was qualified down to 40°F. This is identified as an item of noncompliance in Appendix A. (440/79-06-03; 441/79-06-03)

3. General

The inspector reviewed several procedures and observed that various codes are specified or referenced without the applicable year and addenda. The personnel working to the procedures are not sure of the code or addenda they are working too, but they are knowledgeable of procedure requirements. The above was discussed at the exit. The Perry PSAR, Volume 5, Paragraph 3.8.2.7 Materials Specifications, Quality Control and Special Construction Techniques for Steel Containment Vessel, state, "1971 ASME Codes with Summer 1972 Addenda and AWS D1.1-72."

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Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance or deviations. Unresolved items disclosed during the inspection are discussed in Paragraph 2.d and 2.e.(1).

Exit Interview

The inspector met with site representatives at the conclusion of the inspection and summarized the scope and findings of the inspection. The licensee acknowledged the information.

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