

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-220/88-09
50-410/88-09

Docket Nos. 50-220
50-410

License Nos. DPR-63
NPF-54

Licensee: Niagara Mohawk Power Corporation
301 Plainfield Road
Syracuse, New York 13212

Facility Name: Nine Mile Point Nuclear Station, Units 1 & 2

Inspection At: Scriba, New York

Inspection Conducted: March 7-11, 1988 and April 4-8, 1988

| | | |
|--------------|--|---------------------|
| Inspectors: | <u>Robert A. McBrearty</u> | <u>May 10, 1988</u> |
| | R. A. McBrearty, Reactor Engineer | date |
| for | <u>Robert A. McBrearty</u> | <u>May 19, 1988</u> |
| | H. W. Kerch, Senior Reactor Engineer | date |
| for | <u>Robert A. McBrearty</u> | <u>May 19, 1988</u> |
| | R. H. Harris, NDE Technician | date |
| for | <u>Robert A. McBrearty</u> | <u>May 19, 1988</u> |
| | M. A. Oliveri, NDE Technician | date |
| Approved by: | <u>J. R. Strosnider</u> | <u>5/19/88</u> |
| for | J. R. Strosnider, Chief, Materials & Processes Section, Engineering Branch, DRS | date |

Inspection Summary: Inspection on March 7-11, 1988 and April 4-8, 1988
(Report No. 50-220/88-09, 50-410/88-09)

Unit 1

Areas Inspected:

A routine, unannounced inspection was conducted of the inservice inspection program related to the 1st ten-year inspection interval and of augmented examinations conducted by the licensee. This included ISI related procedures, the adequacy of DCA engineering dispositions related to the 1986 refueling outage, and the licensee's ASME XI modification, repair and replacement program. Other areas which were inspected include the licensee's erosion-corrosion program for portions of the reactor building closed loop cooling piping and torus and drywell wall thickness measurements.

Results: Independent measurements performed by the inspectors indicated that the torus wall has corroded to a thickness at or below the minimum specified thickness in some areas. Licensee trending of the torus wall thickness was deficient and a concern exists regarding the acceptability of the torus for return to plant operation. Regarding the ISI program, two areas requiring resolution exist. First, a weakness in the review and closeout of ISI findings was identified in that DCAs did not clearly identify the basis for acceptability of components. Second, the licensee has identified that all required first interval Section XI examinations have not been completed and further licensee review of the program is in progress. The above three issues are significant unresolved items, and a meeting was held on April 26 in the Region I office to discuss these issues. The licensee has been requested to provide to NRC prior to returning Nine Mile Point Unit 1 to operation: (1) justification for return to operation, considering the condition of the torus; and, (2) confirmation that their review of the closeout of ISI findings and the Section XI examinations is complete and that these issues have been effectively resolved.

One violation relating to inadequate contractor procedures for identifying grid patterns for thickness measurements was identified, which indicates a weakness in the licensee's review of contractor procedures and inspection results.

The inspectors concluded that the licensee has an adequate program for the repair and replacement of ASME Section XI items.

Unit 2

Areas Inspected: An unannounced inspection was conducted of an allegation which was received by the NRC which alleged that welds were deliberately omitted from the facility ISI Program because the welds were difficult to examine in accordance with Section XI requirements.

Results: Based on the areas inspected the inspector concluded that the welds were included in the facility ISI Program, and that a request was submitted to the NRC for relief from performing the code required volumetric examination from one side of the weld.

Details

1.0 Persons Contacted

Niagara Mohawk Power Corporation

- *** S. Agarwal, Lead Licensing Engineer
- *** C. Beckham, Manager, Operations Quality Assurance
- *** W. Connolly, quality Assurance Program Manager
- *** K. Dahlberg, Site Maintenance Superintendent
- D. Dolney, ISI Supervisor - Unit 2
- ** W. Drews, Technical Superintendent
- * F. Egan, Licensing Engineer - Unit 1
- A. Kovak, QIP Program Manager
- ** F. Lee, Lead Mechanical Engineer
- L. Ludwig, ISI Specialist
- F. Newman, Quality Control Supervisor
- ** J. Perry, Vice President - Quality Assurance
- *** N. Rademacher, Quality Assurance Program Manager
- *** T. Roman, Station Superintendent - Unit 1
- *** R. Shelton, ISI Supervisor - Unit 1
- F. Slye, Lead Quality Control Engineer
- * A. Smith, Lead Mechanical Engineer
- K. Thomas, Licensing Engineer
- *** J. Willis, General Superintendent
- A. Winegard, Quality Assurance Coordinator
- L. Wolf, Site Licensing Engineer
- K. Zellitsch, Training Superintendent

Gilbert Commonwealth

- K. Green, ISI Specialist

New York State Public Service Commission

- ** P. Eddy, Site Representative

Nuclear Energy Service (NES)

- R. Smith, Site Supervisor - Unit 2

U.S. Nuclear Regulatory Commission

- *** W. Cook, Senior Resident Inspector
- *** W. Schmidt, Resident Inspector

- * Denotes those present at the March 11, 1988 exit meeting.
- ** Denotes those present at the April 8, 1988 exit meeting.
- *** Denotes those present at both exit meetings.

2.0 Scope of Inspection

Subsequent to the end of the 1986 refueling outage which was the last scheduled outage in the first ten-year inspection interval, the licensee identified that various inspections were not completed during the interval as required by the ASME Code, Section XI. Additionally, the NRC identified a number of Deficiency Corrective Action (DCA) reports which were not properly dispositioned and which remained open at the end of the outage in 1986.

During the period from March 7 to 11, 1986, the above mentioned areas were inspected in addition to an allegation regarding recirculation system welds at Unit 2. During the period from April 4-8, 1988 an inspection of the above areas was conducted and, in addition, the following areas were inspected:

- Visual examination personnel qualification/certification records
- Inservice inspection procedures
- Plant erosion - corrosion program
- Closed loop cooling piping erosion monitoring
- Torus and drywell shell thickness measurements
- Licensee plans to inspect the RPV beltline region welds
- Licensee plans to adopt Code Case N-409

3.0 Review of Previous Inspection Findings-Unit 1

(Open) Unresolved Item (50-220/87-21-06): Acceptability of the licensee's Engineering Staff disposition of Deficiency Corrective Action Notices (DCA). When Unit 1 was restarted after the refueling outage in June 1986 there was a large number of outstanding inservice inspection (ISI) program DCAs on flaws which required engineering review. These DCAs were not dispositioned until September 1987. The inspectors reviewed the closeout of a sample of DCAs to assess the acceptability of the licensee's dispositions.

The inspector found that, prior to this inspection, the licensee's Operations QA Department reviewed all ISI generated DCAs to assess the engineering evaluation and the corrective actions.

The inspectors selected for review 15 DCAs including some with which the licensee's Operations QA Department identified problems and others with which no problems were identified. DCAs 8, 10, 11, 12, 20, 32, 35, 39, 41, 120, 195, 196, 197, 200, 201 were reviewed by the inspectors.

DCAs 195, 196 and 197 were issued due to rejectable liquid penetrant indications in core spray component support 40-H-16, core spray component support 40-H-52 and core spray weld 87-SW-1, respectively. These components were accepted by the licensee based on licensee letter No. 16863 which permitted a visual inspection to be done in lieu of the required surface examination, and on a NES Letter dated 6/24/86 whose subject is "Liquid Penetrant Rejects." The NES letter states that the visual examiner was unable to verify that defects were not present in the components. Operations QA identified this disposition as a problem prior to the NRC inspection.

DCA No. 120 was issued due to rejectable penetrant indications in core spray weld 40-SW-39E. The licensee's engineering justification for continued operation with the rejectable condition was based on the premise that because the surface preparation was inadequate for the examination there is no clear indication that an unacceptable flaw exists. Weld 40-SW-39E was included in NRC Violation 50-220/87-21-03, which addressed operation of the plant at power while both Emergency Cooling systems and redundant trains of Core Spray should not have been considered operable per TS 3.2.6.a, from June 21, 1986 until September 8, 1987. The inspectors verified that acceptable corrective action was taken during the ongoing refueling outage - the surface properly prepared and a re-examination by the liquid penetrant method revealed no rejectable indications.

DCA No. 41 was issued due to indications reported as a result of a visual examination of valve No. 40-13 in the Core Spray system. The inspectors' discussions with licensee personnel regarding this item indicates that no rejectable condition exists, but the documentation package does not clearly show that the valve is acceptable. The licensee stated that a summary will be added to the package to clearly identify that the valve is acceptable.

The dispositions provided in 1986 by Engineering called for the appropriate corrective action for the various DCAs. The actions were not carried out during the 1986 refueling outage which is part of the reason for the Civil Penalty which was recently issued to the licensee. The inspectors determined that the proper corrective actions were taken during the current (1988) outage, that the items are acceptable, but that the DCA packages do not, in all cases, indicate this.

Based on the inspectors' review of DCAs the licensee has stated that it will perform an additional review of all (approximately 175) DCAs related to the 1986 outage to ascertain that all the packages are complete and contain sufficient information to support the disposition of each item.

This item will remain open pending completion of the licensee's review and subsequent NRC review of the licensee's actions.

(Open) Unresolved Item (50-220/87-11-02): Feasibility Study for ISI of Reactor Pressure Vessel (RPV) Beltline welds.

RPV Beltline weld Inservice Inspection (ISI) was discussed with the licensee's staff and file letter 98381 dated November 5, 1987 was also reviewed. This letter documents the licensee's staff inhouse discussion of the feasibility of ISI of the RPV Beltline welds. During this outage the licensee is performing (for the first time) examinations on accessible RPV welds outside of the Beltline region.

The NRC Office of Nuclear Reactor Regulation ((NRR) met with the BWR Owners Group on March 17, 1988 to discuss the generic issue of inspection of BWR pressure vessels and pressure vessel internals. At that meeting representatives from the Electric Power Research Institute (EPRI) stated that the ultrasonic testing technology for inspecting reactor vessel shell welds is available but that the robotics system for probe positioning and scanning must be developed. NRR indicated that generic requirements for complete inspection of the BWR reactor pressure vessel beltline welds may be promulgated. Industry programs (EPRI and the BWR Owners Group) are in the formulative stage. Niagara Mohawk Power Corporation is not a member of EPRI although it is a member of the BWR Owners Group. Region I will continue to monitor licensee progress toward implementing an effective reactor vessel beltline weld inspection program.

This inspection item remains open.

4.0 Examinations Not Completed During the First Ten-Year Inspection Interval Unit 1

Subsequent to the end of the 1986 refueling outage which was the last scheduled outage in the first ten-year inspection interval the licensee reported that a number of required examinations were not completed. A commitment was made by the licensee that the items would be examined during the 1988 refueling outage. As a result, the licensee requested its ISI vendor, NES, to perform a complete review of the first ten-year program to ascertain whether more examinations were not completed. The licensee reported to the NRC that the NES review identified that additional required examinations were not completed within the interval.

During this inspection the inspectors found that the licensee is now performing its own review to ascertain the magnitude of the missed examinations. Eight licensee personnel have been assigned to the project working two shifts a day on a full time basis. The inspectors stated that the inspection of this item would be deferred until the licensee's review was completed. This inspection item is unresolved pending completion of the licensee's action and subsequent NRC review. (50-220/88-09-03).

5.0 Independent Measurements - Unit 1

The NRC inspectors performed independent measurements of the Reactor Building Closed Loop Cooling System Piping wall thickness, Feedwater system piping wall thickness, torus and drywell shell thicknesses, and control rod drive accumulator bottle wall thicknesses. These measurements were taken using the NOVA D-100 digital thickness gauge per NRC Procedure NDE - 11 Revision 0.

5.1 Reactor Building Closed Loop Cooling Piping:

Two areas were inspected on the closed loop cooling piping. These areas are referred to in Niagara Mohawk memo 2401J as areas 6 and 7. Area 6 is on a 3" elbow downstream of block valve 70-124 upstream of drywell air cooler 201-04. Area 7 is on a 3" straight pipe downstream of drywell air cooler 201-04 and upstream of valve 70-30. Attachment 1 presents the NRC measured wall thickness data.

During inspection of above items a discrepancy was found with Nuclear Engineering Services (NES) report Nos. 2434-88A-289 and 2434-88A-288 in that the thickness data for areas 6 and 7 had been reversed. This indicates poor control over contractor activities, a major deficiency with regard to trending of ISI data and a failure to properly evaluate test results. Additional deficiencies in the licensee's trending of ISI data are identified in Section 5.2 regarding the balance of plant erosion-corrosion monitoring program and in Section 5.3 regarding torus shell thickness measurements.

5.2 Balance of Plant:

Three areas included in the licensee's balance of plant erosion-corrosion monitoring program were selected for independent measurements by the NRC inspectors. The areas selected are in the feedwater system and are identified as grid 6B and 6C with one area on a 2" pipe in between grid 6B and 6C. The NRC wall thickness data are presented in Attachment 2. Area 6C is on a 10" schedule 120 elbow with nominal wall thickness of 0.843", and a minimum allowed thickness of 0.737". The NES measurements of 6C are reported to two decimal places, and in three locations are listed as 0.73". It cannot be determined from those readings whether or not the minimum wall has been violated. The NRC readings are all above the minimum allowable thickness, but they represent fewer measurements than were made by NES. Additionally, NES reported the nominal thickness as 1" for area 6C. When that is reduced by 12½ percent, the minimum allowed thickness is 0.875". It is not clear at this time whether this is a reporting error or whether the nominal thickness of the elbow is actually 1".

The data were reviewed by a NES Level III on March 21, 1988 and final acceptance by the ANII was provided by signature on March 22, 1988. The data further indicated that no licensee engineering disposition was required.

During inspection of two areas "6B" and "6C" the inspectors found that the grid numbering system which was used on the piping was not consistent in that the grid was numbered in a clockwise direction at one end with numbers on the grid lines, and in a counterclockwise direction at the opposite end with numbers between the grid lines. The licensee uses two generic procedures (NES 80A2433 Revision 3 and CBI SI No. 1) to accomplish the task of taking and recording the ultrasonic thickness measurements. Neither procedure specifies how the grid will be numbered. The CBI Procedure calls for an "X" to be stamped as a permanent zero "degree" marker, but the relationship is not specified between this mark and in what order thickness measurement will be taken on the grid. Because of the lack of a specified system for taking data, the wall thickness measurements at a given location cannot be correlated from inspection to inspection and effective trending is not possible.

5.3 Torus Shell

Teledyne Engineering Services (TES) report TR-6801-2 delineates results from the TES analysis of the torus for minimum required wall thickness, and found this to be 0.447" at the bottom of the torus. The Niagara Mohawk ISI Department has taken ultrasonic thickness measurements since 1975, and reported in 1975 that the measured thickness then was between 0.49" and 0.50". Since 1975, the torus shell thickness has been periodically monitored by the licensee on five 1 square foot areas. The inside surface of the torus shell presently contains no protection from corrosion, although the licensee stated that it plans to apply a protective coating in 1990, which is when TES predicted that the minimum thickness would be reached.

Four areas were inspected by the NRC on the torus shell. Three areas were selected from the Niagara Mohawk Unit No. 1 suppression chamber thickness measurement stations identified in traveler No. RXRM-88-001. The three areas are designated 1 of 5, 2 of 5, and 3 of 5. The fourth area was selected at random and is located 3' to the left of penetration XS-344 facing the reactor vessel. The thickness measurements were taken through paint. In addition to the USNRC ultrasonic thickness procedure NDE-11, the licensee's procedure 80A2434 was used. The minimum wall thickness was established as 0.447 for area number 1 as stated in a Niagara Mohawk internal memo dated January 20, 1988 from L. M. McNeer to A. G. Vierling. This memo references Teledyne Engineering Services (TES) report TR-6801-2 which contains

the engineering analysis of the torus for minimum required wall thickness. A second February 12, 1988 memo from L. M. McNeer to A. G. Vierling on the subject of torus wall thinning contained two recommendations from Teledyne for determining the actual wall thickness. Specifically, the memorandum suggests that a Kraut-Kramer, Branson Model USL-38 ultrasonic instrument be used to acquire the thickness measurements. This instrument was suggested because it is considered very accurate, providing a $\pm 1\%$ error (from reading to true thickness) according to the manufacturer. It also was suggested that the thickness measurements be reported to 3 decimal places. The second recommendation was to compare the thickness readings (minus 1% error) to the minimum specified wall thickness.

The NRC measured thickness data are presented in Attachment 3. Based on these data, several areas appear to be below or at the minimum specified wall thickness of 0.447". Those areas appearing to be close to or below minimum wall thickness were reexamined by one nuclear engineering services (NES) technician and one Niagara Mohawk auditor using two different ultrasonic thickness machines. Both technicians found the suspect readings acceptable but only by .003" (.450") on grid No. 1 of 5. If $\pm 1\%$ measurement error is applied, the result is measurements below or near minimum wall thickness. Furthermore, an allowance must be provided for continued wall thinning prior to the next inspection. The January 20, 1988 memo from L. M. McNeer to A. G. Vierling states that the estimated average rate of wall thinning is 0.0033 inch per year.

Applying the estimated 0.0033 inch per year rate of wall thinning to the measured wall thickness and considering measurement error indicates that the minimum specified wall thickness could be violated prior to completing another full cycle of operation.

Subsequent to the inspection, the licensee was requested to provide all torus wall thickness measurement data that had been previously taken. Seven sets of data, dating back to October 1975, were provided. These data were reviewed in the Region I office. The licensee also was requested to provide historical trend plots for these data but indicated that such plots did not exist. Review of the data revealed several inconsistencies. First, thickness measurements were not consistently taken at the same grid locations from one inspection to the next. Second, in two years (1984 and 1986) the data were only recorded to two decimal places. The lack of consistent measurement techniques reduced the effectiveness of the data for the purposes of trending and represents inadequate control over this special measurement process. Further, proper evaluation of this data would have disclosed the inconsistencies and prompted corrective actions.

5.4 Drywell Wall

Two areas were inspected on the drywell wall in locations approximately opposite the drywell sand cushion. These areas were 4" X 5" grids located approximately 1" from the floor and they were adjacent to main coolant pump lls. The thickness taken ranged from a low of 1.078" and a high of 1.138" (see Attachment 4 for actual thickness). The licensee did not take thickness readings on the drywell wall. The uniformity of the thickness readings shows no large degradation, however, the drawing minimum for the drywell wall is 1.090". Subsequent to the inspection, the licensee informed the inspector that the 1.090" dimension included a corrosion allowance. When the corrosion allowance is taken into account, the NRC readings are above the minimum acceptable wall thickness.

This item is unresolved pending licensee documentation and NRC review 50-220/88-09-02.

5.5 Control Rod Drive Accumulator Bottles

Twelve nitrogen tanks and twelve water and nitrogen accumulators were measured for adequate wall thickness. The operating pressure for the nitrogen tanks is 1750 psi and they have a minimum specified 1/16" wall thickness of .252". The water and nitrogen accumulator tanks have a minimum specified wall thickness of 0.390". These accumulators have a coating of nickel and a coating of chrome on the inside surface. They were also found to be hydrostatically tested every 10 years. All tank wall thicknesses were found to significantly exceed the specified minimum values.

5.6 Summary of Independent Measurement Activities

The inspectors performed independent thickness measurements of the torus shell, closed loop cooling piping, the drywell wall, control rod drive accumulator bottles, and a portion of balance of plant piping which is included in the facility erosion-corrosion monitoring program. In all cases except the drywell wall and the control rod drive accumulator bottles, where the licensee had not taken measurements, the NRC measurements were taken in the same areas that the licensee had measured.

A major weakness was identified in that torus shell data were not consistently reported or properly evaluated. At times the data were reported to three decimal places and other times two decimal places. Additionally, the measurements were not taken at the same locations from one inspection to the next. Reporting errors regarding safety related closed loop cooling piping measurement data were identified in that data for two areas were reversed. Additionally, balance of plant piping measurement data were taken on a grid pattern, but there was no control over grid numbering, or in what order the thickness measurements will be taken on the grid.

As discussed in Section 5.1, licensee control over contractor activities is weak, and major deficiencies were identified with regard to the licensee trending of ISI thickness measurement data in that no procedure was available to control this process. Failure to effectively perform testing and properly evaluate the data required to demonstrate that structures, systems and components will perform satisfactorily in service is a violation of Criterion XI of Appendix B to 10 CFR Part 50 (50-220/88-09-01).

Section 5.2 discusses balance of plant piping measurements. These items are not safety related, but provide further examples of weak licensee control over vendor activities, and its inability to trend and evaluate the data resulting from the measurements.

6.0 Review of Procedures-Unit 1

The procedures listed below were reviewed to verify their technical adequacy and conformance to regulatory and code requirements.

- *• CBI-SI#1 Rev. 0, Preparation and Gridding for Erosion-corrosion Inspections
- *• NES - 80A2433 Rev. 3, Ultrasonic examination for the detection of steam erosion
- NI-ISI-025 Rev. 0, Trend Analysis
- AP-2.0 Rev. 9, Administrative Procedure
- AP-5.0 Rev 10, Procedure for Repair
- MI-6.0 Section XI Rev. 1, Maintenance Work Plan
- AP-6.0 Rev. 5, Procedure for modification

With the exception of the asterisk procedures above they were acceptable. See paragraph 5.2.

7.0 Verification of Qualification for Visual Inspections Personnel-Unit 1

The NRC inspector made a random selection of three visual personnel certification records. These records were reviewed based on ANSI 45.2.6 criteria. All records examined were acceptable per ANSI 45.2.6 criteria.

No violation was identified.

8.0 ASME Code Case N409-Unit 1

A review of Niagara Mohawk letter NMP1L0121 dated December 29, 1986 indicated that the licensee intends to make use of code case N409, "Procedure and Personnel Qualification for Ultrasonic Detection and Sizing of IGSCC." During this inspection the licensee indicated that they wish to withdraw this letter in that they do not intend to use code case N409 at this time. They will document this in their response to Generic Letter 88-01.

9.0 Allegation Followup-Unit 2

(Closed) Allegation No. RI-88-A-0009: On January 14, 1988, Region I received an allegation that a weld overlay was welded on the recirculation system outlet nozzle safe end to pipe welds at Nine Mile Point Unit 2 and that a conscious management decision was made not to include this weld in the facility ISI program.

The inspector reviewed licensee records regarding welds RCS-FW-A01 and RCS-FW-B01, outlet nozzle safe end to pipe welds on the recirculation system at Unit 2. Based on the inspector's review he determined that:

- Weld overlay was applied to the safe end side of each weld to correct for shrinkage caused by the welding process.
- Preservice inspection (ultrasonic examination) was performed from the pipe side of each weld. No ultrasonic examination was performed from the safe end side for a variety of reasons including poor penetration through the safe end material, sound beam redirection caused by the safe end material, and possibly because of the presence of the weld overlay.
- The welds were included in the facility ISI program.
- A request (RR-IWB-6) has been submitted by the licensee to NRR for relief from performing the code required volumetric examination examination from the safe end side.

The inspector found that weld overlay was applied to the two welds. He further found that the licensee performed preservice inspection of the welds, included the welds in the facility inservice inspection program, and submitted relief request RR-IWB-6 to the NRC to obtain relief from performing volumetric examination from the safe end side of each weld.

Based on the above this allegation is closed.

10. Quality assurance Involvement In ISI Activities-Unit 1

During the period from February 22, 1988 to March 8, 1988 the licensee's QA group performed nine (9) surveillances of inservice inspection activities of licensee and contractor personnel. The monitored activities include leak rate testing, personnel certification records of contractor NDE personnel (NES and CE), ISI data review, observation of examinations in progress, review of the NES site QA program, and the ISI department initiation of corrective action for ASME XI deficiencies.

In addition to reviewing reports of the above mentioned surveillances, the inspector reviewed the requalification evaluation of NES performed by the Procurement QA Section of the Niagara Mohawk Power Corporation Quality Assurance Department. The survey by Quality Systems, Inc. covered the NES QA Manual 80A9086, Revision 1, dated September 15, 1986, and the 18 criteria of 10 CFR 50 Appendix B and ANSI N 45.2. No findings were issued as a result of the audit. The evaluation was based on survey data compiled by Quality Systems, Inc. at the NES facility at Danbury, Connecticut from October 28-30, 1986 while under contract to the licensee. The licensee completed its evaluation on January 6, 1987, and notified NES on March 19, 1987, that NES was requalified and retained on the licensee's "Qualified Contractors List".

Surveillance findings were properly documented and corrective action was taken in a timely manner.

No violations were identified.

11. Unresolved Items-Unit 1

Unresolved items are matters about which more information is required to ascertain whether they are acceptable items, violations, or deviations. An unresolved item is discussed in paragraph 5 of this report.

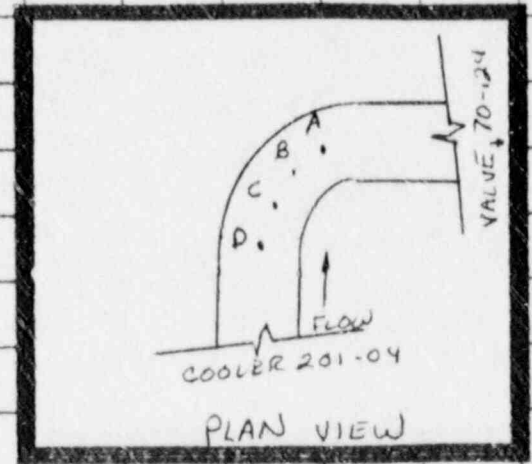
12. Exit Meeting

The inspectors met with licensee representatives (denoted in paragraph 1) on March 11, 1988 and at the conclusion of the inspection on April 8, 1988. The inspectors summarized the scope and findings of the inspection.

At no time during the inspection was written material provided by the inspectors to the licensee. The licensee did not indicate that proprietary information was involved within the scope of this inspection.

A B C D E F G H I J K L

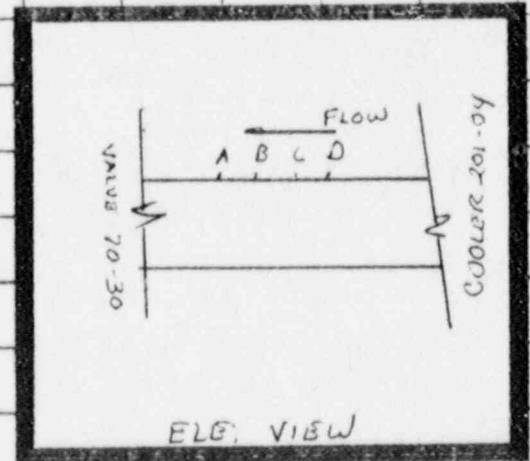
| 0DEG. | AREA 6 | 180DEG. | |
|--------|--------|---------|------|
| A | .215 | A | .223 |
| B | .206 | B | .233 |
| C | * | C | .205 |
| D | * | D | .236 |
| 90DEG. | | 270DEG. | |
| A | * | A | .226 |
| B | .232 | B | .241 |
| C | * | C | .227 |
| D | .223 | D | .248 |



3" PIPE AREA 6

*=UNABLE TO OBTAIN READING

| 0DEG. | AREA 7 | 180DEG. | |
|--------|--------|---------|------|
| A | .226 | A | .216 |
| B | .236 | B | .228 |
| C | .224 | C | .229 |
| D | .228 | D | .221 |
| 90DEG. | | 270DEG. | |
| A | .228 | A | .214 |
| B | .226 | B | .220 |
| C | .227 | C | .224 |
| D | .235 | D | .215 |



3" PIPE AREA 7

Plant/Unit: NINE MILE POINT UNIT ONE
 ISO: 3-N2.1-513.4 C-26855-C SHT-9
 Comp./Sys.: DEWELL CHECKER/DCP/COOLING PIPE/MS/70
 Loop: N/A

**ULTRASONIC
EXAMINATION
CALIBRATION
SHEET**

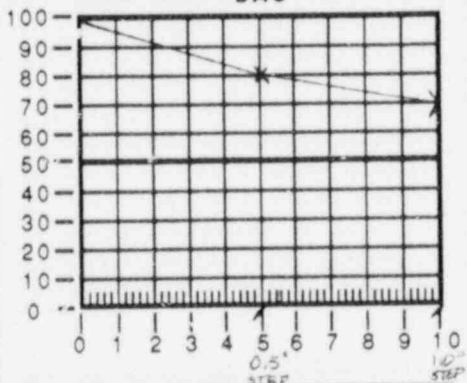
Data Pkg.: 2434-88A-288
 Page 1 of 2
 Exam Item: PIPE 5 / PIPE 6
 Procedure: 80A2434
 Rev./F.C.: 3/FC-1&2
 Title: UT EXAM - THICKNESS

| INSTRUMENT SETTINGS | |
|---------------------|----------------|
| Serial # | 27276-3784 |
| MFG./Model # | KKB-USK-7 |
| Sweep Length | 5.28 |
| Sweep Delay | 7.50 |
| Pulse Length/Damp. | FIXED |
| Freq. | B/B Range 5 |
| DEC/Gate | OFF Reject MIN |
| Jacks | R/T |
| Mode Select | LONG |
| Coarse Gain | 20 Fine 24 |
| Scan Sens. | 80% B.B. |

| SEARCH UNIT | |
|----------------|------------------|
| Serial # | L08554 |
| Brand | KB-AEROTECH |
| Frequency | 5.0 MHz |
| Size/Shape | 25" ROUND |
| Style/Type | GAMMA DUFF |
| Fixture | N/A |
| Cable | 2X6 SELF CONTAIN |
| Couplant Batch | 8764 |
| Couplant Brand | ULTRAGEL II |

| Calibration Block | |
|-------------------|------------------|
| Block Thickness | NMP-1SW-1020-CS |
| Comp. Thickness | 10-1.0"/1.1-2.0" |
| Block Temperature | N/A |
| Comp. Temperature | 72 °F |
| Thermometer | 60 °F |
| Surface | 88-200 |
| | CD |

| Calibration Checks :Time | |
|--------------------------|--------|
| Initial Calib. | 0100 |
| Intermediate | N/A |
| Intermediate | N/A |
| Intermediate | N/A |
| Final Calib. | 0300 |
| Calibration Date | 3/9/88 |



| DAC | | | |
|-----------|-----------|----------|------|
| Reflector | %FSH | Position | |
| 1 | 0.5" STEP | 80% | 5.0 |
| 2 | 1.0" STEP | 70% | 10.0 |
| 3 | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A |
| 5 | N/A | N/A | N/A |
| 6 | N/A | N/A | N/A |

| INSTRUMENT LINEARITY | | | | | |
|----------------------|-----|----|---|----|----|
| 1 | 100 | 50 | 6 | 50 | 26 |
| 2 | 90 | 44 | 7 | 40 | 20 |
| 3 | 80 | 41 | 8 | 30 | 15 |
| 4 | 70 | 37 | 9 | 20 | 11 |
| 5 | 60 | 31 | | | |

| AMPLITUDE LINEARITY | | | |
|---------------------|----|-----------|----|
| 80 - 6 = | 40 | 80 - 12 = | 20 |
| 40 + 6 = | 80 | 20 + 12 = | 80 |

CRT Calibrated In
 1.0" OF DEPTH
 Each Major Screen Div. = .10"

| | |
|-------------|--------|
| Scan Angle | 0 DEG. |
| Meas. Angle | N/A |
| Mode | LONG |
| Calibration | DEPTH |
| Scan Area | N/A |

Exam Item PIPE 5 / PIPE 6

Comments/Reasons for incomplete Exams
 PIPING THICKNESS
 COMPLETED EACH OF FOUR MEASUREMENTS AROUND THE
 CIRCUMFERENCE OF EACH PIPE AT 90 DEG. SPACED WITH
 INTERVALS OF 1.0"

Remarks
 *MAINTAINED 80% BACK
 REFLECTION ON COMPONENT
 CLEANED PIPE WITH DEMIN
 WATER AND TSP

Examiner 1: Edward Kozlowski Level: II Date: 3-9-88
 EDWARD KOZLOWSKI LEVEL II
 Examiner 2: _____ Level: _____ Date: _____
 N/A

WR# N/A
 NCR# N/A
 TRAVELER 70-88-001

NES REVIEWER: Prisano LEVEL: III DATE: 3/13/88

| | |
|-------|--|
| QA/QC | ANII |
| | ANII INITIAL REVIEW: SIGNATURE _____ DATE _____ ANII FINAL ACCEPTANCE: <u>W. B. ...</u> 3/14/88 SIGNATURE _____ DATE _____ |

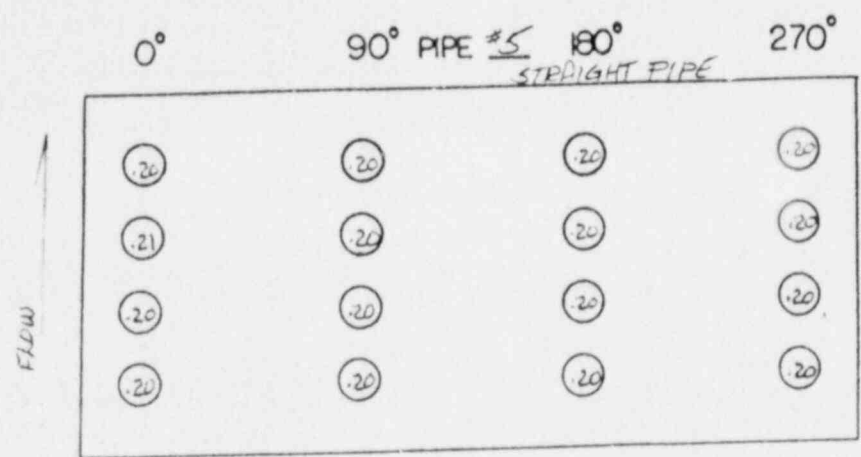
WELD ACCEPTABLE?
 YES NO
 NMPC ENG.
 DISP. REQ.
 YES NO

1125

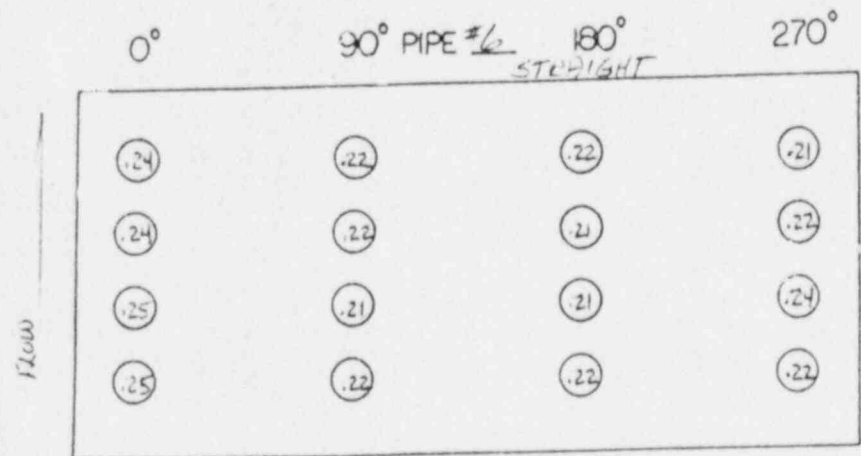
Plant/Unit: NMP-1
ISO: 3-N2,1-513.4 C-26855-C SHT 9
Comp./Sys.: DRYWELL CLOSED LOOP COOLING PIPING
Loop: N/A

SKETCH SHEET

Date Pkg.: 2434-88A-288
Page 2 of 2
Exam Item: PIPE #5, PIPE #6
Procedure: 82A2434
Rev./F.C.: REV 3 FC 2
Title: UT PROCEDURE FOR THICKNESS MEASUREMENT



3" PIPE DOWNSTREAM OF VALVE 70-129.



3" PIPE DOWNSTREAM OF BLOCKING VALVE 70-124 PRIOR TO DRYWELL AIR COOLER 201-04.

Examiner 1: [Signature] Level: II Date: 3-9-88
Examiner 2: N/A Level: N/A Date: N/A

NOTE: EACH OF THE FOUR MEASUREMENTS AROUND THE CIRCUMFERENCE WERE SPACED AT 90° INTERVALS STARTING AT THE TOP OF THE PIPE. EACH SET OF THICKNESS READINGS WERE LOCATED 1 INCH FROM THE PRECEDING SET.

NES REVIEWER: [Signature] LEVEL III DATE: 3/13/88

| | |
|-------|--|
| QA/QC | ANII |
| | ANII INITIAL REVIEW: |
| | SIGNATURE _____ DATE _____ |
| | ANII FINAL ACCEPTANCE: |
| | SIGNATURE <u>[Signature]</u> DATE <u>3/14/88</u> |

1125

Plant/Unit: NINE MILE POINT UNIT ONE
 ISO: 3-NR1-S12.4 C-26455-C SHT-9
 Comp./Sys.: DRYWELL CASSEID LOOP ROOM & PIPING
 Loop: N/A

**ULTRASONIC
 EXAMINATION
 CALIBRATION
 SHEET**

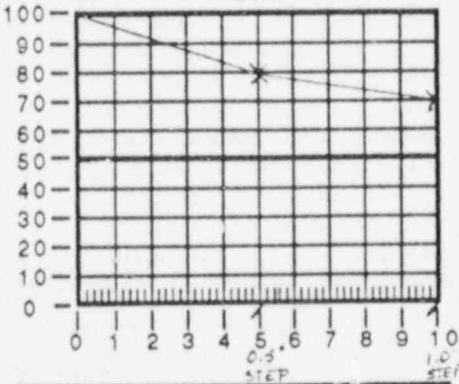
Data Pkg.: 2434-88A-289
 Page 1 of 2
 Exam Item: ELBOW 7/ELBOW 8
 Procedure: 80A2434
 Rev./F.C.: 3/FC-1&2
 Title: UT EXAM - THICKNESS

| INSTRUMENT SETTINGS | |
|---------------------|----------------|
| Serial # | 27276-3784 |
| MFG./Model # | KKB-USK-7 |
| Sweep Length | 5.28 |
| Sweep Delay | 7.50 |
| Pulse Length/Damp. | FIXED |
| Freq. | B/B Range 5 |
| DEC/Gate | OFF Reject MIN |
| Jacks | R/T |
| Mode Select | LONG |
| Coarse Gain | 20 Fine 24 |
| Scan Sens. | 80% B. R. |

| SEARCH UNIT | |
|----------------|------------------|
| Serial # | L08554 |
| Brand | KB-AEROTECH |
| Frequency | 5.0 MHz |
| Size/Shape | 25" ROUND |
| Style/Type | GAMMA DUFF |
| Fixture | N/A |
| Cable | 2X6 SELF CONTAIN |
| Couplant Batch | 8764 |
| Couplant Brand | ULTRAGEL II |

| Calibration Block | |
|-------------------|------------------|
| Block Thickness | NMP-1SW-1020-CS |
| Comp. Thickness | 10-1.0"/1.1-2.0" |
| Block Temperature | N/A |
| Comp. Temperature | 72 °F |
| Thermometer | 60 °F |
| Thermometer | 88-200 |
| Surface | CD |

| Calibration Checks :Time | |
|--------------------------|--------|
| Initial Calib. | 0100 |
| Intermediate | N/A |
| Intermediate | N/A |
| Intermediate | N/A |
| Final Calib. | 0300 |
| Calibration Date | 3/9/88 |



| DAC | | | |
|-----------|-----------|----------|------|
| Reflector | %FSH | Position | |
| 1 | 0.5" STEP | 80% | 5.0 |
| 2 | 1.0" STEP | 70% | 10.0 |
| 3 | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A |
| 5 | N/A | N/A | N/A |
| 6 | N/A | N/A | N/A |

| INSTRUMENT LINEARITY | | | | |
|----------------------|-----|----|---|-------|
| 1 | 100 | 50 | 6 | 50 26 |
| 2 | 90 | 44 | 7 | 40 20 |
| 3 | 80 | 41 | 8 | 30 15 |
| 4 | 70 | 37 | 9 | 20 11 |
| 5 | 60 | 31 | | |

| AMPLITUDE LINEARITY | | | |
|---------------------|----|-----------|----|
| 80 - 6 = | 40 | 80 - 12 = | 20 |
| 40 + 6 = | 80 | 20 + 12 = | 80 |

CRT Calibrated In
 1.0" OF DEPTH
 Each Major Screen Div. = 10"

| | |
|-------------|-------|
| Scan Angle | 0 DEG |
| Meas. Angle | N/A |
| Mode | LONG |
| Calibration | DEPTH |
| Scan Area | N/A |

Exam Item ELBOW 7/ELBOW 8

Comments/Reasons for Incomplete Exams

PIPING THICKNESS
 COMPLETED EACH OF FOUR MEASUREMENTS AROUND THE
 CIRCUMFERENCE OF EACH ELBOW AT 90 DEG. SPACED, WITH
 INTERVALS OF 1.0"

Remarks

*MAINTAINED 80% BACK
 REFLECTION ON COMPONENT
 CLEANED PIPE WITH DEMIN
 WATER AND TSP

Examiner 1: Edward Kozlowski Level: II Date: 3-9-88
 EDWARD KOZLOWSKI LEVEL II

Examiner 2: N/A Level: Date:

WR# N/A
 NCR# N/A
 TRAVELER 70-88-001

NES REVIEWER: Armano LEVEL: III DATE: 3/13/88

QA/QC

ANII

| | |
|------------------------|----------------|
| ANII INITIAL REVIEW: | |
| SIGNATURE | DATE |
| <u>Armano</u> | <u>3/14/88</u> |
| ANII FINAL ACCEPTANCE: | |
| SIGNATURE | DATE |
| <u>Armano</u> | <u>3/14/88</u> |

WELD ACCEPTABLE?
 YES NO

NMPC ENG.
 DISP. REQ.
 YES NO

Plant/Unit: NMP-1
 ISO: 3-N2.1-513.4 C-26855-C sht 9 SKETCH
 Comp./Sys.: DRYWELL CLOSED LOOP PIPING SHEET
 Loop: NIA /70

Date Pkg.: 2434-88A-289
 Page 2 of 2
 Exam Item: ELBOW #7, ELBOW #8
 Procedure: ROA 2434
 Rev./F.C.: REV 3, FC2
 Title: UT PROCEDURE FOR THICKNESS MEASUREMENT

0° OUTER RADIUS 90° PIPE #7 ELBOW 180° INNER RADIUS 270°

| | | | |
|-------|-------|-------|-------|
| (.22) | (.23) | (.22) | (.20) |
| (.18) | (.20) | (.23) | (.18) |
| (.19) | (.21) | (.22) | (.20) |
| (.22) | (.20) | (.22) | (.22) |

Flow ↑

ELBOW OF 3" PIPE DOWNSTREAM OF DRYWELL AIR Cooler 201-04 PRIOR TO VALVE 70-30.
 3" PIPE WAS CALLED FOR TO BE EXAMINED, WAS NOT CLEANED, ELBOW WAS.

0° OUTER RADIUS 90° PIPE #8 ELBOW 180° INNER RADIUS 270°

| | | | |
|-------|-------|-------|-------|
| (.20) | (.22) | (.24) | (.24) |
| (.20) | (.21) | (.24) | (.24) |
| (.21) | (.23) | (.22) | (.24) |
| (.21) | (.22) | (.24) | (.24) |

Flow ↑

ELBOW OF 3" PIPE DOWNSTREAM OF BLOCKING VALVE 70-125 PRIOR TO 201-06
 3" PIPE WAS CALLED FOR TO BE EXAMINED, WAS NOT CLEANED, ELBOW WAS.

NOTE: EACH OF THE FOUR MEASUREMENTS AROUND THE CIRCUMFERENCE WERE SPACED AT 90° INTERVALS STARTING AT THE TOP OF THE PIPE (ELBOW)
 EACH SET OF THICKNESS READINGS WERE LOCATED 1 INCH FROM THE PRECEDING SET.

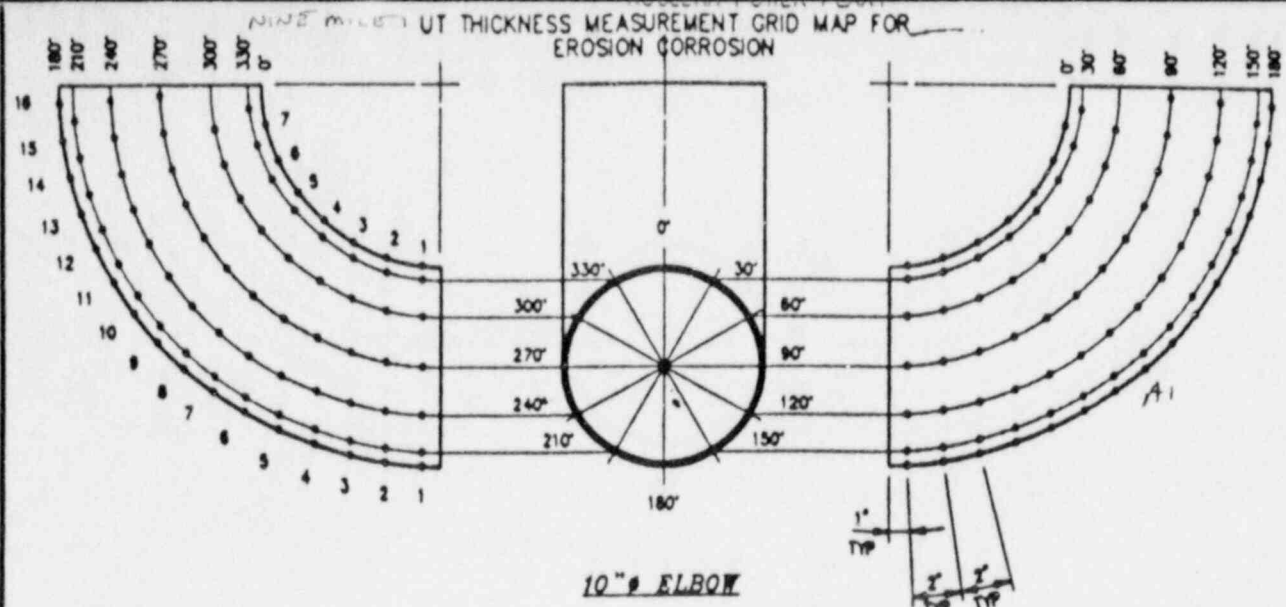
Examiner 1: [Signature] Level: II Date: 7-9-88

Examiner 2: N/A Level: N/A Date: N/A

NES REVIEWER: [Signature] LEVEL: III DATE: 3/13/88

| | |
|-------|-----------------------------------|
| QA/QC | ANII |
| | ANII INITIAL REVIEW: |
| | SIGNATURE _____ DATE _____ |
| | ANII FINAL ACCEPTANCE: |
| | <u>[Signature]</u> <u>3/14/88</u> |
| | SIGNATURE _____ DATE _____ |

1125



NOTES:

UNIT 1
 LINE NUMBER 1148-6
 INSPECTION ID NUMBER 6C
 NOMINAL WALL THICKNESS .813
 UT THICKNESS GAGE NO. _____

BY: OLIVER/HARRIS DATE: 4/5/88
 CHECKED: _____ DATE: _____

ELBOW ORIENTATION

PLAN

 ELEV

PLAN

 ELEV

NORTH

 NORTH

 NORTH

 NORTH

 LOOKING

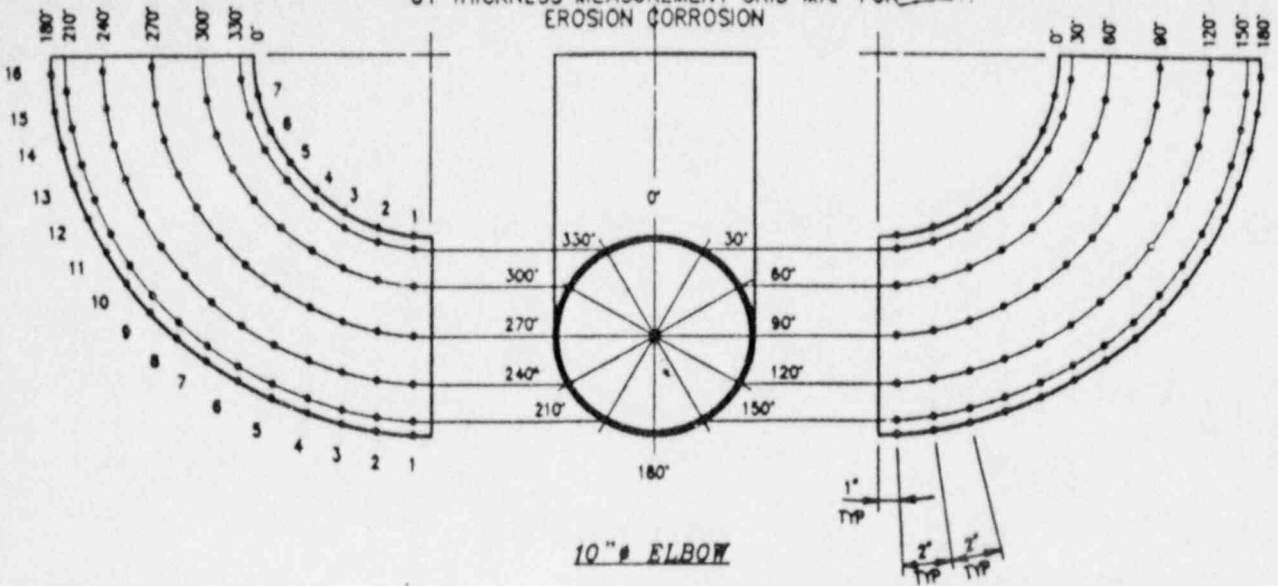
START POINT 1

FEED WATER

UT THICKNESS MEASUREMENT REPORT
 10" ELBOW

| | 0' | 30' | 60' | 90' | 120' | 150' | 180' | 210' | 240' | 270' | 300' | 330' |
|----|------|-----|-----|-----|------|------|------|------|------|------|------|------|
| 1 | .808 | | | | | .786 | .782 | | | | | |
| 2 | .907 | | | | | .825 | .823 | | | | | |
| 3 | .914 | | | | | .830 | .817 | | | | | |
| 4 | .913 | | | | | .823 | .803 | | | | | |
| 5 | .925 | | | | | .813 | .792 | | | | | |
| 6 | .942 | | | | | .804 | .784 | | | | | |
| 7 | .932 | | | | | .796 | .779 | | | | | |
| 8 | .940 | | | | | .789 | .776 | | | | | |
| 9 | .945 | | | | | .787 | .767 | | | | | |
| 10 | .951 | | | | | .785 | .766 | | | | | |
| 11 | .942 | | | | | .778 | .762 | | | | | |
| 12 | .954 | | | | | .771 | .754 | | | | | |
| 13 | .970 | | | | | .772 | .748 | | | | | |
| 14 | .971 | | | | | .768 | .742 | | | | | |
| 15 | .973 | | | | | .767 | .743 | | | | | |
| 16 | .970 | | | | | .764 | .744 | | | | | |
| 17 | .971 | | | | | .774 | .748 | | | | | |
| 18 | .956 | | | | | .782 | .753 | | | | | |
| 19 | .940 | | | | | .789 | .755 | | | | | |
| 20 | .933 | | | | | .782 | .756 | | | | | |
| 21 | .924 | | | | | .790 | .755 | | | | | |
| 22 | .918 | | | | | .793 | .765 | | | | | |
| 23 | .916 | | | | | .793 | .771 | | | | | |
| 24 | .905 | | | | | .802 | .776 | | | | | |
| 25 | .902 | | | | | .806 | .781 | | | | | |
| 26 | .889 | | | | | .815 | .789 | | | | | |
| 27 | .889 | | | | | .819 | .793 | | | | | |

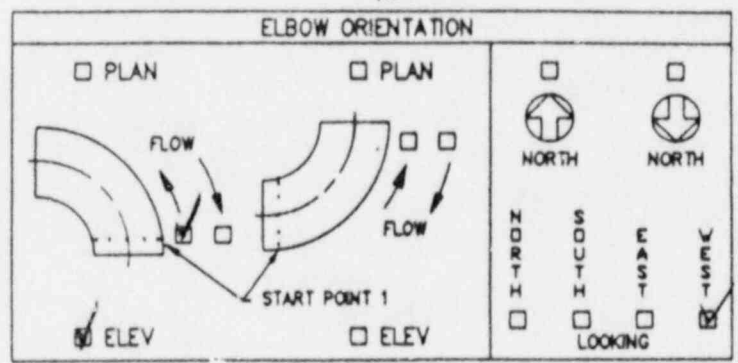
NINE MILE 1 NUCLEAR POWER PLANT
UT THICKNESS MEASUREMENT GRID MAP FOR
EROSION CORROSION



NOTES:

UNIT 1
 LINE NUMBER 1148-6
 INSPECTION ID NUMBER 6B
 NOMINAL WALL THICKNESS .843
 UT THICKNESS GAGE NO. _____

BY: OLIVIERI/HARRIS DATE: 4-5-88
 CHECKED: _____ DATE: _____



FEED WATER

UT THICKNESS MEASUREMENT REPORT

| | 0' | 30' | 60' | 90' | 120' | 150' | 180' | 210' | 240' | 270' | 300' | 330' |
|----|------|-----|-----|-----|------|------|------|------|------|------|------|------|
| 1 | .833 | | | | | .770 | .781 | .788 | | | | |
| 2 | .910 | | | | | .776 | .773 | .779 | | | | |
| 3 | .920 | | | | | .778 | .767 | .771 | | | | |
| 4 | .937 | | | | | .770 | .768 | .773 | | | | |
| 5 | .945 | | | | | .770 | .775 | .775 | | | | |
| 6 | .951 | | | | | .776 | .773 | .783 | | | | |
| 7 | .959 | | | | | .779 | .778 | .789 | | | | |
| 8 | .958 | | | | | .782 | .785 | .785 | | | | |
| 9 | .949 | | | | | .785 | .790 | .802 | | | | |
| 10 | .942 | | | | | .790 | .793 | .805 | | | | |
| 11 | .937 | | | | | .795 | .801 | .814 | | | | |
| 12 | .925 | | | | | .796 | .799 | .816 | | | | |
| 13 | .914 | | | | | .810 | .816 | .826 | | | | |
| 14 | .936 | | | | | .806 | .819 | .829 | | | | |
| 15 | .937 | | | | | .823 | .828 | .834 | | | | |
| 16 | .877 | | | | | .823 | .786 | .790 | | | | |

10" ELBOW

Plant/Unit: NINE MILE POINT UNIT ONE
 ISO: 1148-6
 Comp./Sys.: FEEDWATER/29
 Loop: N/A

**ULTRASONIC
 EXAMINATION
 CALIBRATION
 SHEET**

Data Pkg.: 2433-88A-20
 Page 1 of 2
 Exam Item: AREA 6C
 Procedure: 80A2433
 Rev./F.C.: 3
 Title: UT EXAM - STEAM EROSION

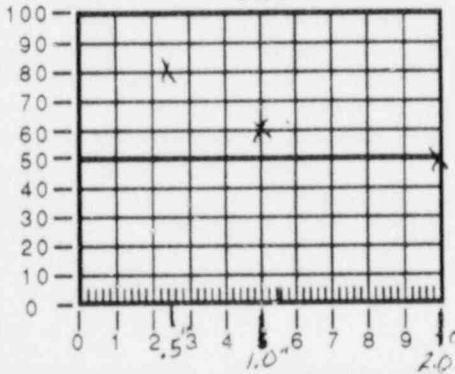
| INSTRUMENT SETTINGS | |
|------------------------|------------|
| Serial # | 212038 |
| MFG./Model # | KKB-USL-38 |
| Sweep Length | 9.34 |
| Sweep Delay | 7.69 |
| Pulse Length/Damp. MIN | |
| Freq. | 5.0 |
| Range | .5 |
| DEC/Gate | OFF |
| Reject | MIN |
| Jacks | T/R |
| Mode Select | DUAL |
| Coarse Gain | 40 |
| Fine | 10 |
| Scan Sens. | * |

| SEARCH UNIT | |
|----------------|-----------------|
| Serial # | KB1009 |
| Brand | KB-AEROTECH |
| Frequency | 5.0 MHz |
| Size/Shape | 50" ROUND |
| Style/Type | GAMMA |
| Fixture | N/A |
| Cable | DUAL SELF CONT. |
| Couplant Batch | 8764 |
| Couplant Brand | ULTRAGEL |

| | |
|-------------------|-------------------|
| Calibration Block | NMP-1SW-1020-CS |
| Block Thickness | .10-1.0"/1.1-2.0" |
| Comp. Thickness | 1.0 |
| Block Temperature | 69 °F |
| Comp. Temperature | 67 °F |
| Thermometer | KB114 |
| Surface | CD |

| Calibration Checks :Time | |
|--------------------------|---------|
| Initial Calib. | 2350 |
| Intermediate | N/A |
| Intermediate | N/A |
| Intermediate | N/A |
| Final Calib. | 0330 |
| Calibration Date | 3/12/88 |

| INSTRUMENT LINEARITY | | | | | |
|----------------------|-----|----|---|----|----|
| 1 | 100 | 50 | 6 | 50 | 25 |
| 2 | 90 | 45 | 7 | 40 | 20 |
| 3 | 80 | 40 | 8 | 30 | 15 |
| 4 | 70 | 35 | 9 | 20 | 10 |
| 5 | 60 | 30 | | | |



| AMPLITUDE LINEARITY | | | |
|---------------------|------|---------|------|
| 80 - 6 | = 40 | 80 - 12 | = 20 |
| 40 + 6 | = 80 | 20 + 12 | = 80 |

| DAC | | | |
|-----------|------|----------|------|
| Reflector | %FSH | Position | |
| 1 | .5 | 80% | 2.5 |
| 2 | 1.0 | 60% | 5.0 |
| 3 | 2.0 | 50% | 10.0 |
| 4 | N/A | N/A | N/A |
| 5 | N/A | N/A | N/A |
| 6 | N/A | N/A | N/A |

CRT Calibrated In
 2" OF DEPTH
 Each Major Screen Div. = 2"

| | |
|-------------|----------|
| Scan Angle | 0 DEGREE |
| Meas. Angle | N/A |
| Mode | LONG. |
| Calibration | DEPTH |
| Scan Area | N/A |

Exam Item: AREA 6C

Comments/Reasons for Incomplete Exams

ELBOW
COMPLETE ELBOW AREA 6C.

Remarks

* MAINTAINED 80% BACK REFLECTION ON COMPONENT.
 REMOVED COUPLANT RESIDUE WITH DEMIN WATER AND TSP.

Examiner 1: Clifford A. Anderson Level: II Date: 3/12/88
 CLIFFORD A. ANDERSON LEVEL II IGSCC

WR# LIA
 NCR# DIA
 TRAVELER 29EC-88 005

Examiner 2: _____ Level: _____ Date: _____
 N/A

NES REVIEWER: Dr.iaus LEVEL: III DATE: 3/21/88

| | |
|-------|--|
| QA/QC | ANII |
| | ANII INITIAL REVIEW: SIGNATURE _____ DATE _____ ANII FINAL ACCEPTANCE <u>Clifford A. Anderson</u> 3-22-88 SIGNATURE _____ DATE _____ |

WELD ACCEPTABLE?
 YES RA NO RA

NMPC ENG.
 DISP. REQ.
 YES RA NO RA



Plant/Unit Unit 1 Mile #1

Data Sheet No. 2433-88A-20

Comp/System Feed Water/29

UT Thickness Grid
Sheet

Procedure No. 80A2433

Subject Steam Erosion - Area 6C

Page 2 of 2

32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Weld 29-FW-34

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | .81 | .80 | .83 | .86 | .84 | .82 | .80 | .81 | .77 | .85 | .79 | .76 | .76 | .80 | .79 | .77 | .79 | .79 | .80 | .81 | .79 | .82 | .81 | .81 | .83 | .83 | .85 | .87 | .80 | .87 | .88 | |
| 2 | .90 | .91 | .88 | .87 | .89 | .86 | .86 | .87 | .85 | .85 | .83 | .82 | .82 | .84 | .82 | .82 | .80 | .81 | .83 | .83 | .84 | .83 | .84 | .85 | .86 | .87 | .87 | .88 | .88 | .89 | .89 | .92 |
| 3 | .91 | .90 | .90 | .90 | .90 | .90 | .89 | .87 | .86 | .85 | .84 | .83 | .84 | .84 | .81 | .81 | .80 | .83 | .83 | .84 | .83 | .84 | .85 | .86 | .87 | .87 | .88 | .88 | .89 | .89 | .92 | |
| 4 | .93 | .91 | .90 | .91 | .91 | .91 | .90 | .88 | .86 | .85 | .84 | .83 | .83 | .83 | .80 | .81 | .79 | .82 | .82 | .83 | .83 | .84 | .85 | .86 | .87 | .88 | .87 | .89 | .89 | .91 | .92 | |
| 5 | .95 | .93 | .94 | .93 | .92 | .91 | .90 | .89 | .87 | .85 | .83 | .83 | .83 | .82 | .80 | .80 | .78 | .80 | .82 | .83 | .83 | .84 | .85 | .86 | .87 | .88 | .89 | .89 | .90 | .90 | .94 | |
| 6 | .94 | .95 | .92 | .94 | .92 | .91 | .90 | .89 | .86 | .84 | .83 | .83 | .82 | .81 | .79 | .79 | .78 | .80 | .83 | .83 | .83 | .84 | .85 | .86 | .88 | .90 | .89 | .90 | .90 | .91 | .95 | |
| 7 | .94 | .93 | .93 | .94 | .93 | .91 | .90 | .89 | .86 | .84 | .82 | .82 | .82 | .80 | .78 | .78 | .78 | .80 | .82 | .83 | .83 | .84 | .85 | .86 | .88 | .90 | .90 | .91 | .90 | .92 | .93 | |
| 8 | .95 | .93 | .94 | .94 | .92 | .92 | .90 | .89 | .86 | .84 | .82 | .82 | .81 | .79 | .78 | .79 | .78 | .81 | .82 | .85 | .82 | .84 | .85 | .88 | .90 | .89 | .90 | .91 | .91 | .93 | .95 | |
| 9 | .96 | .94 | .94 | .95 | .92 | .91 | .90 | .89 | .86 | .84 | .82 | .81 | .80 | .79 | .77 | .77 | .77 | .80 | .82 | .82 | .82 | .83 | .83 | .86 | .87 | .90 | .90 | .91 | .91 | .93 | .95 | |
| 10 | .95 | .95 | .94 | .95 | .92 | .92 | .92 | .88 | .87 | .84 | .82 | .81 | .80 | .79 | .77 | .76 | .76 | .79 | .81 | .82 | .81 | .83 | .85 | .86 | .87 | .90 | .90 | .92 | .93 | .94 | .96 | |
| 11 | .96 | .95 | .95 | .94 | .94 | .95 | .92 | .90 | .86 | .84 | .82 | .81 | .80 | .78 | .76 | .75 | .75 | .79 | .81 | .81 | .81 | .83 | .85 | .86 | .88 | .90 | .90 | .92 | .93 | .96 | .97 | |
| 12 | .97 | .96 | .95 | .95 | .94 | .93 | .92 | .88 | .88 | .84 | .81 | .81 | .79 | .77 | .76 | .75 | .75 | .78 | .80 | .81 | .80 | .83 | .84 | .86 | .88 | .89 | .90 | .92 | .93 | .95 | .99 | |
| 13 | .98 | .96 | .96 | .95 | .95 | .94 | .91 | .88 | .85 | .84 | .82 | .81 | .79 | .77 | .75 | .74 | .75 | .78 | .80 | .80 | .80 | .82 | .84 | .86 | .87 | .89 | .91 | .93 | .95 | .96 | .99 | |
| 14 | .99 | .98 | .99 | .96 | .95 | .95 | .92 | .89 | .86 | .84 | .81 | .81 | .79 | .77 | .75 | .74 | .74 | .77 | .80 | .80 | .80 | .82 | .84 | .86 | .87 | .90 | .91 | .93 | .95 | .96 | .99 | |
| 15 | .97 | .97 | .94 | .96 | .95 | .94 | .93 | .88 | .86 | .84 | .82 | .81 | .80 | .77 | .75 | .73 | .74 | .77 | .80 | .80 | .80 | .82 | .84 | .85 | .89 | .89 | .92 | .92 | .94 | .96 | .99 | |
| 16 | .98 | .96 | .99 | .96 | .95 | .95 | .94 | .88 | .86 | .84 | .82 | .82 | .79 | .77 | .75 | .73 | .73 | .77 | .79 | .79 | .79 | .81 | .83 | .85 | .88 | .89 | .90 | .91 | .93 | .96 | .99 | |
| 17 | .98 | .95 | .96 | .95 | .95 | .94 | .94 | .89 | .87 | .85 | .83 | .82 | .81 | .78 | .75 | .75 | .74 | .78 | .79 | .79 | .79 | .81 | .83 | .84 | .87 | .88 | .89 | .90 | .94 | .96 | .99 | |
| 18 | .97 | .96 | .97 | .94 | .94 | .94 | .93 | .90 | .86 | .85 | .83 | .82 | .80 | .80 | .76 | .74 | .73 | .77 | .79 | .79 | .79 | .81 | .83 | .84 | .87 | .88 | .89 | .90 | .93 | .95 | .99 | |
| 19 | .96 | .96 | .95 | .94 | .94 | .93 | .93 | .89 | .86 | .85 | .83 | .82 | .81 | .78 | .76 | .75 | .74 | .77 | .79 | .78 | .79 | .81 | .83 | .84 | .85 | .87 | .88 | .89 | .91 | .93 | .97 | |
| 20 | .95 | .95 | .95 | .95 | .94 | .92 | .93 | .88 | .85 | .85 | .83 | .82 | .81 | .79 | .78 | .74 | .75 | .77 | .79 | .79 | .79 | .81 | .84 | .84 | .86 | .87 | .88 | .89 | .91 | .93 | .97 | |
| 21 | .95 | .96 | .94 | .94 | .94 | .92 | .92 | .87 | .85 | .84 | .83 | .82 | .79 | .77 | .74 | .77 | .77 | .78 | .79 | .79 | .81 | .82 | .84 | .85 | .87 | .87 | .89 | .90 | .92 | .96 | | |
| 22 | .94 | .93 | .94 | .94 | .92 | .93 | .92 | .88 | .87 | .85 | .84 | .83 | .82 | .79 | .77 | .75 | .75 | .77 | .78 | .79 | .79 | .81 | .83 | .84 | .84 | .86 | .86 | .88 | .89 | .92 | .95 | |
| 23 | .93 | .92 | .92 | .92 | .92 | .93 | .91 | .88 | .87 | .85 | .83 | .83 | .82 | .80 | .77 | .75 | .76 | .77 | .79 | .80 | .80 | .81 | .83 | .86 | .86 | .86 | .87 | .88 | .89 | .92 | .94 | |
| 24 | .92 | .91 | .93 | .92 | .91 | .92 | .91 | .88 | .86 | .85 | .83 | .83 | .82 | .80 | .80 | .74 | .76 | .78 | .79 | .80 | .80 | .82 | .83 | .85 | .84 | .87 | .90 | .88 | .89 | .90 | .93 | |
| 25 | .91 | .90 | .91 | .90 | .91 | .91 | .90 | .88 | .86 | .85 | .83 | .83 | .82 | .80 | .79 | .76 | .77 | .78 | .79 | .80 | .80 | .82 | .85 | .86 | .86 | .86 | .87 | .87 | .89 | .89 | .92 | |
| 26 | .91 | .90 | .91 | .91 | .91 | .91 | .90 | .88 | .86 | .84 | .83 | .83 | .83 | .81 | .79 | .79 | .79 | .79 | .80 | .82 | .81 | .83 | .86 | .85 | .87 | .87 | .87 | .88 | .88 | .90 | .91 | |
| 27 | .91 | .89 | .91 | .90 | .91 | .91 | .91 | .88 | .86 | .84 | .83 | .83 | .82 | .80 | .78 | .80 | .79 | .81 | .82 | .82 | .83 | .85 | .87 | .87 | .87 | .87 | .87 | .88 | .87 | .89 | .91 | |
| 28 | .89 | .89 | .90 | .91 | .93 | .90 | .90 | .88 | .86 | .84 | .83 | .82 | .80 | .80 | .80 | .79 | .91 | .87 | .82 | .82 | .82 | .85 | .85 | .87 | .87 | .87 | .87 | .88 | .87 | .89 | .90 | |

Weld 29-SW-37A

Square \leftrightarrow at Inside Radius of Elbow

Reviewer Orlando W. III Date 3/21/88

Examiner [Signature] Date 3/24/88

Reviewer [Signature] Date 3-22-88 AMLC

Examiner N/A Date N/A

Plant/Unit: NINE MILE POINT UNIT ONE
 ISO: 1148-6
 Comp./Sys.: FEEDWATER/29
 Loop: N/A

ULTRASONIC
EXAMINATION
CALIBRATION
SHEET

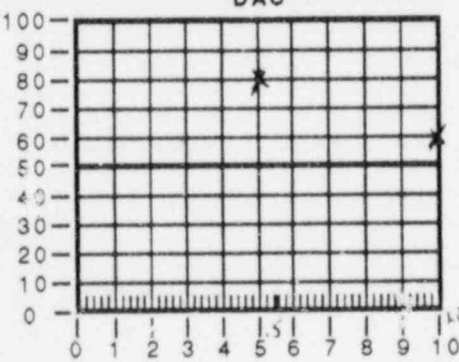
Data Pkg.: 2433-88A-37
 Page 1 of 3
 Exam Item: 6B
 Procedure: 80A2433
 Rev./F.C.: 3
 Title: UT EXAM - STEAM EROSION

| INSTRUMENT SETTINGS | |
|---------------------|----------------|
| Serial # | 211306 |
| MFG./Model # | KKB-USL-38 |
| Sweep Length | 6.51 |
| Sweep Delay | 6.53 |
| Pulse Length/Damp. | MIN |
| Freq. | 5 Range .5 |
| DEC/Gate | OFF Reject MIN |
| Jacks | T&R |
| Mode Select | THRU |
| Coarse Gain | 20 Fine 10 |
| Scan Sens. | N/A |

| SEARCH UNIT | |
|----------------|----------------|
| Serial # | L08554 |
| Brand | KB-AEROTECH |
| Frequency | 5.0 MHz |
| Size/Shape | .25" ROUND |
| Style/Type | GAMMA DUFF |
| Fixture | N/A |
| Cable | 2X6 SELF CONT. |
| Couplant Batch | 8226 |
| Couplant Brand | ULTRAGEL II |

| Calibration Block | |
|-------------------|-------------------|
| Block Thickness | .10-1.0"/1.1-2.0" |
| Comp. Thickness | .843 |
| Block Temperature | 68 °F |
| Comp. Temperature | 69 °F |
| Thermometer | KB-108 |
| Surface | CD |

| Calibration Checks :Time | |
|--------------------------|---------|
| Initial Calib. | 1320 |
| Intermediate | N/A |
| Intermediate | N/A |
| Intermediate | N/A |
| Final Calib. | 1500 |
| Calibration Date | 3/24/88 |



| DAC | | | |
|-----------|-----------|----------|-----|
| Reflector | %FSH | Position | |
| 1 | 5" STEP | 80% | 5 |
| 2 | 1.0" STEP | 60% | 10 |
| 3 | N/A | N/A | N/A |
| 4 | N/A | N/A | N/A |
| 5 | N/A | N/A | N/A |
| 6 | N/A | N/A | N/A |

| INSTRUMENT LINEARITY | | | | |
|----------------------|-----|----|---|-------|
| 1 | 100 | 50 | 6 | 50 25 |
| 2 | 90 | 45 | 7 | 40 20 |
| 3 | 80 | 40 | 8 | 30 15 |
| 4 | 70 | 35 | 9 | 20 10 |
| 5 | 60 | 30 | | |

| AMPLITUDE LINEARITY | | | |
|---------------------|----|-----------|----|
| 80 - 6 = | 39 | 80 - 12 = | 19 |
| 40 + 6 = | 81 | 20 + 12 = | 86 |

CRT Calibrated In
INCHES OF MP
Each Major Screen Div. = 1

| | |
|-------------|-----------|
| Scan Angle | 0 DEGREES |
| Meas. Angle | N/A |
| Mode | LONG |
| Calibration | THICKNESS |
| Scan Area | CD |

Exam Item 6B

Comments/Reasons for Incomplete Exams
ELBOW
EXAMINED GRIDDED AREA BETWEEN 29-SW-36B AND
29-SW-36C

Remarks
REMOVED COUPLANT WITH DEMIN
WATER
LOWEST THICKNESS = 0.72"

Examiner 1: Manfred Grell Level: II Date: 3/24/88
 MANFRED GRELL LEVEL II

WR# N/A
 NCR# N/A
 TRAVELER 29EC-88-004

Examiner 2: NA Level: Date:

NES REVIEWER: Diaw LEVEL: III DATE: 3/29/88

WALL ^{AS 3/29/88}
 WELD ACCEPTABLE?
 YES NO

| | |
|-------|--|
| QA/QC | ANII |
| | ANII INITIAL REVIEW: SIGNATURE _____ DATE _____ ANII FINAL ACCEPTANCE: <u>R. B. Diaw</u> <u>3/29/88</u> SIGNATURE _____ DATE _____ |

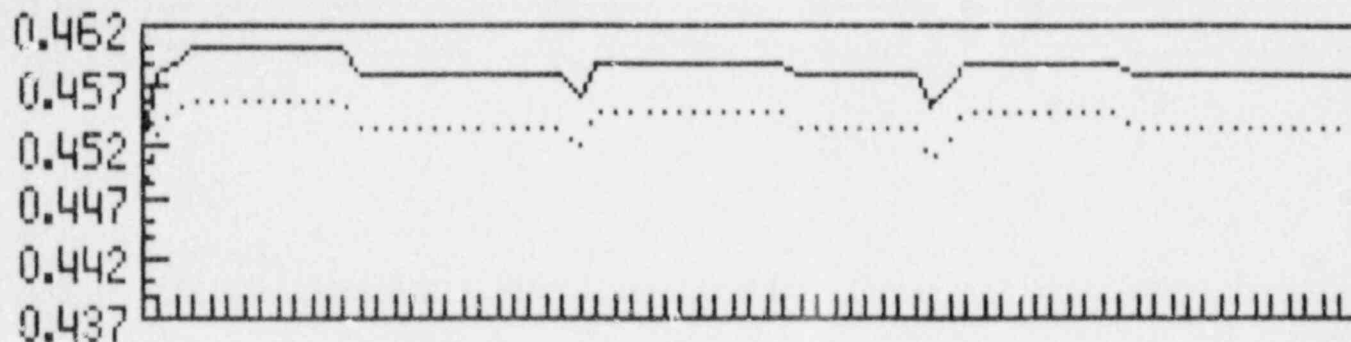
NMPC ENG.
 DISP. REQ.
 YES NO
 N/A



NIAGARA MOHAWK DATA
 TORUS THICKNESS MEASUREMENTS
 NINE MILE 1

ACTUAL MEASUREMENT MINUS 1%

FEATURE VALUE



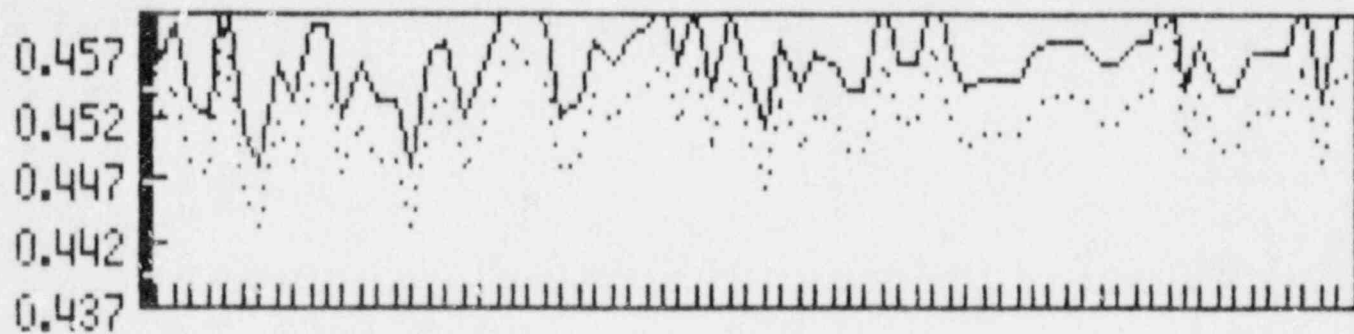
SEQUENCE NUMBER

GRID 1 OF 5 APRIL 1988
 MINIMUM WALL THICKNESS=.447

USNRC DATA
TORUS THICKNESS MEASUREMENTS
NINE MILE 1

ACTUAL MEASUREMENT MINUS 1%

FEATURE VALUE



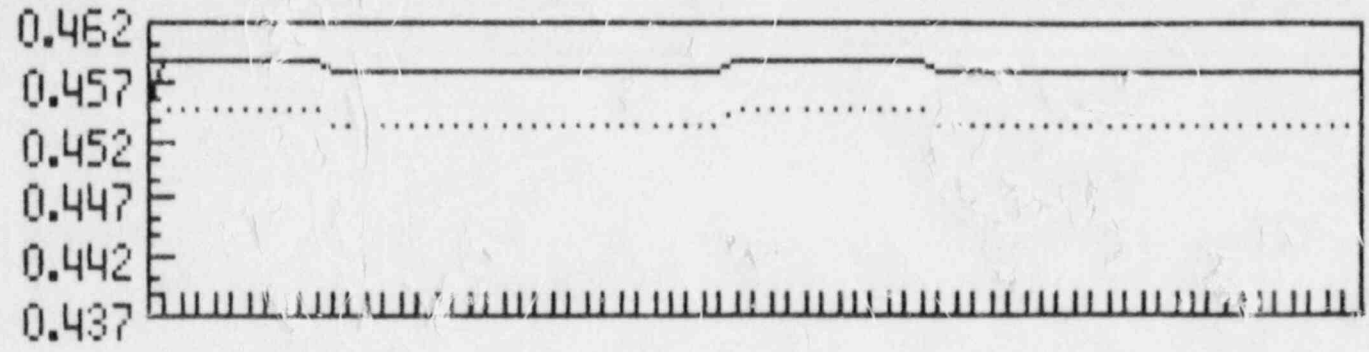
SEQUENCE NUMBER

GRID 2 OF 5 APRIL 1988
MINIMUM WALL THICKNESS=.447

NIAGARA MOHAWK DATA
TORUS THICKNESS MEASUREMENTS
NINE MILE 1

ACTUAL MEASUREMENT MINUS 1%

FEATURE VALUE



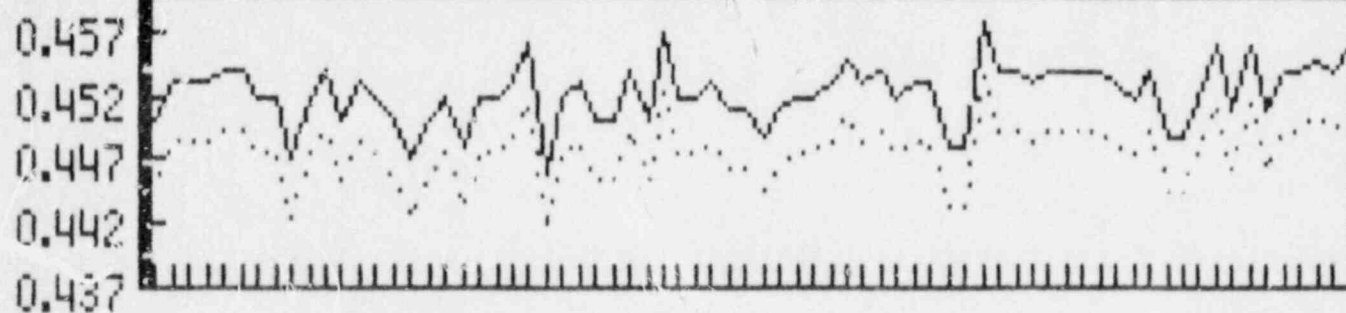
SEQUENCE NUMBER

GRID 2 OF 5 APRIL 1988
MINIMUM WALL THICKNESS=0.447

USNRC DATA
TORUS THICKNESS MEASUREMENTS
NINE MILE 1

ACTUAL MEASUREMENT MINUS 1%

FEATURE VALUE



SEQUENCE NUMBER

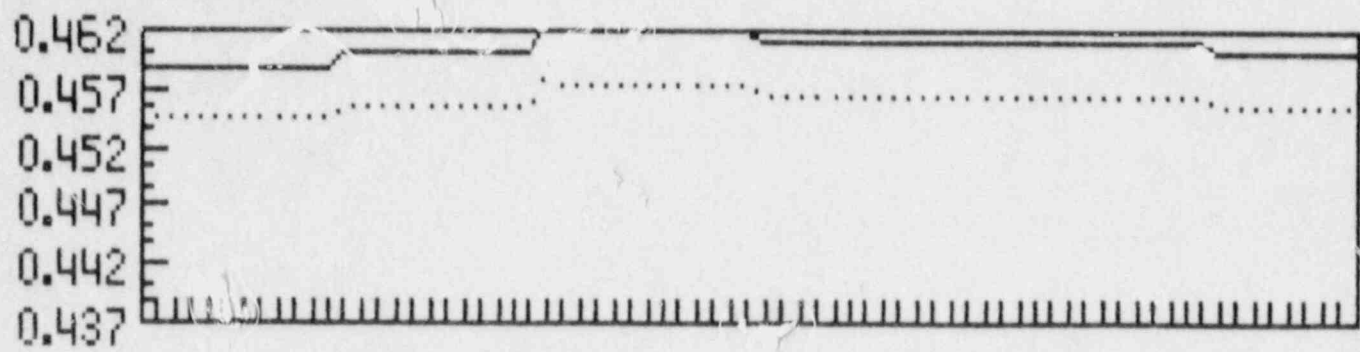
GRID 3 OF 5 APRIL 1988

MINIMUM WALL THICKNESS=.447

NIAGARA MOHAWK DATA
TORUS THICKNESS MEASUREMENTS
NINE MILE 1

ACTUAL MEASUREMENT MINUS 1%

FEATURE VALUE



SEQUENCE NUMBER

GRID 3 OF 5 APRIL 1988
MINIMUM WALL THICKNESS=.447

ISO: N/A

PAGE OF

COMP./SYSTEM: SUPPRESSION CHAMBER

PROCEDURE: 80A2434

ACTUAL TORUS THICKNESS MEASUREMENTS

| | A | B | C | D | E | F | G | H | I | J | K | L | | |
|--|------|------|------|------|------|------|------|------|------|------|------|------|--|--|
| GRID 1 OF 5 | | | | | | | | | | | | | | |
| 1 | .453 | .447 | .449 | .450 | .448 | .449 | .450 | .458 | .445 | .449 | .449 | .450 | | |
| 3 | .451 | .449 | .450 | .450 | .451 | .453 | .451 | .455 | .457 | .450 | .450 | .450 | | |
| 5 | .450 | .451 | .450 | .451 | .451 | .450 | .449 | .449 | .448 | .449 | .450 | .451 | | |
| 7 | .449 | .450 | .449 | .451 | .451 | .449 | .450 | .450 | .449 | .449 | .448 | .449 | | |
| 9 | .448 | .449 | .451 | .448 | .450 | .451 | .449 | .449 | .448 | .450 | .451 | .450 | | |
| 11 | .448 | .450 | .451 | .449 | .451 | .450 | .449 | .450 | .450 | .449 | .450 | .452 | | |
| GRID 2 OF 5 | | | | | | | | | | | | | | |
| 1 | .483 | .456 | .459 | .453 | .462 | .454 | .441 | .458 | .456 | .453 | .459 | .459 | | |
| 3 | .452 | .456 | .453 | .453 | .448 | .457 | .458 | .452 | .455 | .459 | .563 | .461 | | |
| 5 | .459 | .452 | .453 | .458 | .456 | .458 | .459 | .461 | .456 | .461 | .454 | .460 | | |
| 7 | .456 | .451 | .458 | .454 | .457 | .456 | .454 | .454 | .461 | .456 | .456 | .462 | | |
| 9 | .457 | .454 | .455 | .455 | .455 | .457 | .458 | .458 | .458 | .456 | .456 | .458 | | |
| 11 | .458 | .465 | .454 | .458 | .454 | .454 | .457 | .457 | .457 | .461 | .453 | .460 | | |
| GRID 3 OF 5 | | | | | | | | | | | | | | |
| 2 | .448 | .450 | .453 | .453 | .454 | .454 | .452 | .452 | .449 | .447 | .452 | .454 | | |
| 4 | .450 | .453 | .452 | .450 | .447 | .450 | .452 | .448 | .452 | .452 | .453 | .456 | | |
| 6 | .446 | .452 | .453 | .450 | .450 | .454 | .450 | .457 | .452 | .452 | .453 | .451 | | |
| 8 | .451 | .449 | .452 | .452 | .452 | .453 | .455 | .453 | .454 | .452 | .453 | .453 | | |
| 10 | .448 | .448 | .458 | .454 | .454 | .453 | .454 | .454 | .454 | .453 | .452 | .454 | | |
| 12 | .449 | .449 | .452 | .456 | .451 | .456 | .451 | .454 | .455 | .454 | .452 | .456 | | |
| INDEPENDANT MEASUREMENT TAKEN 3" FROM PENETRATION XS-344 | | | | | | | | | | | | | | |
| READINGS TAKEN THROUGH PAINT | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | |
| | .471 | .469 | .465 | .469 | .470 | .473 | .470 | .464 | .469 | | | | | |
| B | .453 | .469 | .472 | .473 | .473 | .467 | .466 | .466 | .470 | | | | | |
| C | .467 | .460 | .464 | .468 | .469 | .465 | .466 | .466 | .461 | | | | | |

Plant/Unit: NINE MILE POINT UNIT ONE
 ISO: N/A
 Comp./Sys.: TORUS
 Loop: N/A

**ULTRASONIC
 EXAMINATION
 CALIBRATION
 SHEET**

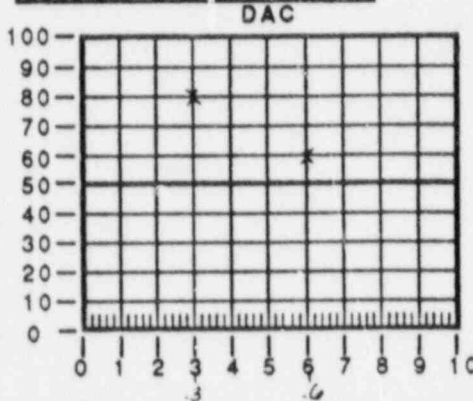
Date Pkg.: 2434-88A 131
 Page 1 of 22
 Exam Item: TORUS
 Procedure: 80A2434
 Rev./F.C.: 3/FC-1&2
 Title: UT EXAM - THICKNESS

| INSTRUMENT SETTINGS | |
|---------------------|-------------|
| Serial # | 213220-4 |
| MFG./Model # | KKB-USL-48 |
| Sweep Length | 6.74 |
| Sweep Delay | 6.00 |
| Pulse Length/Damp. | FIXD |
| Freq. | 5.0 |
| Range | 50" |
| DEC/Gate | OFF |
| Reject | MIN |
| Jack | R&T |
| Mode Select | DUAL |
| Coarse Gain | 40 |
| Fine | 20 |
| Scan Sens. | SEE REMARKS |

| SEARCH UNIT | |
|----------------|-----------------|
| Serial # | L08554 |
| Brand | KB-AEROTECH |
| Frequency | 5.0 MHz |
| Size/Shape | 25" ROUND |
| Style/Type | GAMMA DUFF |
| Fixture | N/A |
| Cable | 2X6' SELF-CONT. |
| Couplant Batch | 8554 |
| Couplant Brand | ULTRAGEL II |

| Calibration Block | |
|-------------------|------------------|
| Block Thickness | NMP-1SW-1020-CS |
| Comp. Thickness | 10-1.0"/1.1-2.0" |
| Block Temperature | 78 °F |
| Comp. Temperature | 75 °F |
| Thermometer | KB114 |
| Surface | CD |

| Calibration Checks :Time | |
|--------------------------|---------|
| Initial Calib. | 1430 |
| Intermediate | N/A |
| Intermediate | N/A |
| Intermediate | N/A |
| Final Calib. | 1600 |
| Calibration Date | 2-19-88 |



| DAC | | |
|-----------|------|----------|
| Reflector | %FSH | Position |
| 1 | .30" | 80 3.0 |
| 2 | .60" | 60 6.0 |
| 3 | N/A | N/A N/A |
| 4 | N/A | N/A N/A |
| 5 | N/A | N/A N/A |
| 6 | N/A | N/A N/A |

| INSTRUMENT LINEARITY | | | | | |
|----------------------|-----|----|---|----|----|
| 1 | 100 | 50 | 6 | 50 | 25 |
| 2 | 90 | 45 | 7 | 40 | 20 |
| 3 | 80 | 40 | 8 | 30 | 15 |
| 4 | 70 | 35 | 9 | 20 | 10 |
| 5 | 60 | 30 | | | |

| AMPLITUDE LINEARITY | | | |
|---------------------|--------------|--|--|
| 80 - 6 = 40 | 80 - 12 = 20 | | |
| 40 + 6 = 30 | 20 + 12 = 30 | | |

CRT Calibrated In
 INCHES OF DEPTH
 Each Major Screen Div. = 10"

| | |
|-------------|-----------|
| Scan Angle | 0 |
| Meas. Angle | N/A |
| Mode | LONG |
| Calibration | THICKNESS |
| Scan Area | GRID |

Exam Item: TORUS

Comments/Reasons for Incomplete Exams

TORUS THICKNESS AREAS 1 THRU 5
 SCANNED GRID AREAS 1 THRU 5
 REFER TO ATTACHED MAP AND GRIDS FOR THICKNESS READINGS

Remarks

MAINTAINED 80% BACK REFLECTION

Examiner 1: H. M. Hawkins
 HARRY HAWKINS UT LEVEL II

Level: II Date: 2-19-88

WR# N/A
 NCR# N/A
 TRAVELER RXBM-88-001

Examiner 2: Gary Jude
 GARY JUDE UT LEVEL I T

Level: IT Date: 2-19-88

NES REVIEWER: Art P...

LEVEL: III DATE: 2-20-88

WELD ACCEPTABLE?
 YES NO

QA/QC

ANII

DATE: 2/20/88

NMPC ENG.
 DISP. REQ.
 YES NO

Plant/Unit: NINE MILE POINT #1
 ISO: N/A
 Comp./Sys.: TORUS
 Loop: A2

TORUS THICKNESS

Data Pkg.: 2717-284-131
 Page 5 of 22
 Exam Item: Torus Grid #1
 Procedure: 8092434
 Rev./F.C.: 3 / FC-1.2
 Title: UT EXAM THICKNESS

Calibration Block: step wedge 80C3613
 Grid Area: 1 of 5

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| G | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 |
| H | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 |
| I | MAX-.466 MIN-.455 | MAX-.465 MIN-.457 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 |
| J | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |
| K | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 |
| L | MAX-.465 MIN-.457 | MAX-.466 MIN-.459 | MAX-.465 MIN-.457 | MAX-.465 MIN-.457 | MAX-.465 MIN-.457 | MAX-.465 MIN-.457 |

Examiner 1: H.M. Hawkins Level: II Date: 2-19-88

Examiner 2: Aary Jude Level: IT Date: 2-19-88

NES REVIEWER: Art R... LEVEL: III DATE: 2-20-88

QA/QC

ANI

ANI INITIAL REVIEW:
 SIGNATURE _____ DATE _____
 ANI FINAL ACCEPTANCE:
A. R... 2/20/88
 SIGNATURE _____ DATE _____

Plant/Unit: NMP # I
 ISO: NA
 Comp. Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 2414-SSA-131
 Page 3 of 22
 Exam Item: Torus Grid #1
 Procedure: 80A 2434
 Rev./F.C.: 3 / F.C. 1,2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C 3613
 Grid Area: 1 of 5

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | MAX-.465 MIN-.452 | MAX-.469 MIN-.458 | MAX-.465 MIN-.459 | MAX-.469 MIN-.460 | MAX-.469 MIN-.460 | MAX-.469 MIN-.460 |
| B | MAX-.468 MIN-.461 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 |
| C | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 |
| D | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 |
| E | MAX-.467 MIN-.456 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 |
| F | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 |

Examiner 1: H. M. Hank Level: II Date: 2-19-88

Examiner 2: Aary Judd Level: IT Date: 2-19-88

NES REVIEWER: et R... LEVEL: III DATE: 2-24-88

| | |
|-------|---|
| QA/QC | ANII |
| | ANII INITIAL REVIEW: |
| | SIGNATURE _____ DATE _____ |
| | ANII FINAL ACCEPTANCE: SIGNATURE <u>A. Bl...</u> DATE <u>2/20/88</u> |

Plant/Unit: N. WE M. LE POINT I
ISO: NA
Comp./Sys.: TORUS
Loop: NA

TORUS THICKNESS

Date Pkg.: 244-17A-131
Page 4 of 22
Exam Item: TORUS Grid #1
Procedure: 80A2434
Rev./F.C.: Rev. 3 / F.C. 1.2
Title: UT EXAM Thickness

Calibration Block: STEP wedge 8CC3613
Grid Area: 1 of 5

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | MAX-.469 MIN-.460 | MAX-.469 MIN-.460 | MAX-.469 MIN-.460 | MAX-.469 MIN-.460 | MAX-.469 MIN-.460 | MAX-.469 MIN-.460 |
| B | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 |
| C | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 | MAX-.465 MIN-.458 |
| D | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 | MAX-.465 MIN-.454 |
| E | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 |
| F | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 | MAX-.469 MIN-.459 |

Examiner 1: H. M. Hankins Level: II Date: 2-19-88

Examiner 2: Aary Jude Level: ET Date: 2-19-88

NES REVIEWER: Pat R... LEVEL: III DATE: 2-20-88

| | |
|-------|---|
| QA/QC | ANII INITIAL REVIEW: DATE: _____ ACCEPTANCE: <u>A. Hankins</u> <u>2/20/88</u> SIGNATURE DATE |
|-------|---|

Plant/Unit: NMP #1
 ISO: N/A
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 244-58A-131
 Page 6 of 22
 Exam Item: Torus Grid #1
 Procedure: 80A2434
 Rev./F.C.: 3 / FC-1,2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: Lot 5

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| G | MAX=.465 MIN=.453 | MAX=.465 MIN=.455 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 |
| H | MAX=.465 MIN=.458 | MAX=.465 MIN=.455 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 |
| I | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 |
| J | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 |
| K | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.459 | MAX=.465 MIN=.458 |
| L | MAX=.465 MIN=.457 | MAX=.465 MIN=.457 | MAX=.465 MIN=.457 | MAX=.465 MIN=.457 | MAX=.465 MIN=.457 | MAX=.465 MIN=.457 |

Examiner 1: H. M. Hankin Level: I Date: 2-19-88

Examiner 2: Aary Jude Level: ET Date: 2-19-88

NES REVIEWER: Art R... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII INITIAL REVIEW: DATE: FINAL ACCEPTANCE: <u>R. R. ...</u> 2/20/88 DATE |
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Plant/Unit: NMP #1
 ISO: N/A
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 2414-88A-151
 Page 7 of 22
 Exam Item: Torus Grid #2
 Procedure: 80A2434
 Rev./F.C.: 3 / F.C. 1, 2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: 2 of 5

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | MAX-.470 MIN-.455 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 |
| B | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 |
| C | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 |
| D | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 |
| E | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 |
| F | MAX-.467 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 |

Examiner 1: H. M. Hankins Level: II Date: 2-19-88

Examiner 2: Amy Jude Level: II Date: 2-19-88

NES REVIEWER: C. P. ... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII |
| | ANII INITIAL REVIEW: |
| | SIGNATURE: _____ DATE: _____ ANII FINAL ACCEPTANCE: SIGNATURE: <u>R. ...</u> DATE: <u>2/20/88</u> SIGNATURE: _____ DATE: _____ |

Plant/Unit: NMP #1
 ISO: ~2
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 2714-58A-111
 Page 5 of 12
 Exam Item: Torus Grid #2
 Procedure: 80A2434
 Rev./F.C.: 3 / F.C. - 1, 2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: 2 of 5

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 | MAX-.466 MIN-.459 |
| B | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 |
| C | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 | MAX-.468 MIN-.458 |
| D | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 |
| E | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 | MAX-.464 MIN-.458 |
| F | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 |

Examiner 1: H. W. Hankin Level: II Date: 2-19-88

Examiner 2: Aory Jude Level: IT Date: 2-19-88

NES REVIEWER: Art R... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII REVIEW: DATE ACCEPTANCE: <u>R. Butcher</u> <u>2/20/88</u> SIGNATURE DATE |
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Plant/Unit: NMP #1
ISO: N/A
Comp./Sys.: Torus
LODD: N/A

TORUS THICKNESS

Date Pkg.: 2454-58A-121
Page 9 of 22
Exam Item: Torus Grid #2
Procedure: 80A2434
Rev./F.C.: 3 / F.C. - 1, 2
Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
Grid Area: 2 of 5

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| G | MAX- .463 MIN- .459 | MAX- .465 MIN- .459 | MAX- .465 MIN- .459 | MAX- .465 MIN- .459 | MAX- .465 MIN- .459 | MAX- .465 MIN- .459 |
| H | MAX- .465 MIN- .459 | MAX- .465 MIN- .459 | MAX- .465 MIN- .459 | MAX- .465 MIN- .459 | MAX- .465 MIN- .459 | MAX- .465 MIN- .459 |
| I | MAX- .465 MIN- .458 | MAX- .465 MIN- .458 | MAX- .465 MIN- .458 | MAX- .465 MIN- .458 | MAX- .465 MIN- .458 | MAX- .465 MIN- .458 |
| J | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 |
| K | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 | MAX- .468 MIN- .458 |
| L | MAX- .466 MIN- .460 | MAX- .466 MIN- .456 | MAX- .466 MIN- .456 | MAX- .466 MIN- .458 | MAX- .469 MIN- .460 | MAX- .469 MIN- .460 |

Examiner 1: H.M. Hamlin Level: II Date: 2-19-88

Examiner 2: Aary Jurek Level: IT Date: 2-19-88

NES REVIEWER: Get Run LEVEL: III DATE: 2-20-88

GA/QC

ANII

ANII INITIAL REVIEW:

DATE

ANII FINAL ACCEPTANCE:

A. Roberts 2/29/88
SIGNATURE DATE

Plant/Unit: NMP#1
 ISO: NA
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 2924-588-151
 Page 10 of 22
 Exam Item: Torus Grid #2
 Procedure: 80A2434
 Rev./F.C.: 3 / F.C. 1, 2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: 2005

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| G | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 |
| H | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 | MAX=.465 MIN=.459 |
| I | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 | MAX=.465 MIN=.458 |
| J | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 |
| K | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 | MAX=.468 MIN=.458 |
| L | MAX=.469 MIN=.460 | MAX=.469 MIN=.460 | MAX=.469 MIN=.460 | MAX=.469 MIN=.460 | MAX=.469 MIN=.460 | MAX=.469 MIN=.460 |

Examiner 1: dmHahn Level: II Date: 2-19-88

Examiner 2: Aary Jack Level: IT Date: 2-19-88

NES REVIEWER: At Rev - am LEVEL: III DATE: 2-20-88

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| QA/QC | ANII ACCEPTANCE <u>A. B. B. B. B.</u> <u>2/20/88</u> DATE |
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Plant/Unit: NMP#I
ISO: N/A
Comp./Sys.: Torus
Loop: N/A

TORUS THICKNESS

Date Pkg.: 2411-FA-13'
Page 11 of 20
Exam Item: Torus Grid #3
Procedure: 80A2434
Rev./F.C.: 3 / F.C.-1.2
Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
Grid Area: 3095

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | MAX-.465 MIN-.456 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 |
| B | MAX-.465 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 |
| C | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 |
| D | MAX-.469 MIN-.460 | MAX-.465 MIN-.460 | MAX-.467 MIN-.460 | MAX-.467 MIN-.460 | MAX-.467 MIN-.460 | MAX-.467 MIN-.460 |
| E | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 |
| F | MAX-.469 MIN-.464 | MAX-.469 MIN-.462 | MAX-.469 MIN-.462 | MAX-.469 MIN-.462 | MAX-.469 MIN-.462 | MAX-.469 MIN-.462 |

Examiner 1: N/A Hamli Level: II Date: 2-19-88

Examiner 2: Aary Jude Level: IT Date: 2-19-88

NES REVIEWER: Art P... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII |
| | ANII INITIAL REVIEW: |
| | SIGNATURE _____ DATE _____ |
| | ANII FINAL ACCEPTANCE: |
| | SIGNATURE <u>[Signature]</u> DATE <u>2/20/88</u> |

Plant/Unit: NMP # I
 ISO: 7A
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 2414-SFA-131
 Page 12 of 22
 Exam Item: Torus Grid #3
 Procedure: 80A24.34
 Rev./F.C.: 3 / FC-1,2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: 3 of 5

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 |
| B | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 | MAX-.468 MIN-.459 |
| C | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 | MAX-.465 MIN-.459 |
| D | MAX-.467 MIN-.460 | MAX-.467 MIN-.460 | MAX-.467 MIN-.460 | MAX-.467 MIN-.460 | MAX-.467 MIN-.460 | MAX-.467 MIN-.460 |
| E | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 | MAX-.468 MIN-.460 |
| F | MAX-.469 MIN-.462 | MAX-.469 MIN-.462 | MAX-.469 MIN-.462 | MAX-.469 MIN-.462 | MAX-.469 MIN-.462 | MAX-.469 MIN-.462 |

Examiner 1: H.M. Nashi Level: II Date: 2-19-88

Examiner 2: Amy Judd Level: ET Date: 2-19-88

NES REVIEWER: Get Penn LEVEL: III DATE: 2-20-88

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| QA/QC | ANII ANII INITIAL REVIEW: SIGNATURE _____ DATE _____ ANII FINAL ACCEPTANCE: <u>R. B. [Signature]</u> <u>2/24/88</u> SIGNATURE _____ DATE _____ |
|-------|---|

Plant/Unit: NMP# I
 ISO: 2a
 Comp./Sys.: Torus
 LOOP: N/A

TORUS THICKNESS

Date Pkg.: 2154-S8A-181
 Page 11 of 22
 Exam Item: Torus Grid #3
 Procedure: 80A2434
 Rev./F.C.: 3 / F.C. - 1, 2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: 3 of 5

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| G | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 |
| H | MAX-.470 MIN-.461 | MAX-.471 MIN-.461 | MAX-.470 MIN-.461 | MAX-.470 MIN-.461 | MAX-.470 MIN-.461 | MAX-.470 MIN-.461 |
| I | MAX-.471 MIN-.462 | MAX-.471 MIN-.461 | MAX-.471 MIN-.461 | MAX-.471 MIN-.461 | MAX-.471 MIN-.461 | MAX-.471 MIN-.461 |
| J | MAX-.470 MIN-.461 | MAX-.470 MIN-.461 | MAX-.470 MIN-.461 | MAX-.470 MIN-.461 | MAX-.470 MIN-.461 | MAX-.470 MIN-.461 |
| K | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 |
| L | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 | MAX-.470 MIN-.460 |

Examiner 1: H. F. Hank Level: II Date: 2-19-88

Examiner 2: Amy Jock Level: II Date: 2-19-88

NES REVIEWER: Carl P... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII | ANII INITIAL REVIEW: | |
| | | SIGNATURE _____ | DATE _____ |
| | | ANII FINAL ACCEPTANCE: | |
| | | SIGNATURE <u>R. B. ...</u> | DATE <u>2/22/88</u> |
| | | SIGNATURE _____ | DATE _____ |

Plant/Unit: NMP # I
 ISO: 76
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Data Pkg.: 2434-ISA-121
 Page 14 of 22
 Exam Item: Torus Grid #3
 Procedure: 80A2434
 Rev./F.C.: 3 / EC-1,2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: 30.5

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| G | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.461 |
| H | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 |
| I | MAX=.471 MIN=.461 | MAX=.471 MIN=.461 | MAX=.471 MIN=.461 | MAX=.471 MIN=.461 | MAX=.471 MIN=.461 | MAX=.471 MIN=.461 |
| J | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 | MAX=.470 MIN=.461 |
| K | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 |
| L | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 | MAX=.470 MIN=.460 |

Examiner 1: H. M. Nash Level: II Date: 2-19-88

Examiner 2: Amy Jude Level: II Date: 2-19-88

NES REVIEWER: Cot Roman LEVEL: III DATE: 2-20-88

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| QA/QC | ANII INITIAL REVIEWER DATE INITIAL ACCEPTANCE: <u>R. B. [Signature]</u> <u>2/20/88</u> SIGNATURE DATE |
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Plant/Unit: NMP # I
 ISO: N/A
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 2424-88A-131
 Page 15 of
 Exam Item: Torus Grid # 4
 Procedure: ROA 2434
 Rev./F.C.: 3 / FC. - 1, 2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C 3613
 Grid Area: 40 x 5

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| A | MAX- .469 MIN- .460 | MAX- .468 MIN- .463 | MAX- .465 MIN- .455 | MAX- .465 MIN- .455 | MAX- .465 MIN- .455 | MAX- .465 MIN- .455 |
| B | MAX- .469 MIN- .456 | MAX- .469 MIN- .456 | MAX- .469 MIN- .456 | MAX- .469 MIN- .456 | MAX- .469 MIN- .456 | MAX- .469 MIN- .456 |
| C | MAX- .467 MIN- .460 | MAX- .466 MIN- .456 | MAX- .466 MIN- .456 | MAX- .466 MIN- .456 | MAX- .466 MIN- .456 | MAX- .466 MIN- .456 |
| D | MAX- .466 MIN- .458 | MAX- .466 MIN- .458 | MAX- .466 MIN- .458 | MAX- .466 MIN- .458 | MAX- .466 MIN- .458 | MAX- .466 MIN- .458 |
| E | MAX- .465 MIN- .453 | MAX- .461 MIN- .455 | MAX- .464 MIN- .455 | MAX- .464 MIN- .455 | MAX- .464 MIN- .455 | MAX- .464 MIN- .455 |
| F | MAX- .466 MIN- .455 | MAX- .465 MIN- .458 | MAX- .465 MIN- .458 | MAX- .465 MIN- .458 | MAX- .465 MIN- .458 | MAX- .465 MIN- .458 |

Examiner 1: A/M Hawkin Level: II Date: 2-19-88

Examiner 2: Amy Jule Level: IT Date: 2-19-88

NES REVIEWER: Carl P... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII | ANII INITIAL REVIEW: | |
| | | SIGNATURE | DATE |
| | | ANII FINAL ACCEPTANCE: | |
| | | SIGNATURE | DATE |

(Handwritten signatures and dates are present in the ANII section)

Plant/Unit: NMP # I
 ISO: 4%
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 2434-SXA-181
 Page 16 of 22
 Exam Item: Torus Grid #4
 Procedure: 80A2434
 Rev./F.C.: 3 / FC-12
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: 40 x 5

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | MAX-.465 MIN-.455 | MAX-.465 MIN-.455 | MAX-.465 MIN-.455 | MAX-.465 MIN-.455 | MAX-.465 MIN-.455 | MAX-.465 MIN-.455 |
| B | MAX-.469 MIN-.456 | MAX-.469 MIN-.456 | MAX-.469 MIN-.456 | MAX-.469 MIN-.456 | MAX-.469 MIN-.456 | MAX-.469 MIN-.456 |
| C | MAX-.466 MIN-.456 | MAX-.466 MIN-.456 | MAX-.466 MIN-.456 | MAX-.466 MIN-.456 | MAX-.466 MIN-.456 | MAX-.466 MIN-.456 |
| D | MAX-.466 MIN-.458 | MAX-.466 MIN-.458 | MAX-.466 MIN-.458 | MAX-.466 MIN-.458 | MAX-.466 MIN-.458 | MAX-.466 MIN-.458 |
| E | MAX-.464 MIN-.455 | MAX-.464 MIN-.455 | MAX-.464 MIN-.455 | MAX-.464 MIN-.455 | MAX-.464 MIN-.455 | MAX-.464 MIN-.455 |
| F | MAX-.465 MIN-.457 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 | MAX-.465 MIN-.460 |

Examiner 1: H M Hawk Level: II Date: 2-19-88

Examiner 2: Aary Jada Level: IT Date: 2-19-88

NES REVIEWER: Get K... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII ANII INITIAL REVIEW: SIGNATURE _____ DATE _____ ANII FINAL ACCEPTANCE: <u>A. B. ...</u> <u>2/20/88</u> SIGNATURE _____ DATE _____ |
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Plant/Unit: NMP # I
 ISO: NA
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 2434-88A-121
 Page 17 of 22
 Exam Item: Torus Grid #4
 Procedure: 80A2434
 Rev./F.C.: 3 / FC-1, 2
 Title: UT Exam Thickness

Calibration Block: Step wedge 80C3613
 Grid Area: 4.25

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| G | MAX- .466 MIN- .454 | MAX- .465 MIN- .452 | MAX- .465 MIN- .452 | MAX- .465 MIN- .452 | MAX- .465 MIN- .452 | MAX- .465 MIN- .452 |
| H | MAX- .465 MIN- .452 | MAX- .465 MIN- .452 | MAX- .465 MIN- .452 | MAX- .465 MIN- .452 | MAX- .465 MIN- .452 | MAX- .465 MIN- .452 |
| I | MAX- .466 MIN- .454 | MAX- .466 MIN- .454 | MAX- .466 MIN- .454 | MAX- .466 MIN- .454 | MAX- .466 MIN- .454 | MAX- .466 MIN- .454 |
| J | MAX- .463 MIN- .454 | MAX- .463 MIN- .454 | MAX- .463 MIN- .454 | MAX- .463 MIN- .454 | MAX- .463 MIN- .454 | MAX- .463 MIN- .454 |
| K | MAX- .463 MIN- .458 | MAX- .463 MIN- .458 | MAX- .463 MIN- .458 | MAX- .463 MIN- .458 | MAX- .463 MIN- .458 | MAX- .463 MIN- .458 |
| L | MAX- .462 MIN- .454 | MAX- .462 MIN- .454 | MAX- .462 MIN- .454 | MAX- .462 MIN- .454 | MAX- .462 MIN- .454 | MAX- .462 MIN- .454 |

Examiner 1: H. M. Hankins Level: II Date: 2-19-88

Examiner 2: Aary Jude Level: ET Date: 2-19-88

NES REVIEWER: Tim R... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII |
| | QUALITY REVIEW: DATE: _____ FINAL ACCEPTANCE: <u>R. Al...</u> <u>2/20/88</u> SIGNATURE DATE |

Plant/Unit: NMP #1
ISO: NA
Comp./Sys.: Torus
Loop: N/A

TORUS THICKNESS

Date Pkg.: 2414 SSA-101
Page 18 of 22
Exam Item: Torus Grid #4
Procedure: 80A2434
Rev./F.C.: 3 / FC-1,2
Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
Grid Area: 40 x 5

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| G | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 |
| H | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 | MAX=.465 MIN=.452 |
| I | MAX=.466 MIN=.454 | MAX=.466 MIN=.454 | MAX=.466 MIN=.454 | MAX=.466 MIN=.454 | MAX=.466 MIN=.454 | MAX=.466 MIN=.454 |
| J | MAX=.463 MIN=.454 | MAX=.463 MIN=.454 | MAX=.463 MIN=.454 | MAX=.463 MIN=.454 | MAX=.463 MIN=.454 | MAX=.463 MIN=.454 |
| K | MAX=.463 MIN=.458 | MAX=.463 MIN=.458 | MAX=.463 MIN=.458 | MAX=.463 MIN=.458 | MAX=.463 MIN=.458 | MAX=.463 MIN=.458 |
| L | MAX=.462 MIN=.454 | MAX=.462 MIN=.454 | MAX=.462 MIN=.454 | MAX=.462 MIN=.454 | MAX=.462 MIN=.454 | MAX=.462 MIN=.454 |

Examiner 1: H.M. Hawks Level: II Date: 2-19-88

Examiner 2: Amy Jude Level: II Date: 2-19-88

NES REVIEWER: Art P... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII | ANII INITIAL REVIEW: | |
| | | SIGNATURE | DATE |
| | | ANII FINAL ACCEPTANCE: | |
| | | SIGNATURE | DATE |

Plant/Unit: NMP # I
 ISO: NA
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Data Pkg.: 2424-88A-131
 Page 19 of 22
 Exam Item: Torus Grid # 5
 Procedure: 80A 2434
 Rev./F.C.: 3 / FC-1,2
 Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: 5 of 5

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 |
| B | MAX-.462 MIN-.454 | MAX-.462 MIN-.459 | MAX-.462 MIN-.459 | MAX-.462 MIN-.452 | MAX-.462 MIN-.452 | MAX-.462 MIN-.452 |
| C | MAX-.464 MIN-.453 | MAX-.462 MIN-.454 | MAX-.465 MIN-.454 | MAX-.465 MIN-.456 | MAX-.465 MIN-.456 | MAX-.465 MIN-.456 |
| D | MAX-.459 MIN-.451 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |
| E | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |
| F | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |

Examiner 1: H.M. Haski Level: II Date: 2-19-88

Examiner 2: Aary Juck Level: IT Date: 2-19-88

NES REVIEWER: Art P... LEVEL: III DATE: 2-20-88

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| QA/QC | ANII | INITIAL REVIEW: DATE: _____ ACCEPTANCE: <u>R. Haski</u> <u>2/20/88</u> DATE: _____ |
|-------|------|--|

Plant/Unit: NMP # I
ISO: 7A
Comp./Sys.: Torus
Loop: N/A

TORUS THICKNESS

Date Pkg.: 2014-884-131
Page 20 of 22
Exam Item: Torus Grid # 5
Procedure: 80A2434
Rev./F.C.: 3 / F.C. - 1.2
Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
Grid Area: 5.0 FS

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| A | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 | MAX-.465 MIN-.462 |
| B | MAX-.462 MIN-.452 | MAX-.462 MIN-.452 | MAX-.462 MIN-.452 | MAX-.462 MIN-.452 | MAX-.462 MIN-.452 | MAX-.462 MIN-.452 |
| C | MAX-.464 MIN-.456 | MAX-.465 MIN-.456 | MAX-.465 MIN-.456 | MAX-.465 MIN-.456 | MAX-.465 MIN-.456 | MAX-.465 MIN-.456 |
| D | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |
| E | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |
| F | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |

Examiner 1: H.M. Hamlin Level: II Date: 2-19-88

Examiner 2: Aary Jude Level: IT Date: 2-19-88

NES REVIEWER: Carl R... LEVEL: III DATE: 2-20-88

| | |
|-------|--|
| QA/QC | ANII |
| | ANII INITIAL REVIEW: |
| | SIGNATURE _____ DATE _____ |
| | ANII FINAL ACCEPTANCE: <u>R. Bittner</u> <u>2/20/88</u> |
| | SIGNATURE _____ DATE _____ |

Plant/Unit: NMP # I
ISO: 1/2
Comp./Sys.: Torus
LOOP: N/A

TORUS THICKNESS

Date Pkg.: 3410. 884-131
Page 21 of 22
Exam Item: Torus Grid # 5
Procedure: 80A2434
Rev./F.C.: 3 / F.C. - 1.2
Title: UT Exam Thickness

Calibration Block: Step Wedge 80C3613
Grid Area: 5.075

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| G | MAX-.461 MIN-.449 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |
| H | MAX-.459 MIN-.455 | MAX-.459 MIN-.455 | MAX-.459 MIN-.455 | MAX-.459 MIN-.455 | MAX-.459 MIN-.455 | MAX-.459 MIN-.455 |
| I | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |
| J | MAX-.478 MIN-.465 | MAX-.465 MIN-.452 | MAX-.465 MIN-.455 | MAX-.465 MIN-.455 | MAX-.465 MIN-.455 | MAX-.465 MIN-.455 |
| K | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |
| L | MAX-.464 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 | MAX-.465 MIN-.452 |

Examiner 1: H.M. Hankins Level: II Date: 2-19-88

Examiner 2: Amy Jude Level: IT Date: 2-19-88

NES REVIEWER: Git R... LEVEL: III DATE: 2-20-88

| | |
|-------|---|
| QA/QC | ANII INITIAL REVIEW: DATE FINAL ACCEPTANCE: <u>R.L. English</u> 2/19/88 SIGNATURE DATE |
|-------|---|

Plant/Unit: NMP# I
 ISO: N/A
 Comp./Sys.: Torus
 Loop: N/A

TORUS THICKNESS

Date Pkg.: 2430 541 11
 Page 22 of 22
 Exam Item: Torus Grid # 5
 Procedure: 80A 24.34
 Rev./F.C.: 3 / F.C. - 1, 2
 Title: LT Exam Thickness

Calibration Block: Step Wedge 80C3613
 Grid Area: 5x5

| | 7 | 8 | 9 | 10 | 11 | 12 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| G | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 |
| H | MAX = .454 MIN = .455 | MAX = .454 MIN = .455 | MAX = .454 MIN = .455 | MAX = .459 MIN = .455 | MAX = .459 MIN = .455 | MAX = .459 MIN = .455 |
| I | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 |
| J | MAX = .465 MIN = .455 | MAX = .465 MIN = .455 | MAX = .465 MIN = .455 | MAX = .465 MIN = .455 | MAX = .465 MIN = .455 | MAX = .465 MIN = .455 |
| K | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 |
| L | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 | MAX = .465 MIN = .452 |

Examiner 1: H. M. Hark Level: II Date: 2-19-88

Examiner 2: Andy Jack Level: IT Date: 2-19-88

NES REVIEWER: Art P... LEVEL: II DATE: 2-20-88

QA/QC

ANII

PLANT: NINE MILE POINT 1
ISO: C:15163-C, C:15166-C
COMP./SYSTEM: DRYWELL OUTER LINER
PROCEDURE: 80A2434

NRC DATA ATTACHMENT

ATTACHMENT # 4
PAGE 1 OF 1

| RIGHT BOTTEM | | | | | |
|--------------|-------|-------|-------|-------|--|
| | A | B | C | D | |
| 1 | 1.038 | 1.132 | 1.119 | 1.113 | |
| 2 | 1.138 | 1.110 | 1.105 | 1.101 | |
| 3 | 1.087 | 1.113 | 1.105 | 1.118 | |
| 4 | 1.103 | 1.127 | 1.108 | 1.123 | |
| 5 | 1.113 | 1.102 | 1.108 | 1.123 | |

| LEFT BOTTEM | | | | | |
|-------------|-------|-------|-------|---------|--|
| | A | B | C | D | |
| 1 | 1.110 | 1.113 | 1.125 | 1.144 * | |
| 2 | 1.110 | 1.081 | 1.090 | 1.091 | |
| 3 | 1.110 | 1.110 | 1.088 | 1.123 | |
| 4 | 1.109 | 1.090 | 1.088 | 1.123 | |
| 5 | 1.096 | 1.111 | 1.101 | 1.112 | |

* = AREA READING WAS TAKEN THRU PAINT