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February 19, 2002

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Submittal of Changes to the AmerGen Report on 1999 Outage 13R Eddy Current Examinations of the TMI Unit 1 Once-Through Steam Generator (OTSG) Tubing

**THREE MILE ISLAND, UNIT 1 (TMI UNIT 1)
OPERATING LICENSE NO. DPR-50
DOCKET NO. 50-289**

References: 1. AmerGen Letter. J. B. Cotton to NRC, "Cycle 13 Refueling (13R) Inservice Inspection (ISI) – ASME NIS-1&2 Owner's Data Report Forms with Reports of the Once Through Steam Generator (OTSG) Tube Inspections, Pressure Tests and ASME Section XI Subsection IWE & IWL Containment Inspections," dated January 14, 2000.

AmerGen submitted its "Report on the 1999 Outage 13R Eddy Current Examinations of the TMI-1 OTSG Tubing," Topical Report (TR) No. 135, Revision 0 as part of Reference 1. Recently it was discovered that 35 tubes in the "B" OTSG were identified incorrectly by row-tube identification numbers during some of the Outage 13R eddy current examinations. Although it was intended that all steam generator tubes be examined with a bobbin coil eddy current probe during that outage, use of the incorrect identification numbers resulted in 14 of the 35 tubes not being examined. Two (2) of the 35 tubes were examined with their correct row-tube identification numbers during examination with other calibration groups, and 19 of the 35 tubes were examined, but with an incorrect row-tube identification.

As required by the TMI Unit 1 eddy current analysis guidelines, the ISI database of examination results has been updated to correct for the tubes that were affected. Additionally, TR No. 135 has been revised. The purpose of this letter is to submit the pages from TR No. 135, Revision 1 that changed since our submittal of TR No. 135, Revision 0 in Reference 1. No other results were affected and the conclusions drawn from the 13R Outage tube examination results remain valid. Examination of 100% of the tubes was not required by the TMI Unit 1 Technical Specifications during the 13R Outage because the ECT inspection results were not in the "C-3" category. Neither the Technical Specification inspection sampling requirements nor the tube repair requirements were violated.

A001

The 35 tubes affected by incorrect identification numbers during the 13R Outage were examined during the recent T1R14 Outage with no indications of through-wall degradation identified.

Very truly yours,

A handwritten signature in black ink, appearing to read "George B. Roubel" followed by a stylized flourish.

Michael P. Gallagher
Director – Licensing and Regulatory Affairs
Mid-Atlantic Regional Operating Group

Attachment

cc: H. J. Miller, USNRC Regional Administrator, Region I
J. D. Orr, USNRC TMI Unit 1 Resident Inspector
T. G. Colburn, USNRC TMI Unit 1 Senior Project Manager
File No. 98192

ATTACHMENT

Changed Pages affected by Topical Report (TR) No. 135, Revision 1, "Report on the 1999 Outage 13R Eddy Current Examinations of the TMI-1 OTSG Tubing"

Revised Pages:

Report Pages:	1, 2, 5, 19, 29, 43 and 45
Appendix I Pages:	2, and 3
Appendix II Pages:	127 through 132, 151 and 163
Appendix III:	(No Changes)

Report on the 1999 Outage 13R Eddy Current Examinations of the TMI-1 OTSG Tubing

Topical Report Number: 135
(Rev 1)

Gene Navratil Gene Navratil 2-11-02
Author Date

Richard Freeman Richard Freeman 2-14-02
Reviewer Date

Design Verification Required?
N/A

☐ YES ☒ NO
N/A

If yes - DV#: N/A

Design Verification Engineer

Date

Richard Barley Richard Barley 2/14/02
Section Manager Date

Summary of Change

- 0 Original report issued to document Outage 13R eddy current examination results reported to the NRC.
- 1 Revised to address Outage 13R tube mis-encode conditions identified during Outage T1R14 and documented in Framatome ANP NCR 01-6011343 (Reference 20) and AmerGen Energy Condition Report 79252 (Reference 21).
- Page 2 was changed to address summary of change.
 - Page 5 was changed to address the correct number of tube examinations and the correct number of tubes examined. (35 mis-encoded tube examinations that were edited to reflect a non-examined status of "RNC" reduced the number of examinations by 35. 22 of the 35 tubes that were mis-encoded were examined with MRPC techniques during the outage so 13 fewer tubes were examined (35-22=13).
 - Page 19 was changed to reflect the correct number of tubes examined with bobbin techniques. There were 35 mis-encoded tubes. Acceptable examinations were identified to exist for two tubes based on data from calibration groups that were correctly encoded so the number of tubes examined was reduced by 33 (35-2=33).
 - Page 29 was changed to add reference to Note 1 on page 19.
 - Page 43 was changed to reflect a percentage of tubes examined rather than stating all in service tubes were examined.
 - Added References 20 and 21 to page 45.
 - Added "RNC" to Appendix I, page 2 which changed pagination for pages 2 and 3.
 - Deleted the appropriate data entries for the affected tubes on Appendix II, pages 127 through 132, 151, and 163 (No other entries required editing).

I.**INTRODUCTION**

On September 10, 1999, TMI-1 was shut down for Refueling Outage 13R. During this refueling outage, TMI-1 performed Eddy Current (ECT) examinations of the Once Through Steam Generators (OTSGs). The scope of the examinations included tubing and sleeves. The examinations were required by TMI-1 Technical Specification 4.19 (Reference 1), Technical Specification License Amendment #209 (Reference 2), and TMI-1 engineering requirements.

During Outage 13R in service tubes were examined with a bobbin coil probe and approximately 40% of the upper tubesheet kinetic expansions were examined with a rotating probe. In OTSG-A, 21,801 examinations were performed on 14,231 tubes and 170 examinations were performed on 85 sleeves. In OTSG-B, 22,260 examinations were performed on 15,123 tubes and 170 examinations were performed on 85 sleeves. As a result of eddy current indications evaluated during these examinations thirty-six (36) tubes in OTSG-A and nine (9) tubes in OTSG-B were plugged. These tubes are listed in Table I-1 below:

Table I-1
Tubes Removed From Service¹

S/G	Row	Tube	Hot Leg	Cold Leg	Reason For Plugging						Tube Qty
A	2	6	Roll Plug	Roll Plug	SVI	@	15S	+	36.43		1
A	18	84	Roll Plug	Roll Plug	SVI	@	UTS	-	8.56		2
					SVI	@	UTS	-	15.56		
					SVI	@	UTS	-	16.89		
					SVI	@	UTS	-	14.96		
A	20	85	Roll Plug	Roll Plug	SVI	@	15S	+	5.45		3
A	29	3	Roll Plug	Roll Plug	Kinetic Expansion Indication(s)						4
A	31	41	Roll Plug	Roll Plug	Kinetic Expansion Indication(s)						5
A	38	74	Roll Plug	Roll Plug	OD SVI	@	LTS	+	2.01		6
A	41	110	Roll Plug	Roll Plug	Kinetic Expansion Indication(s)						7
A	46	117	Roll Plug	Roll Plug	SVI	@	ETL	-	0.67		8
A	48	120	Roll Plug	Roll Plug	Kinetic Expansion Indication(s)						9
A	50	116	Roll Plug	Roll Plug	SCI	@	ETL	-	0.04		10
A	66	31	Roll Plug	Roll Plug	SCI	@	ETL	-	0.09		11
A	71	36	Roll Plug	Roll Plug	SAI	@	15S	+	8.65		12
A	75	65	Roll Plug	Roll Plug	SCI	@	UTS	+	0.36		13
A	76	94	Roll Plug	Roll Plug	43% ID IGA	@	UTS	+	2.86		14
A	78	49	Roll Plug	Roll Plug	Kinetic Expansion Indication(s)						15

¹ See Appendix I for indication three letter code definitions and Figure II-2 for location codes.

III.

OUTAGE 13R EXAMINATION CATEGORIES AND RESULTS

All tubes that were in service during Cycle 12 were examined with a bobbin coil probe. The kinetic expansion transition and the required length of the kinetically expanded tube above the transition were examined in approximately 40% of the tubes. The examinations were performed in three major groups, based on the examination requirements:

- A. Examinations required by Technical Specification 4.19
- B. NRC Commitments
- C. TMI-1 elective examinations

These groups were further divided into specific categories. This section defines the examination scope, purpose, selection criteria, and examination results by category.

A. SCOPE SELECTION

During Outage 13R TMI-1 chose to initially perform bobbin coil examinations on 100% of the in service tubes in each OTSG. In addition to the bobbin coil examinations, approximately 40% of the tubes in each OTSG were scheduled for MRPC examination of the kinetic expansion transition and kinetically expanded region. In order to define an examination results classification, TMI-1 assigned tubes to groups prior to the Outage. Sample expansion, for the kinetic expansion examinations, was then based on the results of each examination using Technical Specification 4.19 Interpretation (Reference 1). No sample expansion was possible for the bobbin coil examinations since all of the in service tubes were examined.

Tables III-1 through III-3 provide the examination categories, quantities, and reasons for examination. Figures III-1 through III-6 provide tubesheet plots of the kinetic expansion, lower tubesheet crevice/sludge pile, and sleeve examination locations.

TABLE III-1

BOBBIN COIL TUBE EXAMINATION SCOPE

DATA SET	OTSG-A TUBES EXAMINED	OTSG-B TUBES EXAMINED	REASONS FOR SELECTION
540-MIZ30	330	105	These tubes were examined with a 0.540" HF bobbin probe to more accurately evaluate ID-initiated indications observed with bobbin coil probes during Outage 12R. During Outage 13R tubes with recorded ID indications during a scheduled 0.510" bobbin examination were also subsequently examined with a 0.540" bobbin probe.
510-MIZ30	13935	15018	These are the remaining in service tubes that were not initially examined with the 0.540" diameter bobbin coil probe. See Note 1 below.
480-MIZ30	2	0	These are tubes that would not pass a 0.510" bobbin coil probe through the lower tube end.

Note 1- During Outage T1R14 35 tubes in OTSG-B were discovered to have been examined with tube identification numbers that were incorrect (mis-encoded). Data reviews identified that 2 tubes were examined in other cal groups and concluded that the remaining 33 of these 35 tubes in OTSG-B were not examined with the correct tube identification (19 tubes were examined but with an incorrect identification). The final result then is 14 tubes that were actually not examined with the bobbin coil probe during Outage 13R. The database has been updated to indicate an "RNC" code for the effected tubes as required by the analysis guidelines. There were no degraded or defective conditions identified in these tubes during Outage T1R14 therefore no Tech Spec or Licensing Basis requirements were violated. Because the ECT inspection results were not in the "C-3" category, 100% of the tubes were not required by Tech Spec to be examined in Outage 13R. Neither the Tech Spec inspection sampling requirements nor the tube repair requirements were violated as a result of these tube mis-encodes.

B. EXAMINATION RESULTS

B.1 Tube Examinations (unexpanded Region)

Appendix II of this report provides a listing of all indications of tube wall degradation located between the lower tube ends and the upper tubesheet kinetic expansions. The examination results were reviewed to determine Technical Specification classification requirements per Technical Specification 4.19 and to determine whether other conditions were present which could be indicators of other damage. No secondary side miscellaneous damage such as missing support plates was observed. Since the bobbin inspection sample included 100% of the in-service tubes in each generator, the category classification is for documentation and notification purposes only and could not affect further bobbin coil inspection sample escalation criteria (See Note 1 on Page 19). The three categories are as follows:

- C-1 Less than 5% of tubes inspected are degraded and none are defective
- C-2 One or more but not greater than 1% of tubes inspected are defective or between 5-10% are degraded
- C-3 More than 10% of tubes inspected are degraded or more than 1% are defective

The results of the 13R bobbin inspection at TMI-1 are classified as C-2 for each steam generator based on having one or more but not greater than 1% defective tubes. For purposes of this classification, the following limits applied:

A tube was classified as DEFECTIVE, DEGRADED, or IMPERFECTION in accordance with the TMI-1 Technical Specifications. Every tube with indications confirmed by MRPC was reviewed and assigned a classification. For tubes with multiple indications, the tube was classified based on the most limiting indication detected in that tube.

TRENDING OF ID INDICATIONS

The eddy current results from the Outage 13R inspection were compared to the results of previous inspections to assess whether ID degradation mechanisms are active. Two criteria were used in evaluating the growth of the indications (bobbin coil voltages and length/width measurements).

During Outage 13R, TMI-1 set the ASME calibration standard four 20% through wall hole response equivalent to 4 volts in the "BWO Mother Standard" using the 400 kHz differential channel and normalized that setting to all other channels. During Outage 11R TMI-1 set the ASME calibration standard four 20% through wall hole response to 10 volts using the 400 kHz differential channel and normalized that setting to all other channels. During Outage 12R TMI-1 set the ASME calibration standard four 20% through wall hole response equivalent to 10 volts in the "BWO Mother Standard" using the 400 kHz differential channel and normalized that setting to all other channels. For comparison purposes the Outage 11R and 12R bobbin coil voltages are multiplied by 0.4 to correct the value to the equivalent Outage 13R value.

When the Outage 13R bobbin coil voltages are compared to the Outage 11R and Outage 12R voltage responses at the same location, a +0.037 volt and +0.005 volt average increase respectively, is observed. The Outage 12R to Outage 13R indication voltage change standard deviation was 0.07 volts. The Outage 11R to Outage 13R indication voltage change standard deviation was 0.10 volts. These voltage changes are comparable with voltage variations from eight previous outages where the mean change ranged from -0.3 volts to +0.2 volts (corrected voltage value for change from 10 volt normalization to 4 volt normalization is -0.12 volts to +0.08 volts). The eight previous outage standard deviation ranged from 0.2 volts to 0.4 volts (Outage 13R corrected equivalent is 0.08 volts to 0.16 volts). A comparison of Outage 11R and 12R to Outage 13R bobbin coil measured through wall depth also substantiates a no growth conclusion. Table III-4 provides a summary of the bobbin coil voltage and percent through wall changes. Figure III-7 provides a scatter plot of voltage comparisons for ID-initiated bobbin coil indications.

IV. CONDITION ASSESSMENTS

A. CONDITION MONITORING

The primary-to-secondary leakrate from the TMI-1 steam generators during the cycle preceding the 13R Outage was very low. During the last week of the operating cycle the calculated leakrate was less than 0.01 gallons per hour.

During the outage 99.9% of the in service tubes were inspected using eddy current probes.

In-situ pressure testing was conducted during the 13R outage to assess the ability of the most limiting flaws found during the eddy current inspections to withstand a postulated Main Steam Line Break (MSLB) event on the last day of the just-completed operating cycle. As described in Section II.D and Table III-11 the tubing was subjected to pressure loads corresponding to Normal Operating, Main Steam Line Break, and Regulatory Guide 1.121-prescribed differential pressures. (The eddy current test results were reviewed to select the most limiting flaws from a leakage and structural integrity perspective. The intent was to select flaws that would bound in severity the remaining population of untested flaws. Successful testing of the limiting flaws would then assure that the remaining flaws would maintain structural and leakage integrity during a postulated MSLB.) Section II.D.2 and Table III-11 of this document provide detailed information on the eddy current results for the tubes selected for in-situ pressure testing. Since the remaining tubes in the steam generators were bounded by tubes that were successfully in-situ tested, all in-service tubes would have maintained structural and leakage integrity during a postulated MSLB accident on the last day of the cycle preceding the outage.

As discussed in Section II.C.2, eddy current indications in the upper tubesheet kinetic expansions were *assumed to leak* during a postulated MSLB if their through wall extent (as estimated by a Plus-Point coil) was 67% TW or greater. Each of these potential "leakage contributor" indications was conservatively evaluated to determine the volume of primary-to-secondary leakage associated with that indication if an MSLB had occurred. These accident-induced leakage volumes were summed for each of the indications and, since approximately 40% of the expansions were examined, a factor was determined to predict the hypothetical leakage from all of the expansions. The resulting calculated leakage was considerably less than that allowed by the plant's FSAR. (See Tables III-8 through III-10.)

99.9% of the plant's steam generator tubes were inspected. In-situ pressure testing was a primary tool to demonstrate the ability of the freespan tubing to withstand accident-induced loads at the end of the just-completed operating cycle. The kinetically expanded tubing was examined with MRPC probes and an assessment of the postulated leakage was conservatively developed. The degradation observed during the 13R Outage was evaluated in a manner consistent with NEI 97-06 and the EPRI Guidelines. The evaluations indicate that the observed degradation did not present serious challenges to the structural margin requirements at the end of the last cycle of operation, or challenge the plant's leakage integrity limits. The results of these evaluations demonstrated that the plant's steam generator tubes would have been able to safely withstand the effects of postulated accidents on the day preceding the subject outage.

B. OPERATIONAL ASSESSMENT

ID-initiated indications were the predominant reason for which TMI-1 "A" steam generator tubes were plugged. In the "B" generator, more tubes were plugged for O.D.-initiated indications than were plugged due to I.D.-initiated indications. The I.D. indications are believed to be remnants of the thiosulfate damage that occurred to the ID surfaces of the tubes in 1981. As discussed in Section III.B.1, the growth rate for ID IGA indications/flaws is believed to be zero.

Including two preventively plugged tubes, kinetic expansion examinations accounted for sixteen plugged tubes in both OTSGs. TMI-1 has now examined approximately 60% of the kinetic expansions over the last 2 outages with MRPC probes. As reported in Section III.B.1, TMI-1 compared the kinetic expansion inspection results of these last two outages and has concluded that the indications within the kinetic expansions are not growing. TMI-1 will continue the kinetic expansion examinations during the next outage, and the results of those examinations will be compared to the Outage 12R and 13R results.

12. Framatome Technologies Report 51-5005946-00, "TMI-1 Fall 1999 Outage In-Situ Summary Report", October 1999.
13. Letter from J. Langenbach of GPU Nuclear, "Leakage Assessment Methodology for TMI-1 OTSG Kinetic Expansion Examination, Topical Report 116", 11/26/97.
14. Letter from J. Langenbach of GPU Nuclear, "NRC Notification on Completion of 13R Outage Steam Generator Examinations", 11/05/99.
15. FTI Calculation #32-1234876-00, Rev 0, "TMI-1 Tube Plugging RCS Flow Prediction", July 1995.
16. GPU Nuclear, EER JO# 00170801, "Outage 13R OTSG Degradation Assessment".
17. Framatome Technologies Report 51-5005406-00, W. E. Brooks-Crocker, "Qualified Eddy Current Examination Techniques for Three Mile Island Unit #1".
18. Letter from J. Langenbach of GPU Nuclear to USNRC, "GPU Nuclear Response to NRC Requests Regarding the OTSG Kinetic Expansion Region Inspection Acceptance Criteria for 12R Examinations", 07/30/99.
19. EPRI Report TR-107620-R1, "In-Situ Pressure Test Guidelines: Revision 1"
20. Framatome ANP Nonconformance Report 01-6011343, "SG-B Mis-encodes During TMI Outage T1R14".
21. AmerGen Energy Condition Report Number 0079252, "OTSG Tube Identifications Were Incorrect During 1999 Outage".

ANALYSIS CHARACTERIZATION AND REPORTING CODES

<i>Code</i>	<i>Definition</i>
MAI	Multiple Axial Indication -- an MRPC call determined from indication morphology
MBM	Machine Burnish Mark (or Manufacturing Buff Mark) -- an indication believed to be produced from a condition resulting from the final hand polishing or grinding operations on the tubing during manufacture which is performed to remove imperfections on the tube's outer surface. An indication must have repeatable history to be considered an MBM.
MCI	Multiple Circumferential Indication -- an MRPC call determined from indication morphology
MMI	Mixed Mode Indication -- an MRPC call determined from indication morphology. This code shall only be used if the indication morphology reflects a situation which would lead the analyst to believe that an axial and circumferential indication have linked in some fashion (for example, a "T" or "L" shaped crack-like indication).
MSG	Message -- a code used in a report line entry to signify that the associated data in that entry relates to an informational note about the subject tube. Enter the comment in the Location Field.
MVI	Multiple Volumetric Indication -- an MRPC call determined from indication morphology
NDD	No Detectable Degradation -- designator used for an examination that indicates that the region inspected is free of detectable degradation. The actual entry of the code is not required.
NDF	No Degradation Found -- designator used for a rotating examination to disposition an area of interest that another technique has flagged as needing to be inspected, but when inspected with the rotating technique no degradation was identified. The actual entry of the code is required along with the location identified by the implementing examination and the actual extent from the rotating technique.
NEX	No Expansion -- no roll or expansion where one should be.
NQI	Non Quantifiable Indication -- a bobbin coil signal identified by the analyst as possibly containing an indication, however due to noise, lack of multi-frequency channel correlation, or other signal peculiarities, the analyst cannot sufficiently interpret the signal to draw any conclusion. This is an interim disposition.
OBS	Obstructed Tube -- used only if the acquisition operator has identified the tube as being unable to pass the probe due to a restriction
PBA	Prior Bobbin Analysis -- code assigned to a specific data record to provide a means of clearing the record through data management without re-reporting indications already reported during a previous scan of the same area.
PID	Positive Identification -- this designates that at least one confirming ET inspection has been performed on the area of interest with the results indicating that the initial and confirming analysis results are in concurrence. Analysts will use the exact location from the indication of interest when reporting the PID.
PLG	Plugged -- permanent plug installed in a tube.
PLP	Possible Loose Part -- shall be reported when ET provides evidence of a possible loose part adjacent to or in the vicinity of a tube. Adjacent tubes shall be checked to determine if there is a PLP signal or any indication of wall loss from the loose part.
PRA	Prior Rotating Analysis -- code assigned to a specific data record to provide a means of clearing the record through data management without re-reporting indications already reported during a previous scan of the same area.
PVN	Permeability -- shall be reported only if suspected of masking an indication or as otherwise required by a specific ETSS requirement
RNC	Retest -- Tube Number Check
SAI	Single Axial Indication -- an MRPC call determined from indication morphology

ANALYSIS CHARACTERIZATION AND REPORTING CODES

<i>Code</i>	<i>Definition</i>
SCI	Single Circumferential Indication -- an MRPC call determined from indication morphology
SLG	Sludge -- designator used to annotate sludge elevation
SLV	Sleeve Indication -- all indications observed in the sleeve material shall be identified with this code in UTIL1 field.
SSA	Secondary Side Anomaly -- an indication believed to be produced from foreign material on the secondary side, which is not a loose part.
SVI	Single Volumetric Indication -- an MRPC call determined from indication morphology
TSD	Tube Support Plate Damaged -- tube support plate appears to be significantly eroded/damaged.
TSM	Tube Support Plate Missing -- no tube support plate signal is present at the expected location.
TUB	Parent Tubing Indication -- any indication in the parent tube material in the sleeved region shall be identified with this code in UTIL1 field.
VOL	Volumetric Indication -- an MRPC indication that is not crack-like yet has some discernible volume to it and is deemed non-repairable. Example, an indication in the tube freespan that is dispositioned with axial and circumferential dimensions less than the repair limit. For TMI-1 primary and secondary analysts may use this code for all volumetric indications. Resolution analysts may only use this code for ID IGA indications (inside diameter initiating volumetric indications) which have a measured axial length of $\leq 0.25''$ and a measured circumferential length of $\leq 0.52''$ when measured in accordance with the applicable ETSS.
WAR	Wear Call -- used in UTIL1 Field for rotating examinations. Indications will be labeled WAR only after the criteria for disposition of indications at TSPs is met.

THREE MILE ISLAND UNIT 1
OTSG-B
OUTAGE 13R
FREESPAN INDICATIONS

Row	Tube	Reel	Probe	Volts/ Degrees		Origin/ Percent	Location		Data Set	Exam
		00014	520HF	0.0	0	NDF	LTS+	0.2	LTS-KIDNEY	13R
		00360	510UL	1.6	90	INR	06S+	22.9	510-MIZ30	13R
54	73	00194	510UL	42.9	174	DNT	LTS+	0.2	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.2	SPEC-INT	13R
54	74	00194	510UL	50.7	173	DNT	LTS+	0.2	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.2	SPEC-INT	13R
54	75	00196	510UL	55.7	167	DNT	LTS+	0.2	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.2	SPEC-INT	13R
54	76	00194	510UL	39.3	173	DNT	LTS+	0.1	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.1	SPEC-INT	13R
54	77	00196	510UL	21.9	168	DNT	LTS+	0.0	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.0	SPEC-INT	13R
54	78	00194	510UL	5.6	169	DNT	LTS-	0.0	510-MIZ30	13R
54	80	00301	540HF	4.8	159	DNT	LTS+	0.1	540-MIZ30	13R
54	89	00196	510UL	8.3	175	DNT	LTS-	0.2	510-MIZ30	13R
54	90	00194	510UL	9.1	177	DNT	LTS-	0.2	510-MIZ30	13R
54	91	00196	510UL	16.0	169	DNT	LTS-	0.0	510-MIZ30	13R
54	92	00194	510UL	14.7	174	DNT	LTS-	0.1	510-MIZ30	13R
54	93	00196	510UL	11.1	170	DNT	LTS-	0.0	510-MIZ30	13R
54	94	00194	510UL	5.4	177	DNT	LTS-	0.1	510-MIZ30	13R
54	95	00196	510UL	2.8	175	DNT	LTS-	0.2	510-MIZ30	13R
54	96	00254	510UL	6.2	176	DNT	LTS-	0.2	510-MIZ30	13R
54	97	00256	510UL	7.8	176	DNT	LTS-	0.2	510-MIZ30	13R
54	98	00254	510UL	5.8	179	DNT	LTS+	0.0	510-MIZ30	13R
		00254	510UL	0.1	57	NQI	08S+	1.0	510-MIZ30	13R
		00410	520HF	0.0	0	NDF	08S+	1.0	SPEC-INT	13R
54	99	00256	510UL	3.9	183	DNT	LTS-	0.2	510-MIZ30	13R
54	101	00256	510UL	5.3	177	DNT	LTS-	0.1	510-MIZ30	13R
55	1	00072	510UL	0.3	93	INR	LTE+	15.3	510-MIZ30	13R
55	33	00319	520HF	0.2	32	VOL	03S	-5.1	SPEC-INT	13R
		00319	520HF	Cr 0.17		Ax 0.18	03S	-5.1	SPEC-INT	13R
		00114	510UL	1.4	89	ADI	02S+	35.1	510-MIZ30	13R
		00287	520HF	0.0	0	NDF	03S	-3.9	SPEC-INT	13R
		00319	520HF	0.0	0	NDF	03S	-3.9	SPEC-INT	13R
55	51	00295	540HF	0.6	6	INR	10S+	18.5	540-MIZ30	13R
		00319	520HF	1.0	22	VOL	11S+	19.1	SPEC-INT	13R
		00319	520HF	Cr 0.20		Ax 0.24	11S+	19.1	SPEC-INT	13R
		00295	540HF	0.5	10	ID 33	11S+	19.5	540-MIZ30	13R
55	59	00118	510UL	3.9	161	DNT	LTS+	0.0	510-MIZ30	13R
55	60	00120	510UL	5.8	164	DNT	LTS+	0.0	510-MIZ30	13R
55	61	00118	510UL	6.4	168	DNT	LTS+	0.0	510-MIZ30	13R
55	62	00120	510UL	5.6	167	DNT	LTS-	0.0	510-MIZ30	13R
55	63	00118	510UL	2.8	164	DNT	LTS+	0.0	510-MIZ30	13R
55	66	00362	510UL	5.8	172	DNT	LTS+	0.0	510-MIZ30	13R
55	67	00360	510UL	4.1	179	DNT	LTS-	0.2	510-MIZ30	13R
55	69	00362	510UL	10.1	163	DNT	LTS+	0.0	510-MIZ30	13R
55	70	00014	520HF	0.0	0	NDF	LTS+	0.0	LTS-KIDNEY	13R
55	71	00012	520HF	0.0	0	NDF	LTS+	0.2	LTS-KIDNEY	13R

THREE MILE ISLAND UNIT 1
OTSG-B
OUTAGE 13R
FREESPAN INDICATIONS

Row	Tube	Reel	Probe	Volts/ Degrees		Origin/ Percent	Location		Data Set	Exam
55	72	00014	520HF	0.0	0	NDF	LTS-	0.1	LTS-KIDNEY	13R
55	73	00194	510UL	70.4	172	DNT	LTS+	0.2	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.2	SPEC-INT	13R
55	74	00196	510UL	62.5	165	DNT	LTS+	0.3	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.3	SPEC-INT	13R
55	75	00194	510UL	54.3	172	DNT	LTS+	0.3	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.3	SPEC-INT	13R
55	76	00196	510UL	35.6	169	DNT	LTS+	0.2	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.2	SPEC-INT	13R
55	77	00194	510UL	11.8	171	DNT	LTS+	0.1	510-MIZ30	13R
55	78	00196	510UL	9.4	167	DNT	LTS+	0.0	510-MIZ30	13R
55	79	00194	510UL	5.6	167	DNT	LTS+	0.0	510-MIZ30	13R
55	80	00196	510UL	3.7	158	DNT	LTS-	0.0	510-MIZ30	13R
55	81	00194	510UL	4.9	167	DNT	LTS-	0.1	510-MIZ30	13R
55	89	00194	510UL	7.5	177	DNT	LTS-	0.2	510-MIZ30	13R
55	90	00196	510UL	10.6	168	DNT	LTS-	0.1	510-MIZ30	13R
55	91	00194	510UL	10.0	176	DNT	LTS-	0.1	510-MIZ30	13R
55	92	00196	510UL	23.4	171	DNT	LTS+	0.0	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.0	SPEC-INT	13R
55	93	00194	510UL	21.5	176	DNT	LTS-	0.1	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS-	0.1	SPEC-INT	13R
55	94	00196	510UL	3.9	181	DNT	LTS-	0.2	510-MIZ30	13R
55	95	00194	510UL	6.6	176	DNT	LTS-	0.1	510-MIZ30	13R
55	96	00256	510UL	8.1	172	DNT	LTS+	0.0	510-MIZ30	13R
55	97	00254	510UL	7.5	176	DNT	LTS-	0.1	510-MIZ30	13R
55	98	00256	510UL	5.7	181	DNT	LTS-	0.2	510-MIZ30	13R
55	99	00254	510UL	6.7	176	DNT	LTS+	0.1	510-MIZ30	13R
55	100	00256	510UL	4.2	180	DNT	LTS-	0.2	510-MIZ30	13R
55	101	00254	510UL	4.2	178	DNT	LTS-	0.1	510-MIZ30	13R
55	117	00256	510UL	1.5	1	INR	09S+	22.8	510-MIZ30	13R
		00301	540HF	1.3	1	INR	09S+	22.8	540-MIZ30	13R
		00301	540HF	1.2	3	INR	09S+	31.5	540-MIZ30	13R
		00256	510UL	0.8	9	INR	09S+	31.5	510-MIZ30	13R
55	121	00262	510UL	0.2	67	NQI	09S+	0.3	510-MIZ30	13R
		00353	520HF	0.0	0	NDF	09S+	0.3	SPEC-INT	13R
56	1	00319	520HF	1.4	0	WAR 17	12S-	0.8	SPEC-INT	13R
		00072	510UL	0.3	95	NQI	12S-	0.8	510-MIZ30	13R
		00287	520HF	0.5	0	WAR 6	12S-	0.7	SPEC-INT	13R
56	3	00287	520HF	0.4	0	WAR 4	09S+	0.3	SPEC-INT	13R
		00072	510UL	0.2	89	NQI	09S+	0.3	510-MIZ30	13R
		00319	520HF	1.2	0	WAR 15	09S+	0.4	SPEC-INT	13R
56	5	00072	510UL	0.1	43	INR	09S-	0.3	510-MIZ30	13R
56	25	00072	510UL	0.3	77	NQI	LTS+	9.7	510-MIZ30	13R
		00319	520HF	0.0	0	NDF	LTS-	-14.3	SPEC-INT	13R
56	56	00120	510UL	2.5	177	DNT	LTS-	0.1	510-MIZ30	13R
56	57	00118	510UL	0.4	58	NQI	LTS+	1.6	510-MIZ30	13R
		00319	520HF	0.0	0	NDF	LTS+	1.6	SPEC-INT	13R
56	59	00118	510UL	8.5	170	DNT	LTS-	0.1	510-MIZ30	13R
56	60	00120	510UL	18.1	168	DNT	LTS-	0.0	510-MIZ30	13R

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Row	Tube	Reel	Probe	Volts/ Degrees		Origin/ Percent	Location		Data Set	Exam
		00287	520HF	0.0	0	NDF	LTS-	0.0	SPEC-INT	13R
56	61	00118	510UL	6.2	170	DNT	LTS-	0.0	510-MIZ30	13R
56	62	00120	510UL	3.6	164	DNT	LTS+	0.0	510-MIZ30	13R
56	63	00118	510UL	2.8	169	DNT	LTS+	0.0	510-MIZ30	13R
56	66	00362	510UL	7.7	172	DNT	LTS+	0.0	510-MIZ30	13R
56	67	00362	510UL	16.0	171	DNT	LTS+	0.0	510-MIZ30	13R
56	69	00355	520HF	0.0	0	NDF	LTS+	0.0	SPEC-INT	13R
56	70	00018	520HF	0.0	0	NDF	LTS+	0.2	LTS-KIDNEY	13R
56	71	00016	520HF	0.0	0	NDF	LTS+	0.3	LTS-KIDNEY	13R
		00392	510UL	26.2	174	DNT	LTS+	0.3	510-MIZ30	13R
		00073	520HF	0.2	5	VOL	ETL-	0.7	KET12	13R
		00073	520HF	Cr 0.15		Ax 0.17	ETL-	0.7	KET12	13R
56	72	00018	520HF	0.0	0	NDF	LTS+	0.0	LTS-KIDNEY	13R
56	73	00194	510UL	57.9	174	DNT	LTS+	0.3	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.3	SPEC-INT	13R
56	74	00194	510UL	67.1	172	DNT	LTS+	0.0	510-MIZ30	13R
		00394	400PP	0.0	0	NDF	LTS+	0.0	LTS-KIDNEY	13R
56	75	00194	510UL	67.8	172	DNT	LTS+	0.3	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.3	SPEC-INT	13R
56	76	00194	510UL	53.0	173	DNT	LTS+	0.3	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS+	0.3	SPEC-INT	13R
56	77	00016	520HF	0.0	0	NDF	LTS+	0.2	LTS-KIDNEY	13R
		00398	510UL	32.2	171	DNT	LTS+	0.2	510-MIZ30	13R
		00299	540HF	0.9	4	INR	15S+	26.2	540-MIZ30	13R
		00398	510UL	0.9	193	INR	15S+	26.3	510-MIZ30	13R
56	79	00194	510UL	9.2	168	DNT	LTS+	0.0	510-MIZ30	13R
56	81	00194	510UL	6.8	167	DNT	LTS+	0.0	510-MIZ30	13R
56	82	00194	510UL	6.8	169	DNT	LTS+	0.0	510-MIZ30	13R
56	91	00194	510UL	10.2	174	DNT	LTS-	0.1	510-MIZ30	13R
56	92	00196	510UL	22.5	170	DNT	LTS-	0.1	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS-	0.1	SPEC-INT	13R
56	93	00194	510UL	19.1	175	DNT	LTS-	0.1	510-MIZ30	13R
		00325	520HF	0.0	0	NDF	LTS-	0.1	SPEC-INT	13R
56	96	00196	510UL	5.1	176	DNT	LTS-	0.1	510-MIZ30	13R
56	97	00262	510UL	4.8	179	DNT	LTS-	0.2	510-MIZ30	13R
56	98	00264	510UL	2.5	186	DNT	LTS-	0.1	510-MIZ30	13R
56	99	00262	510UL	3.1	180	INR	LTS+	14.1	510-MIZ30	13R
		00262	510UL	10.0	178	DNT	LTS+	0.0	510-MIZ30	13R
		00262	510UL	1.0	82	ADI	07S+	12.6	510-MIZ30	13R
		00410	520HF	0.0	0	NDF	07S+	12.6	SPEC-INT	13R
56	100	00264	510UL	10.8	172	DNT	LTS-	0.1	510-MIZ30	13R
		00264	510UL	0.6	81	ADI	01S+	21.1	510-MIZ30	13R
		00410	520HF	0.0	0	NDF	01S+	21.1	SPEC-INT	13R
56	102	00264	510UL	7.6	176	DNT	LTS-	0.1	510-MIZ30	13R
56	103	00262	510UL	11.3	176	DNT	LTS+	0.0	510-MIZ30	13R

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56	125	00410	520HF	1.0 0	WAR 17	05S+ 0.7	SPEC-INT	13R
		00301	540HF	0.2 94	NQI	05S+ 0.7	540-MIZ30	13R
57	18	00072	510UL	0.7 80	INR	05S+ 5.9	510-MIZ30	13R
57	36	00295	540HF	0.3 13	INR	11S+ 15.0	540-MIZ30	13R
57	57	00120	510UL	4.1 178	DNT	LTS- 0.1	510-MIZ30	13R
57	60	00118	510UL	13.5 168	DNT	LTS+ 0.0	510-MIZ30	13R
57	61	00120	510UL	10.9 168	DNT	LTS- 0.0	510-MIZ30	13R
57	65	00120	510UL	2.6 175	DNT	LTS- 0.2	510-MIZ30	13R
57	66	00360	510UL	6.6 176	DNT	LTS- 0.2	510-MIZ30	13R
57	70	00355	520HF	0.0 0	NDF	LTS- 0.1	SPEC-INT	13R
57	71	00018	520HF	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
57	72	00360	510UL	0.1 121	INR	LTS -1.1	510-MIZ30	13R
		00016	520HF	0.0 0	NDF	LTS+ 0.1	LTS-KIDNEY	13R
57	73	00018	520HF	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
		00362	510UL	41.1 169	DNT	LTS+ 0.0	510-MIZ30	13R
57	74	00016	520HF	0.0 0	NDF	LTS+ 0.3	LTS-KIDNEY	13R
		00194	510UL	39.2 173	DNT	LTS+ 0.3	510-MIZ30	13R
57	75	00194	510UL	57.7 172	DNT	LTS+ 0.3	510-MIZ30	13R
		00394	400PP	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
57	76	00194	510UL	66.8 172	DNT	LTS+ 0.2	510-MIZ30	13R
		00404	400PP	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
57	77	00018	520HF	0.0 0	NDF	LTS+ 0.2	LTS-KIDNEY	13R
		00194	510UL	52.2 173	DNT	LTS+ 0.2	510-MIZ30	13R
		00394	400PP	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
57	78	00194	510UL	24.4 172	DNT	LTS+ 0.1	510-MIZ30	13R
		00325	520HF	0.0 0	NDF	LTS+ 0.1	SPEC-INT	13R
57	79	00194	510UL	12.8 170	DNT	LTS+ 0.1	510-MIZ30	13R
57	80	00194	510UL	3.2 167	DNT	LTS- 0.0	510-MIZ30	13R
57	82	00194	510UL	2.8 164	DNT	LTS+ 0.0	510-MIZ30	13R
57	83	00194	510UL	4.9 167	DNT	LTS+ 0.0	510-MIZ30	13R
57	91	00194	510UL	11.6 174	DNT	LTS- 0.1	510-MIZ30	13R
57	92	00194	510UL	29.1 175	DNT	LTS- 0.0	510-MIZ30	13R
		00325	520HF	0.0 0	NDF	LTS- 0.0	SPEC-INT	13R
57	93	00194	510UL	23.6 174	DNT	LTS- 0.1	510-MIZ30	13R
		00325	520HF	0.0 0	NDF	LTS- 0.1	SPEC-INT	13R
57	94	00194	510UL	10.7 176	DNT	LTS- 0.1	510-MIZ30	13R
57	96	00200	510UL	5.3 178	DNT	LTS+ 0.0	510-MIZ30	13R
57	97	00262	510UL	9.2 176	DNT	LTS- 0.0	510-MIZ30	13R
57	98	00264	510UL	5.8 175	DNT	LTS- 0.1	510-MIZ30	13R
57	99	00262	510UL	13.0 177	DNT	LTS- 0.1	510-MIZ30	13R
57	100	00016	520HF	0.0 0	NDF	LTS- 0.1	LTS-KIDNEY	13R
		00264	510UL	21.5 172	DNT	LTS- 0.1	510-MIZ30	13R
57	101	00262	510UL	13.7 175	DNT	LTS+ 0.0	510-MIZ30	13R
57	102	00264	510UL	13.3 173	DNT	LTS- 0.1	510-MIZ30	13R

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Row	Tube	Reel	Probe	Volts/ Degrees	Origin/ Percent	Location	Data Set	Exam
57	103	00016	520HF	0.0 0	NDF	LTS- 0.1	LTS-KIDNEY	13R
		00262	510UL	30.2 173	DNT	LTS- 0.1	510-MIZ30	13R
		00262	510UL	3.7 184	DNT	14S+ 11.8	510-MIZ30	13R
57	104	00264	510UL	14.8 172	DNT	LTS- 0.1	510-MIZ30	13R
58	56	00120	510UL	3.6 178	DNT	LTS- 0.2	510-MIZ30	13R
58	60	00120	510UL	3.8 167	DNT	LTS- 0.1	510-MIZ30	13R
58	61	00118	510UL	6.2 171	DNT	LTS+ 0.0	510-MIZ30	13R
58	62	00120	510UL	2.7 176	DNT	LTS- 0.1	510-MIZ30	13R
58	64	00120	510UL	3.1 175	DNT	LTS- 0.1	510-MIZ30	13R
58	65	00120	510UL	3.0 176	DNT	LTS- 0.2	510-MIZ30	13R
58	74	00200	510UL	15.4 176	DNT	LTS+ 0.0	510-MIZ30	13R
58	75	00200	510UL	26.8 172	DNT	LTS+ 0.0	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS+ 0.0	SPEC-INT	13R
58	76	00394	400PP	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
		00202	510UL	37.3 169	DNT	LTS+ 0.3	510-MIZ30	13R
58	77	00200	510UL	64.0 172	DNT	LTS+ 0.0	510-MIZ30	13R
		00394	400PP	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
		00323	520HF	0.0 0	NDF	LTS+ 0.0	SPEC-INT	13R
58	78	00202	510UL	55.3 168	DNT	LTS+ 0.2	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS+ 0.2	SPEC-INT	13R
58	90	00202	510UL	2.9 181	DNT	LTS- 0.2	510-MIZ30	13R
58	91	00200	510UL	12.8 175	DNT	LTS+ 0.0	510-MIZ30	13R
58	92	00202	510UL	29.0 172	DNT	LTS+ 0.0	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS+ 0.0	SPEC-INT	13R
58	93	00200	510UL	28.9 173	DNT	LTS+ 0.0	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS+ 0.0	SPEC-INT	13R
58	94	00202	510UL	12.0 172	DNT	LTS- 0.1	510-MIZ30	13R
58	97	00262	510UL	11.6 173	DNT	LTS- 0.1	510-MIZ30	13R
58	98	00018	520HF	0.0 0	NDF	LTS- 0.0	LTS-KIDNEY	13R
		00262	510UL	18.8 174	DNT	LTS- 0.0	510-MIZ30	13R
58	99	00016	520HF	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
		00264	510UL	25.9 172	DNT	LTS+ 0.0	510-MIZ30	13R
58	100	00018	520HF	0.0 0	NDF	LTS- 0.0	LTS-KIDNEY	13R
		00262	510UL	34.3 173	DNT	LTS- 0.0	510-MIZ30	13R
58	101	00016	520HF	0.0 0	NDF	LTS+ 0.2	LTS-KIDNEY	13R
		00264	510UL	40.5 172	DNT	LTS+ 0.2	510-MIZ30	13R
58	102	00018	520HF	0.0 0	NDF	LTS- 0.0	LTS-KIDNEY	13R
		00262	510UL	37.8 173	DNT	LTS- 0.0	510-MIZ30	13R
58	103	00016	520HF	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
		00264	510UL	23.1 173	DNT	LTS+ 0.0	510-MIZ30	13R
58	104	00262	510UL	15.8 174	DNT	LTS- 0.1	510-MIZ30	13R
59	21	00319	520HF	0.4 28	VOL	03S -13.9	SPEC-INT	13R

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Row	Tube	Reel	Probe	Volts/ Degrees	Origin/ Percent	Location	Data Set	Exam
		00319	520HF	Cr 0.15	Ax 0.21	03S -13.9	SPEC-INT	13R
		00064	510UL	0.4 31	NQI	02S+ 25.6	510-MIZ30	13R
59	54	00009	510UL	3.2 174	DNT	LTS+ 0.0	510-MIZ30	13R
59	58	00009	510UL	2.6 159	DNT	LTS- 0.2	510-MIZ30	13R
59	59	00011	510UL	2.7 177	DNT	LTS+ 0.0	510-MIZ30	13R
59	60	00009	510UL	3.0 172	DNT	LTS- 0.1	510-MIZ30	13R
59	61	00011	510UL	3.8 174	DNT	LTS+ 0.0	510-MIZ30	13R
59	62	00009	510UL	3.5 169	DNT	LTS+ 0.0	510-MIZ30	13R
59	63	00011	510UL	4.2 175	DNT	LTS- 0.1	510-MIZ30	13R
59	64	00009	510UL	6.1 171	DNT	LTS- 0.0	510-MIZ30	13R
59	65	00011	510UL	11.2 172	DNT	LTS- 0.1	510-MIZ30	13R
59	66	00009	510UL	9.0 169	DNT	LTS+ 0.0	510-MIZ30	13R
59	67	00011	510UL	15.2 171	DNT	LTS -1.0	510-MIZ30	13R
		00024	520HF	1.0 78	MBM	03S+ 36.1	SPEC-INT	13R
		00011	510UL	0.5 116	NQI	03S+ 36.5	510-MIZ30	13R
59	68	00009	510UL	9.4 169	DNT	LTS- 0.0	510-MIZ30	13R
59	72	00200	510UL	3.2 179	DNT	LTS+ 0.0	510-MIZ30	13R
59	73	00202	510UL	16.6 171	DNT	LTS- 0.0	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS- 0.0	SPEC-INT	13R
59	74	00200	510UL	23.3 172	DNT	LTS+ 0.0	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS+ 0.0	SPEC-INT	13R
59	75	00202	510UL	35.5 169	DNT	LTS+ 0.2	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS+ 0.2	SPEC-INT	13R
59	76	00200	510UL	34.3 172	DNT	LTS+ 0.0	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS+ 0.0	SPEC-INT	13R
59	77	00202	510UL	14.7 167	DNT	LTS+ 0.0	510-MIZ30	13R
59	78	00200	510UL	1.1 190	INR	13S+ 23.1	510-MIZ30	13R
59	84	00200	510UL	0.2 90	NQI	10S+ 18.1	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	11S -17.9	SPEC-INT	13R
		00200	510UL	0.1 85	NQI	10S+ 21.0	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	11S -15.0	SPEC-INT	13R
		00200	510UL	2.9 183	DNT	12S+ 1.2	510-MIZ30	13R
59	87	00202	510UL	4.1 178	DNT	LTS- 0.1	510-MIZ30	13R
59	88	00200	510UL	23.1 176	DNT	LTS+ 0.0	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS+ 0.0	SPEC-INT	13R
59	89	00202	510UL	27.1 171	DNT	LTS- 0.0	510-MIZ30	13R
		00323	520HF	0.0 0	NDF	LTS- 0.0	SPEC-INT	13R
59	90	00200	510UL	12.7 176	DNT	LTS+ 0.0	510-MIZ30	13R
59	94	00262	510UL	7.8 176	DNT	LTS- 0.1	510-MIZ30	13R
59	95	00018	520HF	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
		00264	510UL	28.9 172	DNT	LTS+ 0.0	510-MIZ30	13R
59	96	00016	520HF	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
		00262	510UL	48.1 174	DNT	LTS+ 0.0	510-MIZ30	13R
59	97	00018	520HF	0.0 0	NDF	LTS+ 0.0	LTS-KIDNEY	13R
		00264	510UL	35.0 171	DNT	LTS+ 0.0	510-MIZ30	13R
59	98	00016	520HF	0.0 0	NDF	LTS- 0.1	LTS-KIDNEY	13R
		00262	510UL	21.7 174	DNT	LTS- 0.1	510-MIZ30	13R
59	99	00264	510UL	6.1 171	DNT	LTS+ 0.0	510-MIZ30	13R
60	2	00066	510UL	0.2 57	NQI	15S+ 0.3	510-MIZ30	13R

THREE MILE ISLAND UNIT 1
OTSG-B
OUTAGE 13R
FREESPAN INDICATIONS

Row	Tube	Reel	Probe	Volts/ Degrees		Origin/ Percent	Location	Data Set	Exam
		00305	520HF	0.0	0	NDF	LTE+ 7.6	SPEC-INT	13R
81	128	00078	510UL	0.2	88	NQI	LTE+ 16.9	510-MIZ30	13R
		00305	520HF	0.0	0	NDF	LTE+ 16.9	SPEC-INT	13R
81	131	00076	510UL	0.1	76	NQI	11S+ 0.2	510-MIZ30	13R
		00313	520HF	0.0	0	NDF	11S+ 0.2	SPEC-INT	13R
82	7	00100	510UL	5.9	176	DNT	LTE+ 10.6	510-MIZ30	13R
82	14	00408	520HF	1.5	0	WAR 23	06S+ 0.8	SPEC-INT	13R
		00307	540HF	0.6	81	NQI	06S+ 0.8	540-MIZ30	13R
82	21	00306	510UL	6.5	174	DNT	LTE+ 11.0	510-MIZ30	13R
82	22	00304	510UL	6.3	177	DNT	LTE+ 10.9	510-MIZ30	13R
82	30	00304	510UL	1.6	92	INR	15S+ 29.4	510-MIZ30	13R
82	37	00168	510UL	0.3	46	NQI	04S+ 0.7	510-MIZ30	13R
		00315	520HF	0.4	0	WAR 9	04S+ 0.7	SPEC-INT	13R
82	43	00168	510UL	0.3	84	NQI	08S- 0.8	510-MIZ30	13R
		00315	520HF	0.0	0	NDF	08S- 0.8	SPEC-INT	13R
82	44	00166	510UL	0.4	147	INR	08S+ 37.5	510-MIZ30	13R
82	47	00168	510UL	0.5	66	NQI	08S- 0.8	510-MIZ30	13R
		00315	520HF	0.4	0	WAR 8	08S- 0.6	SPEC-INT	13R
82	48	00328	510UL	0.4	39	NQI	04S+ 0.7	510-MIZ30	13R
		00408	520HF	0.5	0	WAR 10	04S+ 0.8	SPEC-INT	13R
82	74	00003	510UL	3.0	164	DNT	LTS- 0.0	510-MIZ30	13R
82	75	00005	510UL	4.0	178	DNT	LTS+ 0.0	510-MIZ30	13R
82	76	00104	510UL	8.9	173	DNT	LTS+ 0.0	510-MIZ30	13R
82	77	00102	510UL	12.4	175	DNT	LTS- 0.1	510-MIZ30	13R
82	78	00104	510UL	13.7	174	DNT	LTS- 0.1	510-MIZ30	13R
82	79	00102	510UL	5.3	177	DNT	LTS- 0.1	510-MIZ30	13R
82	80	00104	510UL	3.2	177	DNT	LTS- 0.1	510-MIZ30	13R
82	83	00102	510UL	3.3	156	DNT	LTS+ 0.0	510-MIZ30	13R
82	84	00104	510UL	4.3	165	DNT	LTS- 0.1	510-MIZ30	13R
82	85	00102	510UL	3.1	151	DNT	LTS- 0.1	510-MIZ30	13R
82	86	00104	510UL	5.7	167	DNT	LTS- 0.0	510-MIZ30	13R
82	87	00102	510UL	4.6	156	DNT	LTS- 0.0	510-MIZ30	13R
82	119	00062	510UL	0.4	91	NQI	LTE+ 12.9	510-MIZ30	13R
		00305	520HF	0.0	0	NDF	LTE+ 12.9	SPEC-INT	13R
82	120	00060	510UL	0.1	75	NQI	06S+ 17.3	510-MIZ30	13R
		00305	520HF	0.0	0	NDF	06S+ 17.3	SPEC-INT	13R
83	6	00100	510UL	5.9	176	DNT	LTE+ 10.8	510-MIZ30	13R
83	7	00098	510UL	6.0	174	DNT	LTE+ 11.1	510-MIZ30	13R
		00098	510UL	3.9	182	DNT	LTS+ 20.4	510-MIZ30	13R
83	21	00306	510UL	1.7	85	INR	06S+ 2.7	510-MIZ30	13R
83	25	00306	510UL	0.6	94	INR	02S+ 35.0	510-MIZ30	13R
83	32	00304	510UL	0.1	107	INR	UTS+ 3.0	510-MIZ30	13R
83	35	00304	510UL	0.4	115	INR	07S+ 25.6	510-MIZ30	13R
83	39	00168	510UL	0.3	80	NQI	04S+ 0.7	510-MIZ30	13R
		00315	520HF	0.6	0	WAR 12	04S+ 0.7	SPEC-INT	13R
83	47	00168	510UL	0.3	65	NQI	08S- 0.8	510-MIZ30	13R
		00315	520HF	0.0	0	NDF	08S- 0.8	SPEC-INT	13R
83	72	00023	510UL	3.2	165	DNT	LTS+ 0.0	510-MIZ30	13R
83	73	00021	510UL	4.0	162	DNT	LTS+ 0.0	510-MIZ30	13R

THREE MILE ISLAND UNIT 1
OTSG-B
OUTAGE 13R
FREESPAN INDICATIONS

Row	Tube	Reel	Probe	Volts/ Degrees	Origin/ Percent	Location	Data Set	Exam
100	1	00384	510UL	10.0 176	DNT	LTE+ 10.6	510-MIZ30	13R
100	5	00384	510UL	2.6 174	DNT	LTE+ 9.7	510-MIZ30	13R
100	7	00332	510UL	6.2 177	DNT	LTE+ 10.7	510-MIZ30	13R
100	12	00330	510UL	0.2 81	INR	09S+ 0.3	510-MIZ30	13R
100	46	00315	520HF	0.7 0	WAR 13	07S- 0.7	SPEC-INT	13R
		00158	510UL	0.2 74	NQI	07S+ 0.7	510-MIZ30	13R
		00315	520HF	0.7 0	WAR 13	07S+ 0.7	SPEC-INT	13R
100	58	00158	510UL	9.7 173	DNT	LTS+ 0.0	510-MIZ30	13R
100	59	00160	510UL	6.6 171	DNT	LTS- 0.1	510-MIZ30	13R
100	64	00342	510UL	0.4 94	NQI	LTE+ 10.3	510-MIZ30	13R
		00349	520HF	0.0 0	NDF	LTS -13.7	SPEC-INT	13R
		00342	510UL	2.8 179	DNT	LTS- 0.2	510-MIZ30	13R
100	70	00342	510UL	4.4 174	DNT	LTS- 0.1	510-MIZ30	13R
100	71	00340	510UL	12.8 176	DNT	LTS- 0.4	510-MIZ30	13R
100	72	00340	510UL	6.4 178	DNT	LTS- 0.3	510-MIZ30	13R
		00378	520HF	0.0 0	NDF	LTS- 0.3	LTS-KIDNEY	13R
100	77	00136	510UL	0.8 40	INR	12S+ 31.6	510-MIZ30	13R
100	95	00086	510UL	4.4 181	DNT	LTS- 0.1	510-MIZ30	13R
100	96	00084	510UL	7.0 174	DNT	LTS- 0.1	510-MIZ30	13R
100	97	00086	510UL	10.3 175	DNT	LTS- 0.3	510-MIZ30	13R
100	98	00030	520HF	0.0 0	NDF	LTS- 0.3	LTS-KIDNEY	13R
		00084	510UL	17.9 173	DNT	LTS- 0.3	510-MIZ30	13R
100	99	00086	510UL	23.8 172	DNT	LTS+ 0.0	510-MIZ30	13R
		00285	520HF	0.0 0	NDF	LTS+ 0.0	SPEC-INT	13R
100	100	00084	510UL	10.9 172	DNT	LTS- 0.3	510-MIZ30	13R
100	102	00084	510UL	0.2 100	NQI	07S- 0.5	510-MIZ30	13R
		00285	520HF	0.0 0	NDF	07S- 0.5	SPEC-INT	13R
100	119	00086	510UL	2.6 183	DNT	13S+ 16.7	510-MIZ30	13R
101	3	00330	510UL	8.7 178	DNT	LTE+ 10.4	510-MIZ30	13R
101	4	00332	510UL	6.6 175	DNT	LTE+ 10.7	510-MIZ30	13R
101	5	00332	510UL	7.6 176	DNT	LTE+ 10.9	510-MIZ30	13R
101	7	00330	510UL	6.5 177	DNT	LTE+ 10.7	510-MIZ30	13R
101	9	00330	510UL	5.8 176	DNT	LTE+ 11.1	510-MIZ30	13R
101	10	00332	510UL	6.8 175	DNT	LTE+ 10.9	510-MIZ30	13R
101	12	00332	510UL	0.3 53	INR	09S+ 0.4	510-MIZ30	13R
101	49	00160	510UL	0.3 48	NQI	07S+ 0.7	510-MIZ30	13R
		00315	520HF	0.4 0	WAR 8	07S+ 0.7	SPEC-INT	13R
101	53	00160	510UL	0.2 80	NQI	UTS+ 1.8	510-MIZ30	13R
		00315	520HF	0.0 0	NDF	UTS+ 1.8	SPEC-INT	13R
101	62	00158	510UL	2.7 197	DNT	LTS- 0.2	510-MIZ30	13R
101	63	00160	510UL	8.4 170	DNT	LTS- 0.1	510-MIZ30	13R
101	64	00342	510UL	3.0 175	DNT	LTS- 0.1	510-MIZ30	13R
101	70	00342	510UL	2.8 174	DNT	LTS- 0.1	510-MIZ30	13R
101	91	00136	510UL	4.6 170	DNT	LTS- 0.1	510-MIZ30	13R
101	92	00134	510UL	3.2 176	DNT	LTS- 0.1	510-MIZ30	13R
101	98	00084	510UL	7.9 176	DNT	LTS- 0.3	510-MIZ30	13R
101	99	00086	510UL	4.4 169	DNT	LTS- 0.2	510-MIZ30	13R
101	118	00285	520HF	0.5 0	WAR 6	08S- 0.5	SPEC-INT	13R
		00084	510UL	0.2 84	NQI	08S- 0.5	510-MIZ30	13R