NMC
Committed to Nuclear Excellence

Nuclear Management Company, LLC
Point Beach Nuclear Plant
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NRC 2002-0102 10 CFR 50.54(f)

November 15, 2002

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Docket 50-266
Point Beach Nuclear Plant (PBNP), Unit 1
Thirty-day response to NRC Bulletins 2001-01, 2002-01, and 2002-02 for Reactor Vessel Head and Vessel Head Penetration Nozzle Inspection Findings

On August 3, 2001, the Nuclear Regulatory Commission (NRC) transmitted Bulletin (BL) 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles." On March 18, 2002, the NRC transmitted BL 2002-01, "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity." On August 9, 2002, the NRC transmitted BL 2002-02, "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Programs."

In BL 2001-01 the NRC requested addressees provide within 30 days after plant restart following the next refueling outage; a description of the extent of any vessel head penetration nozzle leakage and cracking detected, including the number, location, size, and nature of each crack detected. Furthermore, if cracking is detected, the report is required to include a description of the inspections, repairs, and other corrective actions taken to satisfy applicable regulatory requirements.

In BL 2002-01 the NRC requested addressees provide within 30 days after plant restart following the next inspection of the reactor pressure vessel head; the inspection scope (if different than that provided in response to BL 2002-01, Item 1.D) and results, including the location, size and nature of any degradation detected. Furthermore, the report is required to include the corrective actions taken and the root cause of the degradation.

In BL 2002-02 the NRC requested addresses provide within 30 days after plant restart following the next inspection of the reactor pressure vessel head and vessel head penetration nozzles; the inspection scope and results, including the location, size, extent, and nature of any degradation (e.g., cracking, leakage, and wastage) that was detected. Furthermore, the report is required to include details of the non-destructive examination (NDE) used (i.e., method, number, type, and frequency of transducers or transducer packages, essential variables, equipment, procedure and personnel qualification requirements, including personnel pass/fail criteria), and criteria used to determine whether an indication, "shadow," or "backwall anomaly" is acceptable or rejectable.

A088

On October 16, 2002, Nuclear Management Company, LLC (NMC) completed its most recent refueling outage of Point Beach Nuclear Plant (PBNP) Unit 1. Attached to this letter is a discussion of the inspection scope and results, details of the NDE used, and the acceptability of the limited ultrasonic testing (UT) examinations performed on four of the forty-nine penetrations.

Additionally, Westinghouse Electric Company performed a probabilistic analysis to determine whether the inspection results to date on PBNP Unit 1 control rod drive mechanism (CRDM) penetrations provide a risk-informed basis for pursuing a return to power. Proprietary and non-proprietary versions of the probabilistic analysis are provided in Enclosures 1 and 2, respectively. Both reports in Enclosures 1 and 2 are titled, "Probabilistic Analysis of the Safety Risk Associated with Point Beach Unit 1 Nuclear Plant's Unexamined CRDM Penetrations."

Enclosed in this letter is a Westinghouse authorization letter, CAW-02-1559 (Enclosure 3), an accompanying affidavit (Enclosure 4), Proprietary Information Notice (Enclosure 5), and Copyright Notice (Enclosure 6).

As Enclosure 1 contains information proprietary to Westinghouse Electric Company, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b) (4) of 10 CFR 2.790 of the Commission's' regulations. Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.790 of the Commission's' regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse Affidavit, should reference CAW-02-1559 and should be addressed to H. A. Sepp, Manager of Regulatory and Licensing Engineering, Westinghouse Electric Company, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Enclosure 7 to this letter contains the nozzle 1 examination results as presented in Framatome ANP document "Point Beach U1R27 Reactor Head CRDM Nozzle Ultrasonic Examination Report", dated October 5, 2002.

This letter contains no new commitments and no revisions to existing commitments.

I declare under penalty of perjury that the foregoing is true and accurate. Executed on November 15, 2002.

A. J. Cayia
Site Vice President

RDS/kmd

Attachment: PBNP Unit 1 RPV Head and VHP Nozzle Inspection Discussion

Enclosures:

1 - "Probabilistic Analysis of the Safety Risk Associated with Point Beach Unit 1 Nuclear Plant's Unexamined CRDM Penetrations", (Proprietary)
2 - "Probabilistic Analysis of the Safety Risk Associated with Point Beach Unit 1 Nuclear Plant's Unexamined CRDM Penetrations", (Non-Proprietary)
3 - Westinghouse Proprietary Authorization Letter, CAW-02-1559
4 - Westinghouse Affidavit
5 - Westinghouse Proprietary Information Notice
6 - Westinghouse Copyright Notice
7 - "Point Beach U1R27 Reactor Head CRDM Nozzle Ultrasonic Examination Report"

cc (with enclosures):
Project Manager, PBNP, USNRC, NRR

cc (without enclosures):
Regional Administrator, USNRC, Region III
NRC Resident Inspector – PBNP

ATTACHMENT

To

Letter from A. J. Cayia (NMC)

to

Document Control Desk (NRC)

Thirty-day response to NRC Bulletins 2001-01, 2002-01, and 2002-02 for Reactor Vessel Head and Vessel Head Penetration Nozzle Inspection Findings

PBNP Unit 1 RPV Head and VHP Nozzle Inspection Discussion

PBNP Unit 1 Inspection Scope and Results

Visual Examinations

An above-head bare metal visual examination was performed on 100% of the surface area surrounding the PBNP Unit 1 vessel head penetrations (VHP). The examination was performed as described in the revised Nuclear Management Company, LLC (NMC) response to BL 2002-01, Item 1.D, dated April 18, 2002. The examination resulted in an effective visual examination that revealed no evidence of boric acid deposition or wastage of the reactor pressure vessel (RPV) head. All RPV head penetrations were examined with no limitations or masking.

On April 2, 2002 the NMC provided the requested response to NRC BL 2002-01. On April 18, 2002 the NMC provided a revised response to NRC BL 2002-01. In each of these letters the NMC described a small area of apparent wastage on the PBNP Unit 1 RPV head that occurred in the early 1970's. The description of the affected area on the RPV head was obtained from a first hand account by an NMC staff member who was involved in repair of the RPV head insulation at the time of discovery. This area was searched for during the above-head bare metal visual examination performed on the PBNP Unit 1 RPV head during the most recent refueling outage. No evidence of the RPV head wastage described above was identified.

Ultrasonic Examinations

In addition to the above-head bare metal visual examination, ultrasonic examinations (UT) of the nozzle base material were performed. These examinations were performed as described in our response to BL 2002-02 , Item 1.A, dated September 12, 2002. The UT also included a "leak path" examination of each nozzle. All UT and "leak path" examinations revealed no evidence of cracking or leakage.

All nozzles without thermal sleeves (16) were examined using a rotating probe UT technique. The remaining penetrations containing thermal sleeves (33) were examined using a blade probe UT technique.

The initial blade probe UT examination of the nozzle 1 base material revealed several recordable indications. The nozzle 1 thermal sleeve was removed to initiate repairs and a 100% rotating UT was performed. Multiple transducers from both the axial and circumferential beam directions interrogated these indications during the rotating UT examination. The rotating UT results demonstrated that the indications were embedded flaws resulting from original construction J-groove welding processes. These results were confirmed with the performance of two separate liquid penetrant (PT) examinations. The initial UT indications seen were concluded to be a result of manufacturing defects and are not related to primary water stress cracking corrosion (PWSCC). No repairs were performed and the thermal sleeve was reattached. The nozzle 1 examination results are contained in Framatome ANP document "Point Beach U1R27 Reactor Head CRDM Nozzle Ultrasonic Examination Report", dated October 5, 2002. This report is contained in Enclosure 7.

During the performance of the UT examination seven (7) penetrations with thermal sleeves initially had limitations in inspection coverage. In order to provide access to increased examination area, three (3) thermal sleeves were removed and rotating UT examinations were performed. The remaining four (4) nozzles had minor limitations in coverage as shown in Table 1. No shadow or backwall anomaly indications were identified during the performance of these examinations.

Table 1 Inspection Summary		
Penetration(s)	**Coverage**	**Description**
1	100%	Indications of possible fabrication-related flaw indications found through blade probe UT examination. Thermal sleeve removed to initiate repairs. 100% rotating UT performed with sleeve removed. Indications determined to be weld fabrication-related with the more accurate rotating probe UT. No indications found with confirmatory PT examination. No repairs required. Thermal sleeve reinstalled.
2 – 25	100%	No indications. No restrictions or limitations.
26	78%	No indications. Limited coverage justified through engineering analysis.
27	66%	No indications. Limited coverage justified through engineering analysis.
28	52%	No indications. Limited coverage justified through engineering analysis.
29	100%	No indications. No restrictions or limitations.
30	50%	No indications. Limited coverage justified through engineering analysis.
31 – 33	100%	Very limited coverage using blade probe due to physical restrictions. Thermal sleeves removed. 100% coverage obtained through use of rotating UT probe. Nozzle 32 had weld fabrication-related indications only. No flaw indications. Thermal sleeve installed.
34 – 49	100%	No indications. No restrictions or limitations.

The individual examination summary charts for nozzles 26, 27, 28 and 30 are located in Figures 1 through 4. The limited coverage on these nozzles was found to be acceptable through performance of engineering evaluations. These evaluations are described later in this document.

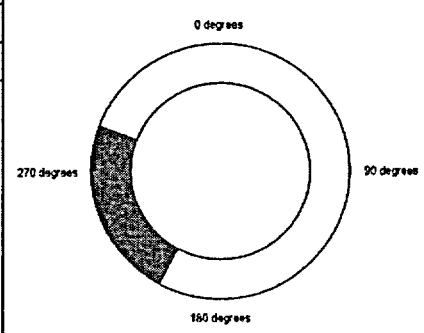
Nozzle	Area	Circ Length	Axial Length	Examination Percentage 78%
26	*Area of Interest*	*0-360°*	*0 -6.56"*	
	Area Examined	*0-217°*	*0-6.6"*	
	Area Not Examined	*218-306°*	*0-6.5"*	
	Area Examined	*307-360°*	*0-6.6"*	

Figure 1 – Nozzle 26 UT Exam Coverage

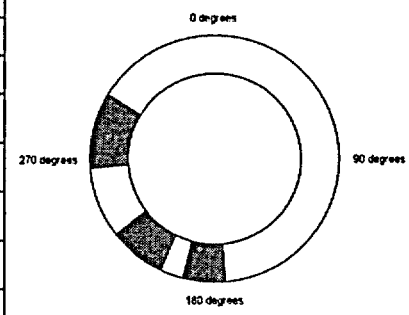
Nozzle	Area	Circ Length	Axial Length	Examination Percentage 66%
27	Area of Interest	0-360°	0 -6.56"	
	Area Examined	0-173°	0-8.7"	
	Area Not Examined	174-205°	0-6.5"	
	Area Examined	206-210°	0-8.7"	
	Area Not Examined	211-236°	0-6.56"	
	Area Examined	237-263°	0-8.7"	
	Area Not Examined	264-332°	0-6.56"	
	Area Examined	333-360°	0-8.7"	

Figure 2 – Nozzle 27 UT Exam Coverage

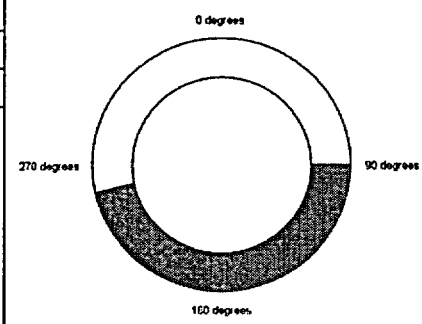
Nozzle	Area	Circ Length	Axial Length	Examination Percentage 52%
28	Area of Interest	0-360°	0 -6.56"	
	Area Examined	0-89°	0-8.6"	
	Area Not Examined	90-261°	0-6.56"	
	Area Examined	262-360°	0-8.6"	

Figure 3 – Nozzle 28 UT Exam Coverage

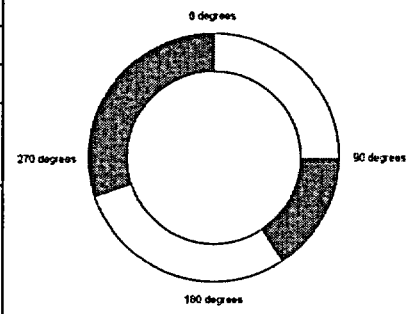
Nozzle	Area	Circ Length	Axial Length	Examination Percentage 50%
30	Area of Interest	0-360°	0 -6.56"	
	Area Examined	0-89°	0-8.6"	
	Area Not Examined	90-130°	0-6.56"	
	Area Examined	131-239°	0-8.6"	
	Area Not Examined	240-360°	0-6.56"	

Figure 4 – Nozzle 30 UT Exam Coverage

Liquid Penetrant Examinations

As discussed previously, two separate liquid penetrant (PT) examinations were performed on the nozzle 1 J-groove wetted surface to characterize suspected UT indications found during initial blade probe UT examinations. The PT examinations revealed no crack indications. These results were in agreement with no indications found in separate rotating UT examinations following removal of the thermal sleeve. The initial UT indications seen were concluded to be a result of manufacturing defects and are not related to PWSCC.

Acceptability of Limited UT Examination of Nozzles 26, 27, 28, and 30

As shown in Table 1, four (4) nozzles (26, 27, 28 and 30) received a UT examination of less than 100% coverage. These limited examinations have been found to be acceptable. This section describes that justification.

Flaw Tolerance Evaluation

Circumferential cracks located in the nozzle material are the area of prime interest due to the safety concern arising from nozzle ejection and LOCA. Therefore, a flaw tolerance evaluation, postulating a circumferential flaw in the region that was not interrogated by the UT examination was performed by Westinghouse Electric Company.

The postulated flaw in this evaluation corresponds to 180° and is consistent with the limitations documented in Figures 1 through 4. Figure 5 illustrates the time required for a postulated 180° circumferentially oriented flaw to grow to a point of structural instability (330°) to be approximately 25 years of operation. Figure 5 is plotted as half the length of the circumferential flaw. This accounts for both ends of the flaw to growing equally. The evaluation uses plant specific stresses and operating temperature and the MRP-55 crack growth rate predictions. Based on the UT inspection results and this evaluation, there are no concerns with the structural integrity of the VHPs associated with the possibility of undetected circumferential cracking in the non-inspected areas over at least the next operating cycle.

Proprietary and non-proprietary versions of the flaw tolerance evaluation (WCAP-14000 and WCAP-15950, respectively), were transmitted to the NRC by Westinghouse Electric Company on September 27, 2002.

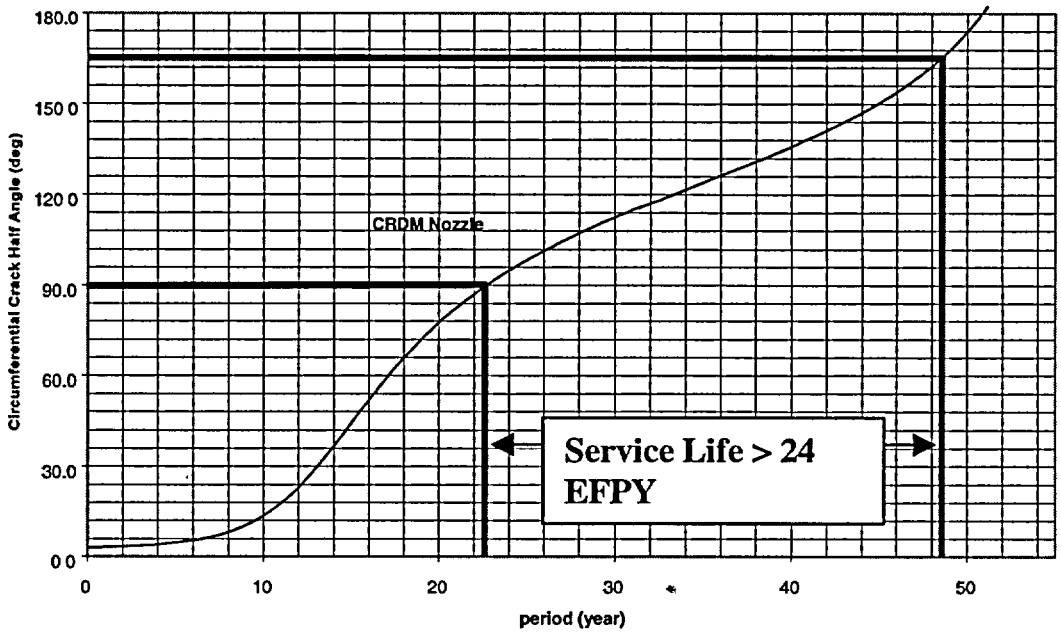


Figure 5 - Crack Growth Predictions for Circumferential Through-Wall Cracks

Probabilistic Evaluation

In addition to the work described above, Westinghouse Electric Company performed a probabilistic analysis. This work determined, with at least 95% confidence, that the seven penetrations with initial limitations in examination coverage would not produce an axial or circumferential flaw that would exceed the assumed critical sizes over a time interval of up to 14.5 additional effective full power years (EFPYs). This conclusion was based on conservative assumptions in average crack size, stresses influencing crack growth, and inspections performed to date. Proprietary and non-proprietary versions of the probabilistic analysis are provided in Enclosures 1 and 2, respectively.

The results of the probabilistic analysis were then evaluated using the plant specific probabilistic risk assessment (PRA) to determine the potential risk significance of this activity. NMC conservatively postulated that a critical failure would lead to a medium loss of coolant accident (LOCA) with an equivalent diameter of more than 2 inches. The corresponding change in core damage frequency for this scenario was calculated to be less than 1E-6/year. These results demonstrate a very small change in plant risk and are consistent with the guidance contained within Regulatory Guide 1.174.

100% Visual and Other UT Examinations

The detailed 100% UT examinations of 45 of the 49 CRDM nozzles and of the RPV head vent line, with no evidence of cracking or leakage, give assurance that PWSCC of the PBNP Unit 1 VHPs is not occurring. This is also evident in the results of the 100% visual examination performed on the RPV head exterior surface. These inspections support the evaluations previously discussed and give NMC confidence in the structural integrity of all PBNP Unit 1 VHP nozzles (including nozzles 26, 27, 28, and 30).

NDE Methods and Qualifications

All NDE personnel involved in these examinations and data analysis activities were certified as Level II or Level III NDE inspectors in accordance with their employer's written practices. Personnel certifications were reviewed and approved by the PBNP Level III prior to personnel performing examinations.

Visual Examinations

The above-head visual examinations (VT) were performed directly by qualified examiners. Additionally, a remote hand-held camera was used to record the examination images onto VCR tape. The procedures used in these VT examinations were qualified in accordance with the employer's written practices, ASME Section XI, and supplemented by EPRI Report 1006296, Revision 1, "Visual Examination for Leakage of PWR Reactor Head Penetrations on Top of RPV Head."

Ultrasonic Examinations

The detailed method of UT examinations performed is contained in Framatome ANP document "Point Beach U1R27 Reactor Head CRDM Nozzle Ultrasonic Examination Report", dated October 5, 2002. This non-proprietary report describes the number, type and frequency of transducers, essential variables, equipment, and procedures. This report is contained in Enclosure 7.

A qualification program similar to the ASME Section XI, mandatory Appendix VIII, "Performance Demonstration For Ultrasonic Examination Systems," does not exist for UT testing of the VHP nozzle base material. Framatome ANP was the vendor that performed UT examinations during this most recent PBNP Unit 1 outage. As part of the EPRI MRP, Framatome ANP recently participated in a demonstration of the UT techniques used for detection of axial and circumferentially oriented flaws in the RPV head penetration tube material. These techniques and capabilities were demonstrated in blind testing that was attended by NRC reviewers.

Framatome ANP has recently developed the "leak path" UT technique used in the PBNP Unit 1 examinations. It is a proprietary technique that has no formal qualification program. The "leak path" UT technique uses empirical data from the examination of approximately 270 nozzle penetrations. In examinations of VHPs since March 2001 with known bare metal visual leakage where the interference fit has been scanned, a UT "leak path" has been observed. Framatome has presented the "leak path" UT technique to the NRC for review on several occasions. The technical basis of this technique is described in a Framatome ANP proprietary document entitled, "Reactor Vessel Head Penetration Leak Path Qualification Report," dated February 6, 2002.

Liquid Penetrant Examinations

All personnel and procedures involved in the PT examinations were qualified in accordance with ASME Sections V and XI. The first PT was performed to the Framatome ANP procedure 54-ISI-244-06, "Liquid Penetrant Examination of Reactor Vessel Head Penetration from the Inside Surface." The second PT was performed to PBNP procedure NDE-451, "Liquid Penetrant Examination Temperature Applications 45 °F to 125 °F."

ENCLOSURE 2

To

Letter from A. J. Cayia (NMC)

To

Document Control Desk (NRC)

Thirty-day response to NRC Bulletins 2001-01, 2002-01, and 2002-02 for Reactor Vessel Head and Vessel Head Penetration Nozzle Inspection Findings

"Probabilistic Analysis of the Safety Risk Associated with Point Beach Unit 1 Nuclear Plant's Unexamined CRDM Penetrations" (Non-Proprietary)

Probabilistic Analysis of the Safety Risk Associated with Point Beach Unit 1 Nuclear Plant's Unexamined CRDM Penetrations

In its Fall outage of 2002, Point Beach Unit 1 Nuclear Power Plant attempted to inspect all 49 of its control rod drive mechanism (CRDM) penetrations but could not provide 100% inspection coverage of 7 of the penetrations. The purpose of the work documented in this letter report is to provide a probabilistic analysis to determine whether the inspection results to date on Point Beach Unit 1 CRDM penetrations can provide a risk-informed basis for pursuing a contemplated return to power, with inspections of the 7 partially examined penetrations at a future outage.

Summary of Approach : The approach is to first establish the maximum number of axial and circumferential flaws that may be left in the base metal of the tubing for the 7 partially-inspected Unit 1 CRDM penetrations with 95% confidence that no one flaw will exceed the pertinent critical flaw size during the desired time interval. This calculation uses a probabilistic model derived from extreme value theory, with values for inputs (critical sizes and crack growth rates) taken from a recently-completed structural reliability study for Point Beach units 1 and 2 (WCAP14000). The maximum allowable number is then compared with the upper 95% confidence value on flaws projected to currently be in Unit 1's set of CRDM penetrations based on a simple statistical evaluation of sample inspections to date. If the maximum allowable flaw number exceeds the upper confidence limit number, then it can be claimed with at least 95% confidence that the plant can return to power and operate for the contemplated interval without a flaw in the subject unit's CRDM penetrations progressing to its critical size.

Summary of Results: Using this approach, the analysis concludes, with at least 95% confidence, that the 7 incompletely inspected penetrations of interest will not produce an axial or circ flaw that will exceed the assumed critical sizes over a time interval of up to 14.5 additional effective full power years (EFPY). This conclusion is based on conservative assumptions as to average crack size, to stresses influencing crack growth, and to inspections performed to date. Specifically, the distribution of flaws remaining in the 7 penetrations is assumed to have a mean depth of "through wall" with a length of 3 inches. Cracks grow at a rate consistent with the most stressed (outer layer) of the CRDM penetrations. No credit is taken for partial inspections. It should be noted, however, that no welds were inspected and no inferences are made here about weld integrity.

Description of the Work Performed

(a, c)

Results

Equation (2) is used to calculate the probability of the ith flaw in each sub-lot reaching full critical length (Table 2) within operating intervals ranging from 1 to 15 effective full power years for axial

and circ flaws. Equation (5) uses the probabilities in Table 2 and the target reliabilities of 95% to calculate the allowable number of flaws in the 7 penetrations for operating intervals out to 15 additional ("Target") EFPY shown in Table 3. Comparing Table 3 to the upper confidence number of 1 calculated above, the circ cracks limit the number of additional EFPY that Point Beach Unit 1 can go without inspecting the 7 subject penetrations to 14.5 EFPY. That is, at 14.5 additional EFPY the number of allowable leaks just matches the number of circ flaws that we are 95% confident will not be exceeded. We can thus say with at least 95% confidence that the 7 partially inspected penetrations will not generate a critical axial or circ flaw over a future ranging up to 14.5 EFPY.

Table 2: Probability ith Flaw > Critical Length Before Target EFPY

Target EFPY	Axial	Circ
1	1.16E-04	1.80E-03
1.5	1.78E-04	2.76E-03
2	2.43E-04	3.76E-03
2.5	3.10E-04	4.80E-03
3	3.81E-04	5.88E-03
3.5	4.55E-04	7.01E-03
4	5.32E-04	8.18E-03
4.5	6.12E-04	9.41E-03
5	6.96E-04	1.07E-02
5.5	7.84E-04	1.20E-02
6	8.76E-04	1.34E-02
6.5	9.71E-04	1.48E-02
7	1.07E-03	1.63E-02
7.5	1.18E-03	1.79E-02
8	1.28E-03	1.95E-02
8.5	1.40E-03	2.12E-02
9	1.52E-03	2.29E-02
9 5	1.64E-03	2.48E-02
10	1.77E-03	2.67E-02
10.5	1.91E-03	2.87E-02
11	2.05E-03	3.07E-02
11.5	2.20E-03	3.29E-02
12	2.35E-03	3.51E-02
12.5	2.51E-03	3.75E-02
13	2.68E-03	3.99E-02
13.5	2.86E-03	4.25E-02
14	3.04E-03	4.51E-02
14.5	3.24E-03	4.78E-02
15	3.44E-03	5.07E-02

Table 3. Allowable Number of Flaws @ 100% Critical Size (7 Tubes)		
Target EFPY	Axial	Circ
1	7.0	7.0
1.5	7.0	7.0
2	7.0	7.0
2.5	7.0	7.0
3	7.0	7.0
3.5	7.0	7.0
4	7.0	6.2
4.5	7.0	5.4
5	7.0	4.8
5.5	7.0	4.2
6	7.0	3 8
6.5	7.0	3.4
7	7.0	3.1
7.5	7.0	2.8
8	7.0	2.6
8.5	7.0	2.4
9	7.0	2.2
9.5	7.0	2.0
10	7.0	1.9
10.5	7.0	1.8
11	7.0	1.6
11.5	7.0	1.5
12	7.0	1.4
12.5	7.0	1.3
13	7.0	1.3
13.5	7.0	1.2
14	7.0	1.1
14.5	7.0	1.0
15	7.0	1.0

Addendum on Use of Table 2 in a Regulatory Guide 1.174 Analysis

Regulatory Guide 1.174 suggests that a contribution to plant risk is "small" if (1) the contribution to plant CDF is no more than 1E-6, and (2) the contribution to plant LERF risk is no more than 1E-7. The probabilities in Table 2 cannot be used in to support a Regulatory Guide 1.174 risk analysis without first accounting for the likelihood of the ith tube having a leak now. Using only the sample information from Point Beach Unit 1's latest inspection and, in Bayesian terms, assuming a "prior" uniform distribution between 0 and 1 on the probability that any one penetration would have a leak, it can be shown that the mean or expected value of the subject probability (now treated as a random variable) is (Martz and Waller, page 257),

(6) $$\bar{p} = \frac{x+1}{n+2},$$

where x = the number of leaks found in the inspections and n = the number of penetrations inspected. Using the same value (43) as before and setting x equal to zero, the estimated value for the probability that a given penetration would have a leak is 1/(43+2) = 0.022. If the latter is taken as the probability that a penetration will have a through wall circ leak of average size assumed in calculating Table 2 (i.e., 3 inches), then the unconditional probability that the ith penetration will have a critical circ leak by, say, 1.5 Target EFPY is 0.022*2.76E-3 = 6.14E-5, (where the 2.76E-3 comes from Table 2).
One further note. The Regulatory Guide 1.174 criteria are expressed in terms of frequency of event per reactor year. The probability of the ith penetration leaking over multiple years must therefore be converted to an equivalent per year basis.

References

Bain, L. J., Statistical Analysis of Reliability and Life Testing Models, Marcel Dekker, Inc., 1978.

Bamford, W. H., and D. Tang, "Structural Integrity Evaluation of Reactor Vessel Upper Head Penetration to Support Continued Operation: Point Beach Units 1 and 2," Westinghouse Proprietary document (WCAP-14000), Revision 1, September 2002.

Cunningham, M. A., "Statistical Analysis of CRDM Sampling (Revision)", memo of August 17, 2001 to W. H. Bateman, Office of Nuclear Reactor Regulation, Nuclear Regulatory Commission.

Kapur, K. C., and L. R. Lamberson, Reliability in Engineering Design, John Wiley and Sons, 1977.

Martz, H. F., and R. A. Waller, Bayesian Reliability Analysis, Krieger Publishing Co., 1991.

Tomes, C. A., "Probability of Not Detecting a Flaw in Unexamined Penetrations," email to Warren Bamford, September 30, 2002.

U.S. Nuclear Regulatory Commission Regulatory Guide 1.174, "An Approach to Using PRA in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," July 1998.

ENCLOSURE 3

To

Letter from A. J. Cayia (NMC)

To

Document Control Desk (NRC)

Thirty-day response to NRC Bulletins 2001-01, 2002-01, and 2002-02 for Reactor Vessel Head and Vessel Head Penetration Nozzle Inspection Findings

Westinghouse Proprietary Authorization Letter, CAW-02-1559

Westinghouse

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Attention: Mr. G. Shukla

Our ref: CAW-02-1559

October 11, 2002

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: Probabilistic Analysis of the Safety Risk Associated with Point Beach Unit 1 Nuclear Plant's Unexamined CRDM Penetrations (Final – Proprietary Version);

Dear Mr. Shukla:

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-02-1559 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.790 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Nuclear Management Company.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-02-1559 and should be addressed to the undersigned.

Very truly yours,

H. A. Sepp, Manager
Regulatory and Licensing Engineering

Enclosures

Cc: G. Shukla/NRR

ENCLOSURE 4

To

Letter from A. J. Cayia (NMC)

To

Document Control Desk (NRC)

Thirty-day response to NRC Bulletins 2001-01, 2002-01, and 2002-02 for Reactor Vessel Head and Vessel Head Penetration Nozzle Inspection Findings

Westinghouse Affidavit

CAW-02-1559

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared H. A. Sepp, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC ("Westinghouse"), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

MARGARET L. GONANO
COMMONWEALTH OF PENNSYLVANIA
NOTARY PUBLIC

H. A. Sepp, Manager
Regulatory and Licensing Engineering

Sworn to and subscribed
before me this 15th day
of October, 2002

Margaret L. Gonano
Notary Public

Notarial Seal
Margaret L. Gonano, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Jan. 3, 2006
Member, Pennsylvania Association Of Notaries

(1) I am Manager, Regulatory and Licensing Engineering, in Nuclear Services, Westinghouse Electric Company LLC ("Westinghouse"), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of the Westinghouse Electric Company LLC.

(2) I am making this Affidavit in conformance with the provisions of 10CFR Section 2.790 of the Commission's regulations and in conjunction with the Westinghouse application for withholding accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by the Westinghouse Electric Company LLC in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.790 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10CFR Section 2.790, it is to be received in confidence by the Commission.

(iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in the report, "Probabilistic Analysis of the Safety Risk Associated with Point Beach Unit 1 Nuclear Plant's Unexamined CRDM Penetrations," (Proprietary), being transmitted by the Nuclear Management Company letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk, Attention Mr. G. Shukla. The proprietary information as submitted for use by Westinghouse Electric Company LLC for Point Beach Unit 1 is expected to be applicable for other licensee submittals in response to certain NRC requirements for justification of continued safe operation of Point Beach Unit 1.

This information is part of that which will enable Westinghouse to:

(a) Assess the risk with unexamined CRDM penetrations.

(b) Assist the customer in obtaining NRC approval.

Further this information has substantial commercial value as follows:

(a) Westinghouse plans to sell the use of similar information to its customers for purposes of meeting NRC requirements for licensing documentation.

(b) Westinghouse can sell support and defense of continued safe operation with the presence of cracks in a control rod drive head penetration.

(c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar support documentation and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

ENCLOSURE 5

To

Letter from A. J. Cayia (NMC)

To

Document Control Desk (NRC)

Thirty-day response to NRC Bulletins 2001-01, 2002-01, and 2002-02 for Reactor Vessel Head and Vessel Head Penetration Nozzle Inspection Findings

Westinghouse Proprietary Information Notice

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.790 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.790(b)(1).

ENCLOSURE 6

To

Letter from A. J. Cayia (NMC)

To

Document Control Desk (NRC)

Thirty-day response to NRC Bulletins 2001-01, 2002-01, and 2002-02 for Reactor Vessel Head and Vessel Head Penetration Nozzle Inspection Findings

Westinghouse Copyright Notice

COPYRIGHT NOTICE

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.790 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.

ENCLOSURE 7

To

Letter from A. J. Cayia (NMC)

To

Document Control Desk (NRC)

Thirty-day response to NRC Bulletins 2001-01, 2002-01, and 2002-02 for Reactor Vessel Head and Vessel Head Penetration Nozzle Inspection Findings

"Point Beach U1R27 Reactor Head CRDM Nozzle Ultrasonic Examination Report"

FRAMATOME ANP

Point Beach

U1R27

Reactor Vessel Head
CRDM Nozzle

Ultrasonic Examination Report

October 5, 2002

Revision 0

Prepared by: _____ Date: 10/5/02
M. W. Key, UT-Level III

FRAMATOME ANP

Record of Revision

Revision 0	Initial issue

EXAMINATION SUMMARY

Automated ultrasonic examinations of 49 CRDM nozzles and vent line nozzle were performed on the Point Beach Unit 1 Reactor Vessel Head. The examinations were conducted from beneath the head using the SUMO Rocky manipulator, USA Blade Tool, and Bottom Up Rotating Tool. Framatome ANP examination procedure 54-ISI-100-09, "Remote Ultrasonic Examination of Reactor Head Penetrations" was used to perform the examination that governs the remote automated contact ultrasonic examination of CRDM nozzles using the ACCUSONEX™ automated data acquisition and analysis system.

The techniques utilized for this examination are intended for the detection and through-wall (depth) sizing of axial and circumferential ID and OD initiating flaws greater than .079" (2 mm) in the nozzle base metal only. In addition, leak path techniques were employed for the detection of fluid flow on the nozzle OD surface above the J-groove weld. Forward scatter (TOFD) longitudinal-wave and backward scatter shear wave techniques are used. The examinations were conducted from the bore of the CRDM nozzles from the bottom end of the nozzle up to a point nominally 2" above the uphill side of the nozzle J-groove weld.

The inspections consisted of scanning for axial and circumferential flaws within the nozzle. The bottom up tooling consisted of a transducer head that holds 10 individual search units. These search units were divided into two sets, one for the axial beam direction and one for the circumferential beam direction. The axial beam direction set of search units consisted of 5.0 MHz, longitudinal wave forward scatter time of flight search units with angles of 30° and 45°; backward scatter pulse echo, 2.25 MHz 60° shear wave search units; and a 5.0 MHz 0° search unit. The circumferential beam direction set of search units consisted of 5.0 MHz, longitudinal wave forward scatter time of flight search units with angles of 45°, 55°, and 65°; backward scatter pulse echo, 2.25 MHz 60° shear wave search units; and a 5.0 MHz 0° search unit. Appendix A contains printouts for system setup, calibrations files and scan parameters. The USA Blade tooling consisted of a single Circ-blade probe designed to emit ultrasound along the long axis of the nozzle. The axial beam search unit consisted of 5.0Mhz, longitudinal wave forward scatter time of flight search unit with an inspection angle of 50°.

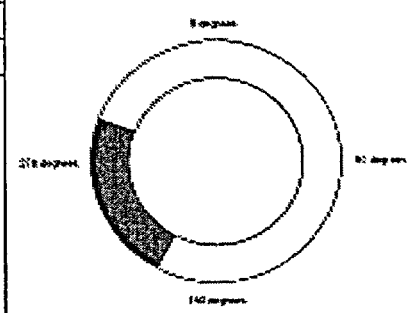
The detection of flaw indications is based upon the expected responses for each search unit and technique. The 0° transducer provides weld position information due to lack of backwall response in the region of the flaw. The forward scatter time of flight techniques provides flaw detection and sizing information. For the forward scatter transducers, flaw detection is identified by loss of signal response either from the lateral wave or backwall responses as well as detection of crack tip diffracted responses. The 60° shear wave transducer provides detection by means of corner trap responses between the flaw and nozzle surface and sizing with tip diffracted signals.

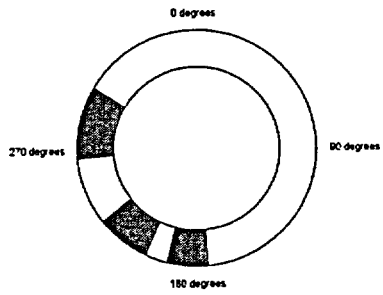
The bottom-up tool was positioned with the "Z" axis (axial) zeroed at the bottom of the nozzle with the positive direction extending up into the nozzle. The "Theta" (rotational) axis was zeroed at the downhill side of the nozzle J-groove weld with the positive direction in the counter-clockwise direction while looking up from the bottom of the nozzle (Nozzle 1 was zeroed at vessel "W" axis which is inline with the vent line nozzle). The ultrasonic data is adjusted for individual transducer offsets in the transducer head to provide actual reflector location in the nozzle.

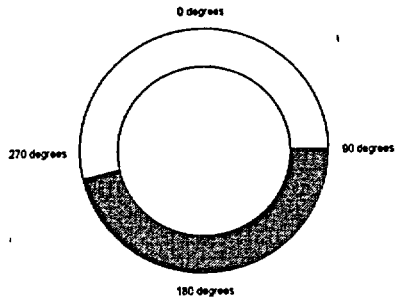
Of the 49 nozzles examined, one nozzle (1) contained a recordable fabrication indication in the nozzle wall. In most nozzles, these indications were located predominately on the downside of the weld and identified by multiple transducers from both axial and circumferential beam directions. These indications were characterized as embedded volumetric fabrication flaws resulting from the J-groove welding process. See Figure 1 for reporting criteria for fusion zone indications.

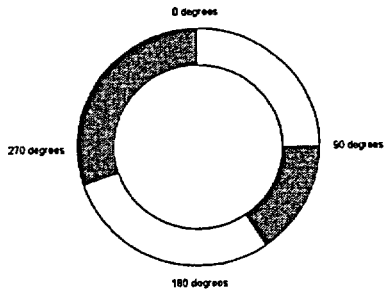
The examination of the remaining 48 nozzles and vent line did not reveal any recordable indications. However, it was noted on the examination data sheets that fabrication type flaws were detected at the nozzle/J-groove weld fusion zone with no penetration into the nozzle.

All nozzles with the exception of #26, #27, #28 and #30 received 100% coverage for the areas requiring examination as defined by the governing procedure (54-ISI-100-9). The nozzles with limited scan coverage are as follows:

Nozzle	***Area***	***Circ Length***	***Axial Length***	***Examination Percentage 78%***
26	Area of Interest	0-360°	0 -6.56"	
	Area Examined	0-217°	0-6.6"	
	Area Not Examined	218-306°	0-6.5"	
	Area Examined	307-360°	0-6.6"	

Nozzle	Area	Circ Length	Axial Length	Examination Percentage 66%
27	Area of Interest	0-360°	0 -6.56"	
	Area Examined	0-173°	0-8.7"	
	Area Not Examined	174-205°	0-6.5"	
	Area Examined	206-210°	0-8.7"	
	Area Not Examined	211-236°	0-6.56"	
	Area Examined	237-263°	0-8.7"	
	Area Not Examined	264-332°	0-6.56"	
	Area Examined	333-360°	0-8.7"	

Nozzle	Area	Circ Length	Axial Length	Examination Percentage 52%
28	Area of Interest	0-360°	0 -6.56"	
	Area Examined	0-89°	0-8.6"	
	Area Not Examined	90-261°	0-6.56"	
	Area Examined	262-360°	0-8.6"	

Nozzle	Area	Circ Length	Axial Length	Examination Percentage 50%
30	Area of Interest	0-360°	0 -6.56"	
	Area Examined	0-89°	0-8.6"	
	Area Not Examined	90-130°	0-6.56"	
	Area Examined	131-239°	0-8.6"	
	Area Not Examined	240-360°	0-6.56"	

SYSTEM CALIBRATION

The ultrasonic system consists of the essential equipment required to perform the examinations. The equipment for the CRDM examinations is made up of ultrasonic equipment that must be calibrated in order to provide a time base and amplitude response traceable to a known reference standard. The system consists of the R/D Tech µTomo, remote pulser, transducers, interconnecting cables, and the acquisition and analysis software.

Prior to the examinations, the system is calibrated using the appropriate equipment. The equipment considered as essential variables used for each examination is documented on the examination data sheet.

The calibrations are established by entering transducer/application specific parameters into the acquisition program calibration setup. A dynamic scan of the calibration block is performed with the pre-established parameters. The data analyst evaluates the data from the calibration block and makes the necessary adjustments in the acquisition calibration setup to provide an accurate system calibration. Once the adjustments are made, an additional scan of the calibration block is performed, which becomes the system initial calibration.

The procedure requires intermediate calibration checks to be performed periodically throughout the examinations. At the discretion of the analyst, the intervals between the calibration checks may be extended based upon continued satisfactory performance of the system. This is verified by observing the characteristics of the transducers during the examinations. The lateral wave of the TOFD transducers, the backwall responses for either the shear or longitudinal wave components of the transducers, and the signal to noise levels are used to make this evaluation. During the course of the examinations of the Midland Replacement Head CRDM nozzles, which spanned a 13-day period, the performance of each transducer was monitored during acquisition and verified by the analyst following completion of scanning of each nozzle. No system degradation was observed during the examination period, thus intermediate calibration checks were not performed. The requirement is more for security in reducing the amount of lost data if the system calibration is compromised, rather than a technical basis.

A dynamic scan of the calibration block serves as the final calibration at the end of the series of examinations. The data file identification provides a date and time stamp identifying when each data acquisition is started. This time is used for tracking of the calibrations and examinations. The file designation is broken down into the following:

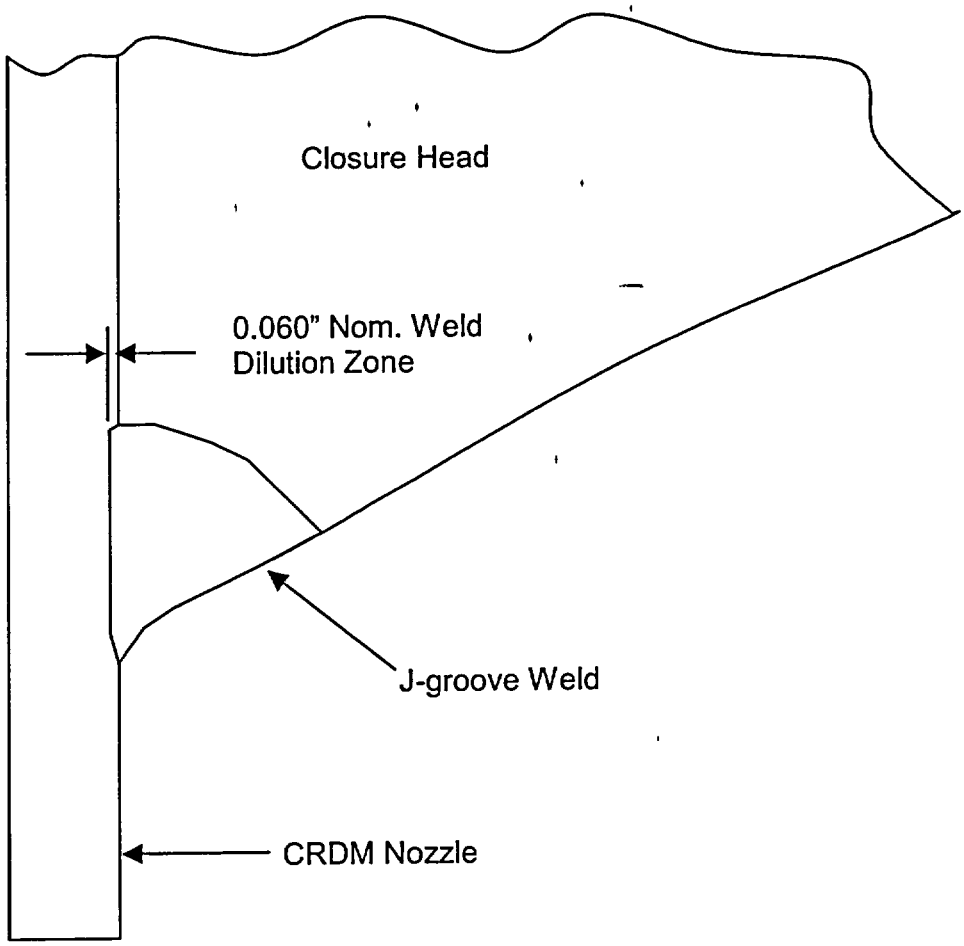
F2179_07.52.33

Hour, minute, second

Day of the year, in this case the 179th day (06/28)

Year 2002

Reporting Criteria for Fusion Zone Indications



Indications detected within 0.060" of the tube OD in the weld region are reported as weld fabrication flaws in the weld. Indications greater than 0.060" from the tube OD in the region of the weld are considered recordable conditions and are reported separately on the data sheets. Those indications that are observed at depths greater than 0.060" from the tube OD are characterized as embedded volumetric weld fabrication flaws resulting from excessive localized dilution into the tube wall where slag was entrapped.

Figure 1

APPENDIX A

SYSTEM SETUP, CALIBRATION RECORDS, SCAN PARAMETERS

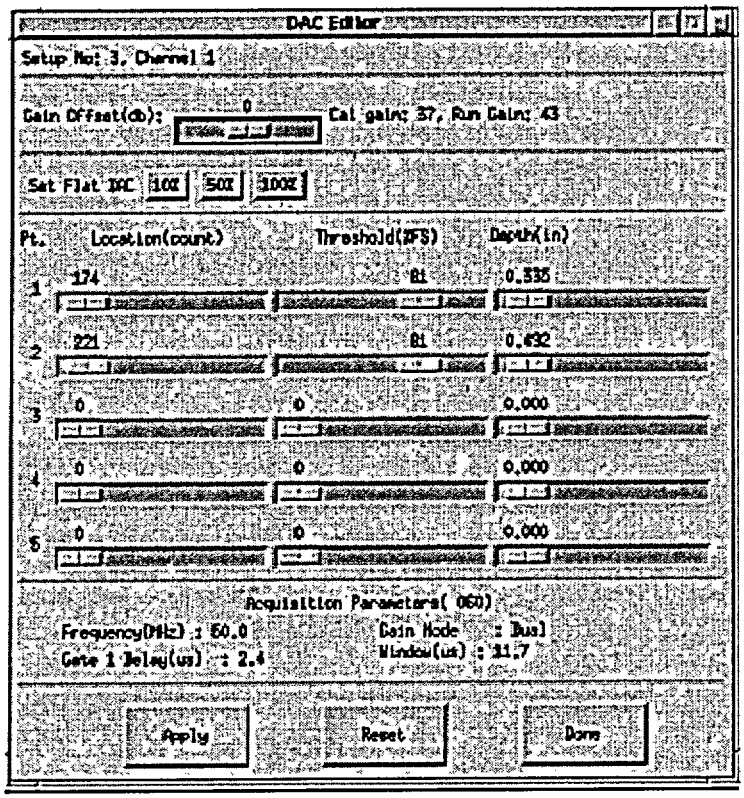
Circ Blade Probe Records:

Auxiliary Header Information

File Edit

SYS_ID	: A
DATA PATH	: NONE
CALIB_ID	: 3
SIN/SUBSCAN	: noz_5/Circ_Blade
SCAN_AXIS(mn,mx)	: Z(0.00, 7.78)
INDEX_AXIS(mn,mx)	: Theta(-5.00, 365.00)
DISPLAY_CHANNEL	: 1
SYNCH(MODE)	: 200(counts)
Gain boost(dB)	: 0
Pulser voltage	: 200
Indx/Scan Speed(%)	: 20.092 -1.929
Active Channels	: 1
PEAK WIDTHS	: 25
RECT MODES	: FW
DELAYS(ms)	: 0.0
PulseReceive Mode	: Dual
Pulse(nanoSec)	: 100
Frequency(MHz)	: 50
ACQ START(uSec)	: 2.4
ACQ LENGTH(uSec)	: 11.7
COINCIDENCE	: 1
RUN GAIN(dB,#)	: 43.1
CAL GAIN(db)	: 37
Thrshld(%FS R.G.)	: 5
Thrshld(%FS C.G.)	: 0

Circ Blade Probe (continued):



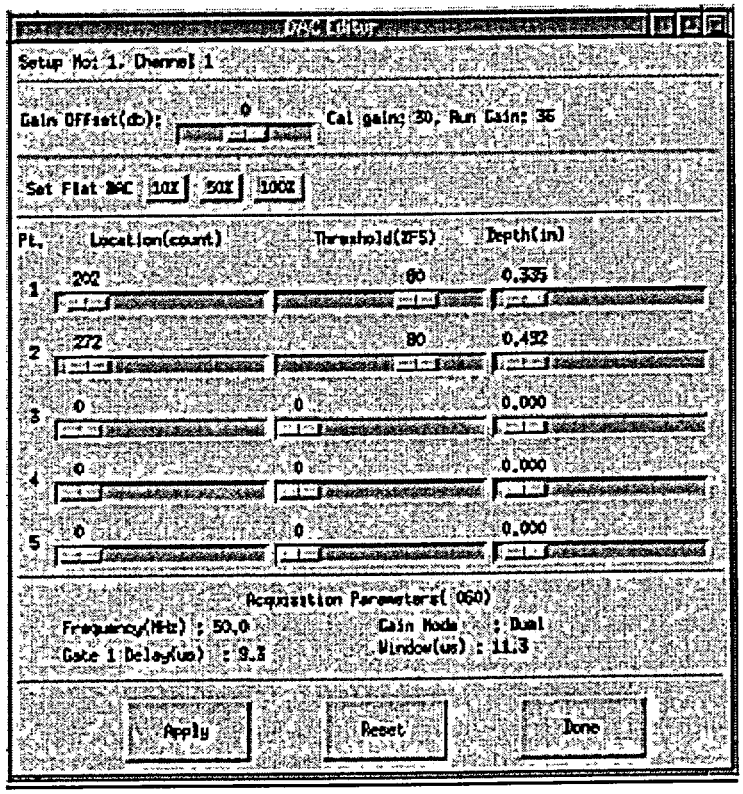
Rotating Probe Records (Ch1 to 6):

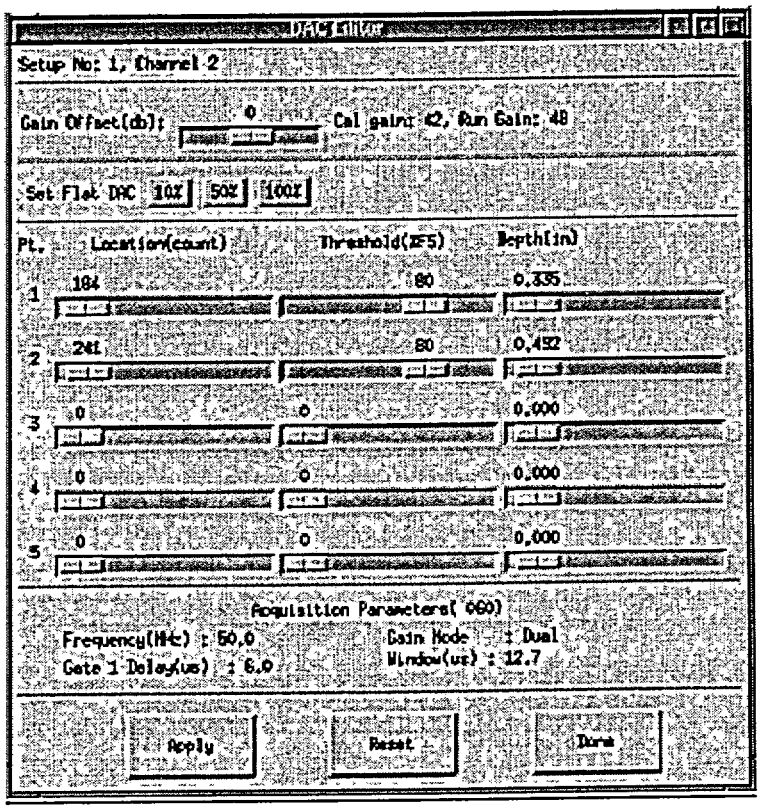
Auxiliary Header Information

File Edit

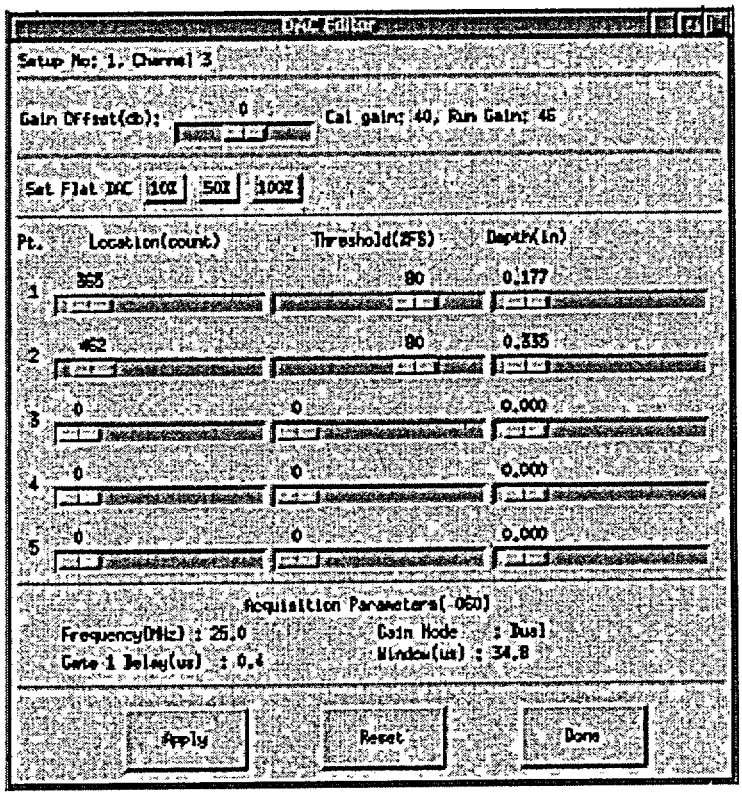
SYS_ID :	A					
DATA PATH :	NONE					
CALIB_ID :	1					
SIN/SUBSCAN :	nozzle_1_rotatingp/cal_block_6ch					
SCAN_AXIS(mn,mx) :	Z(0.00, 20.00)					
INDEX_AXIS(mn,mx) :	THETA(-5.00, 365.00)					
DISPLAY_CHANNEL :	1					
SYNCH(MODE) :	200(counts)					
Gain boost(dB) :	0					
Pulser voltage :	200					
Indx/Scan Speed(%):	-7.382	1.495				
Active Channels :	1	2	3	4	5	6
PEAK WIDTHS :	25	25	25	25	25	25
RECT MODES :	FW	FW	FW	FW	FW	FW
DELAYS(ms) :	0.0	0.0	0.0	0.0	0.0	0.0
PulseReceive Mode :	Sngl	Dual	Dual	Dual	Dual	Dual
Pulse(nanoSec) :	100	100	222	100	222	222
Frequency(MHz) :	50	50	25	50	25	25
ACQ START(uSec) :	9.3	6.0	0.4	8.5	0.5	0.2
ACQ LENGTH(uSec) :	11.3	12.7	34.8	10.0	35.0	35.7
COINCIDENCE :	1	1	1	1	1	1
RUN GAIN(dB,#) :	36;1	48;1	46;1	52;1	47;1	44;1
CAL GAIN(db) :	30	42	40	46	41	38
Thrshld(%FS R.G.):	5	5	5	5	5	5
Thrshld(%FS C.G.):	0	0	0	0	0	0

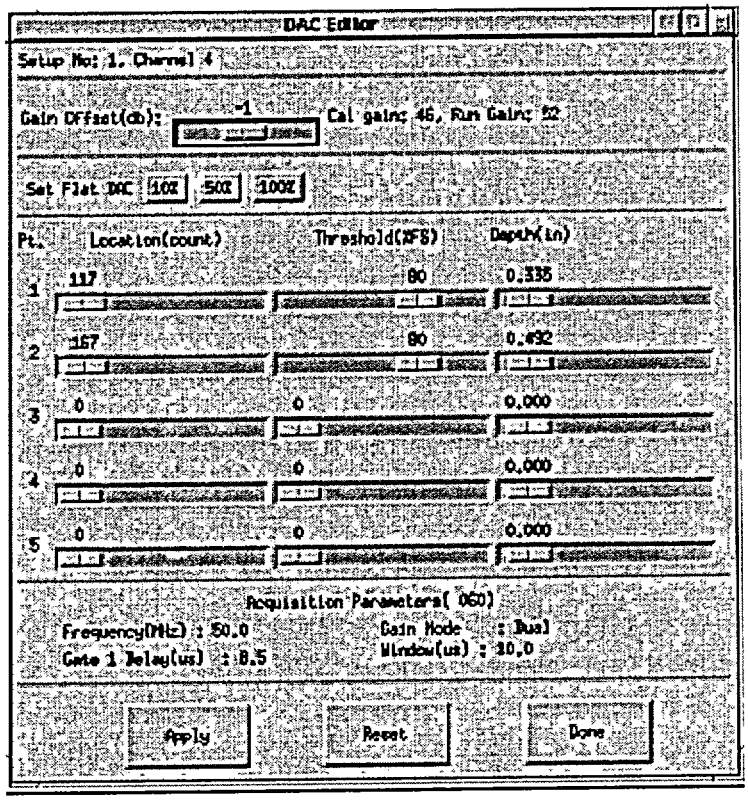
Rotating Probe (Ch1 to 6) (continued):



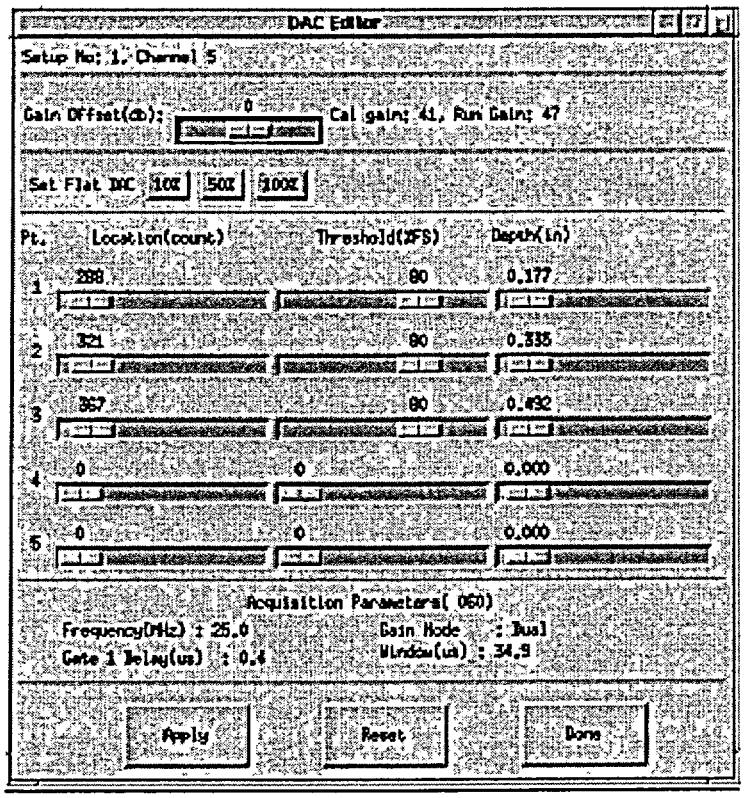


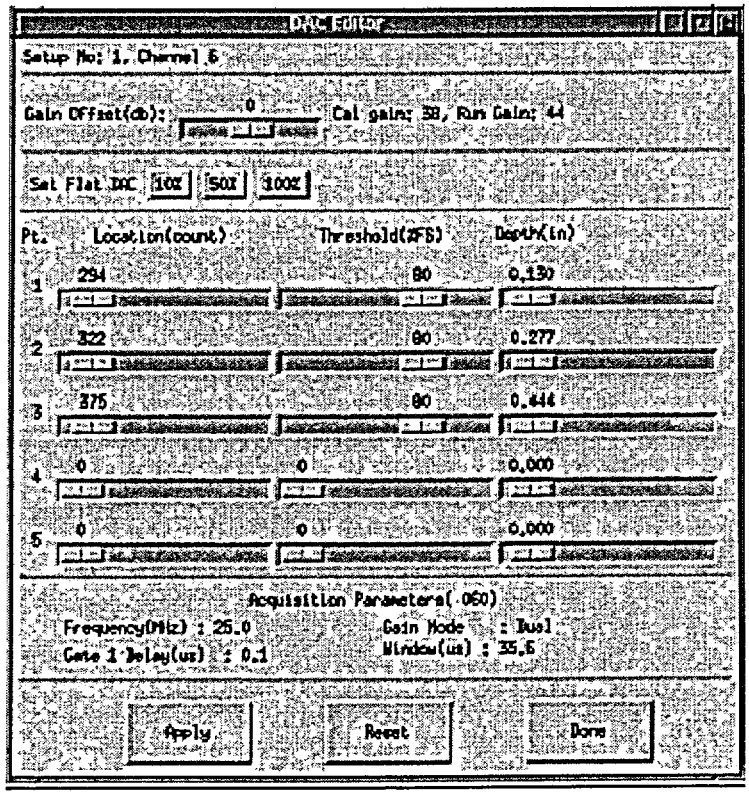
Rotating Probe (Ch1 to 6) (continued):





Rotating Probe (Ch1 to 6) (continued):





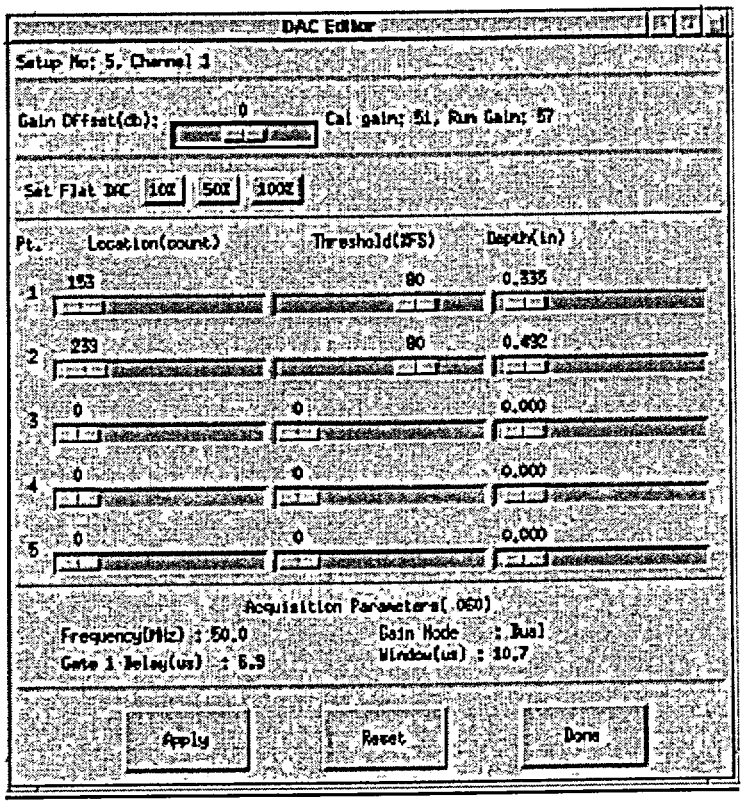
Rotating Probe Records (Ch1 to 4):

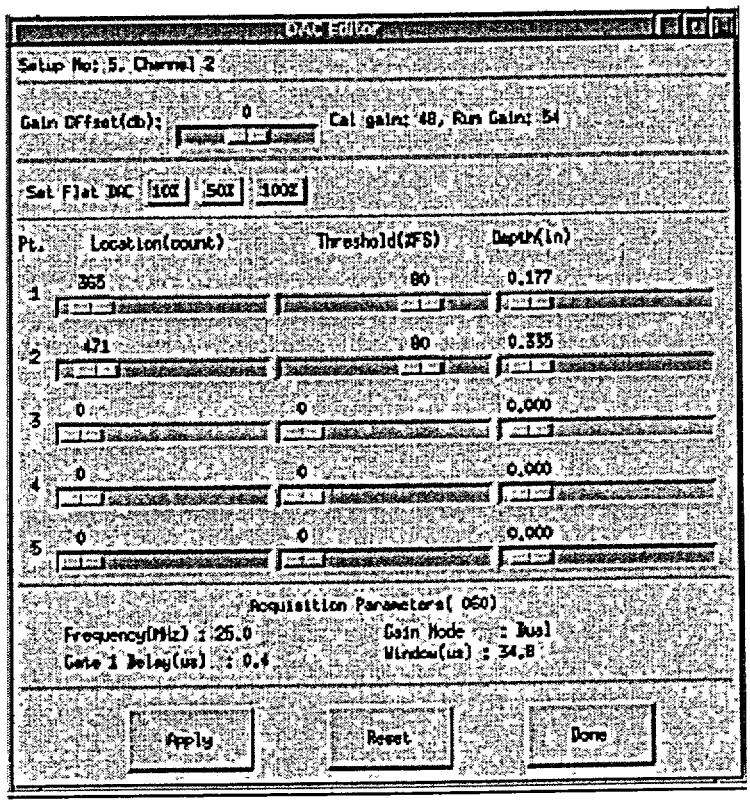
Auxiliary Header Information

File Edit

SYS_ID	: A			
DATA PATH	: NONE			
CALIB_ID	: 5			
SIN/SUBSCAN	: bottomup/cal_block_4ch			
SCAN_AXIS(mn,mx)	: Z(0.00, 13.00)			
INDEX_AXIS(mn,mx)	: THETA(-5.00, 365.00)			
DISPLAY_CHANNEL	: 1			
SYNCH(MODE)	: 200(counts)			
Gain boost(dB)	: 0			
Pulser voltage	: 200			
Indx/Scan Speed(%)	: -7.382 1.495			
Active Channels	: 1	2	3	4
PEAK WIDTHS	: 25	25	25	25
RECT MODES	: FW	FW	FW	FW
DELAYS(ms)	: 0.0	0.0	0.0	0.0
PulseReceive Mode	: Dual	Dual	Dual	Dual
Pulse(nanoSec)	: 100	222	100	100
Frequency(MHz)	: 50	25	50	50
ACQ START(uSec)	: 7.0	0.4	24.7	8.6
ACQ LENGTH(uSec)	: 10.8	34.9	32.0	12.6
COINCIDENCE	: 1	1	1	1
RUN GAIN(dB,#)	: 57;1	54;1	56;1	35;1
CAL GAIN(db)	: 51	48	50	29
Thrshld(%FS R.G.)	: 5	5	5	5
Thrshld(%FS C.G.)	: 0	0	0	0

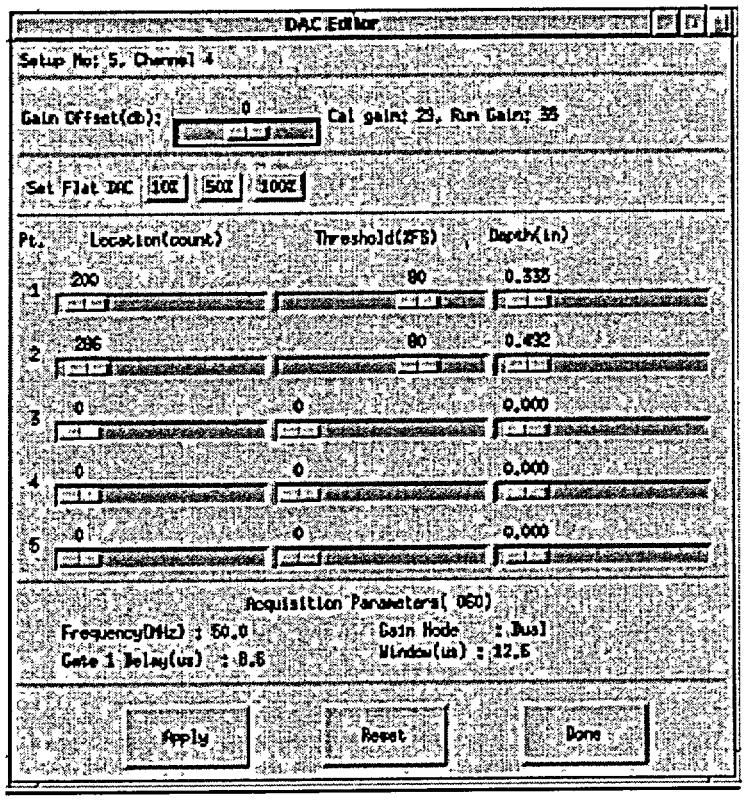
Rotating Probe (Ch1 to 4) (continued):





Rotating Probe (Ch1 to 4) (continued):

Channel 3 not used



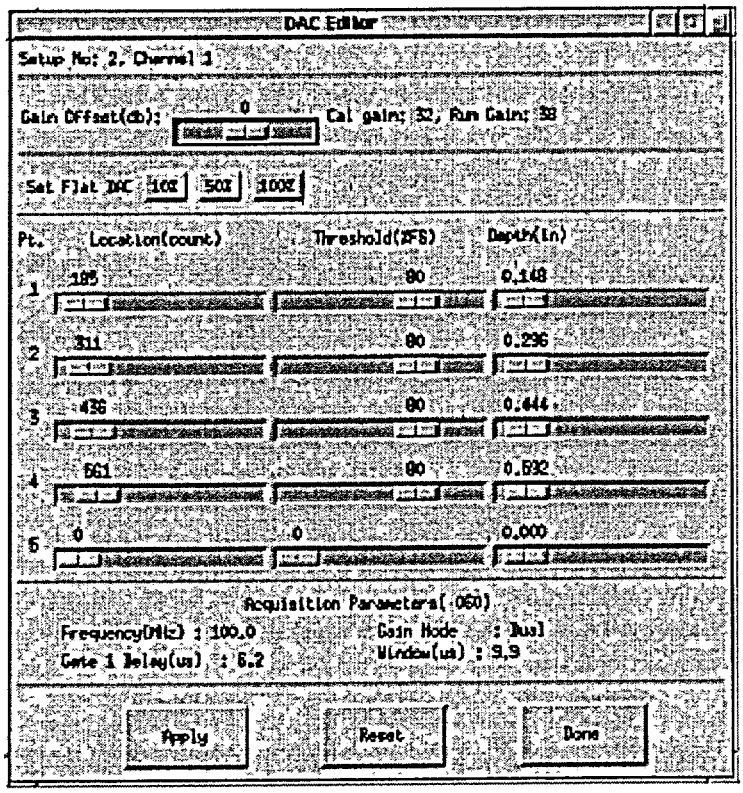
Vent Line Probe Records (Ch1 to 5):

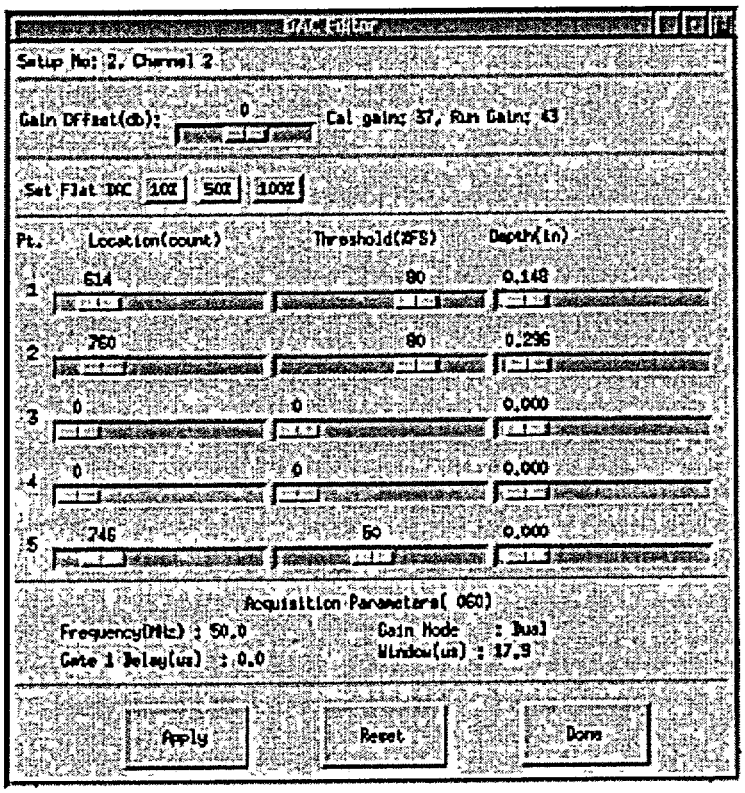
Auxiliary Header Information

File Edit

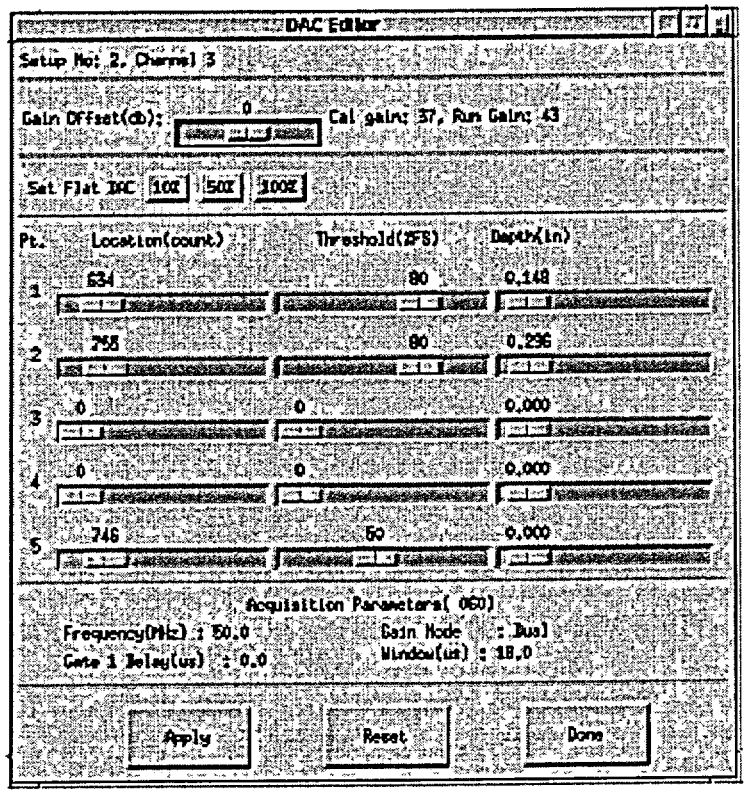
SYS_ID	: A				
DATA PATH	: NONE				
CALIB_ID	: 2				
SIN/SUBSCAN	: ventline/axial				
SCAN_AXIS(mn,mx)	: Z(-1.00, 5.00)				
INDEX_AXIS(mn,mx)	: THETA(120.00, 300.00)				
DISPLAY_CHANNEL	: 1				
SYNCH(MODE)	: 200(counts)				
Gain boost(dB)	: 0				
Pulser voltage	: 200				
Indx/Scan Speed(%)	: -7.382 0.806				
Active Channels	: 1	2	3	4	5
PEAK WIDTHS	: 25	25	25	25	25
RECT MODES	: FW	FW	FW	FW	FW
DELAYS(ms)	: 0.0	0.0	0.0	0.0	0.0
PulseReceive Mode	: Dual	Dual	Dual	Sngl	Sngl
Pulse(nanoSec)	: 50	100	100	100	100
Frequency(MHz)	: 100	50	50	50	50
ACQ START(uSec)	: 6.2	0.1	0.1	0.4	0.3
ACQ LENGTH(uSec)	: 9.9	17.9	18.1	23.7	23.7
COINCIDENCE	: 1	1	1	1	1
RUN GAIN(dB,#)	: 38;1	43;1	43;1	29;1	30;1
CAL GAIN(db)	: 32	37	37	23	24
Thrshld(%FS R.G.)	: 5	5	5	5	5
Thrshld(%FS C.G.)	: 0	0	0	0	0

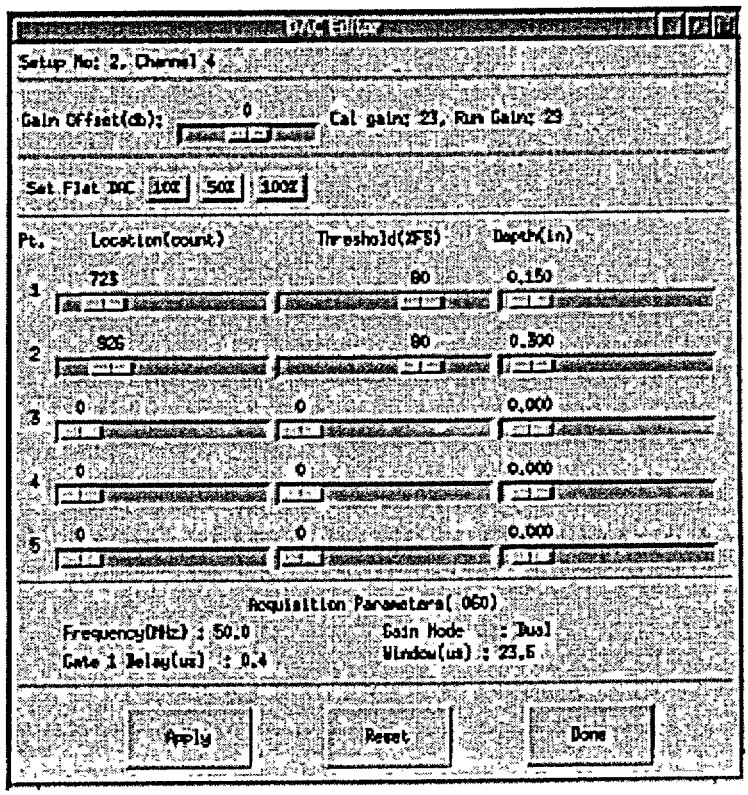
Vent Line Probe (Ch1 to 5) (continued):



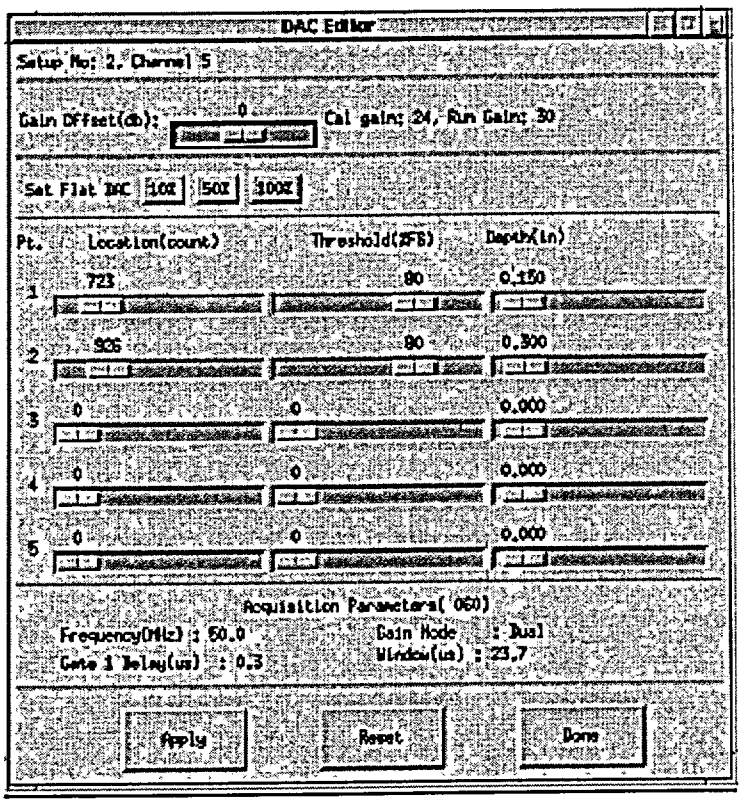


Vent Line Probe (Ch1 to 5) (continued):





Vent Line Probe (Ch1 to 5) (continued):



[signature] 10.3.02 Charles A Lomes 10-3-02

Status Summary of PBNP Unit 1 RV Head CRDM Inspections

Pen #	Visual Examination					PT Examination			UT Examination				Leak Path Examination				Source of Leak		
	NI	I	Sus	Lim	Report	NA	I	Report	NI	I	Lim	Report	NI	I	Lim	Report	NA	Identified	Report
1	[initials]	N/A	NONE	NONE			[initials] 08.25	45/10003		[initials]		A2262-08.00.48	[initials]			A2262-08.00.48	X		
2	[initials]								[initials]			A2267-17.53.20	[initials]			A2267-17.53.20	X		
3	[initials]								[initials]			A2269-08.36.54	[initials]			A2269-08.36.54	X		
4	[initials]								JDB			A2267-01.08.37	JDB			A2267-01.08.37	X		
5	[initials]								JDB			A2266-19.59.37	JDB			A2266-19.59.37	X		
6	[initials]								[initials]			A2265-10.15.41	[initials]			A2265-10.15.41	X		
7	[initials]								JDB	[initials]		A2265-19.14.49	JDB			A2265-19.14.49	X		
8	[initials]								[initials]			A2265-15.07.00	[initials]			A2265-15.07.00	X		
9	[initials]								JDB			A2265-05.08.12	JDB			A2265-05.08.12	X		
10	[initials]								JDB			A2267-19.31.33	JDB			A2267-19.31.33	X		
11	[initials]								JDB			A2269-05.24.18/-01.06.25	JDB			A2269-05.24.18/-01.06.25	X		
12	[initials]								[initials]			A2267-11.05.05	[initials]			A2267-11.05.05	X		
13	[initials]								JDB			A2267-00.03.01/00.39.15	JDB			A2267-00.03.01/00.39.15	X		
14	[initials]								[initials]			A2267-11.05.05	[initials]			A2269-11.05.05	X		
15	[initials]								[initials]			A2268-10.15.41	JDB			A2268-10.15.41	X		
16	[initials]								[initials]			A2268-08.00.15	[initials]			A2268-08.00.15	X		
17	[initials]								JDB			A2267-20.00.29/20.25.05	JDB			A2267-20.00.29/20.25.05	X		
18	[initials]								JDB			A2267-18.17.08	JDB			A2267-18.17.08	X		
19	[initials]								[initials]			A2269-09.30.20	[initials]			A2269-09.30.20	X		
20	[initials]								[initials]			A2269-16.53.41/18.34.30	JDB			A2269-16.53.41/18.34.30	X		
21	[initials]								[initials]			A2269-14.00.03	[initials]			A2269-14.00.03	X		
22	[initials]								JDB			A2269-07.45.19/05.51.51	JDB			A2269-07.45.19/05.51.51	X		
23	[initials]								[initials]			A2269-10.49.58	[initials]			A2269-10.49.58	X		
24	[initials]								JDB			A2269-15.39.12/-16.38.00	JDB			A2269-15.39.12/-16.38.00	X		
25	[initials]	✓	✓	✓					JDB			A2269-12.53.23/13.34.20	JDB			A2269-12.53.23/13.34.20	X		

← See below

← A2267-01.50.24

Place Initials in boxes

Framatome ANP responsibility

1 No Detectable Degradation, from rotating probe.

10-3-02 Charles A Jones 10-3-02

Status Summary of PBNP Unit 1 RV Head CRDM Inspections

Pen #	Visual Examination					PT Examination			UT Examination				Leak Path Examination				Source of Leak		
	NI	I	Sus	Lim	Report	NA	I	Report	NI	I	Lim	Report	NI	I	Lim	Report	NA	Identified	Report
26		N/A	NONE	NONE							78% 220-301	A2271-01.32 .35/02.08.38			220-301 78%	A2271-01.32 .35/02.08.38	X		
27											66%	A2272-05.27.26			66%	A2272-05.27.26	X		
28											52%	A2272-20.40.29			52%	A2272-20.40.29	X		
29												A2270-03.07.29				A2270-03.07.29	X		
30											50%	A2272.18.59 .45/19.22.33			50%	A2272.18.59 .45/19.22.33	X		
31											81%	A2272-07.07.46			31%	A2272-07.07.46	X		
32										*		A2275-19.01.26				A2275-19.01.26	X		
33												A2275-19.56 05/20.17.24				A2275-20 57.24	X		
34												A2266-11.06.30				A2265 11.06.30	X		
35												A2266-08.49 .39/01.31.07				A2266-08.48 .39/01.31.07	X		
36												A2265-13.52.55				A2265-13.52.55	X		
37												A2265-14.03.14				A2265-14.03.14	X		
38												A2267-06.58.12				A2267-06.58.12	X		
39												A2267-03.27.51				A2267-03.27.51	X		
40												A2267-04.31.02				A2267-04.31.02	X		
41												A2267-05.39.37				A2267-05.39.37	X		
42												A2265-13.02.53				A2265-13.02.53	X		
43												A2266-04.11.55				A2266-04.11.55	X		
44												A2265-21.37.31				A2265-21.37.31	X		
45												A2265-20.16.54				A2265-20.16.54	X		
46												A2265-17.05.27				A2265-17.05.27	X		
47												A2265-16.07.34				A2265-16.07.34	X		
48												A2265-01.31.25				A2265-01.31.25	X		
49												A2265-06.05.09				A2265-06.05.09	X		
VL												A2266-10.22.36				A2266-10.22.36	X		

Place Initials in boxes

Framatome ANP responsibility

* weld orientated flaw non crack like

** ROTATING PROBE USED AFTER THERMAL SLEEVE REMOVAL : 100% COVERAGE

PBNP Unit 1 RV Head CRDM Flaw Evaluation Data																			
Pen	Orientation of Flaw			Location of Flaw			Vertical Location of Flaw			Circ Location of Flaw		Pen Row	Actual Thick-ness	Flaw Sizing				Source Figure	Ind ID
	axial	circ	both	ID	OD	Sub	W	BW	AW	Uphill	Downhill			A/L ratio	Depth	Length	Ligament		
A	B			C			D			E		F	G	H	I	J	K	L	M

REFER TO Framatome ANP SPREADSHEET FOR DATA LOCATIONS

ITEMS F, L, AND M ARE NMC DATA ENTRY LOCATIONS

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1	Nozzle: A
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750 OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	End of Noz. (in.):	Probe Serial No.'s:	Ch 1 / Ch 6 n/a
Axial Scan Start: deg @ " Stop: deg @ " Stop: Files:			Ch 2 n/a / Ch 7 n/a
			Ch 3 n/a / Ch 8 n/a
Circ. Scan Start: deg @ " Stop: deg @ " Stop: Files:			Ch 4 n/a / Ch 9 n/a
	Cal Block S/N:		Ch 5 n/a / Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	C		D	E	D	E					J		I	H	B		
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Inches
MAX.														Inches
MIN.														Inches

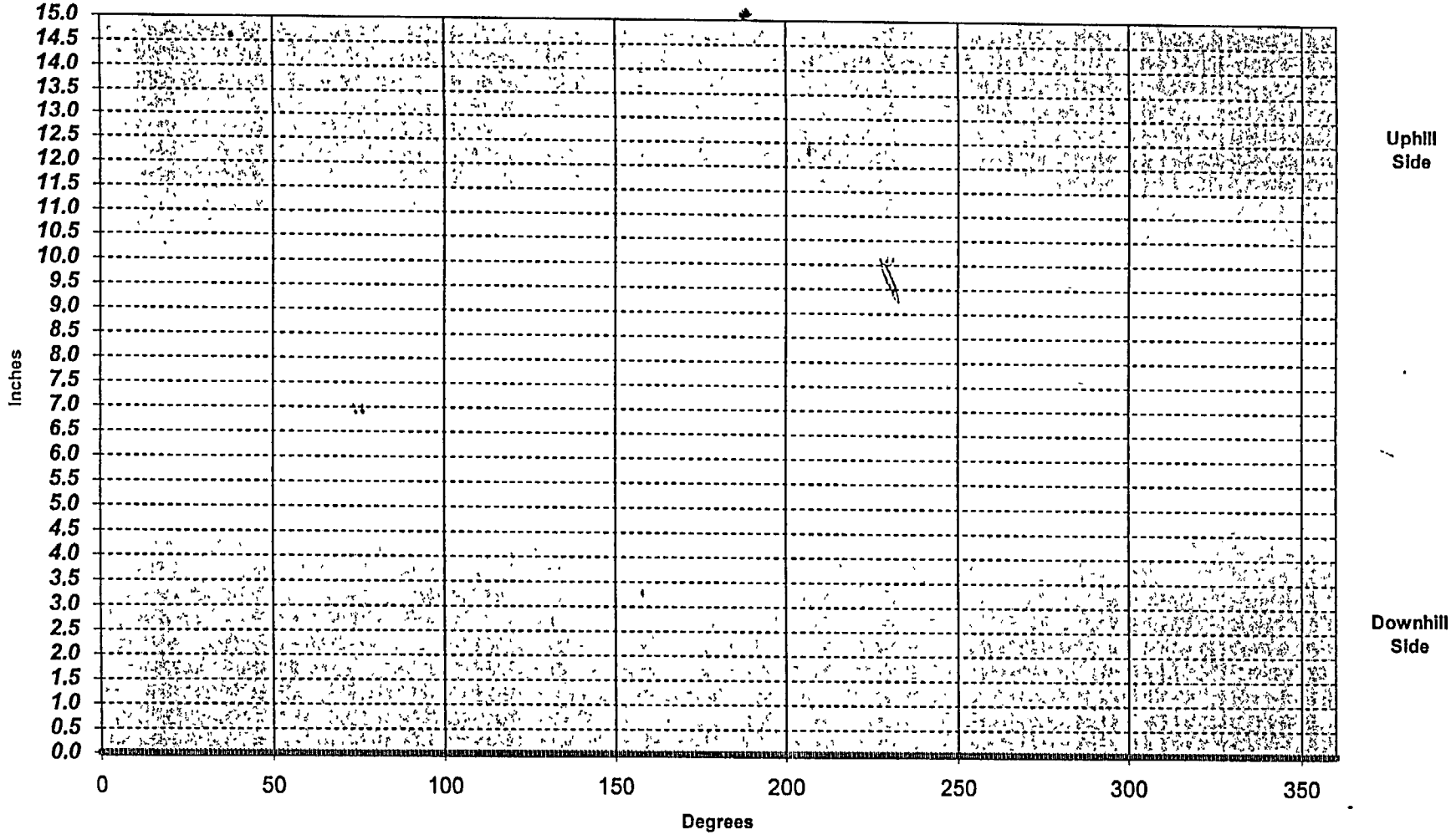
Comments: Measured Thickness: G @ theta of deg with an axial position of Limited Scan? (Y/N):

Analyzed by: Date: Analyzed by: Date:

FRAMATOME ANP

Nozzle Profile

D,E,K



1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
Noz. End	1	Uphill / Downhill demarcation	

Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 1		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

*Scan File No.: A2273-14.54.39

Calibration Setup: A2273-10.40.15
Initial Calibration File: A2273-11.43.54
Final Calibration File: A2273-18.09.42
A2273-19.17.47

Scan Start: Z = -3.6" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 16.41" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	
7 (1)	45°L	35202	TOFD
8 (2)	60°S	35070	
10 (4)	65°LE	35048	TOFD

Results: No Recordable Indications — Leak Path Detected
Axial Flaws Detected — Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 10/5/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

(1/2) 10/5/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle: 1	
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625	
Downhill Side of Nozzle (deg.): 0	End of Noz. (in.): 0	Probe Serial No.'s:	Ch 1 35044	Ch 6 35052	
Axial Scan Files: Start: deg @ Stop: deg @ Setup:			Ch 2 35202	Ch 7 35202	
			Ch 3 35070	Ch 8 35070	
Circ. Scan Files: Start: -5 deg @ -3.6 " Stop: 365 deg @ 16 41 ' Setup: 1			Ch 4 35044	Ch 9 not active	
A2273_14.54.39	Cal Block S/N: 60119300		Ch 5 35052	Ch 10 35048	

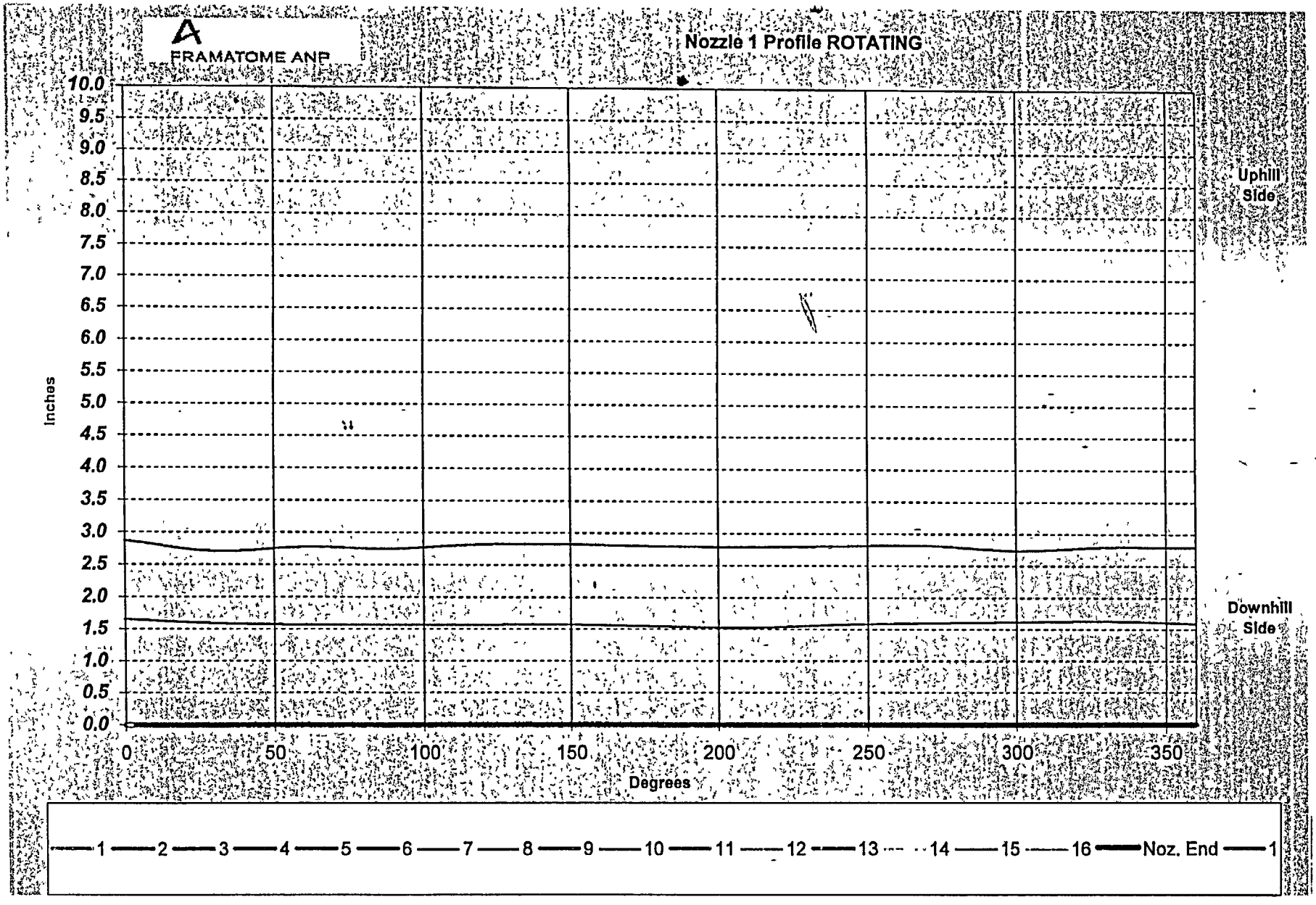
Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
	Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
	Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
	Noz. End	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Inches
	MAX.	2 87	2.71	2.78	2.75	2.82	2.83	2.80	2.79	2.81	2.82	2.74	2.80	2 80	Inches
	MIN.	1.66	1.59	1.57	1.57	1.57	1.58	1.55	1.53	1.58	1 61	1.62	1.64	1.59	Inches

Comments: Measured Thickness: 0.625 @ theta of 203 deg with an axial position of 1.04 Limited Scan? (Y/N): n

0 degree data position aligns with 0 or W axis & Ventline

Analyzed by: [signature] Date: 10/3/02 Analyzed by: N/A Date: N/A


FRAMATOME ANP
Nozzle 1 Profile ROTATING
Inches
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
Degrees
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1

CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 1		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1	Calibration Setup:
Scan File No.: AZ267_08.00.48	Initial Calibration File: AZ266_16.28.44 Final Calibration File: Continued Performance 7.3.3.4
Scan Start: Z = -0.7 Scan Start: θ = -5 Index Increment: 3°	Scan Stop: Z = 4.3 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/24/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET [signature] 09-25-02
FIGURE 5

DRAFT

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1			Nozzle: 1
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness: 0.625
Downhill Side of Nozzle (deg.): 0	End of Noz. (in.): 0.26	Probe Serial No.'s:	Ch 1	S0420CN	Ch 6 n/a
Axial Scan Start: deg @ " Stop: deg @ " Setup:			Ch 2	n/a	Ch 7 n/a
Files:			Ch 3	n/a	Ch 8 n/a
Circ. Scan Start: -5 deg @ -0.7 " Stop: 4.3 deg @ -365 " Setup: 3			Ch 4	n/a	Ch 9 n/a
Files: A2267_08.00.48	Cal Block S/N: 60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	OD	0.37	1.4	208 0	1.9	209.0	0.46	208.0	209.0	0.03	0.46	4	0.25	0.54	AXIAL	1.9	2.7
2	OD	0 52	1.6	80.0	1.8	82 0	0.18	80.0	82.0	0.07	0.19	21	0.10	0.54	AXIAL	1.8	2.6
3	OD	0 51	2.3	104 0	1.6	105 0	0.70	104.0	105.0	0.03	0.70	3	0.12	0.17	AXIAL	1.8	2.6
4	OD	0.43	1.4	144.0	1.8	144.0	0.39	144.0	144.0	0.00	0.39	0	0.19	0.49	AXIAL	1.8	2.7
5	OD	0.55	1.6	166.0	1.8	166.0	0.23	166.0	166.0	0.00	0.23	0	0.08	0.33	AXIAL	1.9	2.6
6	OD	0.53	1.3	188.0	1.8	188 0	0.52	188.0	188.0	0.00	0.52	0	0.10	0.19	AXIAL	1.9	2.7
7	OD	0.55	1.7	288 0	1.8	288 0	0.10	288.0	288.0	0.00	0.10	0	0.08	0.76	AXIAL	1.8	2.8
8	OD	0 45	1.7	335 0	2.7	335.0	0.98	335.0	335.0	0.00	0.98	0	0.18	0.18	AXIAL	1.9	2.8
9	OD	0.58	2.5	229.0	1.5	231.0	1.00	229.0	231.0	0.07	1.00	4	0.05	0.05	AXIAL	1.9	2.8
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	Inches
MAX.	2.85	2.83	2.82	2.79	2.78	2.80	2.86	2 87	2.88	2 83	2.82	2 86	2.85	Inches
MIN.	1.80	1.72	1.72	1.75	1.74	1.75	1.80	1.80	1.82	1.84	1.87	1.90	1.80	Inches

Comments: Measured Thickness: 0.628 @ theta of 233 deg with an axial position of 1.1 Limited Scan? (Y/N): y Document Limit

Indication at root of weld. Depth from ID 0 587" Z extent 2.26" to 3.03" theta extent 12 to 28 deg center location z=2.79" theta=22 deg

0 degree data position aligns with 0 or W axis

Limitation -- No leak path call. Required distance above weld 2.0" (paragraph 6 3) Distance above weld is 1 61".

No Limitation -- Area of interest above weld for crack detection is 1.0" (paragraph 6.2 of procedure).

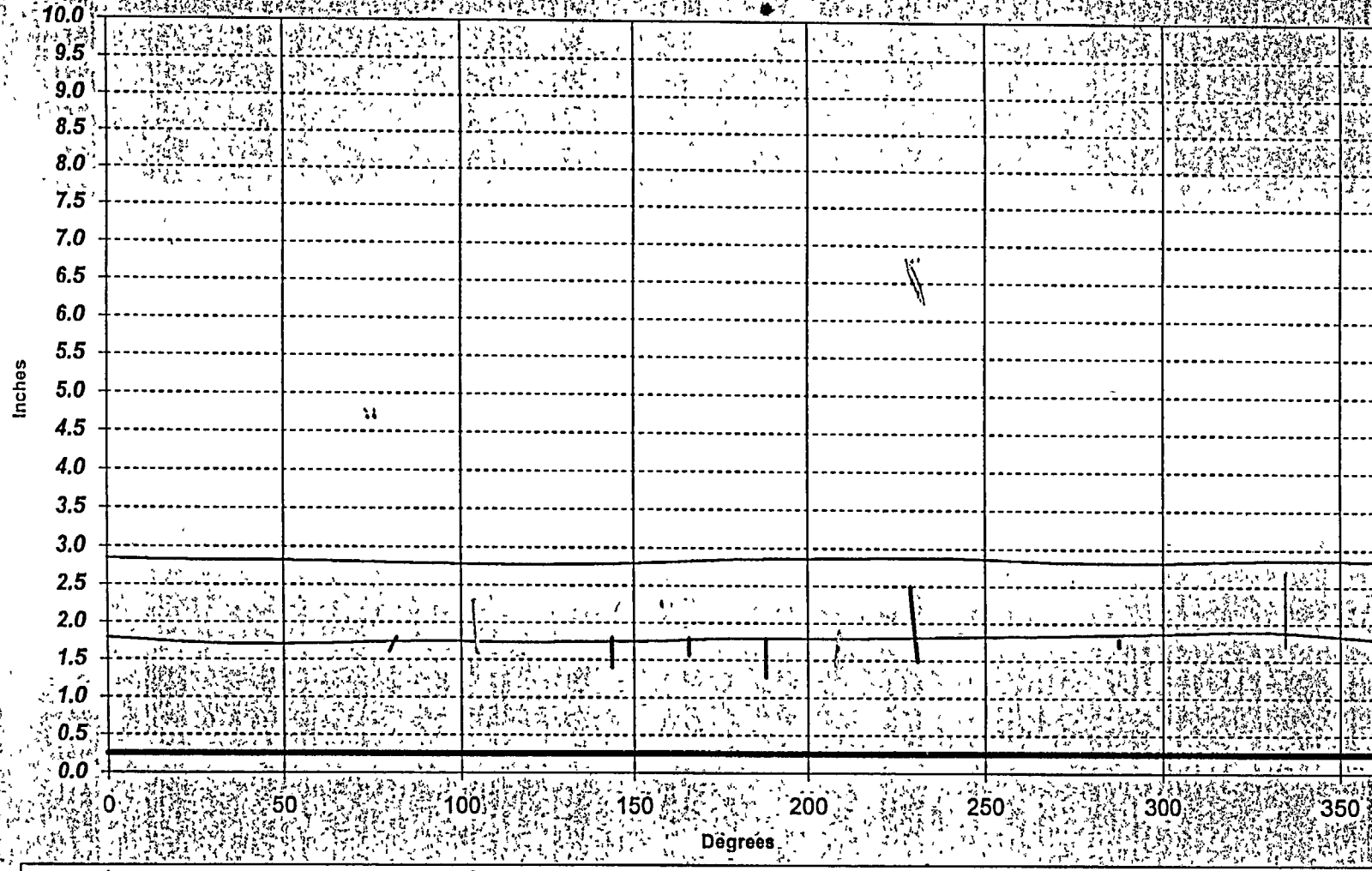
Analyzed by: N/A Date: N/A Analyzed by: N/A Date: N/A

DRAFT

DRAFT

FRAMATOME ANP

Nozzle 1 Profile



1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
Noz. End	1	Uphill / Downhill demarcation	

DRAFT

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle: 1	
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625	
Downhill Side of Nozzle (deg.): 0	End of Noz. (in.): 0	Probe Serial No.'s:	Ch 1 S0379CN	Ch 6 n/a	
Axial Scan Start: [illegible] deg @ [illegible]	Stop: [illegible] deg @ [illegible]"	Setup: [illegible]	Ch 2 n/a	Ch 7 n/a	
Files: [illegible]			Ch 3 n/a	Ch 8 n/a	
Circ. Scan Start: -5 deg @ -0.7 "	Stop: 365 deg @ 4.3"	Setup: 3	Ch 4 n/a	Ch 9 n/a	
Files: A2269_19.09 46 / A2267_08.00.04	Cal Block S/N: 60119300		Ch 5 n/a	Ch 10 n/a	

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	OD	0.56	1.7	0 0	2.1	0 0	0.40	0.0	0.0	0.00	0.40	0	0.06	0.16	AXIAL	1.6	3.1
2	OD	0.55	1.8	21.0	2.9	21.0	1.10	21.0	21.0	0.00	1.10	0	0.08	0.07	AXIAL	1.6	3.1
3	OD	0.51	1 8	75 0	2.5	75 0	0.69	75.0	75.0	0.00	0.69	0	0.12	0.17	AXIAL	1.6	2.9
4	OD	0.59	1.8	88.0	2 6	88.0	0.81	88.0	88.0	0.00	0.81	0	0.04	0.04	AXIAL	1.6	3.0
5	OD	0.51	1.8	133 0	2.7	133 0	0.90	133.0	133.0	0.00	0.90	0	0.12	0.13	AXIAL	1.6	3 0
6	OD	0.48	1.8	150.0	2 8	150 0	1.00	150.0	150.0	0.00	1.00	0	0.15	0.15	AXIAL	1.6	3.1
7	OD	0 44	1.8	234 0	2.5	234.0	0.70	234.0	234.0	0.00	0.70	0	0.19	0.26	AXIAL	1.6	2.9
8	OD	0.46	1.8	255.0	2.5	255 0	0.70	255.0	255.0	0.00	0.70	0	0.17	0.24	AXIAL	1.6	2.9
9	OD	0.52	1.8	275 0	2.4	275.0	0.56	275.0	275.0	0.00	0.56	0	0.11	0.19	AXIAL	1.6	3.0
10	OD	0.32	1.6	292 0	2.5	292.0	0.89	292.0	292.0	0.00	0.89	0	0.31	0.34	AXIAL	1.6	3.0
11	OD	0 47	1.7	316.0	2.3	316 0	0.63	316.0	316.0	0.00	0.63	0	0.16	0.25	AXIAL	1.6	2.8
12	OD	0.47	1.8	337 0	2.5	337.0	0.74	337.0	337.0	0.00	0.74	0	0.16	0.21	AXIAL	1.6	3.0
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Inches
MAX.	3.01	3 05	3 20	3.20	3.10	3.05	3.11	3 01	3 20	3 30	3.10	3.05	3 05	Inches
MIN.	1.51	1.56	1.56	1.56	1.56	1.51	1.56	1.51	1.66	1.56	1.56	1.51	1.56	Inches

Comments: Measured Thickness: 0.625 @ theta of 65 deg with an axial position of 0.93 Limited Scan? (Y/N): y Document Limit

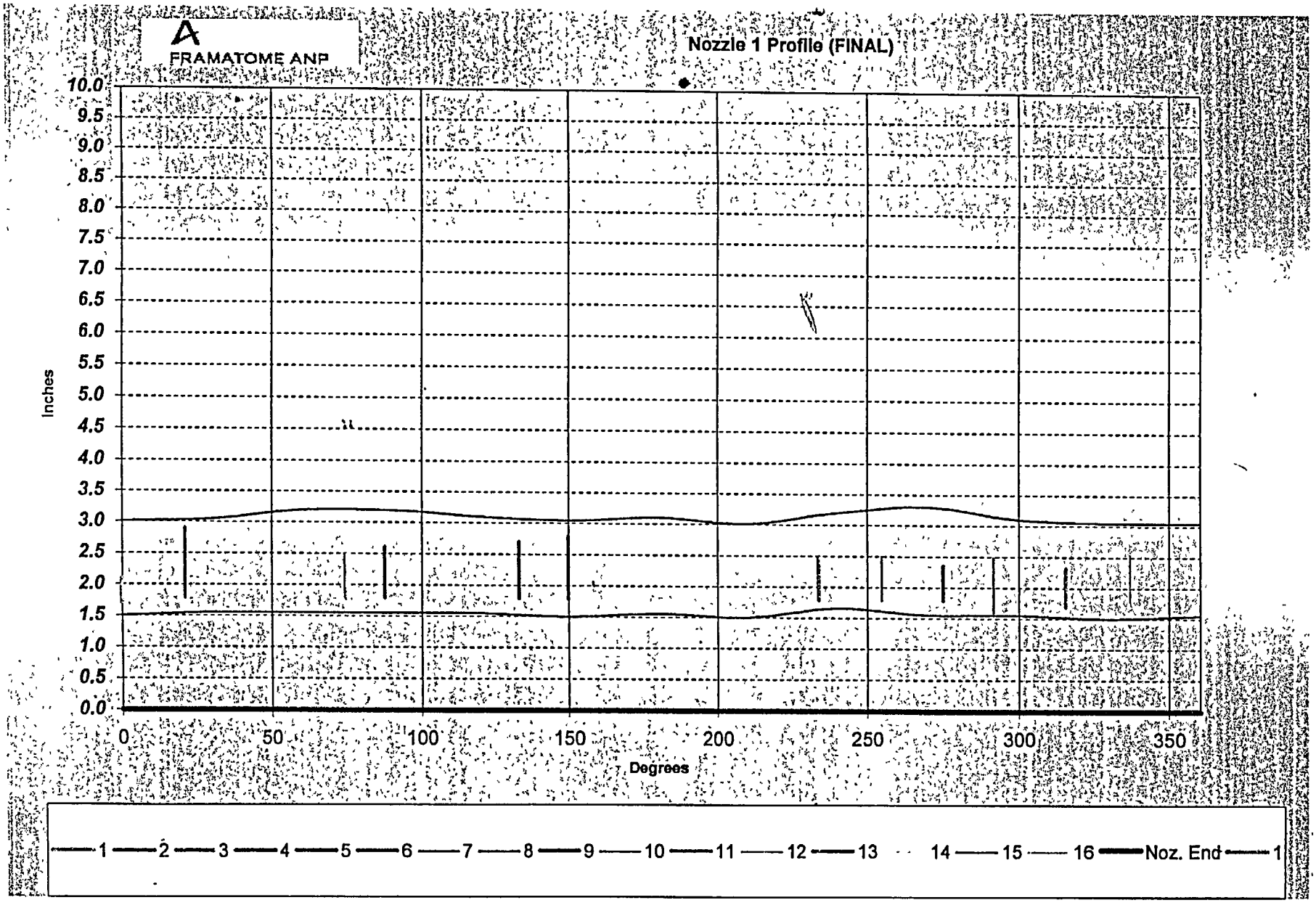
All flaws dimensionally intersect with the wetted surface of the weld filet.

Limitation -- No leak path call. Required distance above weld 2.0" (paragraph 6.3) Distance above weld is 1 61".

No Limitation -- Area of interest above weld for crack detection is 1.0" (paragraph 6.2 of procedure).

Analyzed by: N/A Date: N/A Analyzed by: N/A Date: N/A

Superceded by Rotating Probe data



Superceded by rotating data

POINT BEACH NUCLEAR PLANT
LIQUID PENETRANT EXAMINATION RECORD

Component ID:	Component Description:	Site / Project:	Page 1 of 3	Sheet Number or Work Order Number:
RPV	*CRDM Nozzle Number 1*	*PBNP / U1R27*		*4510003*

ISO Number:	NDE Procedure Number / Revision:	Surface Condition	Examiner(s) / Level / Date *(Print)*:
N/A	*NDE-451 Rev. 20 TCN 2002-0539*	As-Welded ☐ Ground ☒ Machined ☐ Other:	*W.A. JENSEN III 09-25-02*

Temperature Device Manufacturer: *FLUKE* MT&E Number: *MCDP-012* Calibration Due Date *12-03-02* Surface Temp.: *72.4* °F	L_o Location: *Vessel 0*	W_o Location: *Edge of Weld*

PENETRANT MATERIALS

PRE-CLEANER	PENETRANT	REMOVER	DEVELOPER
Manufacturer/Brand: *Met-L-Chek*	Manufacturer/Brand: *Met-L-Chek*	Manufacturer/Brand: *Met-L-Chek*	Manufacturer/Brand: *Met-L-Chek*
Type: *E-59A*	Type: *VP-31A*	Type: *E-59A*	Type: *D-70*
Batch Number: *3930*	Batch Number: *2654*	Batch Number: *3930*	Batch Number: *4151*
Drying Time: *2 min.*	Dwell Time: *30 min.*	Drying Time: *2 min.*	Dwell Time: *30 min.*

Indication No.	L Location	W Location	Upstream or Downstream	Round or Linear	Size	Remarks
1	*Appx. 140 Deg.*	*1/4 in.*	*N/A*	*Linear*	*5/64*	*Indication is light. Appx. 1 1/4 in. from bottom of tube.*

Additional Remarks: *See attached photo and sketch.* FLASHLIGHT > 100 FC NDEBM-007 1830 AND 2040 09-26-02

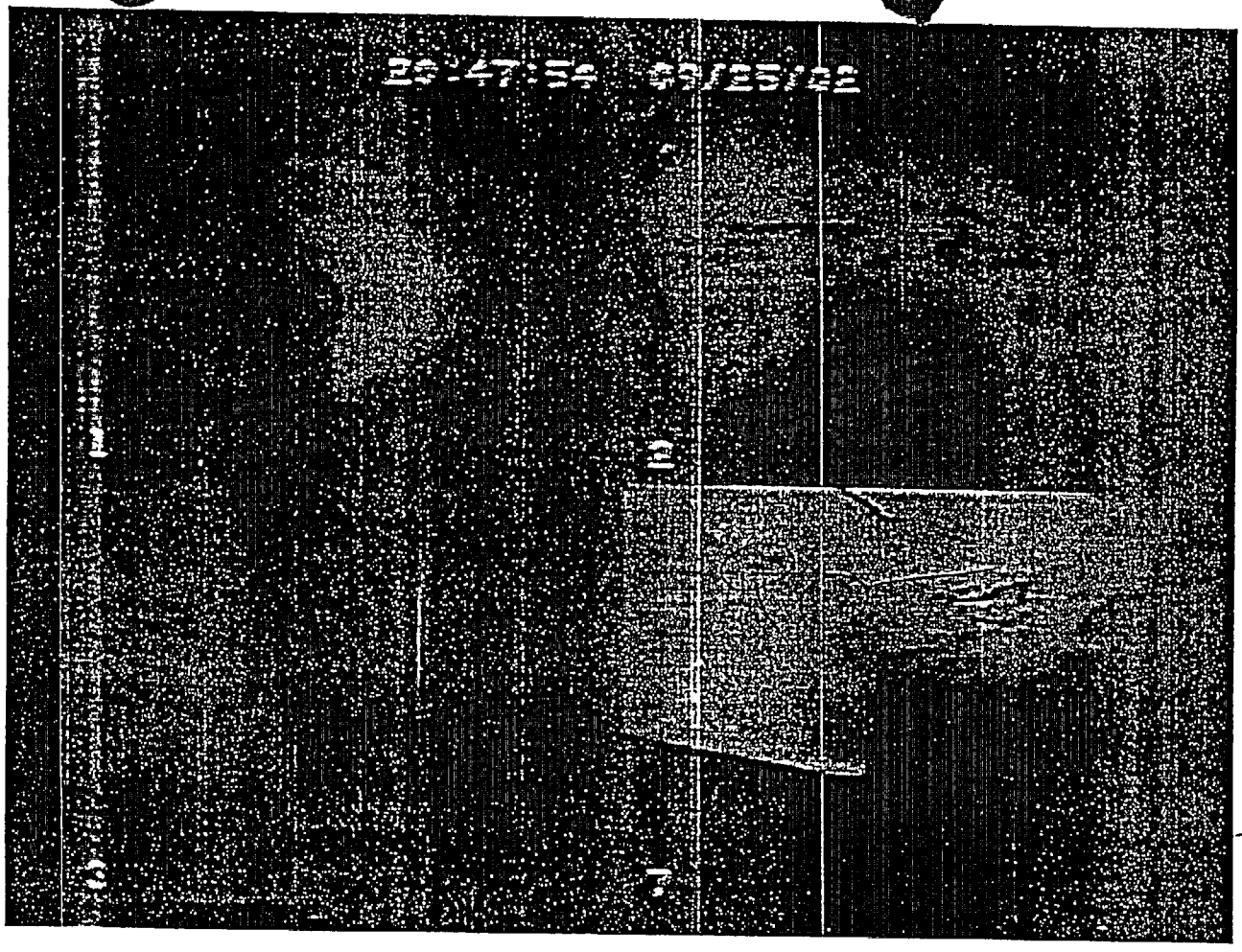
Limitations – If None, so State: *NONE*

Examiner(s) / Level / Date (*Signature*):	Reviewer / Level / Date:	ANII Review / Date:
William Jensen / III / 09-26-02	09-26-02 / III / 09-26-02	☐ N/A

Form NDE 450.1
Revision 13 08/15/01

09-28-02

4510003



AREA OF INDICATION APPX. 1/4 IN. FROM WELD TOE.

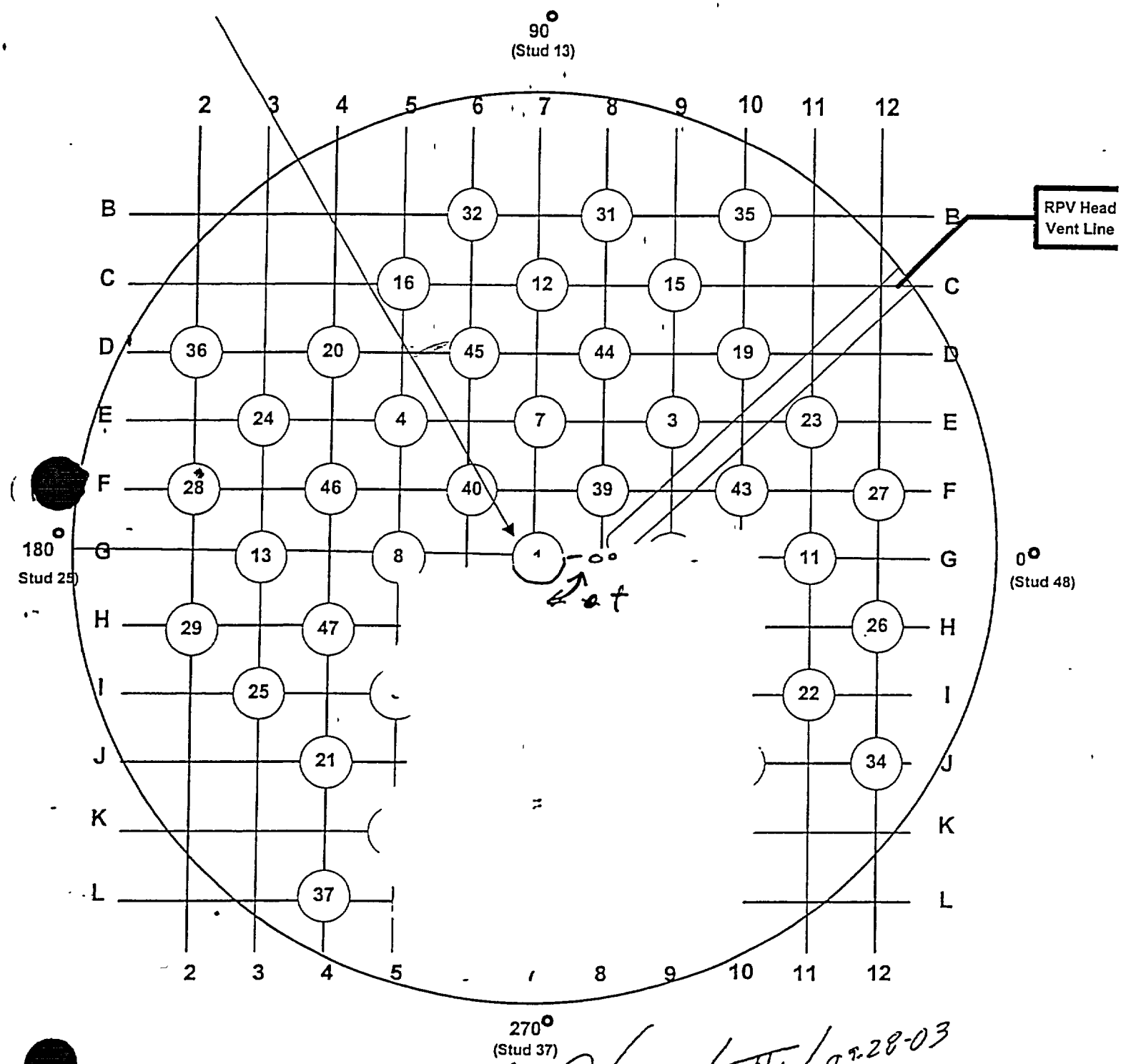
SCRATCH FROM 6 IN. STEEL RULER.

William [illegible] III 09-26-02

4510003
PAGE 3 OF 3

View From Below

Indication #1 appx. this location



[signature] / III / 09-28-03

[signature] / III / 9-26-07.

CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 2		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2267_17.53.20

Calibration Setup:
Initial Calibration File: A2267_15.52.04
Final Calibration File: CONTINUED PERFORMANCE 7.33.4

Scan Start: Z = -.7 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 6.78 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	S0381CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/24/02

Reviewed by: [signature] Level: II Date: 10/2/02

TYPICAL DATA SHEET
FIGURE 5

9/25/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	2
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD:	4.000	Thickness:	0.625
Downhill Side of Nozzle (deg.):	140	End of Noz. (in.):	0.58	Probe Serial No.'s:	Ch 1	S0381CN	Ch 6 n/a
Axial Scan Start:	deg @ "	Stop:	deg @ "	Setup:	Ch 2	n/a	Ch 7 n/a
Files:					Ch 3	n/a	Ch 8 n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	365 deg @ 6.78 "	Setup:	3	Ch 4 n/a	Ch 9 n/a
Files:	A2267_17.53.20	Cal Block S/N:	60119300			Ch 5 n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	140	170	200	230	260	290	320	350	20	50	80	110	140	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	Inches
MAX.	3.15	3 31	3 49	3 93	4.31	4.57	4.61	4.55	4.37	4.09	3.73	3.45	3.15	Inches
MIN.	1.87	1 87	1.95	2.45	2.99	3.35	3.47	3.41	3.09	2.75	2 27	1.93	1.87	Inches

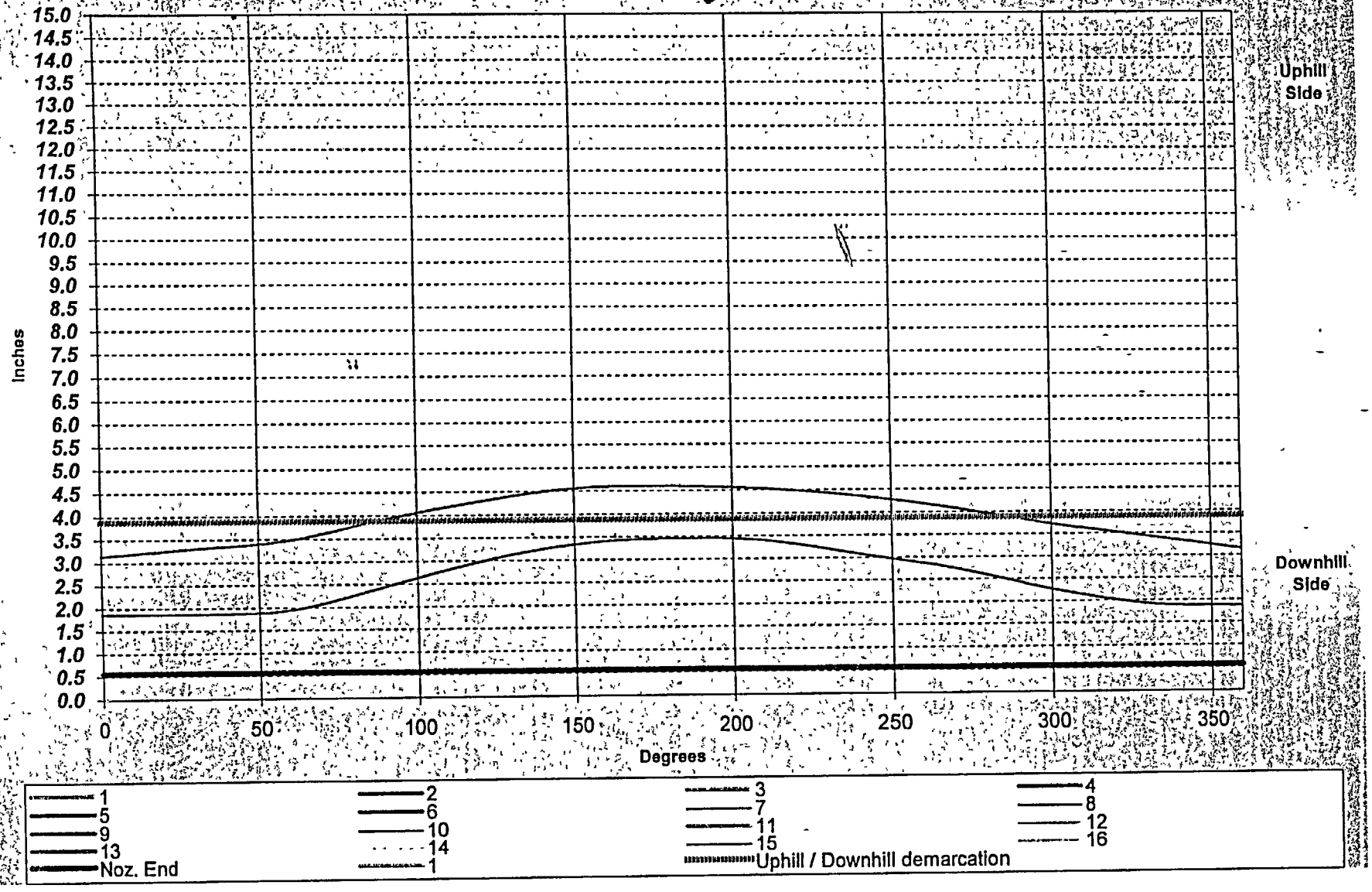
Comments: Measured Thickness: 0 619 @ theta of 161 deg with an axial position of 5.19 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9/24/02 Analyzed by: N/A Date:

@ 9/25/02

FRAMATOME ANP

Nozzle 2 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 3		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193OE1	Calibration Setup:
Scan File No.: A2269-08.36.54 A2269-08.48.15	Initial Calibration File: A2269-00.14.23 Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4
Scan Start: Z = -0.7 Scan Start: θ = -5 Index Increment: 3°	Scan Stop: Z = 6.78 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50379CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/26/02

Reviewed by: [signature] Level: II Date: 10/2/02

TYPICAL DATA SHEET [signature] 09-26-02
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1			Nozzle: 3
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness: 0.625
Downhill Side of Nozzle (deg.): 17	End of Noz. (in.): 0.24	Probe Serial No.'s:	Ch 1	S0379CN	Ch 6 n/a
Axial Scan: Start: [illegible] deg @ [illegible] "	Stop: [illegible] deg @ [illegible] "	Setup: [illegible]	Ch 2	n/a	Ch 7 n/a
Files: [illegible]			Ch 3	n/a	Ch 8 n/a
Circ. Scan Start: -5 deg @ -0.7 "	Stop: 365 deg @ 6.78 "	Setup: 3	Ch 4	n/a	Ch 9 n/a
Files: A2269_08.36.54 / A2269_08.48.15	Cal Block S/N: 60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	17	47	77	107	137	167	197	227	257	287	317	347	17	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	Inches	
MAX.	3.35	3 66	4 00	4.37	4.39	4.27	3 97	3 62	3 29	3.10	3.00	3.19	3.36	Inches	
MIN.	1 98	2.37	2.92	3.27	3.31	3.17	2.83	2.27	1.92	1.71	1.73	1.73	1.98	Inches	

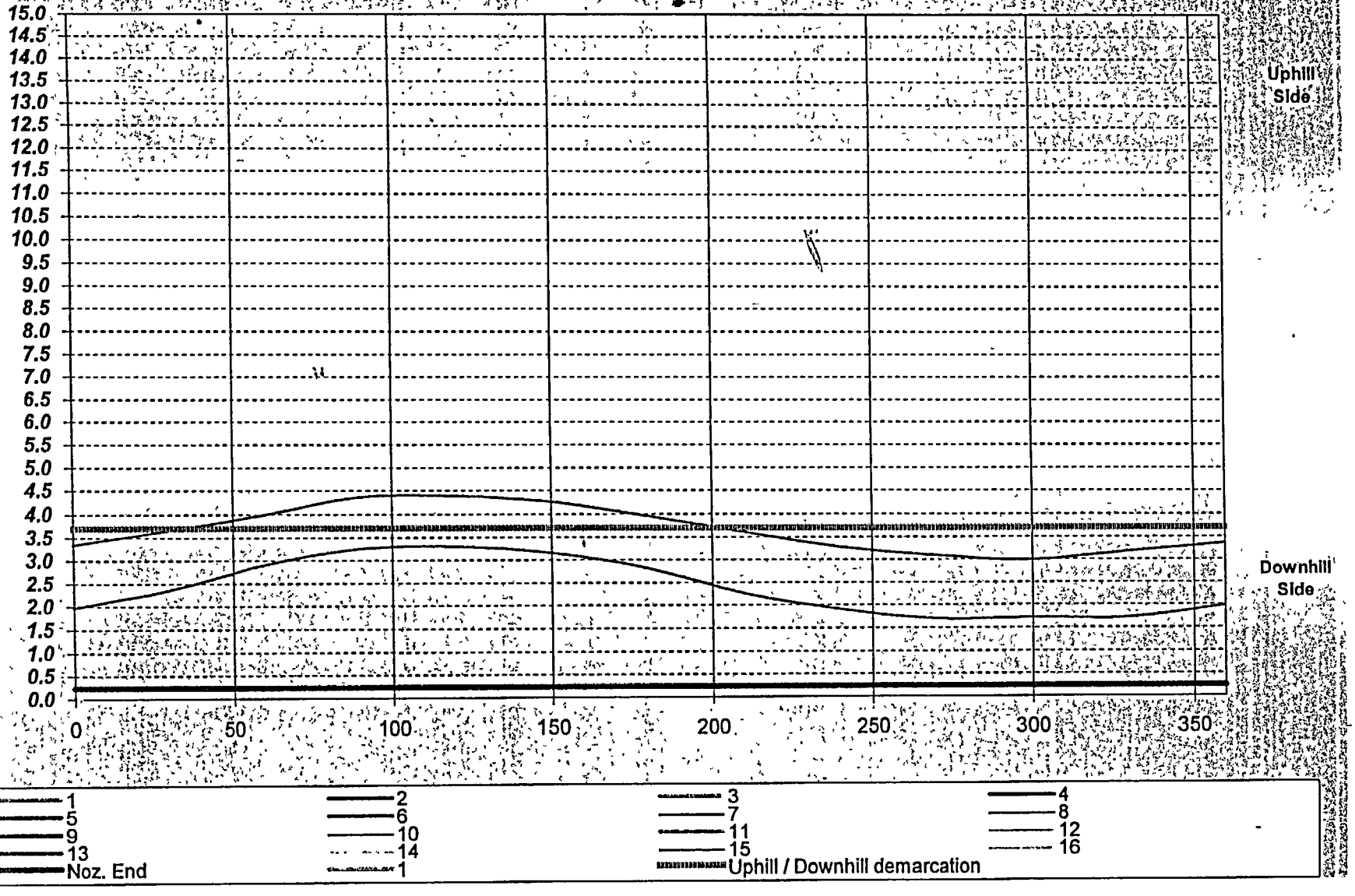
Comments: Measured Thickness: 0.618 @ theta of 226 deg with an axial position of 5.8 Limited Scan? (Y/N): n

Analyzed by: [signature] Date: 9/26/02 Analyzed by: N/A Date:

WL 09-26-02

FRAMATOME ANP

Nozzle 3 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration
Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 4		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 EPB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1

Scan File No.: A2267-01.08.37

Calibration Setup:
Initial Calibration File: A2266-16.28.44
Final Calibration File: CONTINUED PERFORMANCE 7.5.3.4

Scan Start: Z = -.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 6.78 Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-23-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET wf 09-24-02
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle: 4	
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625	
Downhill Side of Nozzle (deg.): 0	End of Noz. (in.): 0.2	Probe Serial No.'s:	Ch 1 S0420CN	Ch 6 n/a	
Axial Scan Start: deg @ "	Stop: deg @ "	Setup:	Ch 2 n/a	Ch 7 n/a	
Files:			Ch 3 n/a	Ch 8 n/a	
Circ. Scan Start: -5 deg @ -0.7 "	Stop: 365 deg @ 6.78 "	Setup: 3	Ch 4 n/a	Ch 9 n/a	
Files: A2267_01.08.37	Cal Block S/N: 60119300		Ch 5 n/a	Ch 10 n/a	

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	Inches
MAX.	2 67	2 79	3.29	3.71	4 05	4.27	4.27	4.17	3 83	3 47	3 09	2.85	2.67	Inches
MIN.	1 68	1.76	2.17	2.73	3.19	3.43	3.53	3 33	2.97	2.41	2 03	1.84	1.68	Inches

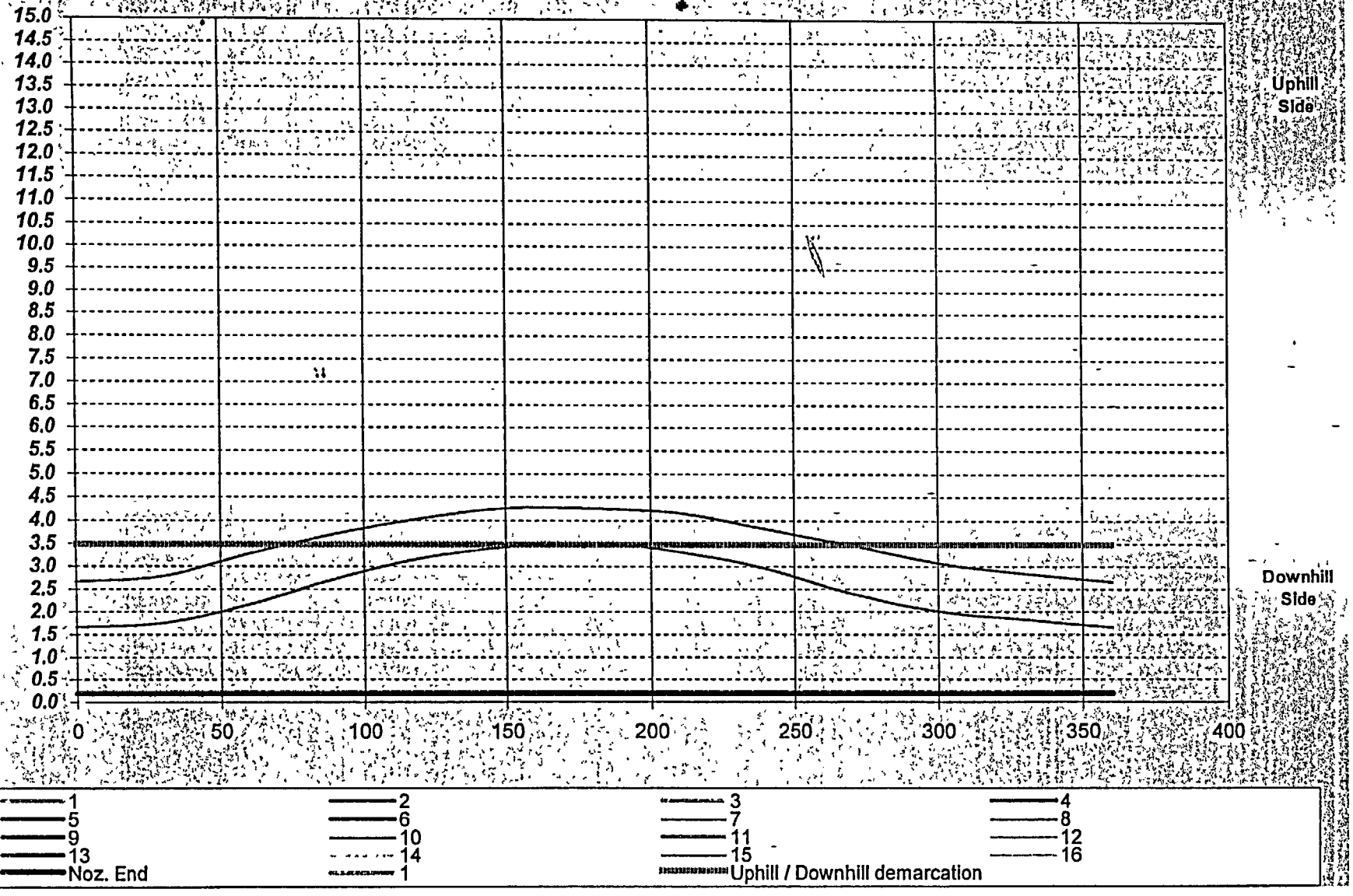
Comments: Measured Thickness: 0 64 @ theta of 188 deg with an axial position of 5 5 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-23-02 Analyzed by: N/A Date:

[initials] 09-24-02

FRAMATOME ANP

Nozzle 4 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 5		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 008

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2266.19.59.37

Calibration Setup:
Initial Calibration File: A2266_16.28.44
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = -.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 6.78" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments: NRI

Analyzed by: [signature] Level: II Date: 9-23-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

[signature] 09.24.02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle: 5	
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625	
Downhill Side of Nozzle (deg.): 0	End of Noz. (in.): 0.34	Probe Serial No.'s:	Ch 1	S0420CN	Ch 6 n/a
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]			Ch 2	n/a	Ch 7 n/a
Files: [illegible]			Ch 3	n/a	Ch 8 n/a
Circ. Scan Start: -5 deg @ -0.7 " Stop: 365 deg @ 6.78 " Setup: 3			Ch 4	n/a	Ch 9 n/a
Files: A2266_16.28.44	Cal Block S/N: 60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	Inches
MAX.	3.20	3.38	3.78	4.18	4.57	4.79	4.85	4.72	4.43	4.03	3.54	3.27	3.20	Inches
MIN.	1.79	1.95	2.28	2.65	3.06	3.34	3.40	3.22	2.85	2.47	2.03	1.79	1.79	Inches

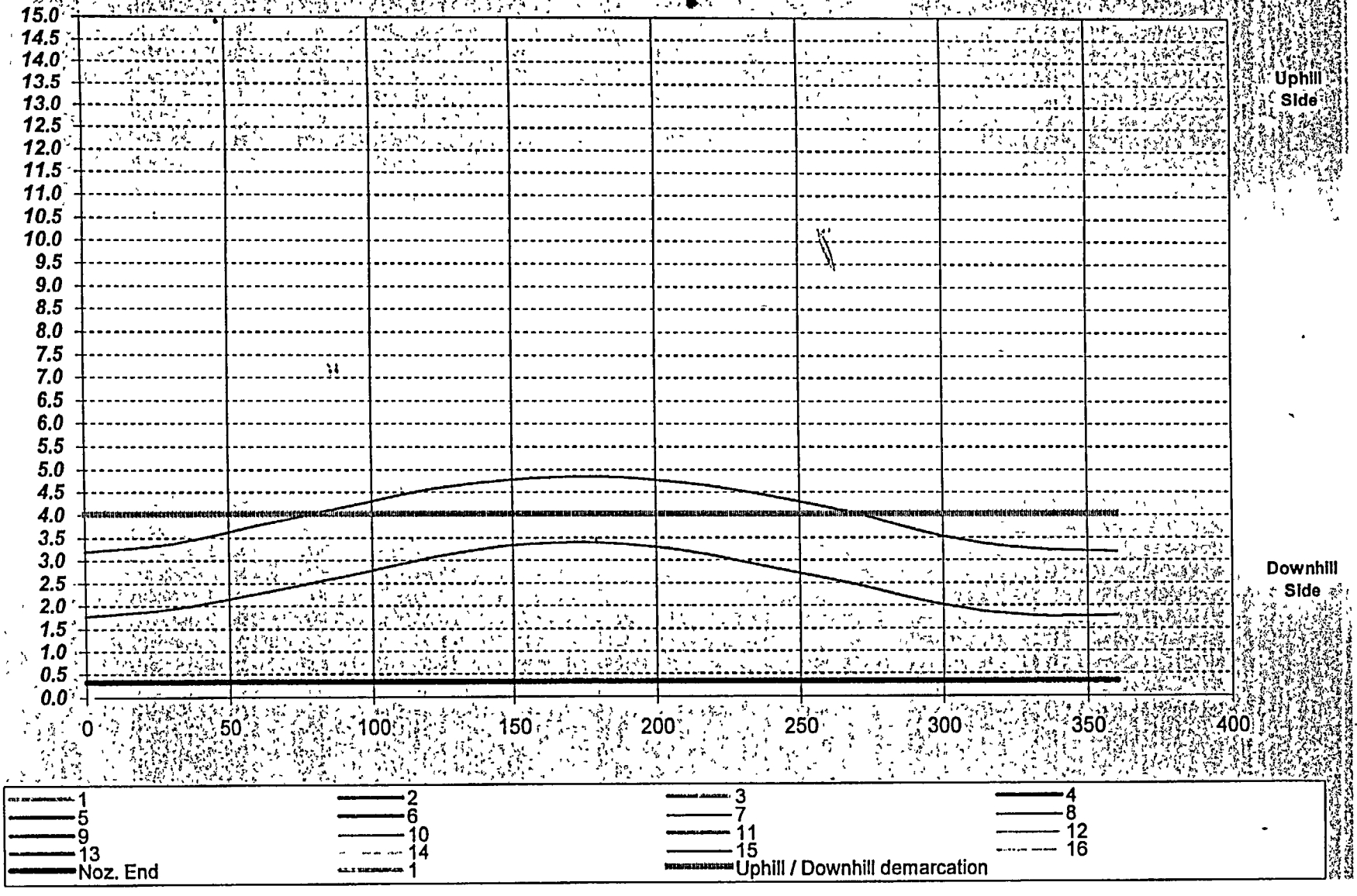
Comments: Measured Thickness: 0.65 @ theta of 77 deg with an axial position of 4.5 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-23-02 Analyzed by: N/A Date:

wl 09-24-02

FRAMATOME ANP

Nozzle 5 Profile



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 6		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265-10.15.41

Calibration Setup:
Initial Calibration File: A2262-10.28.30
Final Calibration File: A2266-05.19.37

Scan Start: Z = 0.47 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 11.82 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results: No Recordable Indications | Leak Path Detected
Axial Flaws Detected | Circumferential Flaws Detected

Comments:
NRI

Analyzed by: [signature] Level: III Date: 9/22/02

Reviewed by: [signature] Level: II Date: 10/2/02

TYPICAL DATA SHEET
FIGURE 5

[signature] 09-23-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	6
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	243	End of Noz. (in.):	3.72	Probe Serial No.'s:	Ch 1 35044	Ch 6	35052
Axial Scan Start:	deg @ "	Stop:	deg @ "	Setup:	Ch 2 35202	Ch 7	n/a
Files:					Ch 3 35070	Ch 8	n/a
Circ. Scan Start:	-5 deg @ 0.47 "	Stop:	365 deg @ 11.82 "	Setup: 1	Ch 4 35044	Ch 9	n/a
Files:	A2265_10.15.41	Cal Block S/N:	60119300		Ch 5 35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	243	273	303	333	3	33	63	93	123	153	183	213	243	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	3.72	Inches	
MAX.	6.72	6.76	7.00	7.31	7.42	7.76	7.78	7.69	7.47	7.20	7.00	6.76	6 68	Inches	
MIN.	5.11	5.18	5 43	5.77	6.13	6.40	6.56	6 36	6.18	5.77	5 41	5.22	5 09	Inches	

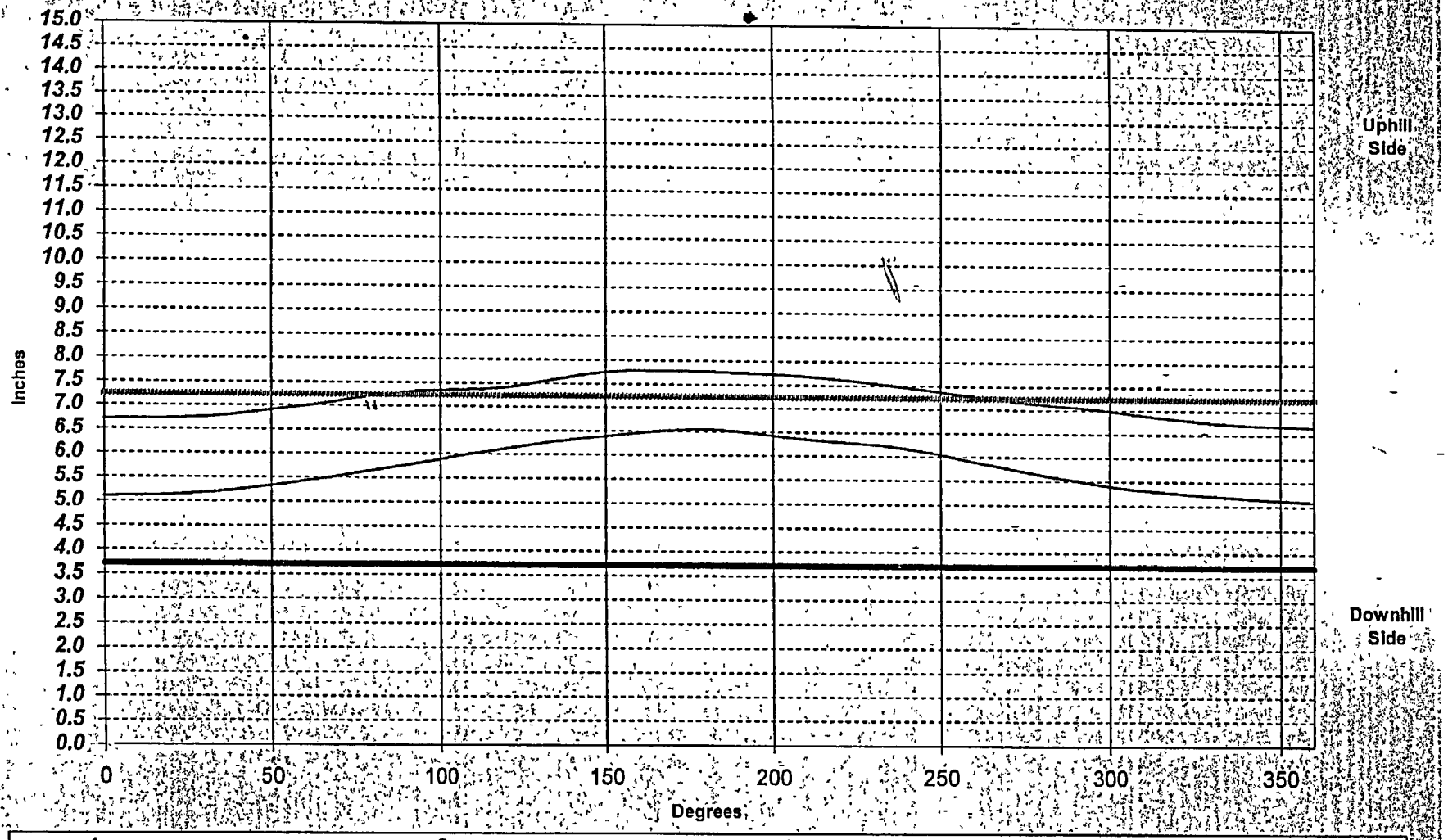
Comments: Measured Thickness: 0 63 @ theta of 212 deg with an axial position of 8.13 Limited Scan? (Y/N): N

Analyzed by: Date: 9/22/02 Analyzed by: N/A Date:

wf 09-23-02

FRAMATOME ANP

Nozzle 6 Profile



1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
Noz. End	1	Uphill / Downhill demarcation	

wl 09-23-02

Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 7	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/27/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265-~~19~~.14.49

Calibration Setup:
Initial Calibration File: A2262-10.28.30
Final Calibration File: A2266-05.19.37

Scan Start: Z = .47 Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 19.0 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results: No Recordable Indications | Leak Path Detected
Axial Flaws Detected | Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-22-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

9/24/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1	Nozzle: 7
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	258	End of Noz. (in.):	3.58	Probe Serial No.'s:	Ch 1 35044 / Ch 6 35052
Axial Scan Files:	Start: deg @ "	Stop: deg @ "	Setup:		Ch 2 35202 / Ch 7 n/a
Circ. Scan Files:	Start: 0.47 deg @ -5 "	Stop: 19 deg @ 365 "	Setup: 1		Ch 3 35070 / Ch 8 n/a
	A2265_19.14.49	Cal Block S/N:	60119300		Ch 4 35044 / Ch 9 n/a
					Ch 5 35052 / Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	258	288	318	348	18	48	78	108	138	168	198	228	258	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	Inches	
MAX.	6.51	6.55	6.79	6.98	7.64	7.59	7.59	7.54	7.40	7.17	6.84	6.60	6.51	Inches	
MIN.	5.00	5.09	5.37	5.56	6.27	6.32	6.27	6.27	5.94	5.66	5.37	5.19	5.00	Inches	

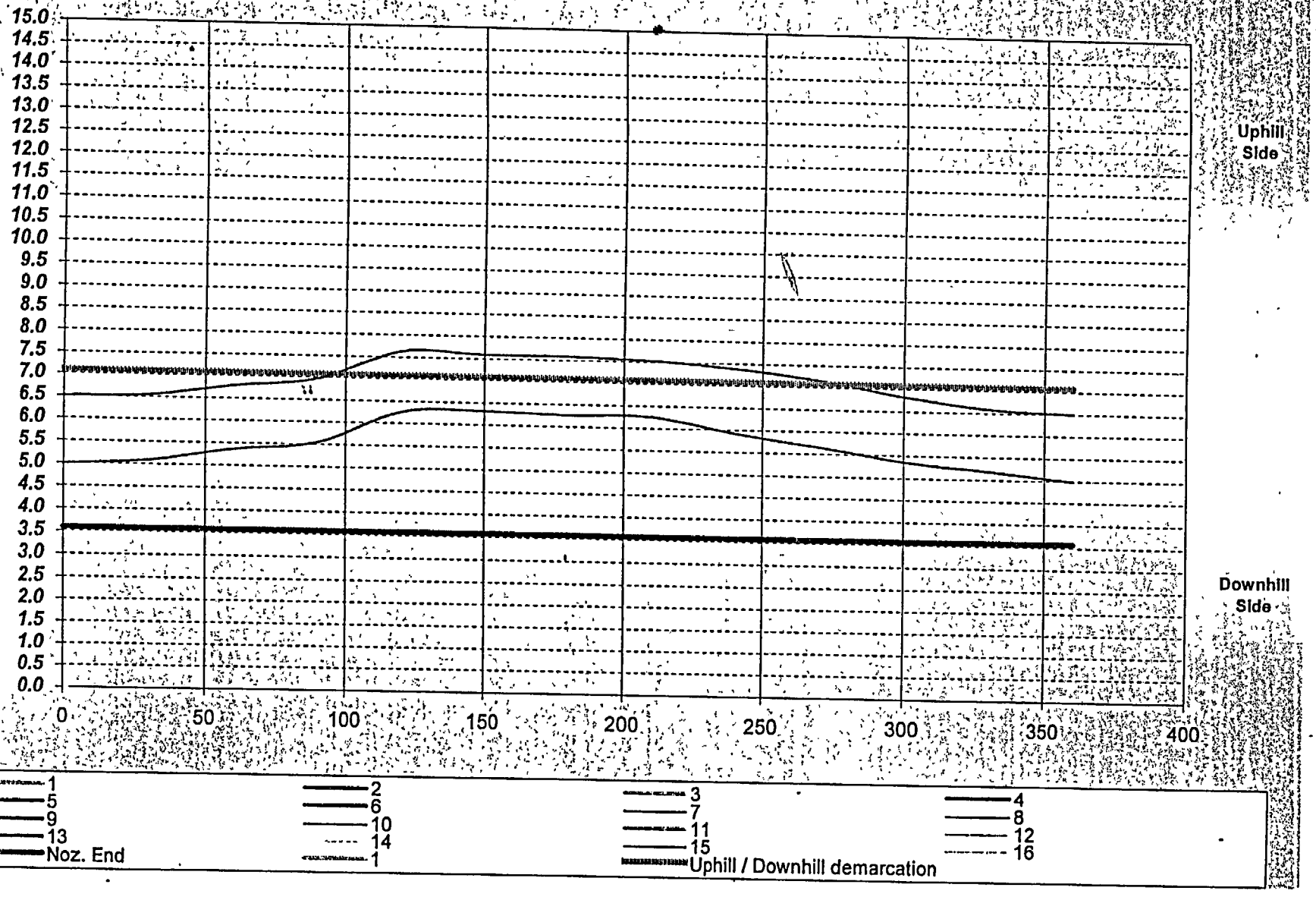
Comments: Measured Thickness: 0.63 @ theta of 185 deg with an axial position of 10.2 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-22-02 Analyzed by: N/A Date:

9/24/02

FRAMATOME ANP

Nozzle 7 Profile



9:31 AM9/23/02

Nozzle 7 Chart 1 9/24/02

Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 8		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/27/03	20317
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265-15.07.00

Calibration Setup:
Initial Calibration File: A2265-10.28.30
Final Calibration File: A2266-05.19.37

Scan Start: Z = 0.47 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 17.0 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/22/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET wf 09-23-02
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	8
Procedure:	54-ISI-100-09	Nozzle Dimensions: (In.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg:):	260	End of Noz. (in.):	3.56	Probe Serial No.'s:	Ch 1 35044	Ch 6	35052
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]					Ch 2 35202	Ch 7	n/a
Files: [illegible]					Ch 3 35070	Ch 8	n/a
Circ. Scan Start: -5 deg @ 0.47 " Stop: 365 deg @ 17.62 " Setup: 1					Ch 4 35044	Ch 9	n/a
Files: A2265_15.07.00		Cal Block S/N:	60119300		Ch 5 35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	260	290	320	350	20	50	80	110	140	170	200	230	260	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	Inches	
MAX.	6 62	6.63	6.84	7.00	7.73	7.68	7.71	7.62	7.37	7.13	6.93	6.74	6 65	Inches	
MIN.	5.25	5.23	5.41	5 65	6.46	6.44	6.49	6.35	6.10	5 85	5.56	5.25	5 23	Inches	

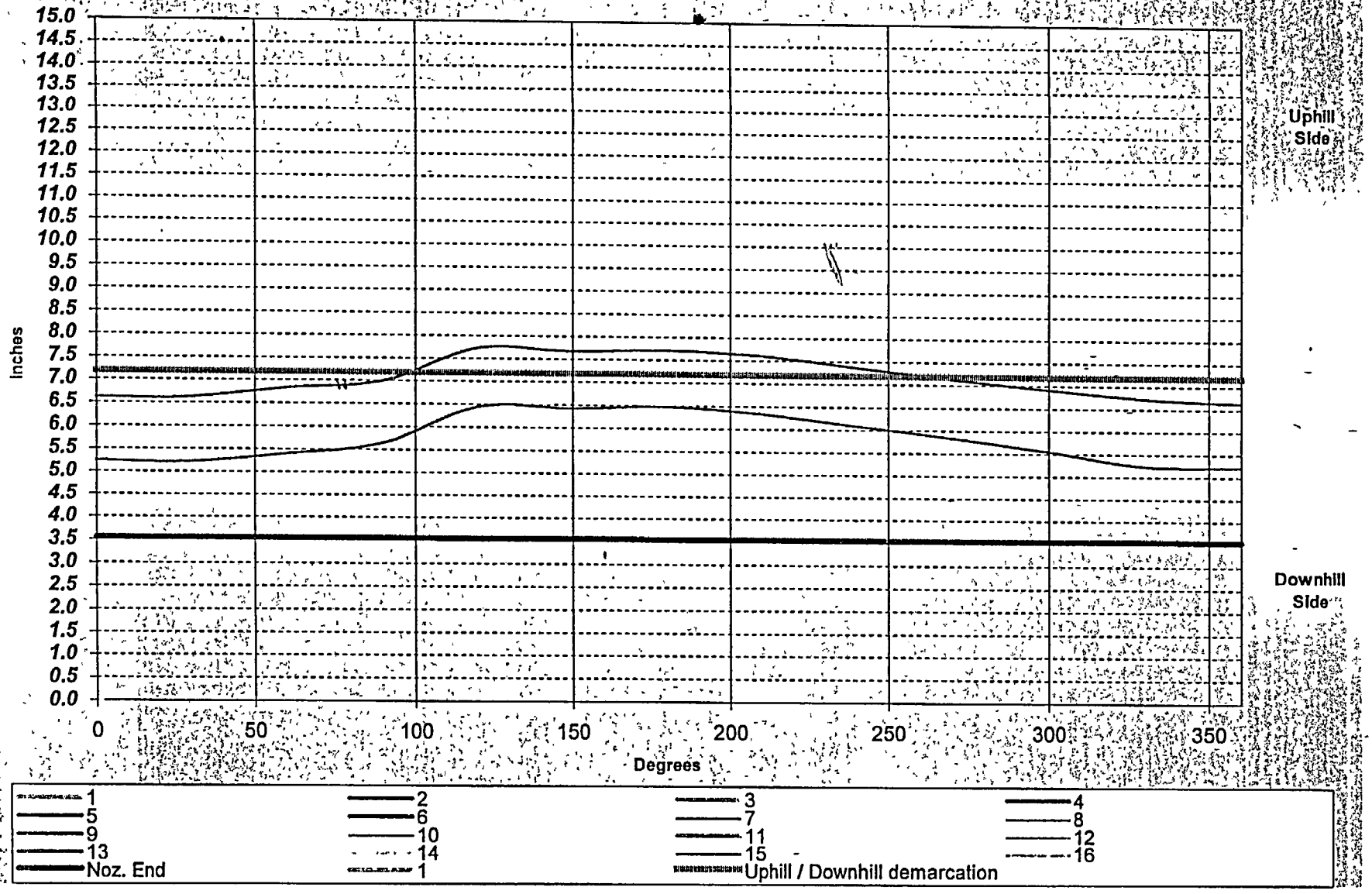
Comments: Measured Thickness: 0 63 @ theta of 168 deg with an axial position of 8 64 Limited Scan? (Y/N): n

Analyzed by: [signature] Date: 9/22/02 Analyzed by: N/A Date:

wl 09-23-02

FRAMATOME ANP

Nozzle 8 Profile



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 9		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1	Calibration Setup:
Scan File No.: A2265-05.08.12	Initial Calibration File: A2262-10.28.30 Final Calibration File: A2266-05.19.37
Scan Start: Z = .47" Scan Start: θ = -5° Index Increment: 3°	Scan Stop: Z = 11.91 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments: NRI

Analyzed by: [signature] Level: II Date: 9-21-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

9/24/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	9
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)		ID:	2.750 OD: 4.000	Thickness:	0.625
Downhill Side of Nozzle (deg.):	130	End of Noz. (in.):	0.91	Probe Serial No.'s:	Ch 1 35044	Ch 6	35052
Axial Scan Files:	Start: deg @ "	Stop: deg @ "	Stop:		Ch 2 35202	Ch 7	n/a
					Ch 3 35070	Ch 8	n/a
Circ. Scan Files:	Start: -5 deg @ 0.47 "	Stop: 365 deg @ 11.91 "	Stop:		Ch 4 35044	Ch 9	n/a
	A2265_05.08.12	Cal Block S/N:	60119300		Ch 5 35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	130	160	190	220	250	280	310	340	10	40	70	100	130	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	Inches
MAX.	3 62	3 93	4.17	4.58	4 62	4.86	4.78	4 56	4 09	4.09	3.82	3 66	3 62	Inches
MIN.	2 84	2.99	3.19	3 57	3.76	3 80	3 68	3 47	3.11	2.84	2 84	2.72	2 84	Inches

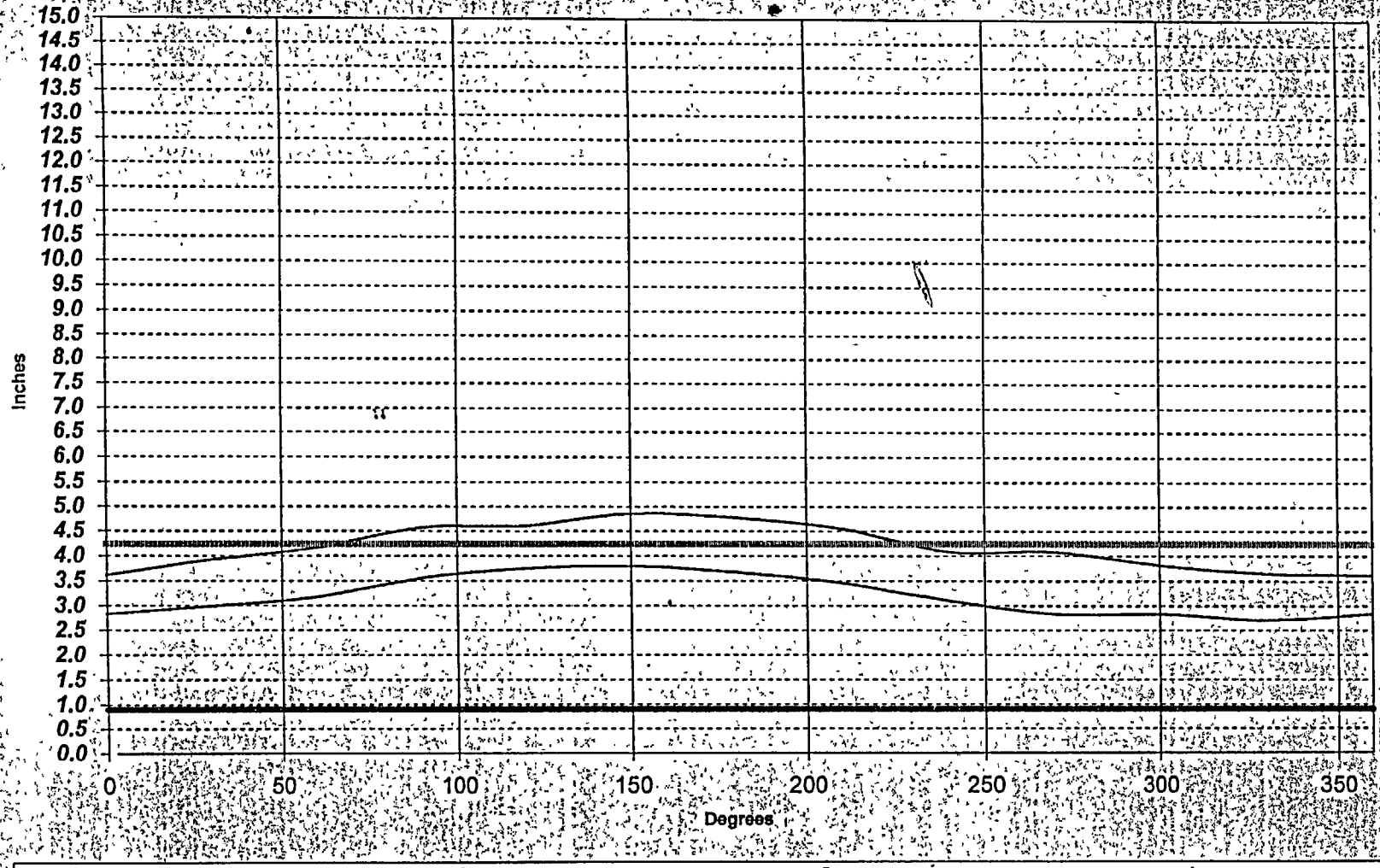
Comments: Measured Thickness: 0.64 @ theta of 150 deg with an axial position of 6.7 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-21-02 Analyzed by: N/A Date:

9/24/02

FRAMATOME ANP

Nozzle 9 Profile



1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
Noz. End	1	Uphill / Downhill demarcation	

CIRC BLADE

FRAMATOME ANP	Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 10		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 PB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2267-19.31.33

Calibration Setup:
Initial Calibration File: A2267-15.52.04
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = -.7 Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 7.57 Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50381CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-24-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

[signature] 09.25.02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant: Point Beach	Unit: 1 - -	Nozzle:	10
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750 OD: 4.000	Thickness:	0.625
Downhill Side of Nozzle (deg.):	37	End of Noz. (in.): 0 67	Probe Serial No.'s:	Ch 1 S0381CN	Ch 6 n/a
Axial Scan Start:	deg @ "	Stop:	deg @ " Setup:	Ch 2 n/a	Ch 7 n/a
Files:				Ch 3 n/a	Ch 8 n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop: 365	deg @ 7.57 " Setup: 3	Ch 4 n/a	Ch 9 n/a
Files:	A2267_19.31.33	Cal Block S/N:	60119300	Ch 5 n/a	Ch 10 n/a

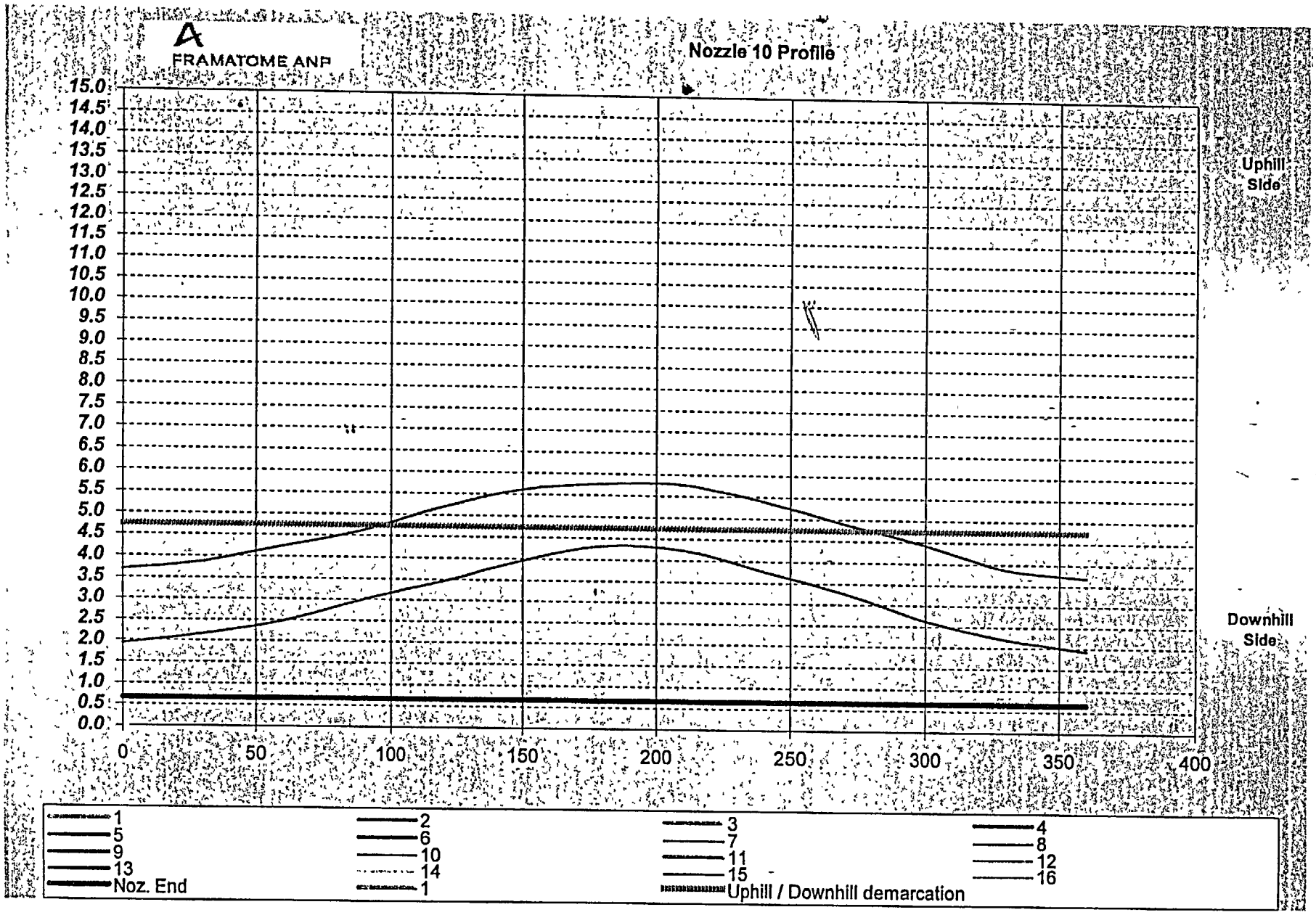
Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	37	67	97	127	157	187	217	247	277	307	337	7	37	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	Inches
MAX.	3 69	3 88	4.25	4 64	5.19	5.62	5.77	5.77	5.41	4.91	4.44	3.89	3 69	Inches
MIN.	1.94	2.17	2.49	3.01	3.46	3.97	4.33	4.25	3.78	3 28	2 64	2.21	1.94	Inches

Comments: Measured Thickness: 0 63 @ theta of 185 deg with an axial position of 2.72 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9/25/02 Analyzed by: N/A Date:

WAL 09-25-02


FRAMATOME ANP
Nozzle 10 Profile
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
400
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1
Uphill / Downhill demarcation

CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach Unit: 1
Penetration No.: 11	Procedure: 54-ISI-100-09

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 JMB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1	Calibration Setup:
Scan File No.: A2269_05.~~24~~.18	Initial Calibration File: A2269_00.14.23 Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4
Scan Start: Z = -0.7" Scan Start: θ = -5 Index Increment: 3°	Scan Stop: Z = 8.16" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50379CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-25-02

Reviewed by: [signature] Level: III Date: 10.4.02

wl 09-26-02

TYPICAL DATA SHEET
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

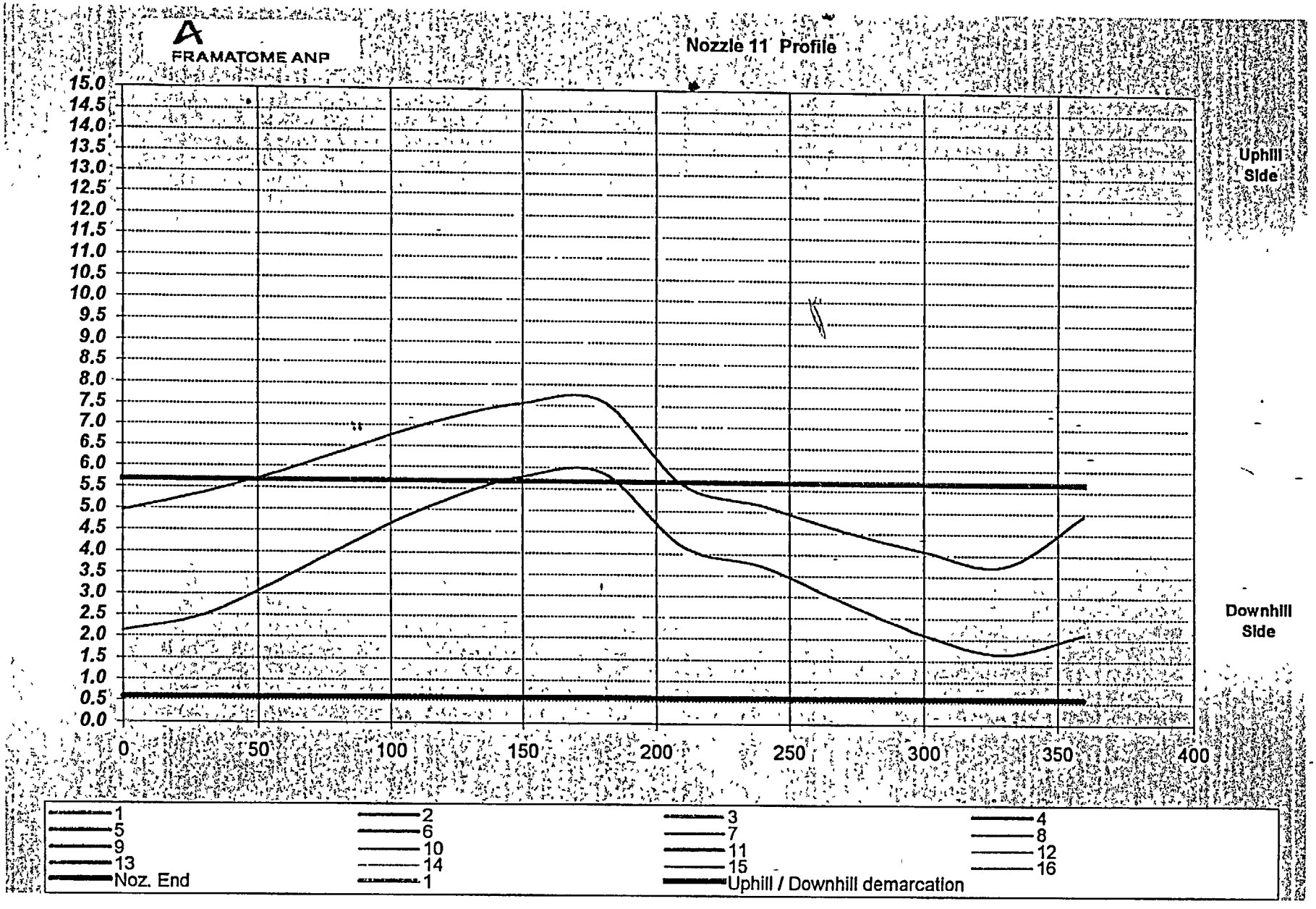
Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	11
Procedure:	54-ISI-100-09	Nozzle Dimensions: (In)		ID:	2.750 OD: 4.000	Thickness:	0.625
Downhill Side of Nozzle (deg.):	0	End of Noz. (In.):	0.59	Probe Serial No.'s:	Ch 1 S0379CN	Ch 6	n/a
Axial Scan Start:	[illegible] deg @ [illegible]	Stop:	[illegible] deg @ [illegible]	Setup:	Ch 2 n/a	Ch 7	n/a
Files:	[illegible]				Ch 3 n/a	Ch 8	n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	365 deg @ 8 16"	Setup:	3 Ch 4 n/a	Ch 9	n/a
Files:	A2269_01.06 25/A2269_05.24.18	Cal Block S/N:	60119300		Ch 5 n/a	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (In.)	End Point 1 Min (deg.)	End Point 2 Max (In.)	End Point 2 Max (deg.)	Axial Total (In.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (In.)	Flaw Length (In.)	Flaw Angle (deg.)	Flaw TWD (In.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	Inches	
MAX.	4.94	5.37	5.89	6 54	7.14	7.55	7.61	5 63	5.15	4.57	4.10	3.75	4.94	Inches	
MIN.	2.13	2.50	3.39	4.36	5.20	5.79	5.89	4.19	3.73	2.89	2.11	1.67	2.13	Inches	

Comments: Measured Thickness: 0 67 @ theta of 255 deg with an axial position of 6 35 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-26-02 Analyzed by: N/A Date:


FRAMATOME ANP
Nozzle 11 Profile
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
400
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1
Uphill / Downhill demarcation

CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 12		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 ~~9B~~

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1

Scan File No.: A2267_01.50.24
A2267_02.23.35

Calibration Setup:
Initial Calibration File: A2266.16.28.44
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = -.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 7.57 Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-23-02

Reviewed by: [signature] Level: III Date: 10-4-02

TYPICAL DATA SHEET
FIGURE 5

[signature] 09-24-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	12
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD:	4.000	Thickness:	0.625
Downhill Side of Nozzle (deg.):	0	End of Noz. (in.):	0.51	Probe Serial No.'s:	Ch 1 S0420CN	Ch 6	n/a
Axial Scan Start:	deg @ "	Stop:	deg @ "	Setup:	Ch 2	Ch 7	n/a
Files:					Ch 3 n/a	Ch 8	n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	365 deg @ 7.57 "	Setup:	3 Ch 4 n/a	Ch 9	n/a
Files:	A2267_01.50.24/A2267_02.23.35	Cal Block S/N:	60119300		Ch 5 n/a	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	Inches	
MAX.	3.08	3 25	3 57	4.12	4 60	5.03	5.15	5.13	4.81	4 29	3.72	3 30	3 08	Inches	
MIN.	1.19	1.31	1.65	2.33	3.32	3.76	4.16	3 89	3.46	2.41	1.71	1.31	1.19	Inches	

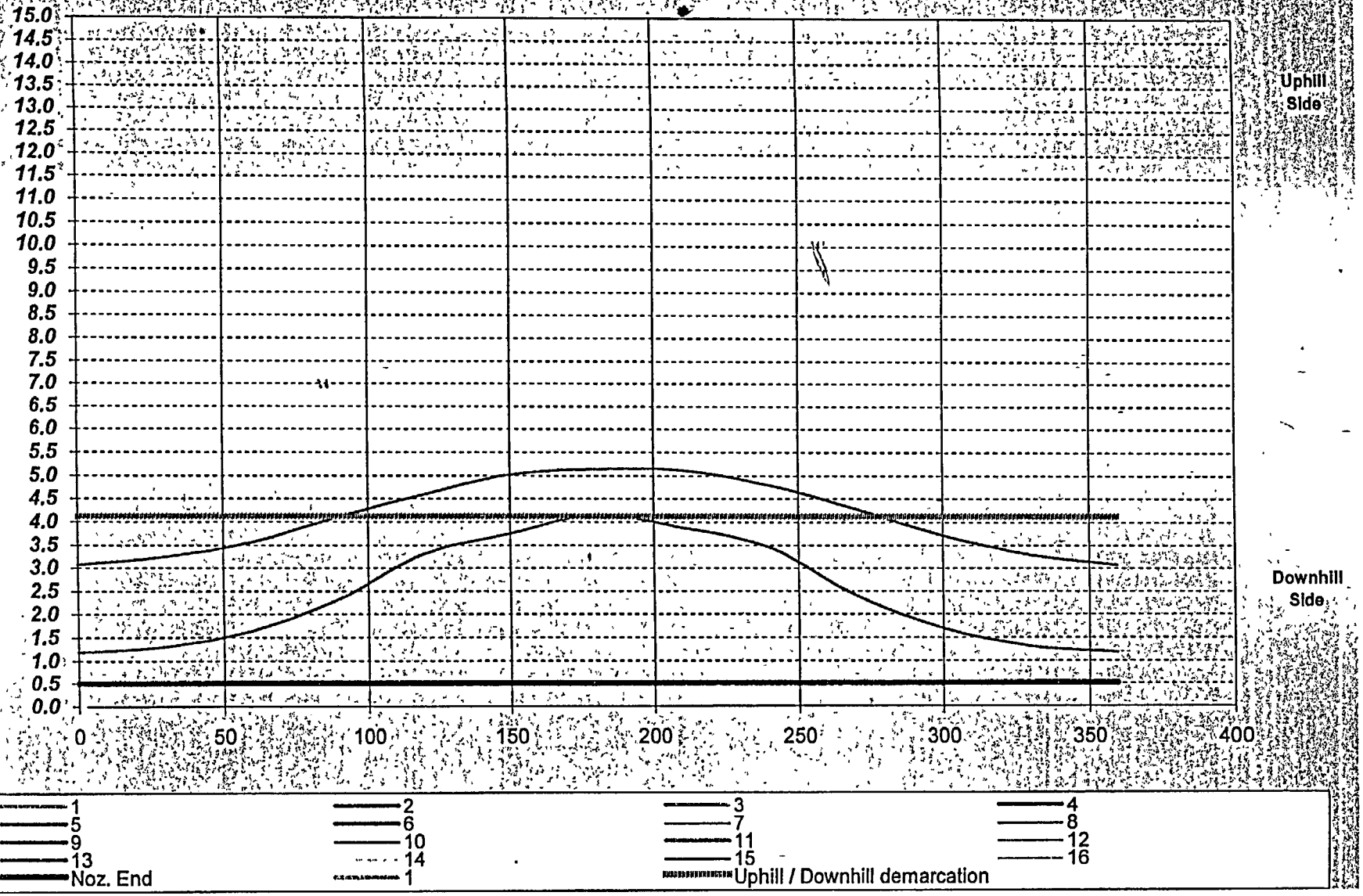
Comments: Measured Thickness: 0 63 @ theta of 202 deg with an axial position of 6 22 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-23-02 Analyzed by: N/A Date:

[signature] 09-24-02

FRAMATOME ANP

Nozzle 12 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 13		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 QPB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1

Scan File No.: A2267-00.03.01
A2267-00.39.15

Calibration Setup:
Initial Calibration File: A2266-16.28.44
Final Calibration File: CONTINUED PERFORMANCE

Scan Start: Z = 7.7" Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 7.78" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-23-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

wl 09-24-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	13
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	23	End of Noz. (in.):	0.2	Probe Serial No.'s:	Ch 1 S0420CN	Ch 6	n/a
Axial Scan Start:	deg @ "	Stop:	deg @ "	Setup:	Ch 2 n/a	Ch 7	n/a
Files:					Ch 3 n/a	Ch 8	n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	365 deg @ 7.78 "	Setup:	3 Ch 4 n/a	Ch 9	n/a
Files:	A2267_00.03.01/A2267_00.39.15	Cal Block S/N:	60119300		Ch 5 n/a	Ch 10	n/a

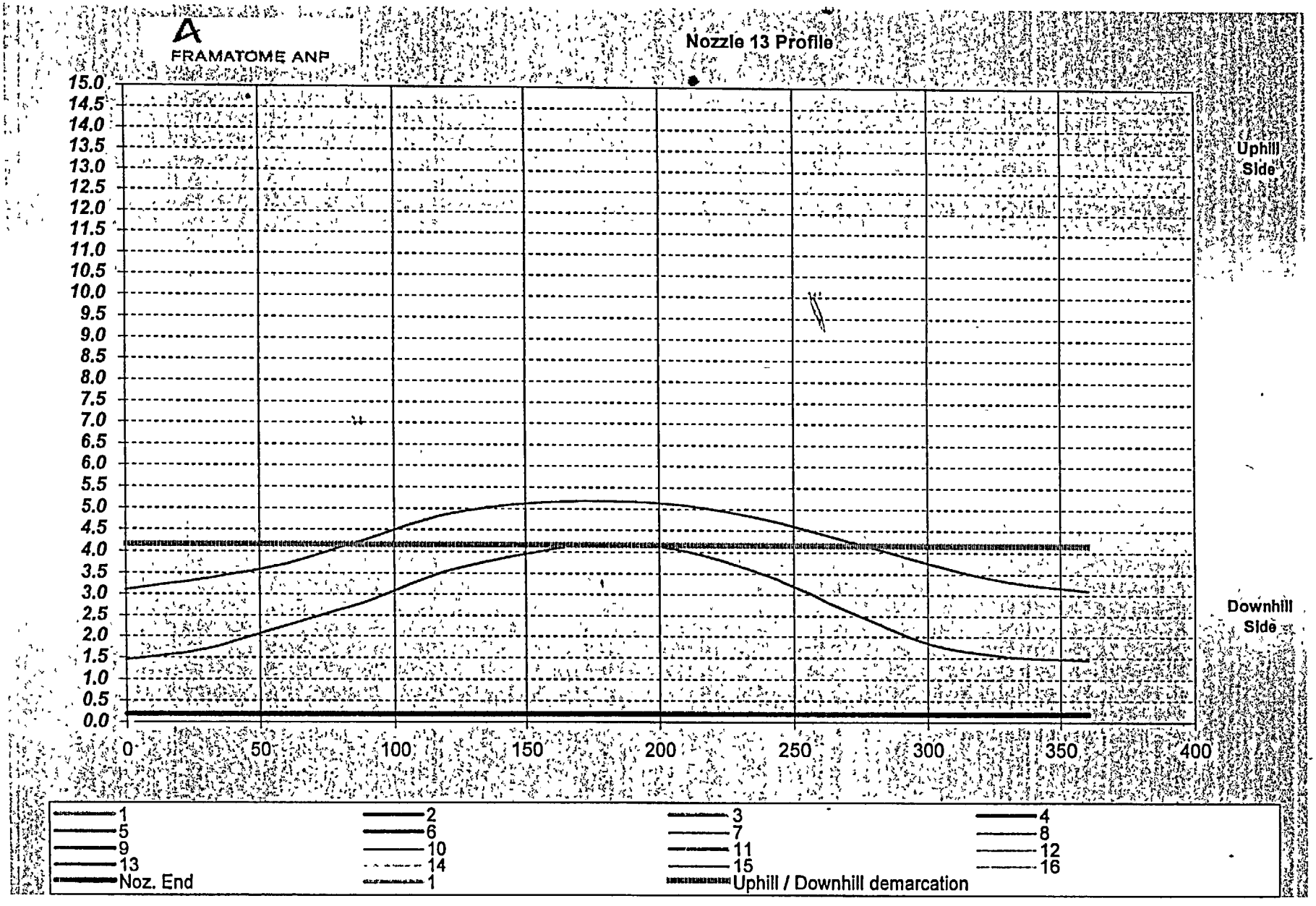
Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	23	53	83	113	143	173	203	233	263	293	323	353	23	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	Inches	
MAX.	3.11	3.37	3.73	4 29	4.87	5.13	5.19	5.09	4.77	4.27	3.77	3 33	3.11	Inches	
MIN.	1.46	1.71	2 27	2.85	3.55	3.95	4.21	4.03	3 47	2.63	1.86	1.54	1.46	Inches	

Comments: Measured Thickness: 0 64 @ theta of 23.66 deg with an axial position of 4.31 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-23-02 Analyzed by: N/A Date:

wl 09-24-02


FRAMATOME ANP
Nozzle 13 Profile
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
400
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1
Uphill / Downhill demarcation

CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 14		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1

Scan File No.: A2267-09.59.52 - 11.42.02 ± 11.05.05 - 11.10.59

Calibration Setup:
Initial Calibration File: A2266-16.28.44
Final Calibration File: NONE: Continued Performance 7.3.34

Scan Start: Z = -0.7 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 7.9" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9-24-02

Reviewed by: [signature] Level: II Date: 10-4-02

TYPICAL DATA SHEET
FIGURE 5

9/25/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1	Nozzle: 14
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in)	ID: 2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	96	End of Noz. (in.):	0.26	Probe Serial No.'s:	Ch 1 S0420CN / Ch 6 n/a
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]					Ch 2 n/a / Ch 7 n/a
Files: [illegible]					Ch 3 n/a / Ch 8 n/a
Circ. Scan Start: -5 deg @ -0.7 " Stop: 365 deg @ 7.9 " Setup: 3					Ch 4 n/a / Ch 9 n/a
Files:	A2267_09 59.52, _11.05.05, _11.10.59, _11.42.02	Cal Block S/N:	60119300		Ch 5 n/a / Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	96	126	156	186	216	246	276	306	336	6	36	66	96	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	Inches
MAX.	3.22	3.38	3.82	4.43	5.10	5 61	5 66	5 42	5.00	4.38	3.78	3 43	3 22	Inches
MIN.	1.71	1.83	2.39	3 00	3.75	4.50	4.70	4.33	3.73	2.76	2.27	1.99	1.71	Inches

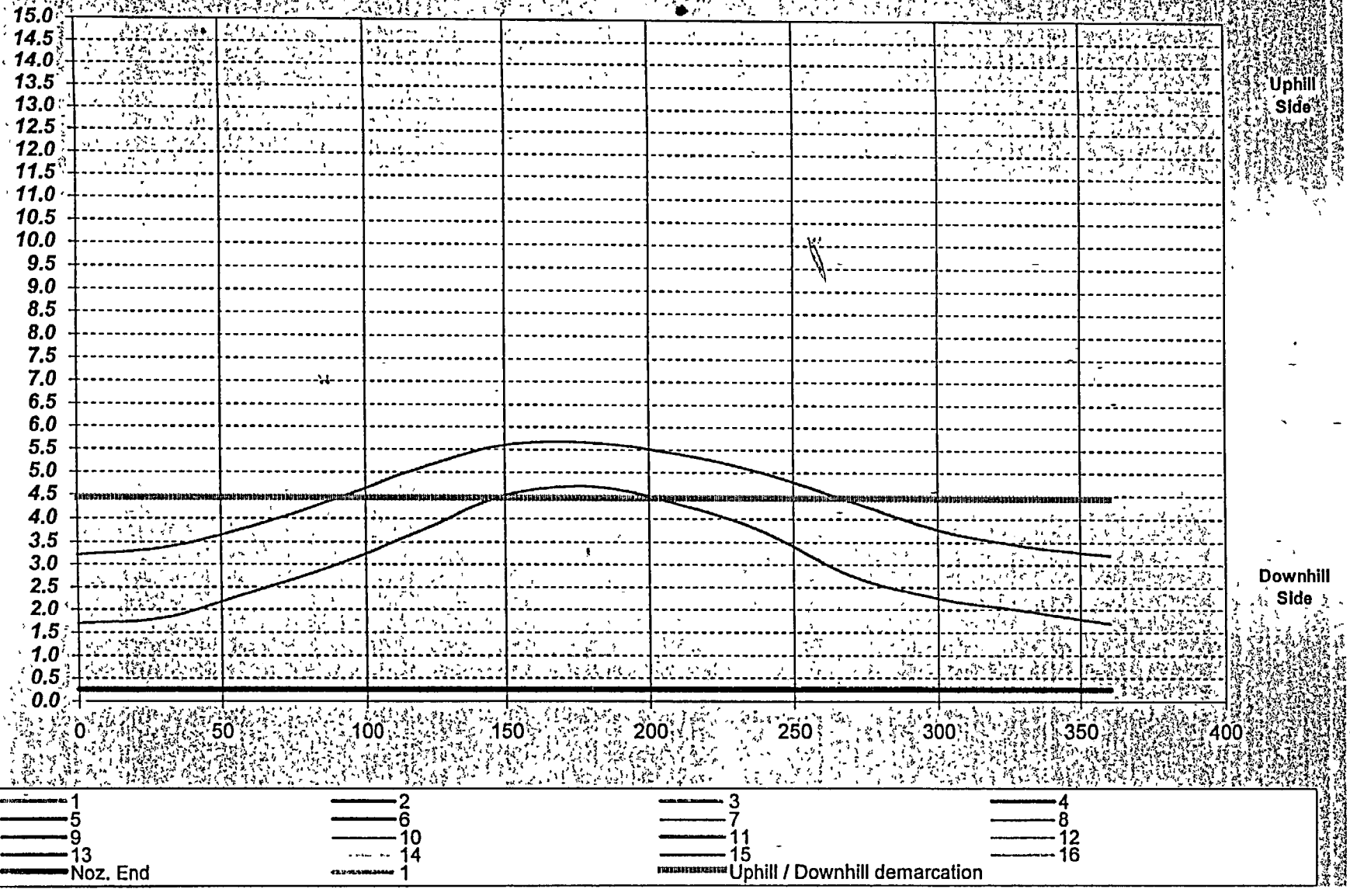
Comments: Measured Thickness: 0.6 @ theta of 120 deg with an axial position of 4.32 Limited Scan? (Y/N): n

Analyzed by: [illegible] Date: 9/24/02 Analyzed by: N/A Date:

@ 9/25/02

FRAMATOME ANP

Nozzle 14 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: ~~20~~ 15		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1	Calibration Setup:
Scan File No.: A2268-10.15.41 A2268-11.30.50 A2268-11.43.10 A2268-10.51.38	Initial Calibration File: A2268-03.40.41 Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4
Scan Start: Z = -0.7 Scan Start: θ = -5° Index Increment: 3°	Scan Stop: Z = 7.0 8.0 Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	5041LCN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9-25-02

Reviewed by: [signature] Level: III Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

9/26/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1	Nozzle: 15
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	289	End of Noz. (in.):	0.37	Probe Serial No.'s:	Ch 1 S0416CN / Ch 6 n/a
Axial Scan Files:	Start: [illegible] deg @ [illegible] "	Stop: [illegible] deg @ [illegible]	Setup: [illegible]		Ch 2 n/a / Ch 7 n/a
					Ch 3 n/a / Ch 8 n/a
Circ. Scan Files:	Start: -5 deg @ -0.7 "	Stop: 365 deg @ 7.0 & 8.0 "	Setup: 3		Ch 4 n/a / Ch 9 n/a
	A2268_10.15.41/10.51.38/11.30.50/11.43.10	Cal Block S/N:	60119300		Ch 5 n/a / Ch 10 n/a

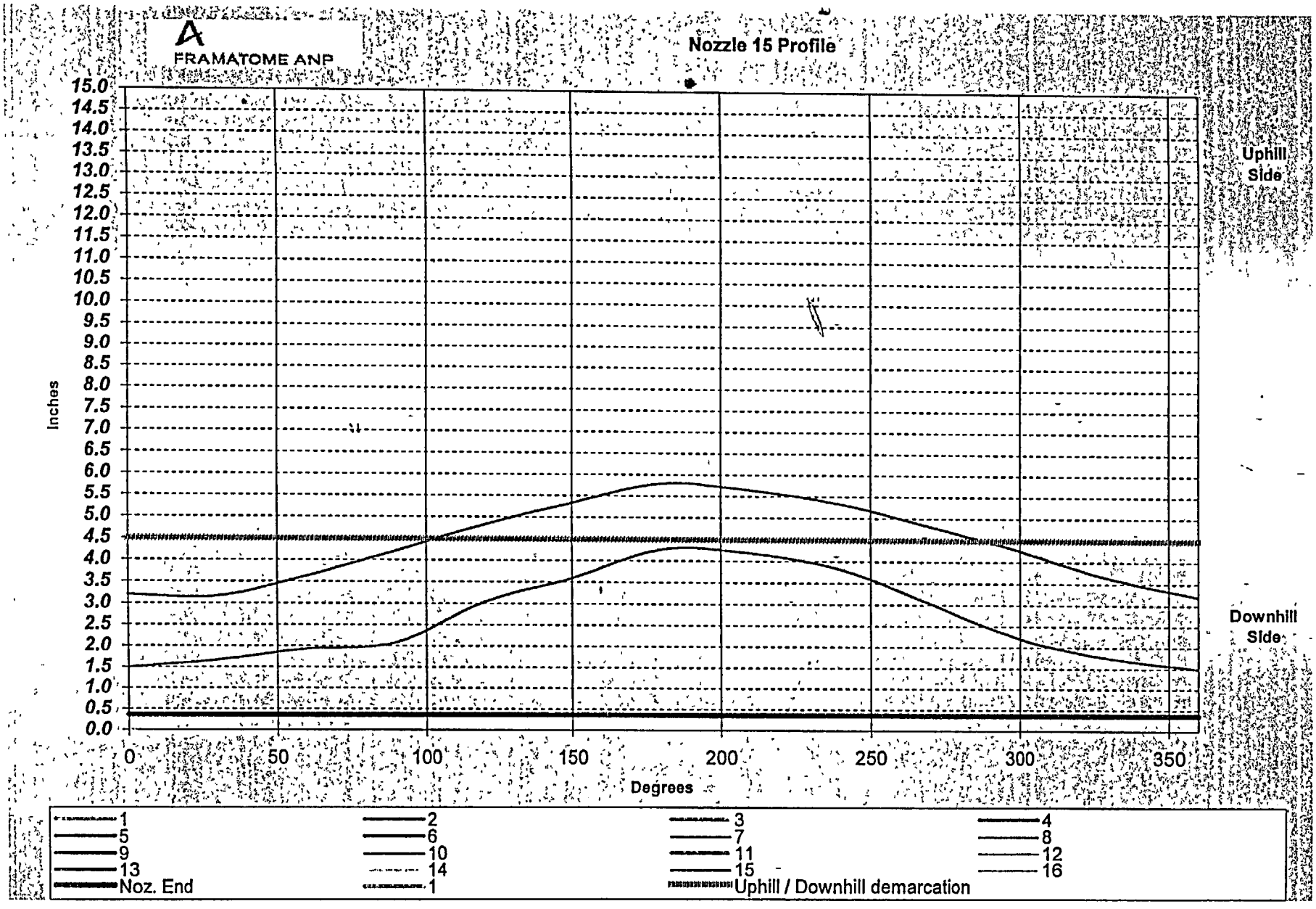
Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	289	319	349	19	49	79	109	139	169	199	229	259	289	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	Inches	
MAX.	3.21	3.17	3.64	4.22	4.82	5.33	5.80	5.65	5.33	4.82	4.28	3.64	3.21	Inches	
MIN.	1.50	1.67	1.93	2.08	3.04	3.60	4.28	4.20	3.83	3.04	2.21	1.76	1.50	Inches	

Comments: Measured Thickness: 0.631 @ theta of 248 deg with an axial position of 6.03 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9/25/02 Analyzed by: N/A Date:

9/26/02


FRAMATOME ANP
Nozzle 15 Profile
Inches
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
Degrees
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1
Uphill / Downhill demarcation

CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 16		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2268-08.00.15 -08.31.53 A0

Calibration Setup:
Initial Calibration File: A2268-03.40.41
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = -.7 Scan Start: θ = -5 Scan Stop: Z = 7.96 Scan Stop: θ = 365
Index Increment: 3°

Channel	Angle	Serial No.	Comments
1	50°L	50416CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:
Very limited distance from weld toe to end of Nozzle. Chamfer is on ID wall surface.

Analyzed by: [signature] Level: III Date: 9/25/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

9/26/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	16
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	330	End of Noz. (in.):	0.64	Probe Serial No.'s:	Ch 1	S0416CN	Ch 6 n/a
Axial Scan Start:	deg @	" Stop:	deg @	" Setup:	Ch 2	n/a	Ch 7 n/a
Files:					Ch 3	n/a	Ch 8 n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	365 deg @ 7.97 "	Setup: 3	Ch 4	n/a	Ch 9 n/a
Files:	A2268_08.00.05, A2268_08.31.53	Cal Block S/N:	60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	330	360	30	60	90	120	150	180	210	240	270	300	330	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	Inches	
MAX.	2.96	2.92	3.43	4.00	4.77	5.24	5.48	5.42	5.17	4.61	3.96	3.32	2.96	Inches	
MIN.	1.35	1.29	1.64	2.09	3.18	3.79	4.17	4.12	3.72	3.00	2.00	1.42	1.35	Inches	

Comments: Measured Thickness: 0.62 @ theta of 34 deg with an axial position of 4.84 Limited Scan? (Y/N): n

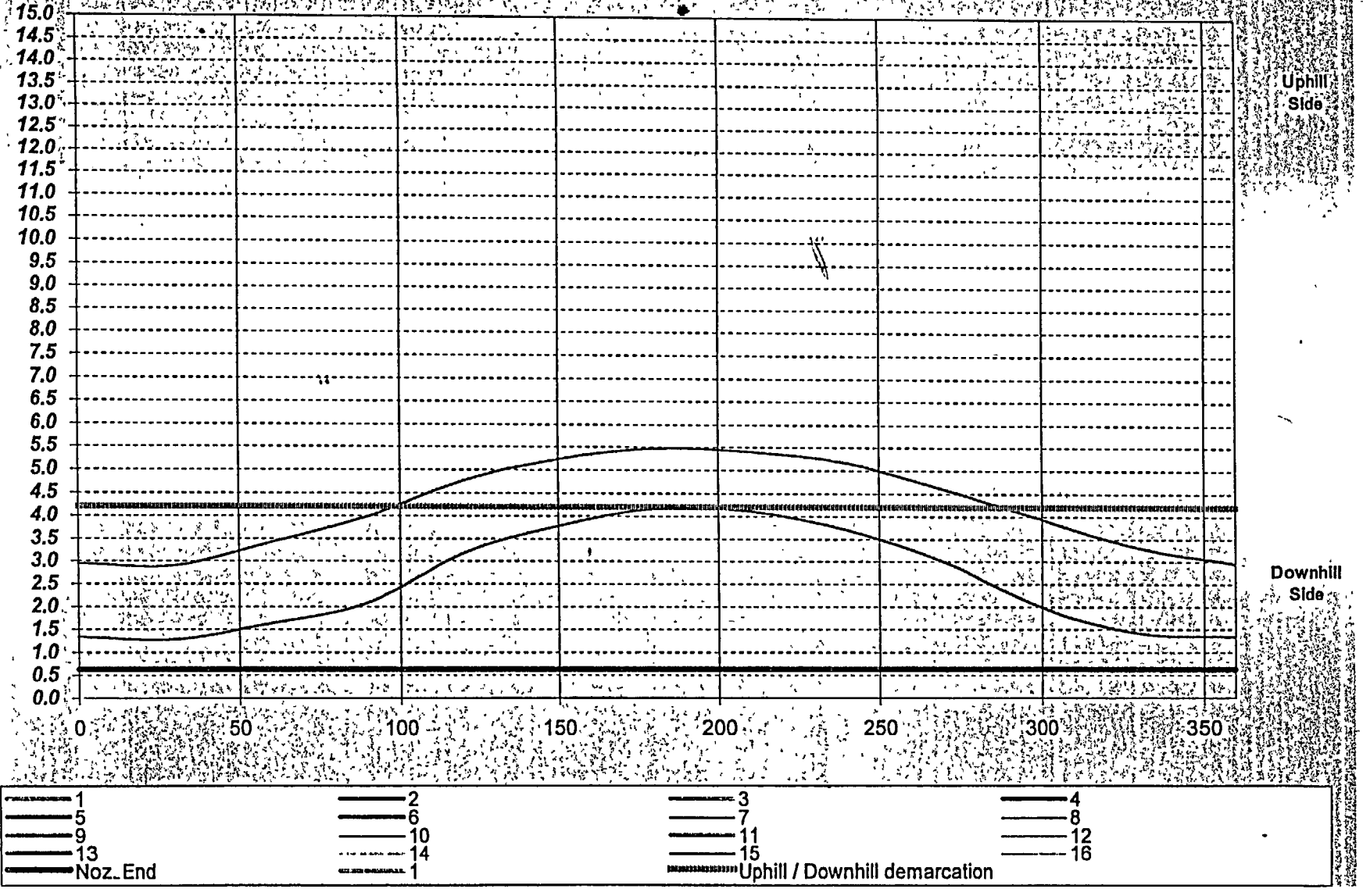
Periphery nozzle. Distance to end of nozzle is 0.58" downhill side. Nozzle also has chamfer on ID surface.

Analyzed by: [signature] Date: 9/25/02 Analyzed by: N/A Date:

@ 9/26/02

FRAMATOME ANP

Nozzle 16 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 17		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2267_20.00.29
A2267_20.25.05

Calibration Setup:
Initial Calibration File: A2267-15.52.04
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = -.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 7.96 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50381CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-24-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

[signature] 09-23-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	17
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	330	End of Noz. (in.):	0.48	Probe Serial No.'s:	Ch 1 S0381CN	Ch 6	n/a
Axial Scan Start:	deg @	" Stop:	deg @	" Setup:	Ch 2 n/a	Ch 7	n/a
Files:					Ch 3 n/a	Ch 8	n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	365 deg @ 7.78 "	Setup:	3 Ch 4 n/a	Ch 9	n/a
Files:	A2267_20.00.29/A2267_20.25.05	Cal Block S/N:	60119300		Ch 5 n/a	Ch 10	n/a

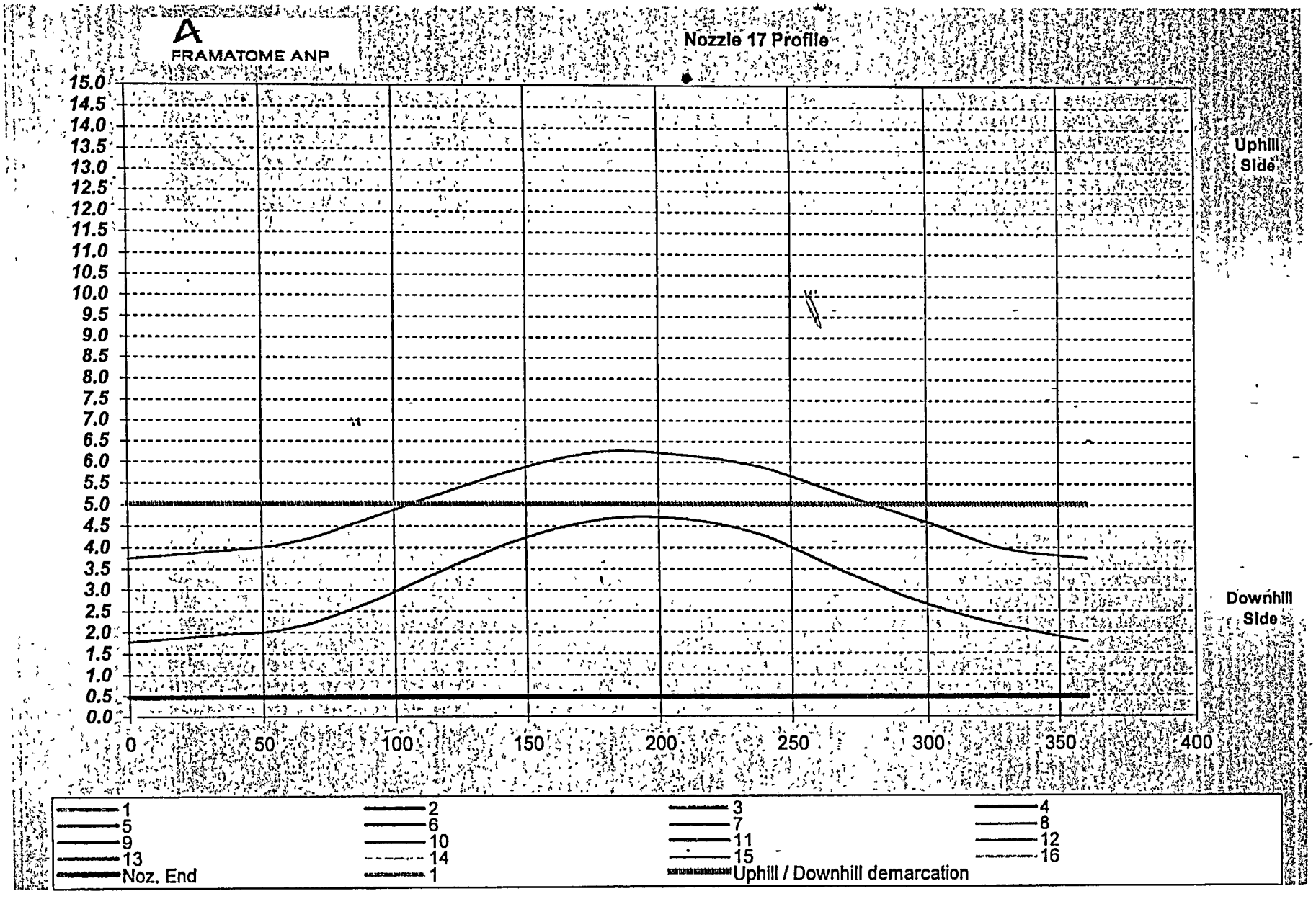
Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	330	360	30	60	90	120	150	180	210	240	270	300	330	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	Inches
MAX.	3.76	3.91	4.11	4.68	5.31	5.90	6.27	6.18	5.88	5.24	4.61	3.98	3.76	Inches
MIN.	1.79	1.94	2.10	2.71	3.52	4.24	4.68	4.68	4.28	3.43	2.67	2.16	1.79	Inches

Comments: Measured Thickness: 0.64 @ theta of 181 deg with an axial position of 3.26 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9/25/02 Analyzed by: N/A Date:

[signature] 09-25-02


FRAMATOME ANP
Nozzle 17 Profile
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
400
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1
Uphill / Downhill demarcation

CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 18		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 PPB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2267_18:17.08

Calibration Setup:
Initial Calibration File: A2267_15.52.04
Final Calibration File: CONTINUED PERFORMANCE 7.5.5.4

Scan Start: Z = -.7" Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 7.78" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50381CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-24-02

Reviewed by: [signature] Level: III Date: 10-4-02

TYPICAL DATA SHEET
FIGURE 5

[signature] 09-25-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	18
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	142	End of Noz. (in.):	0.66	Probe Serial No.'s:	Ch 1	S0381CN	Ch 6 n/a
Axial Scan Start:	[illegible] deg @ [illegible] "	Stop:	[illegible] deg @ [illegible] "	Setup:	[illegible]	Ch 2 n/a	Ch 7 n/a
Files:	[illegible]					Ch 3 n/a	Ch 8 n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	365 deg @ 7.78 "	Setup:	3	Ch 4 n/a	Ch 9 n/a
Files:	A2267_18.17.08/A2267_18.56.20	Cal Block S/N:	60119300			Ch 5 n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	142	172	202	232	262	292	322	352	22	52	82	112	142	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	Inches	
MAX.	3.41	3.63	4.04	4.59	5.22	5.73	5.94	5.83	5.33	4.76	4.09	3.61	3.41	Inches	
MIN.	1.68	1.77	2.05	2.75	3.63	4.24	4.63	4.46	3.63	2.93	2.27	1.73	1.68	Inches	

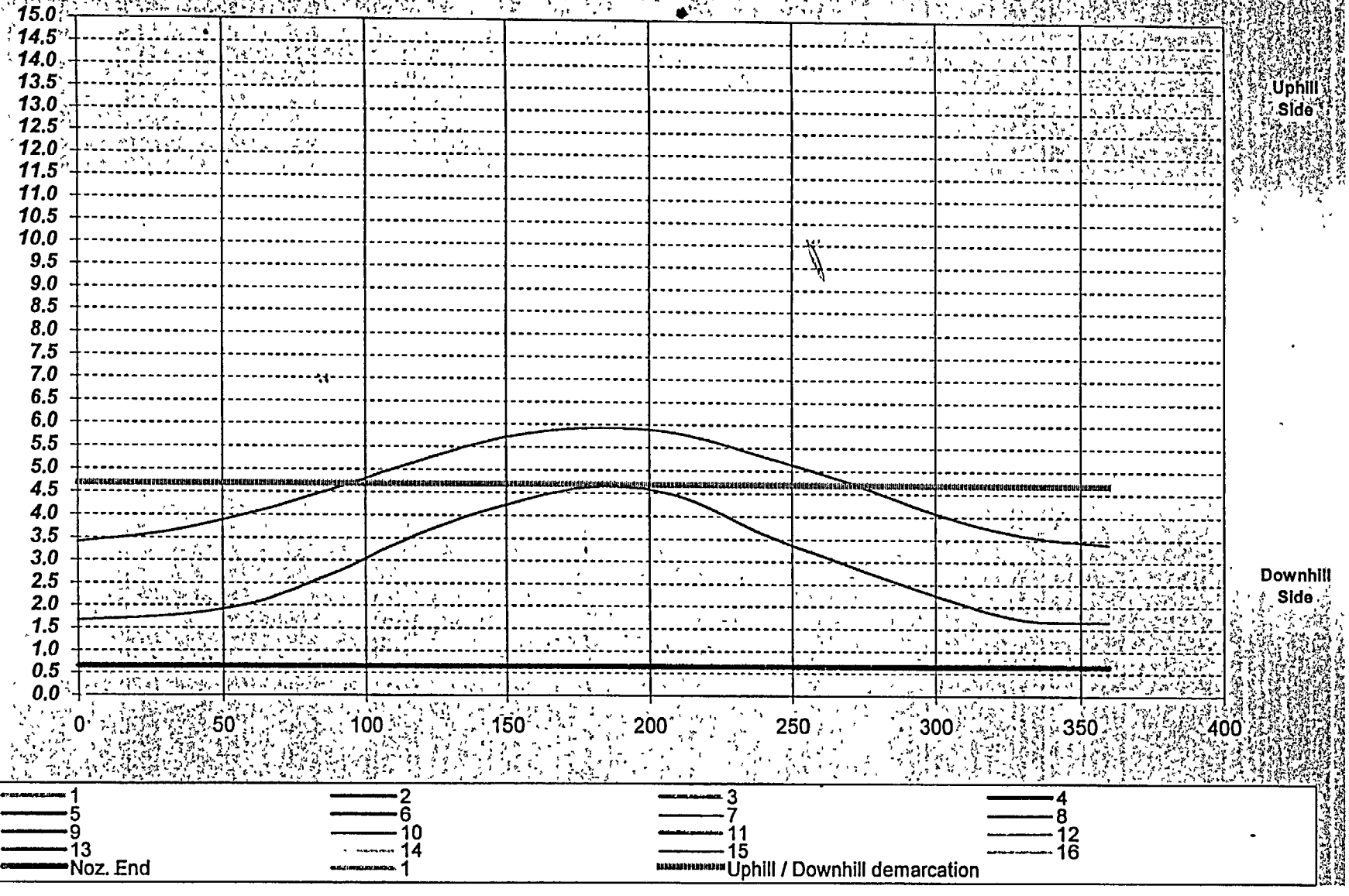
Comments: Measured Thickness: 0.63 @ theta of 305 deg with an axial position of 6.99 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9/25/02 Analyzed by: N/A Date:

LJ 09-25-02

FRAMATOME ANP

Nozzle 18 Profile



CIRC BLADE

FRAMATOME ANP	Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 19		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.0 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1	Calibration Setup:
Scan File No.: A2269-09~~.30~~.20 A2269-09.51.35	Initial Calibration File: A2269-00.14.23 Final Calibration File: CONTINUED PERFORMANCE 23.3.4
Scan Start: Z = +0.7 Scan Start: θ = -5 Index Increment: 3°	Scan Stop: Z = 7.78 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50379CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/26/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET [signature] 9-26-02
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1 - -	Nozzle: - 19
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625

Downhill Side of Nozzle (deg.):	314	End of Noz. (in.):	0.41	Probe Serial No.'s:	Ch 1	S0379CN	Ch 6 n/a
Axial Scan Files:	Start: [illegible] deg @ [illegible]	Stop: [illegible] deg @ [illegible]	Setup: [illegible]		Ch 2	n/a	Ch 7 n/a
					Ch 3	n/a	Ch 8 n/a
Circ. Scan Files:	Start: -5 deg @ -0.7 "	Stop: 365 deg @ 7.78 "	Setup: 3		Ch 4	n/a	Ch 9 n/a
	A2269_09.30.20 / A2269_09 51.35	Cal Block S/N:	60119300		Ch 5	n/a	Ch 10 n/a

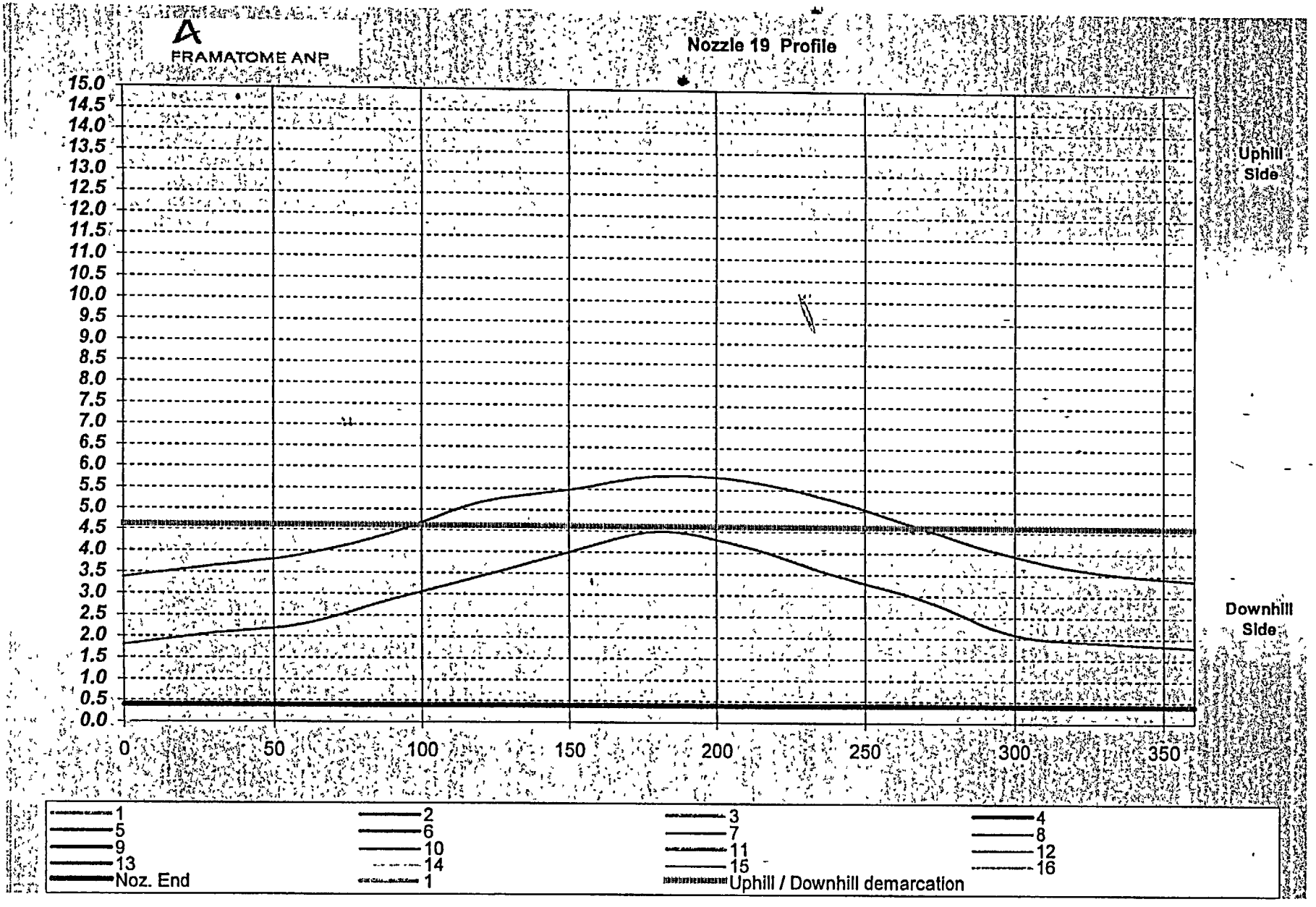
Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	314	344	14	44	74	104	134	164	194	224	254	284	314	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	Inches	
MAX.	3.39	3 65	3 91	4 44	5.18	5.49	5.83	5 73	5.27	4.59	3 96	3 56	3.39	Inches	
MIN.	1.81	2 08	2.29	2.88	3 43	4.00	4.50	4.15	3.50	2.91	2.10	1.92	1.81	Inches	

Comments: Measured Thickness: 0 617 @ theta of 240 deg with an axial position of 6.31 Limited Scan? (Y/N): n

Analyzed by: [illegible] Date: 9/26/02 Analyzed by: N/A Date:

WL 09-26-02


FRAMATOME ANP
Nozzle 19 Profile
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1
Uphill / Downhill demarcation

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach Unit: 1
Penetration No.: 20	Procedure: 54-ISI-100-09

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 (2)

Cable Length: 50' Type: R6-174 # Intermediate Connectors: 1

Calibration Block: 601930E1

Calibration Setup:
Initial Calibration File: A2269-00.14.23
Final Calibration File: CONTINUED PERFORMANCE 7.33.4

Scan File No.: A2269-16.53.41, -17.06.39, -17.09.37, 17.45.31, -18.08.35, -18.39.50

Scan Start: Z = -7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 7.78" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	5037ACN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-26-02

Reviewed by: [signature] Level: III Date: 10-4.02

TYPICAL DATA SHEET
FIGURE 5

9/27/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle:	20
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness:	0.625
Downhill Side of Nozzle (deg.): 295	End of Noz. (in.): 0.25	Probe Serial No.'s:	Ch 1 S0379CN	Ch 6	n/a
Axial Scan Files: Start: deg @ Stop: deg @ Setup:			Ch 2 n/a	Ch 7	n/a
			Ch 3 n/a	Ch 8	n/a
Circ. Scan Files: Start: -5 deg @ -0.7 " Stop: 365 deg @ 7.78 " Setup: 3			Ch 4 n/a	Ch 9	n/a
A2269_16 53 41/17 06 39/17 09 37/17 43 31/18 02.35/18 34 30	Cal Block S/N: 60119300		Ch 5 n/a	Ch 10	n/a

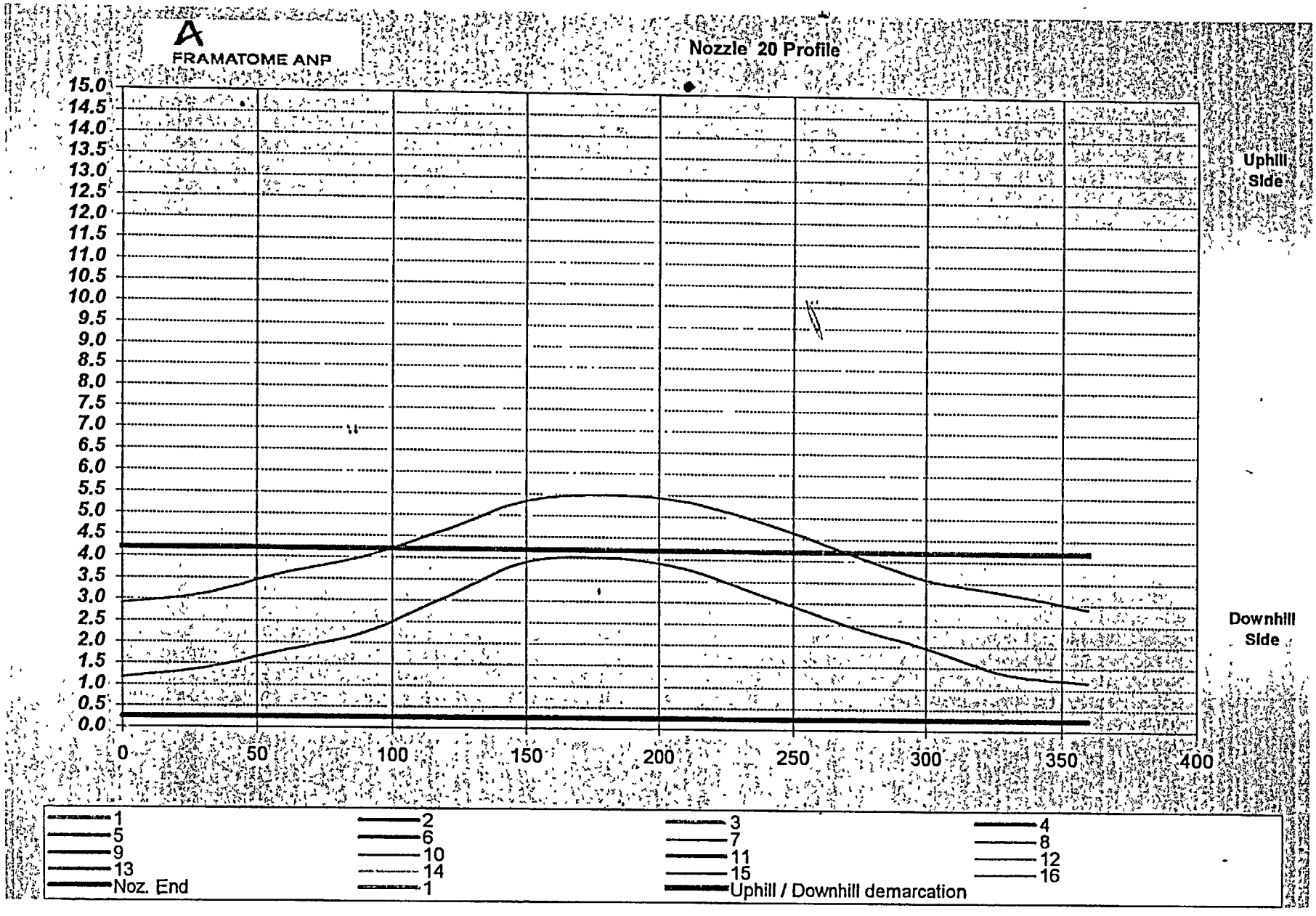
Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	295	325	355	25	55	85	115	145	175	205	235	265	295	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	Inches	
MAX.	2.90	3.12	3.62	4.01	4 65	5 34	5.50	5 36	4 87	4.21	3.58	3.26	2 90	Inches	
MIN.	1.16	1.38	1 81	2.25	3 08	3 91	4 03	3.79	3.16	2.51	1.97	1.36	1.16	Inches	

Comments: Measured Thickness: 0 65 @ theta of 282 deg with an axial position of 5 67 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-26-02 Analyzed by: N/A Date:

9/27/02


FRAMATOME ANP
Nozzle 20 Profile
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
400
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1
Uphill / Downhill demarcation

CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 21		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: -14.00.03 -14.10.46 -14.34.38 -14.41.02 -14.50.12
A2269-

Calibration Setup:
Initial Calibration File: ~~50379~~ A2269-00.14.23
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = 0 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 7.65 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50379CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/26/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

9/27/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	21
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	312	End of Noz. (in.):	0.22	Probe Serial No.'s:	Ch 1 S0379CN	Ch 6	n/a
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]					Ch 2 n/a	Ch 7	n/a
Files: [illegible]					Ch 3 n/a	Ch 8	n/a
Circ. Scan Start: -5 deg @ -0.7 " Stop: 365 deg @ 7.78 " Setup: 3					Ch 4 n/a	Ch 9	n/a
Files: A226914.50.12, _14.10 46, _14.00.03, [illegible]		Cal Block S/N:	60119300		Ch 5 n/a	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

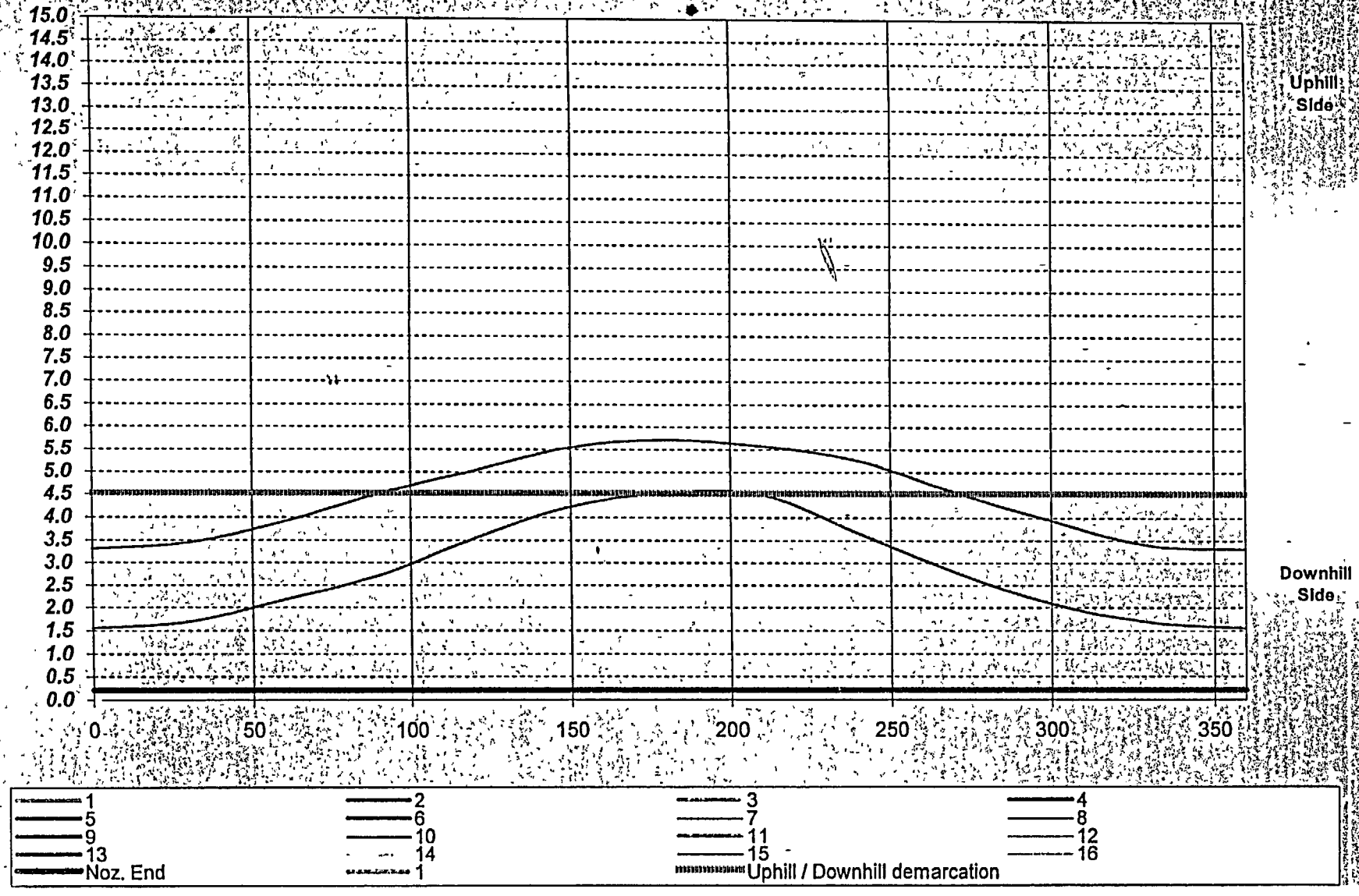
WELD PROFILE															
Data Loc.	312	342	12	42	72	102	132	162	192	222	252	282	312	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	Inches	
MAX.	3.32	3 45	3 91	4.52	5 03	5.55	5.73	5.59	5 27	4.57	3 96	3.41	3.32	Inches	
MIN.	1.57	1.70	2.18	2.73	3.54	4.24	4.55	4.50	3 67	2 80	2.10	1.70	1.57	Inches	

Comments: Measured Thickness: 0.653 @ theta of 302 deg with an axial position of 5.59 Limited Scan? (Y/N): n

Analyzed by: [signature] Date: 9/26/02 Analyzed by: N/A Date:

FRAMATOME ANP

Nozzle 21 Profile



CIRC BLADE.

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 22		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193OE1

Scan File No.: A2269-07.45.19
A2269-05.51.51

Calibration Setup:
Initial Calibration File: A2269-00.14.23
Final Calibration File: CONTINUED PERFORMANCE

Scan Start: Z = -0.7 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 8.16 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50379CN	

Results: No Recordable Indications | Leak Path Detected
Axial Flaws Detected | Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/26/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

wf 09-26-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	22
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	331	End of Noz. (in.):	0.35	Probe Serial No.'s:	Ch 1 S0379CN	Ch 6	n/a
Axial Scan Files:	Start: deg @ "	Stop: deg @ "	Setup:		Ch 2 n/a	Ch 7	n/a
					Ch 3 n/a	Ch 8	n/a
Circ. Scan	Start: -5 deg @ -0.7 "	Stop: 365 deg @ 8.16 "	Setup: 3		Ch 4 n/a	Ch 9	n/a
Files:	A2269_07.45.19 / A2269_05.51.51	Cal Block S/N:	60119300		Ch 5 n/a	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	331	1	31	61	91	121	151	181	211	241	271	301	331	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	Inches	
MAX.	3.34	3 30	3 84	4.46	5 01	5 51	5.72	5.60	5.21	4 69	4.14	3 66	3.34	Inches	
MIN.	1.86	1.74	1.90	2.59	3.48	4 07	4.51	4.39	3 87	3.14	2.38	1.97	1.86	Inches	

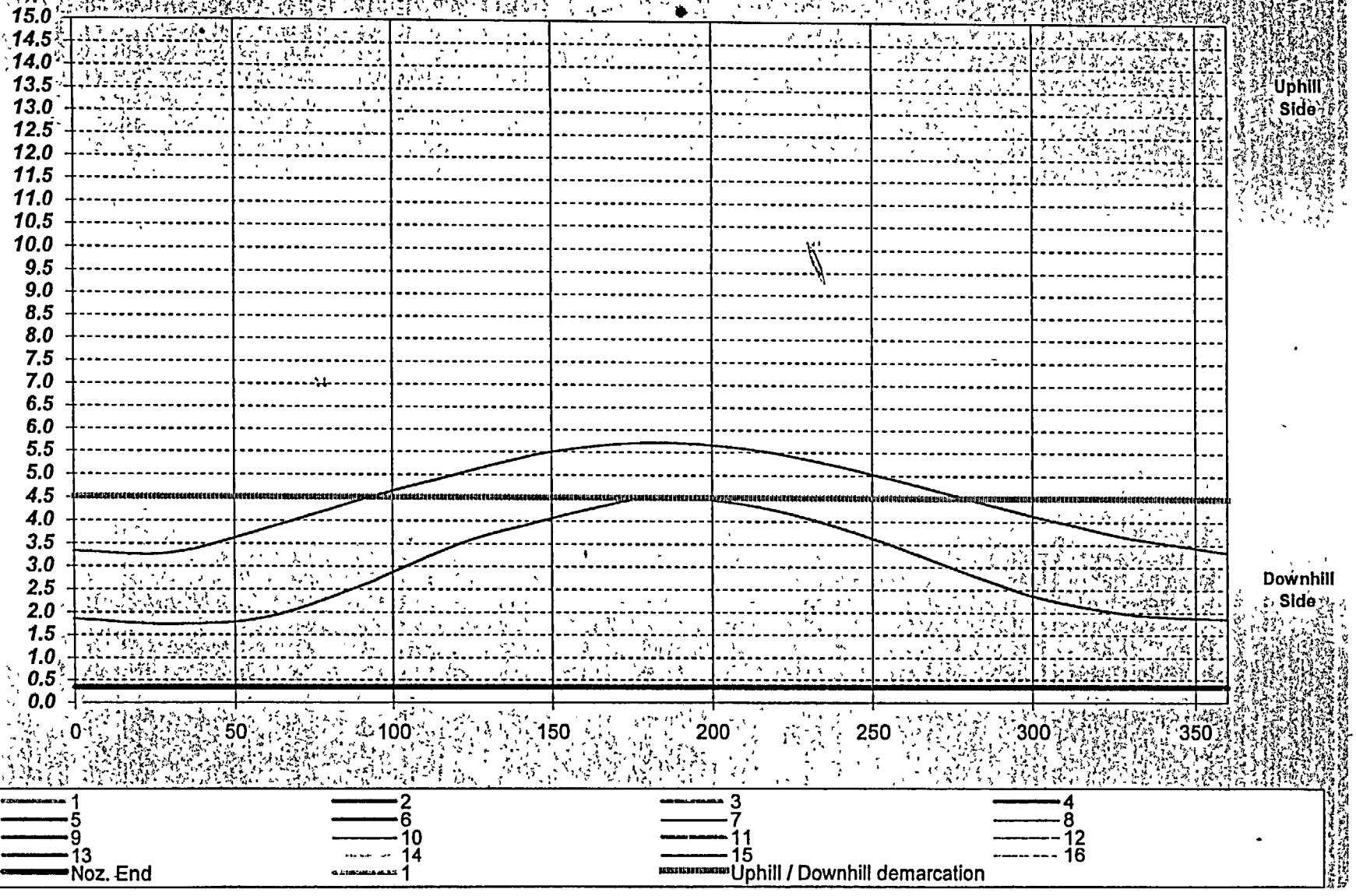
Comments: Measured Thickness: 0.653 @ theta of 265 deg with an axial position of 6.73 Limited Scan? (Y/N): n

Analyzed by: [signature] Date: 9/26/02 Analyzed by: N/A Date:

[signature] 09-26-02

FRAMATOME ANP

Nozzle 22 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 23		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.8~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601/930E1

Scan File No.: A2269-10.49.58 11.12.50 A2269-11.02.04 A2269-10.35.11 11.16.38

Calibration Setup:
Initial Calibration File: A2269 00.14.23
Final Calibration File: CONTINUED PERFORMANCE

Scan Start: Z = -0.7" Scan Start: θ = -5.0
Index Increment: 3°

Scan Stop: Z = 7.96/ 6.0" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50379CN	

Results:	No Recordable Indications	Leak Path Detected
	~~Axial Flaws Detected~~	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/26/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET [signature] 09-27-02
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	23
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	290	End of Noz. (in.):	0.17	Probe Serial No.'s:	Ch 1	S0379CN	Ch 6 n/a
Axial Scan Start:	deg @ "	Stop:	deg @ "	Setup:	Ch 2	n/a	Ch 7 n/a
Files:					Ch 3	n/a	Ch 8 n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	365 deg @ 7.96 "	Setup: 3	Ch 4	n/a	Ch 9 n/a
Files:	A2269_10.35.11,_10.49.58,_11.02.04,_11.12 50,_11.16 3	Cal Block S/N:	60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	290	320	350	20	50	80	110	140	170	200	230	260	290	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	Inches
MAX.	3.43	3.63	4.12	4.79	5 42	5.73	5.77	5 64	5.26	4.59	3.96	3.56	3 43	Inches
MIN.	1.93	2.00	2.54	3 36	4.10	4.63	4.86	4.37	3 76	3.12	2.42	2.09	1.93	Inches

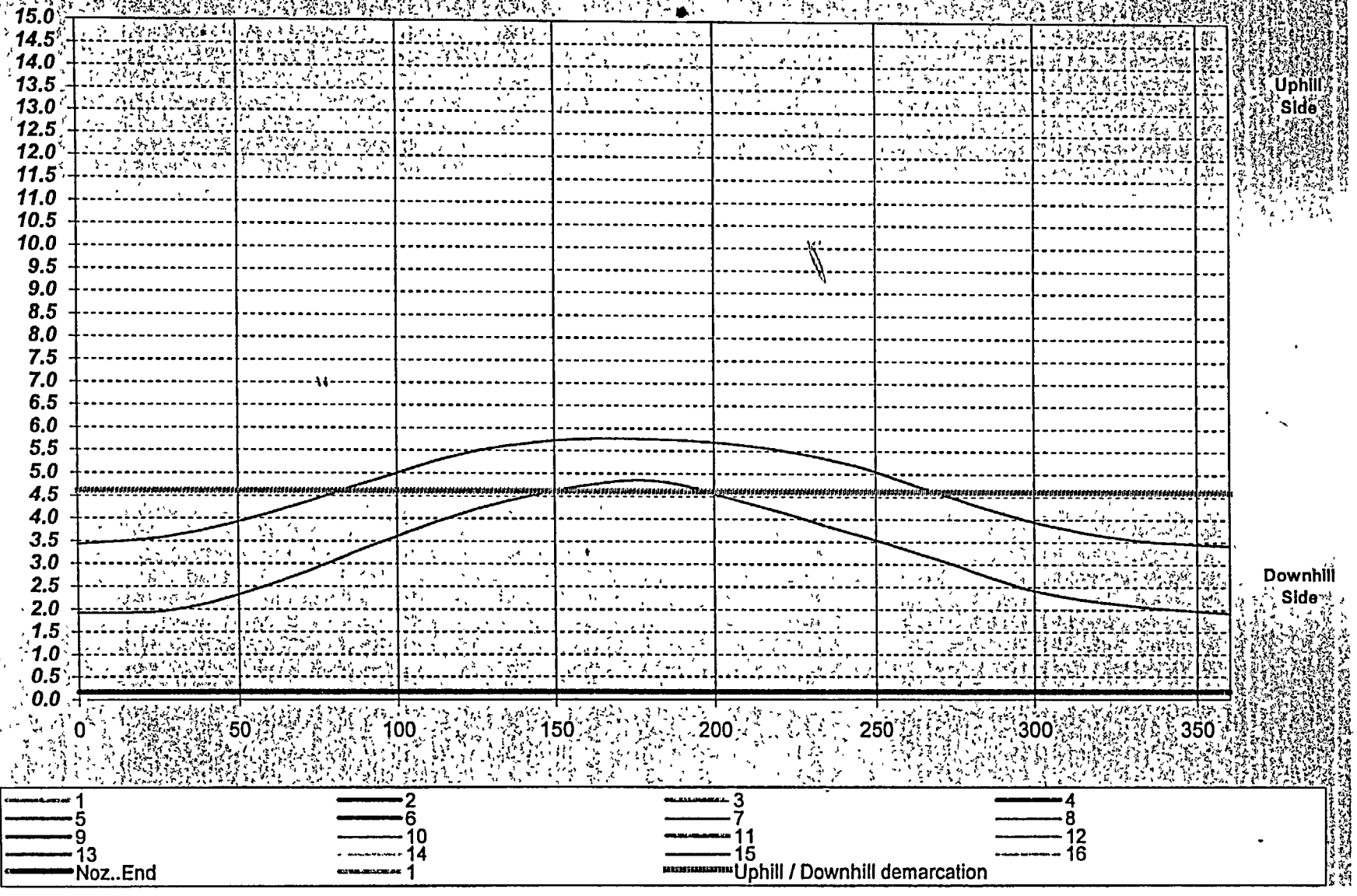
Comments: Measured Thickness: 0 617 @ theta of 310 deg with an axial position of 5.39 Limited Scan? (Y/N): n

Analyzed by: [illegible] Date: 9/26/02 Analyzed by: N/A Date:

[illegible] 09-27-02

FRAMATOME ANP

Nozzle 23 Profile



FRAMATOME ANP	Reactor Head Penetration Ultrasonic Examination Data Sheet	
Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 24	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193OE1

Scan File No.: A2269-15.29.12-15.42.09, -15.49.07, -16.17.56, 16.18.55, -16.38.00

Calibration Setup:
Initial Calibration File: A2269-00.14.23
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = 7.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 7.96" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50379CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-26-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

9/27/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle: 24
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in)	ID: 2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg:):	320	End of Noz. (in.): 0.17	Probe Serial No.'s:	Ch 1 S0379CN	Ch 6 n/a
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] Setup: [illegible]				Ch 2 n/a	Ch 7 n/a
Files: [illegible]				Ch 3 n/a	Ch 8 n/a
Circ. Scan Start: -5 deg @ -0.7 " Stop: 365 deg @ 7.96 " Setup: 3				Ch 4 n/a	Ch 9 n/a
Files:	A2269_15 29.12/15 42.09/15.49.07/_16.38 00	Cal Block S/N:	60119300	Ch 5 n/a	Ch 10 n/a

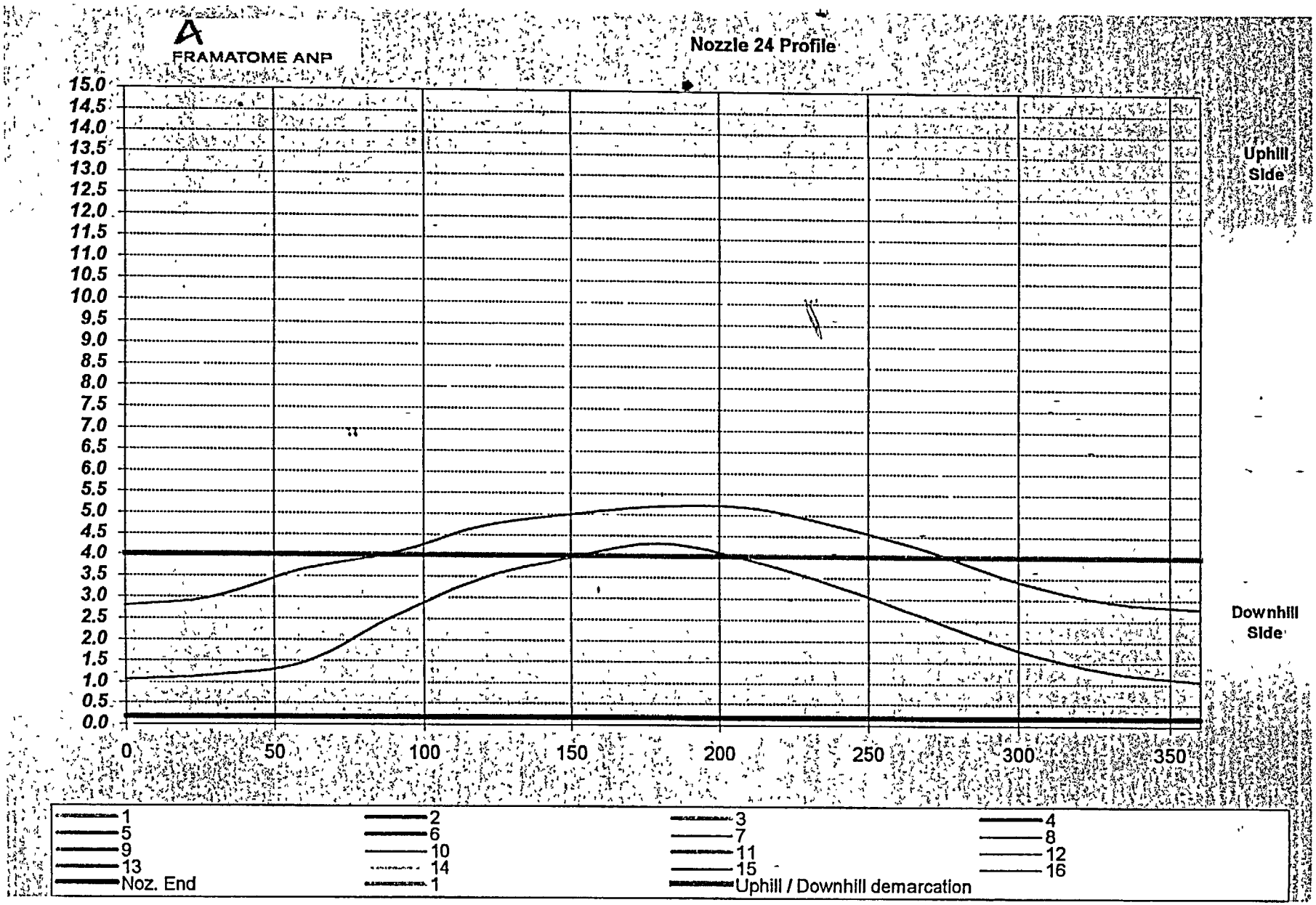
Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	320	350	20	50	80	110	140	170	200	230	260	290	320	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	Inches	
MAX.	2 80	3 00	3 66	4.05	4.70	5.00	5 21	5.19	4.75	4.17	3.43	2.96	2 80	Inches	
MIN.	1.06	1.17	1.47	2.54	3.45	3.96	4.32	3 92	3.30	2.56	1.80	1.29	1 06	Inches	

Comments: Measured Thickness: 0 65 @ theta of 81 deg with an axial position of 5 97 Limited Scan? (Y/N): n

Analyzed by: [signature] Date: 9-26-02 Analyzed by: N/A Date:

9/27/02


FRAMATOME ANP
Nozzle 24 Profile
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1
Uphill / Downhill demarcation

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach Unit: 1
Penetration No.: 25	Procedure: 54-ISI-100-09

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1

Scan File No.: A2269_12.53.28, 13.09.18, 13.31.07, 13.34.20

Calibration Setup:
Initial Calibration File: A2269_00.14.23
Final Calibration File: CONTINUED PERFORMANCE 7.7.3.4

Scan Start: Z = -.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 7.96 Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50379CN	

Results:	~~No Recordable Indications~~	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-26-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

9/27/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1	Nozzle: 25
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625

Downhill Side of Nozzle (deg.): 302 End of Noz. (in.): 0.3 Probe Serial No.'s: Ch 1 S0379CN

Axial Scan Files: Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]

Circ. Scan Files: Start: -5 deg @ -0.7 " Stop: 365 deg @ 7.96 " Setup: 3

A2269_12 53 23/13.09.18/13 31 07/13.34.20 Cal Block S/N: 60119300

Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8	Ch 9	Ch 10
S0379CN	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	302	332	2	32	62	92	122	152	182	212	242	272	302	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	Inches
MAX.	3 09	3.23	3 61	4.25	4.84	5 33	5 57	5 46	5.13	4.48	3.94	3 34	3 09	Inches
MIN.	1.38	1.52	1.71	2.47	3.30	3 92	4.23	4.10	3 50	2 83	2.09	1.58	1.38	Inches

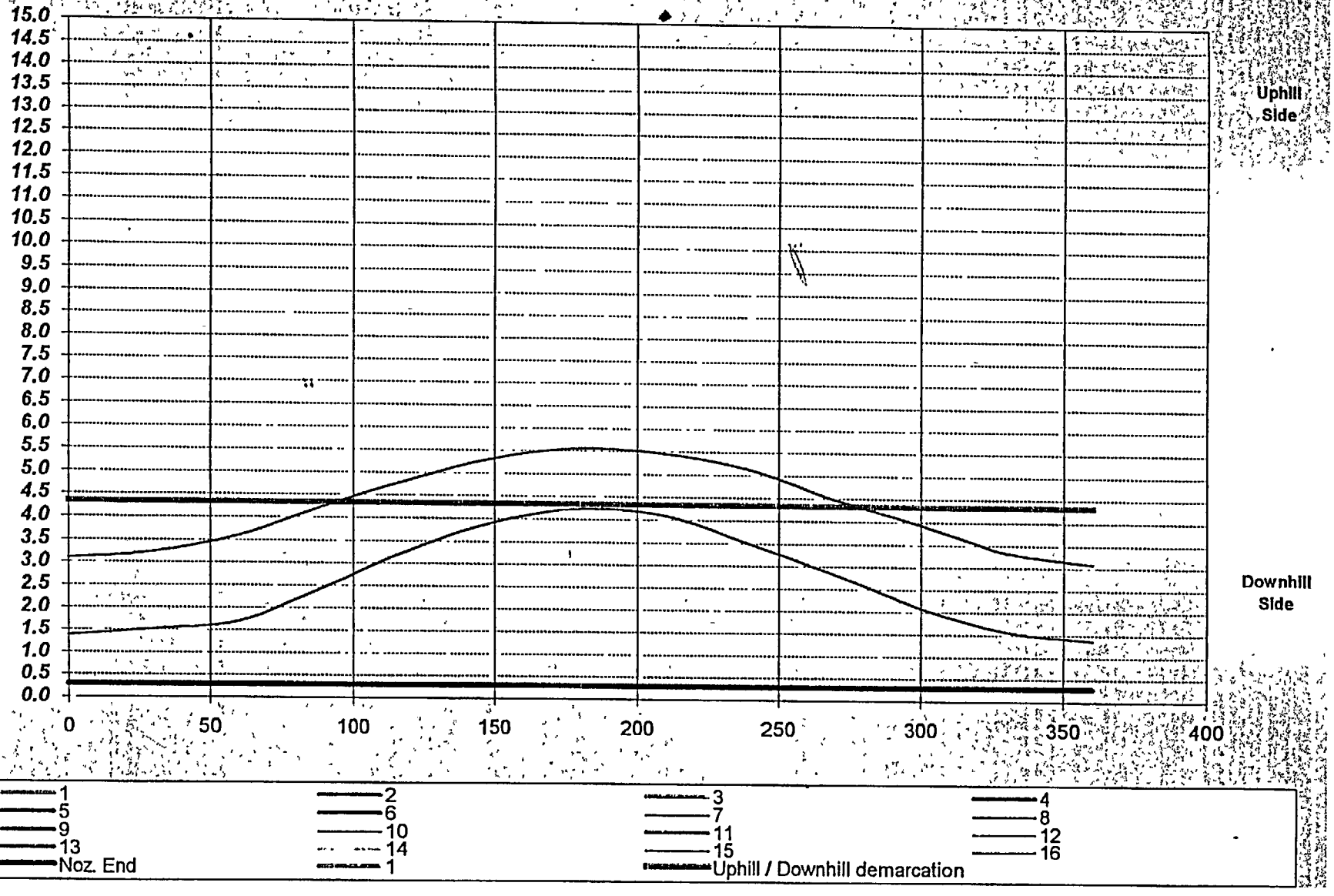
Comments: Measured Thickness: 0 65 @ theta of 278 deg with an axial position of 5.13 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-26-02 Analyzed by: N/A Date:

9/27/02

FRAMATOME ANP

Nozzle 25 Profile



FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 26		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 Ø

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1

Scan File No.: A2271_01.52.35
A2271-02.08.38

Calibration Setup:
Initial Calibration File: A2271-00.35.06
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = .0 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 8.55 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50359NF	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments: 78% Complete
Limited from 220 to 301

Analyzed by: [signature] Level: II Date: 9-28-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

09-30-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	26
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625

Downhill Side of Nozzle (deg.): 59 End of Noz. (in.): 0 Probe Serial No.'s:

Axial Scan Start: -5 deg @ 0 " Stop: 8.56 deg @ 365 Setup: 4

Files: A2271_01.32.35/A2271_02.08.38

Circ. Scan Start: deg @ Stop: deg @ Setup:

Files: Cal Block S/N: 60119300

Ch 1	S0359NF	Ch 6	n/a
Ch 2	n/a	Ch 7	n/a
Ch 3	n/a	Ch 8	n/a
Ch 4	n/a	Ch 9	n/a
Ch 5	n/a	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
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12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	59	89	119	149	179	209	239	269	299	329	359	29	59	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Inches
MAX.	2.83	3.03	3.36	4.01	4.73	5.36				4.21	3.60	3.03	2.83	Inches
MIN.	0.77	0.89	1.20	2.33	3.05	3.94				2.62	1.49	1.03	0.77	Inches

Comments: Measured Thickness: 0.69 @ theta of 331 deg with an axial position of 5.38 Limited Scan? (Y/N): Y Document Limit

Limited scan between 220 to 301 degrees.

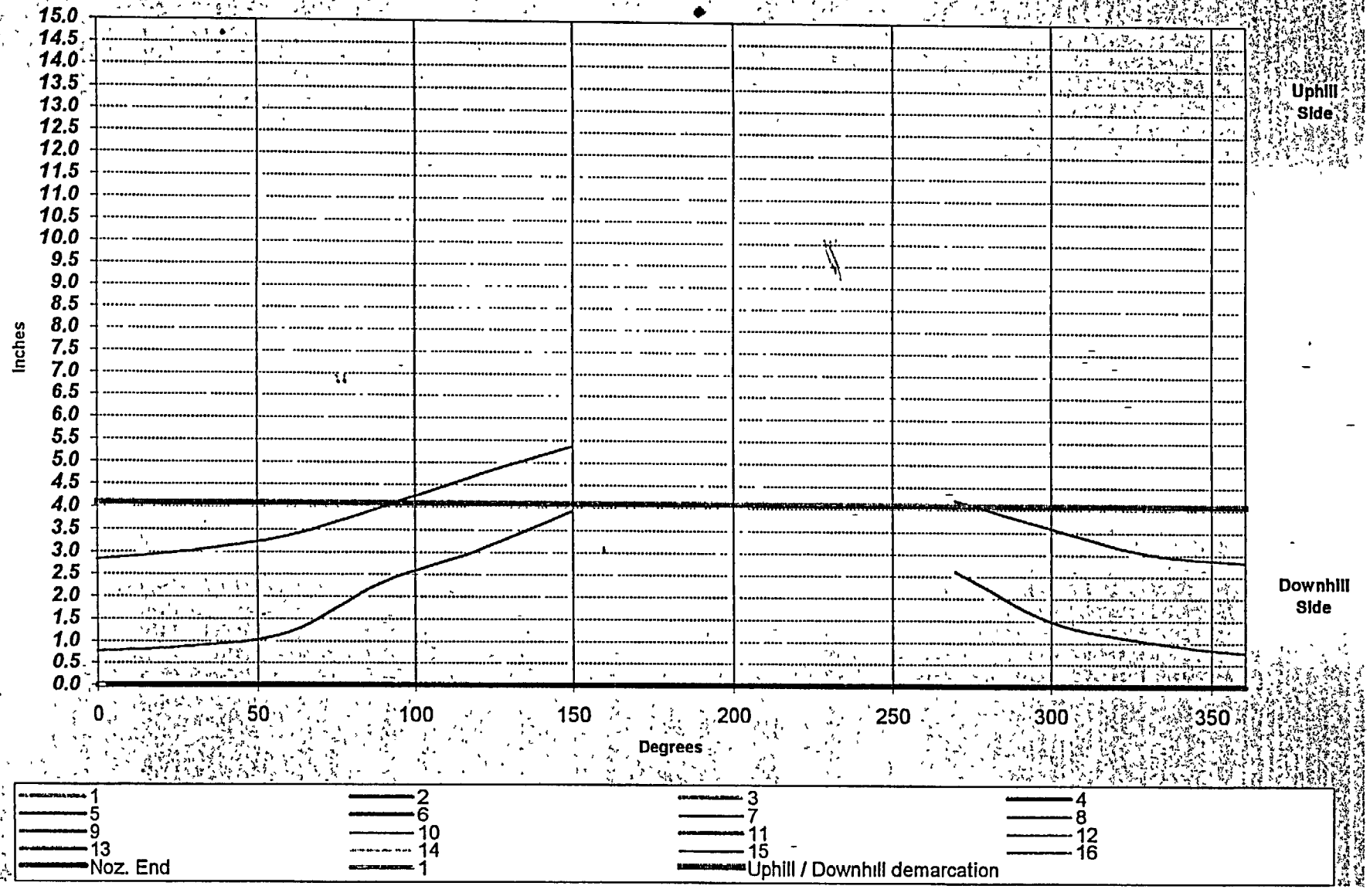
78% complete

Analyzed by: [signature] Date: 9-28-02 Analyzed by: N/A Date:

[signature] 09-30-02

FRAMATOME ANP

Nozzle 26 Profile



FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach Unit: 1
Penetration No.: 27	Procedure: 54-ISI-100-09

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: ~~-0.7"~~ See below

Calibration Setup:
Initial Calibration File: A2272-04.45.40
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = -0.7" Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 8.47" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	S0429CN	Limits as follows
			174° to 205° = 31°
			211° to 236° = 25°
			264° to 332 = 68°
			total: 124°
			66% Coverage

Results:	No Recordable Indications	~~Leak Path Detected~~
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/29/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

			Lateral	~~L~~	~~S~~
A2272-05.27.26	-5 to 143	332 to 353	(OK)	~~OK~~	N
A2272-05.49.03	137 to 173		(OK)	(OK)	~~L~~
A2272-06.06.52	205 to 210		~~(OK)~~	(OK)	N
A2272-06.21.36	241 to 268		(OK)		

09-29-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle: 27
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	0	End of Noz. (in.): 0.17	Probe Serial No.'s:	Ch 1 S0429CN	Ch 6 n/a
Axial Scan Start: [illegible] deg @ [illegible]		Stop: [illegible] deg @ [illegible]	Setup: [illegible]	Ch 2 n/a	Ch 7 n/a
Files: [illegible]				Ch 3 n/a	Ch 8 n/a
Circ. Scan Start: -5 deg @ -0.7 "		Stop: -365 deg @ 8.53 "	Setup: 3	Ch 4 n/a	Ch 9 n/a
Files: A2272_05 27.26 / _05 49 03 / _06 06 52 / _06 21.36		Cal Block S/N: 60119300		Ch 5 n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	Inches
MAX.	3 67	3.85	4.35	5.00	5.67	6.22			5 62	4 92			3.73	Inches
MIN.	1.52	1.57	2.05	2.98	4.08	4.75			4 25	3.40			1.47	Inches

Comments: Measured Thickness: 0 609 @ theta of 29 deg with an axial position of 5 04 Limited Scan? (Y/N): Y Document Limit

Limited scan as follows: 174 to 205 deg / 211 to 236 deg / 264 to 332 deg / total limitation 124 deg

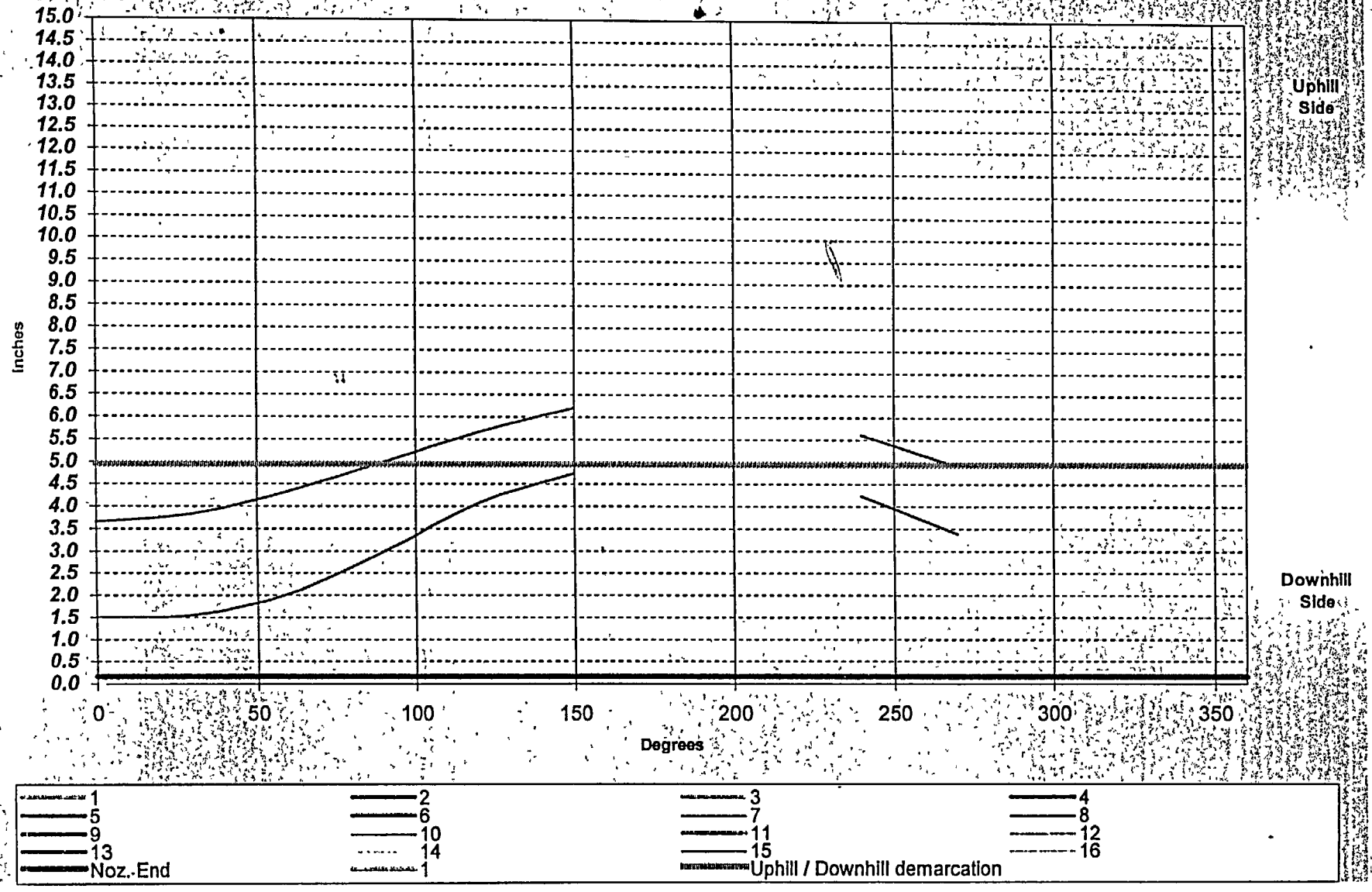
66 % coverage

Analyzed by: [signature] Date: 9/29/02 Analyzed by: N/A Date:

[signature] 09-29-02

FRAMATOME ANP

Nozzle 27 Profile



FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach Unit: 1
Penetration No.: 28	Procedure: 54-151-100-09

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 ⓐ

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2272-20.40.29

Calibration Setup:
Initial Calibration File: ~~A2269-00.14.29~~ 9/28 A2272-20.08.58
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = 0 Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 8.56 Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50440CN	

Results: ~~No Recordable Indications~~ Leak Path Detected
Axial Flaws Detected Circumferential Flaws Detected

Comments: Limited scan from 89° to 261°
52% Coverage

Analyzed by: [signature] Level: II Date: 9-~~26~~ 29-02 9/28

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

09-30-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle:	28
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness:	0.625
Downhill Side of Nozzle (deg.): 318	End of Noz. (in.): 0	Probe Serial No.'s:	Ch 1 S0440CN	Ch 6	n/a
Axial Scan Files: Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]			Ch 2 n/a	Ch 7	n/a
			Ch 3 n/a	Ch 8	n/a
Circ. Scan Files: A2272_20 40.29 Start: 0 deg @ -5 " Stop: 8.56 deg @ 365 " Setup: 3	Cal Block S/N: 60119300		Ch 4 n/a	Ch 9	n/a
			Ch 5 n/a	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	318	348	18	48	78	108	138	168	198	228	258	288	318	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Inches
MAX.	2.54	2.78	3.38	4.04	4.72							2.74	2.54	Inches
MIN.	0.75	0 86	1.35	2.07	2 98							0 86	0.75	Inches

Comments: Measured Thickness: 0 67 @ theta of 80 deg with an axial position of 6.24 Limited Scan? (Y/N): Y Document Limit

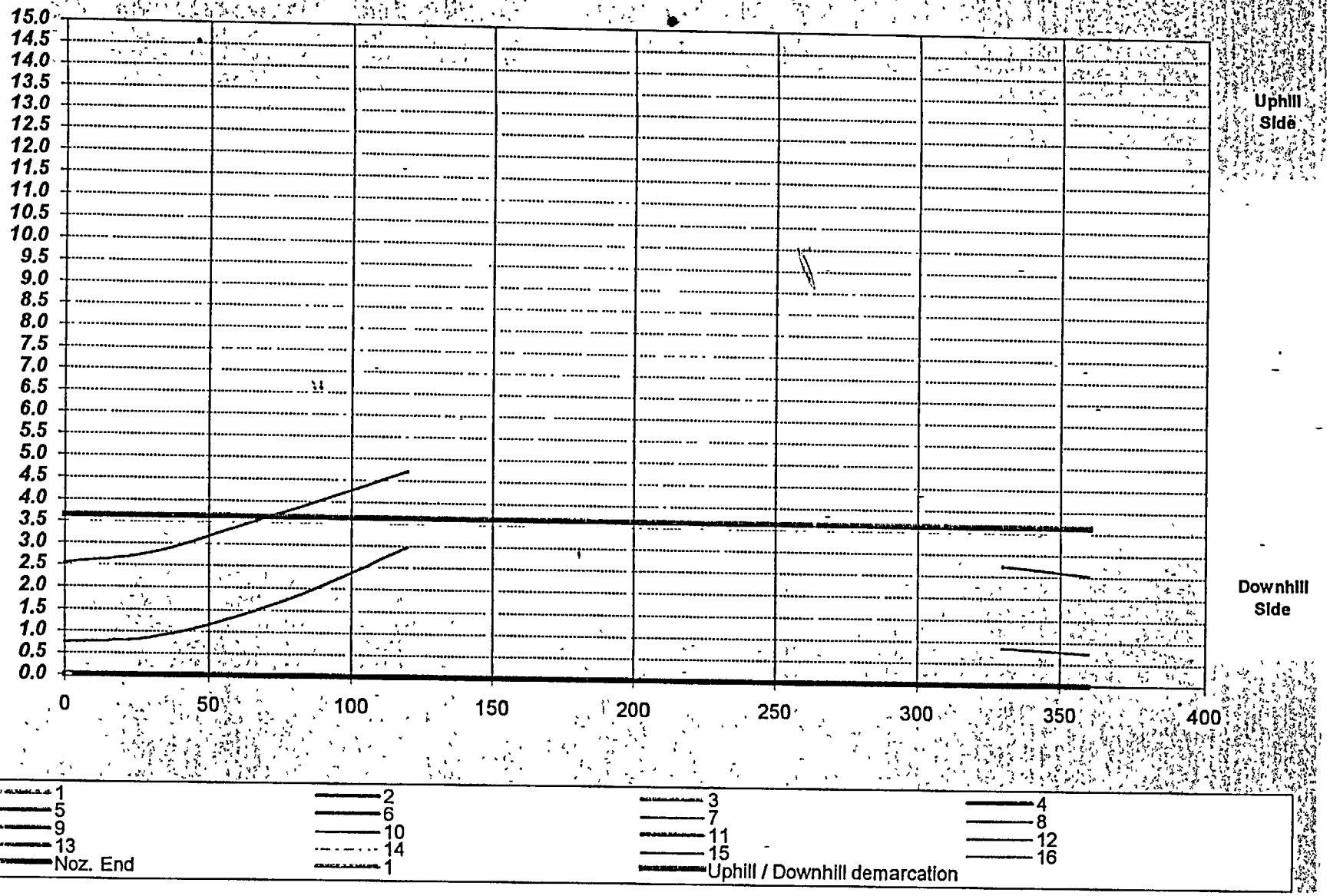
Limitation from 89 to 261 degrees.

52% coverage.

Analyzed by: [signature] Date: 9-29-02 Analyzed by: N/A Date:

[signature] 09-30-02

FRAMATOME ANP



FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Limitation Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	28
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)		ID:	2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	318	End of Noz. (in.):	0	Probe Serial No.'s:	Ch 1	S0440CN	Ch 6 n/a
Axial Scan Start:	deg @	Stop:	deg @	Setup:	Ch 2	n/a	Ch 7 n/a
Files:					Ch 3	n/a	Ch 8 n/a
Circ. Scan Start:	0 deg @ -5 "	Stop:	8.56 deg @ 365 "	Setup:	3	Ch 4 n/a	Ch 9 n/a
Files:	A2272_20 40.29	Cal Block S/N:	60119300			Ch 5 n/a	Ch 10 n/a

Acquisition Instructions:

1. Define the extents of the limitation.
2. Be very descriptive on what caused the limitation and how the limitation occurred. For example, current limit activated, probe stalled on upward stroke, rotational stall occurred.

1	Stopped scan when gap became to tight to scan.
2	Scan limited from from 89 to 261degrees. A total of 172 degrees.
3	52% coverage
4	
5	
6	
7	
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Acquired By: [signature] Date: 9-29-02

[signature] 09-30-02

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach Unit: 1
Penetration No.: 29	Procedure: 54-ISI-100-09

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2270-03.07.29
A2270-03.33.04

Calibration Setup:
Initial Calibration File: A 2269-00.14.23
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = -.7" Scan Start: θ = 5°
Index Increment: 3°

Scan Stop: Z = 8.52" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50375CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-26-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

[signature] 9-26-02
(7) 9/29/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1	Nozzle: 29
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	229	End of Noz. (in.):	0.35	Probe Serial No.'s:	Ch 1 S0375CN / Ch 6 n/a
Axial Scan Files:	Start: [illegible] deg @ [illegible] "	Stop: [illegible] deg @ [illegible] "	Setup: [illegible]		Ch 2 n/a / Ch 7 n/a
					Ch 3 n/a / Ch 8 n/a
Circ. Scan Files:	Start: -5 deg @ -0.7 "	Stop: 365 deg @ 8 52 "	Setup: 3		Ch 4 n/a / Ch 9 n/a
	A2270_03 07.29/A2270_03 33 04	Cal Block S/N:	60119300		Ch 5 n/a / Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	229	259	289	319	349	19	49	79	109	139	169	199	229	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	Inches
MAX.	3 23	3 38	4.35	5.14	5 88	6.13	6.10	5.90	5 32	4.58	3 87	3.31	3.23	Inches
MIN.	1.23	1.55	2 24	2.96	3 81	4 63	4.78	4 38	3.56	2 80	1.91	1.38	1.23	Inches

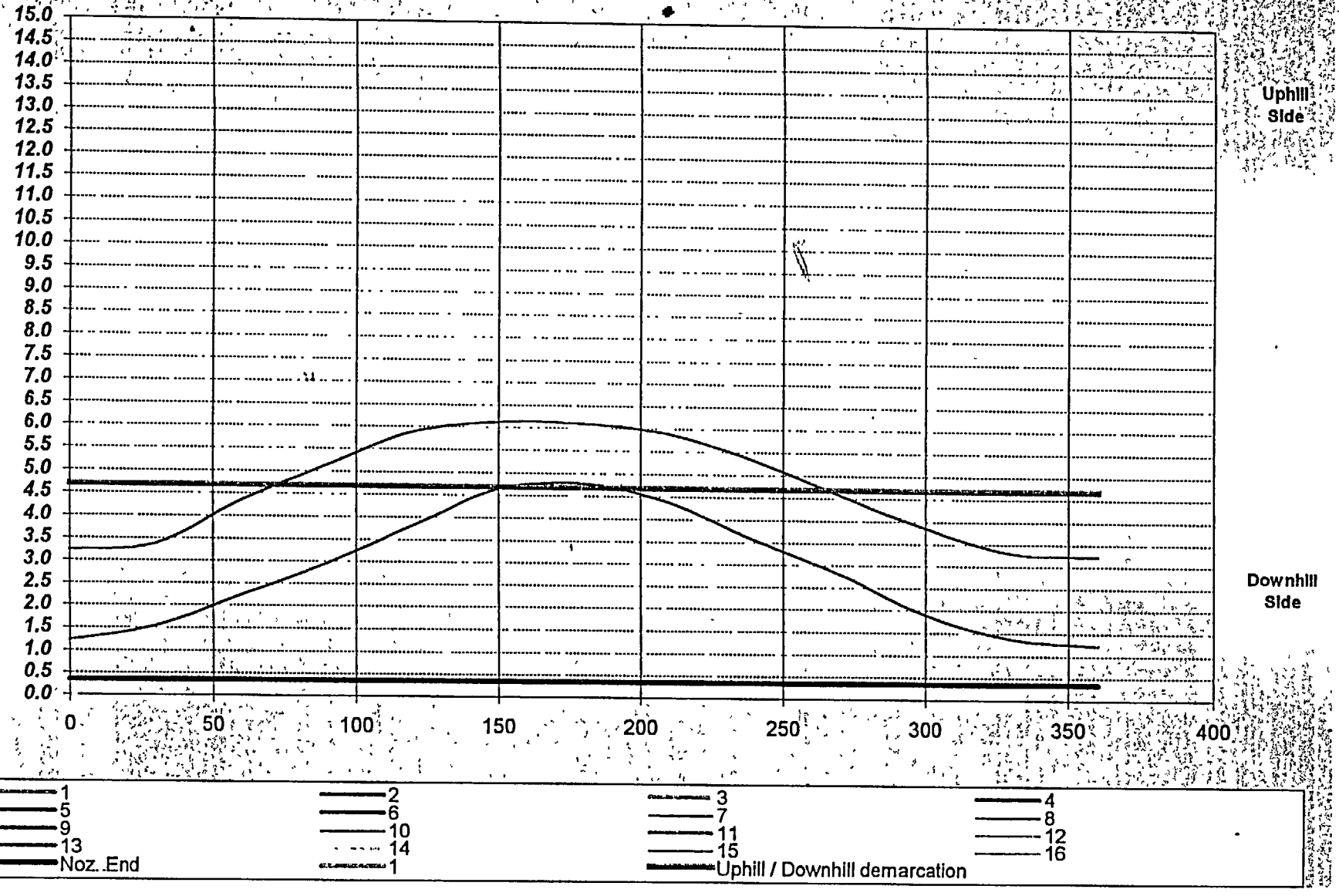
Comments: Measured Thickness: 0 67 @ theta of 50 deg with an axial position of 7.26 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-26-02 Analyzed by: N/A Date:

(4) 9/29/02

FRAMATOME ANP

Nozzle 29 Profile



FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach Unit: 1
Penetration No.: 30	Procedure: 54-ISI-100-09

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: R6-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A 2272 - 18.51.59/18.59.45 19.22.33/_19.36.43

Calibration Setup:
Initial Calibration File: A 2272 -17.53.03
Final Calibration File: CONTINUED PERFORMANCE 2.3.3.4

Scan Start: Z = .0 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 8.56 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	SO 440CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments: 50% coverage

Analyzed by: [signature] Level: II Date: 9-29-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

09-30-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1 - -	Nozzle: 30
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	119	End of Noz. (in.):	0	Probe Serial No.'s:	Ch 1 S0445CN / Ch 6 n/a
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]					Ch 2 n/a / Ch 7 n/a
Files: [illegible]					Ch 3 n/a / Ch 8 n/a
Circ. Scan Start: 0 deg @ -5 " Stop: 8.56 deg @ 365 " Setup: 3					Ch 4 n/a / Ch 9 n/a
Files:	A2272_18 51.59/_.18.59.45/_19.22.33/_19.36 43	Cal Block S/N:	60119300		Ch 5 n/a / Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	119	149	179	209	239	269	299	329	359	29	59	89	119	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Inches
MAX.	2.74	2.78	3.29	4.00	4.79					4.22	3 26	2 88	2.74	Inches
MIN.	0 61	0.78	1.19	1.88	2 93					2.45	1.28	0 66	0 61	Inches

Comments: Measured Thickness: 0 69 @ theta of 180 deg with an axial position of 5 34 Limited Scan? (Y/N): Y Document Limit

Limitations from 38 to 47, 86 to 140, 237 to 354.

50% Coverage

Analyzed by: [signature] Date: 9-29-02 Analyzed by: N/A Date:

[signature] 09-30-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Limitation Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	30
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)		ID:	2.750	OD: 4.000	Thickness: 0.625

Downhill Side of Nozzle (deg.): 30 End of Noz. (in.): 0

Probe Serial No.'s:			
Ch 1	S0445CN	Ch 6	n/a
Ch 2	n/a	Ch 7	n/a
Ch 3	n/a	Ch 8	n/a
Ch 4	n/a	Ch 9	n/a
Ch 5	n/a	Ch 10	n/a

Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] Setup: [illegible]
Files: [illegible]

Circ. Scan Start: 0 deg @ -5 " Stop: 8.56 deg @ 365 " Setup: 3
Files: A2272_18.51.59/_18 59.45/_19 22.33/_19.36 43 Cal Block S/N: 60119300

Acquisition Instructions:

1. Define the extents of the limitation.
2. Be very descriptive on what caused the limitation and how the limitation occurred. For example, current limit activated, probe stalled on upward stroke, rotational stall occurred.

1	Stopped scan when gap became to tight to scan.
2	Scan limited from 38 - 47, 86 to 140, 237 to 354. A total of 180 degrees.
3	50% coverage
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5	
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18	
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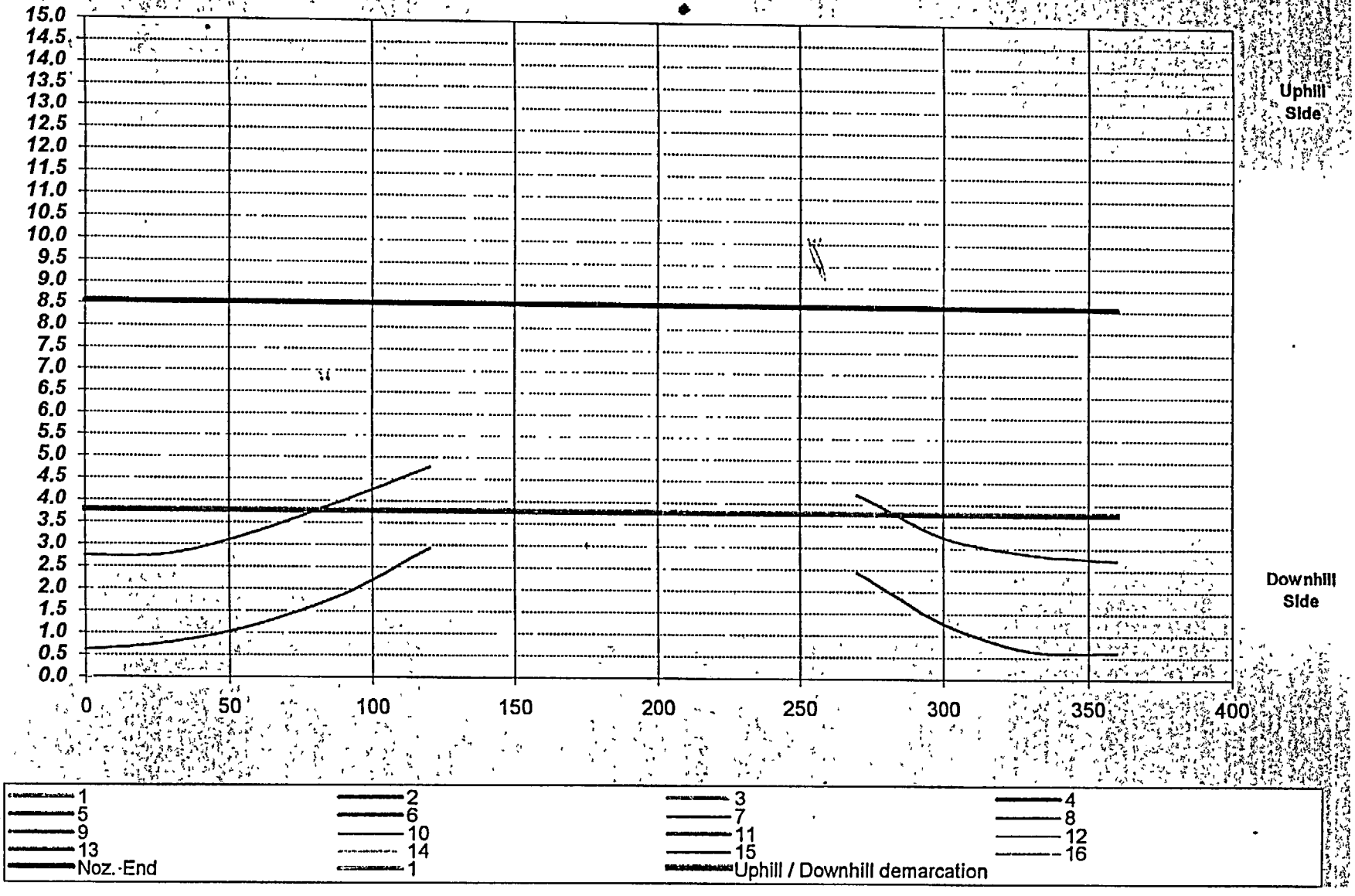
20	
21	
22	

Acquired By: [signature] Date: 9-29-02

Lvl 09-30-02

FRAMATOME ANP

Nozzle 30 Profile



Circ blade

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 31		Procedure: 54-151-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2272-07.07.46

Calibration Setup:
Initial Calibration File: A2272-04.45.40
Final Calibration File: CONTINUED PERFORMANCE

Scan Start: Z = 0.20" Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 8.57 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50429CN	Limitations
			0-10° = 10
			120-360 = 240
			total = 250
			31% coverage

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

See rotating data

Analyzed by: [signature] Level: III Date: 9/29/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

[signature] 09-29-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	-31
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	14	End of Noz. (in.):	0	Probe Serial No.'s:	Ch 1	S0429CN	Ch 6 n/a
Axial Scan Start:	[illegible] deg @ [illegible] "	Stop:	[illegible] deg @ [illegible] "	Setup:	[illegible]	Ch 2 n/a	Ch 7 n/a
Files:	[illegible]					Ch 3 n/a	Ch 8 n/a
Circ. Scan Start:	-5 deg @ 0.2 "	Stop:	-365 deg @ 8.57 "	Setup:	3	Ch 4 n/a	Ch 9 n/a
Files:	A2272_07.07.46	Cal Block S/N:	60119300			Ch 5 n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	14	44	74	104	134	164	194	224	254	284	314	344	14	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Inches
MAX.	3 15	3 65	4.34	5.11										Inches
MIN.	1.13	1.49	2.35	3.28										Inches

Comments: Measured Thickness: 0 651 @ theta of 125 deg with an axial position of 2 47 Limited Scan? (Y/N): Y Document Limit

Limited scan as follows: 0 to 10 deg / 120 to 360 deg / total limitation 250 deg

31 % coverage

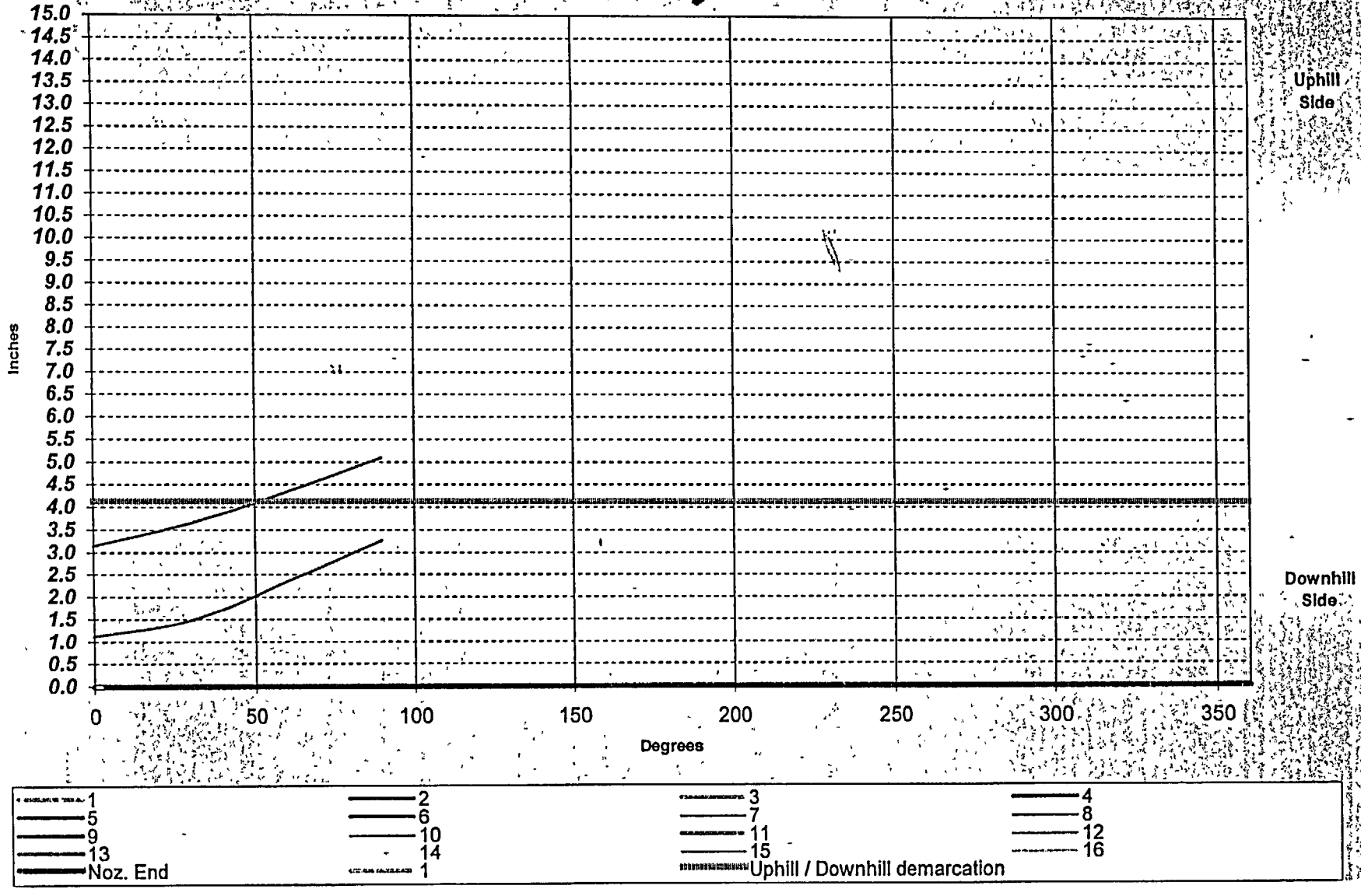
The downhill side of the weld was located in the limitation region. 14 deg is the start of the scan.

Analyzed by: [signature] Date: 9/29/02 Analyzed by: N/A Date:

[signature] 09-29-02

FRAMATOME ANP

Nozzle 31 Profile



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 31		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193OE1

Scan File No.: A2275_18.04.33

Calibration Setup:
Initial Calibration File: A2262_10.28.30
Final Calibration File: A2275_22.27.08

Scan Start: Z = .0 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 20.07" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results: No Recordable Indications | Leak Path Detected
Axial Flaws Detected | Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 10-2-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

12/3/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

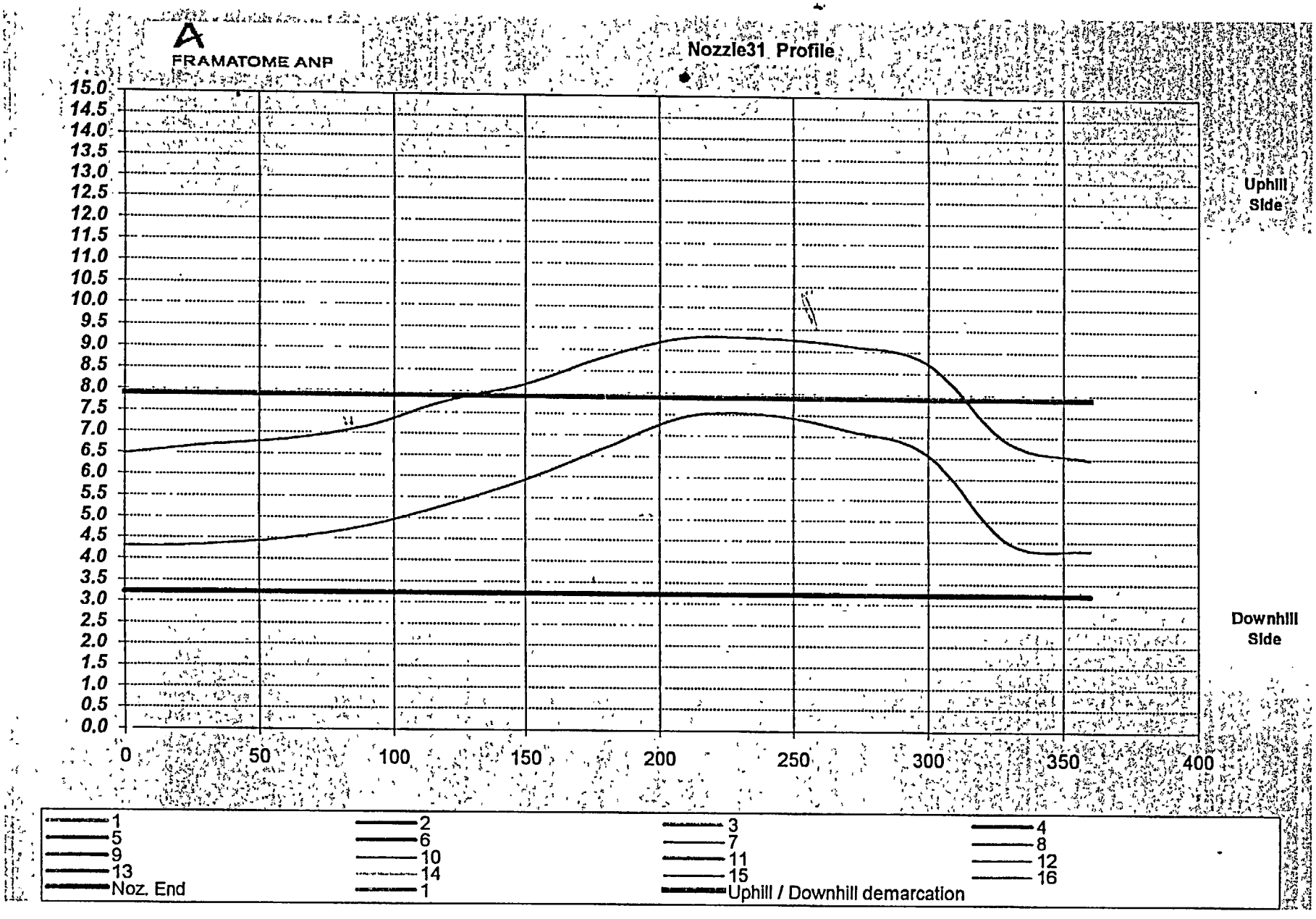
Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	31
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	49	End of Noz. (in.):	3.22	Probe Serial No.'s:	Ch 1	35044	Ch 6 35052
Axial Scan Files:	Start: deg @ "	Stop: deg @ "	Setup:		Ch 2	35202	Ch 7 n/a
					Ch 3	35070	Ch 8 n/a
Circ. Scan Files:	Start: -5 deg @ 0 "	Stop: 365 deg @ 20 07 "	Setup: 1		Ch 4	35044	Ch 9 n/a
	A2275_18.04.33	Cal Block S/N:	60119300		Ch 5	35052	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	49	79	109	139	169	199	229	259	289	319	349	19	49	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	Inches	
MAX.	6.48	6 69	6 84	7.15	7.76	8.17	8 83	9 29	9 29	9.14	8.73	6.89	6 48	Inches	
MIN.	4.29	4.34	4 49	4.80	5 31	5 92	6.69	7.45	7 51	7.15	6 59	4.49	4.29	Inches	

Comments: Measured Thickness: 0 631 @ theta of 289 deg with an axial position of 10 49 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 10/3/02 Analyzed by: N/A Date:


FRAMATOME ANP
Nozzle31 Profile
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
50
100
150
200
250
300
350
400
Uphill Side
Downhill Side
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Noz. End
1
Uphill / Downhill demarcation

Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 32		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/27/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8"

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2275-19.01.26

Calibration Setup:
Initial Calibration File: A2273-10.40.15 ~~A2262-0~~
Final Calibration File: A2275-22.27.08

Scan Start: Z = 0.0" Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 20" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Volumetric Fab INDICATION

Comments:

Analyzed by: [signature] Level: III Date: 10/3/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

10/3/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	32
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)		ID:	2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	53	End of Noz. (in.):	3.3	Probe Serial No.'s:	Ch 1	35044	Ch 6 35052
Axial Scan Files:	Start: deg @ "	Stop: deg @	Setup:		Ch 2	35202	Ch 7 n/a
					Ch 3	35070	Ch 8 n/a
Circ. Scan	Start: -5 deg @ 0 "	Stop: 20.07 deg @ 365 "	Setup: 1		Ch 4	35044	Ch 9 n/a
Files:	A2275_19.01.26	Cal Block S/N:	60119300		Ch 5	35052	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	OD	0 58	6.1	131.0	6.5	143.0	0.39	78.0	90.0	0.42	0.57	47	0.05	0.08	Vol	4.2	6.7
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	53	83	113	143	173	203	233	263	293	323	353	23	53	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	Inches
MAX.	6 29	6.29	6 33	6 65	7.23	7.91	8.49	9.07	9 25	8 89	8 42	6.33	6.29	Inches
MIN.	3 85	3 88	3.95	4.21	4 96	6.19	6.94	7.63	7.63	7.30	6 62	3.85	3 85	Inches

Comments: Measured Thickness: 0.635 @ theta of 123 deg with an axial position of 9 45 Limited Scan? (Y/N): N

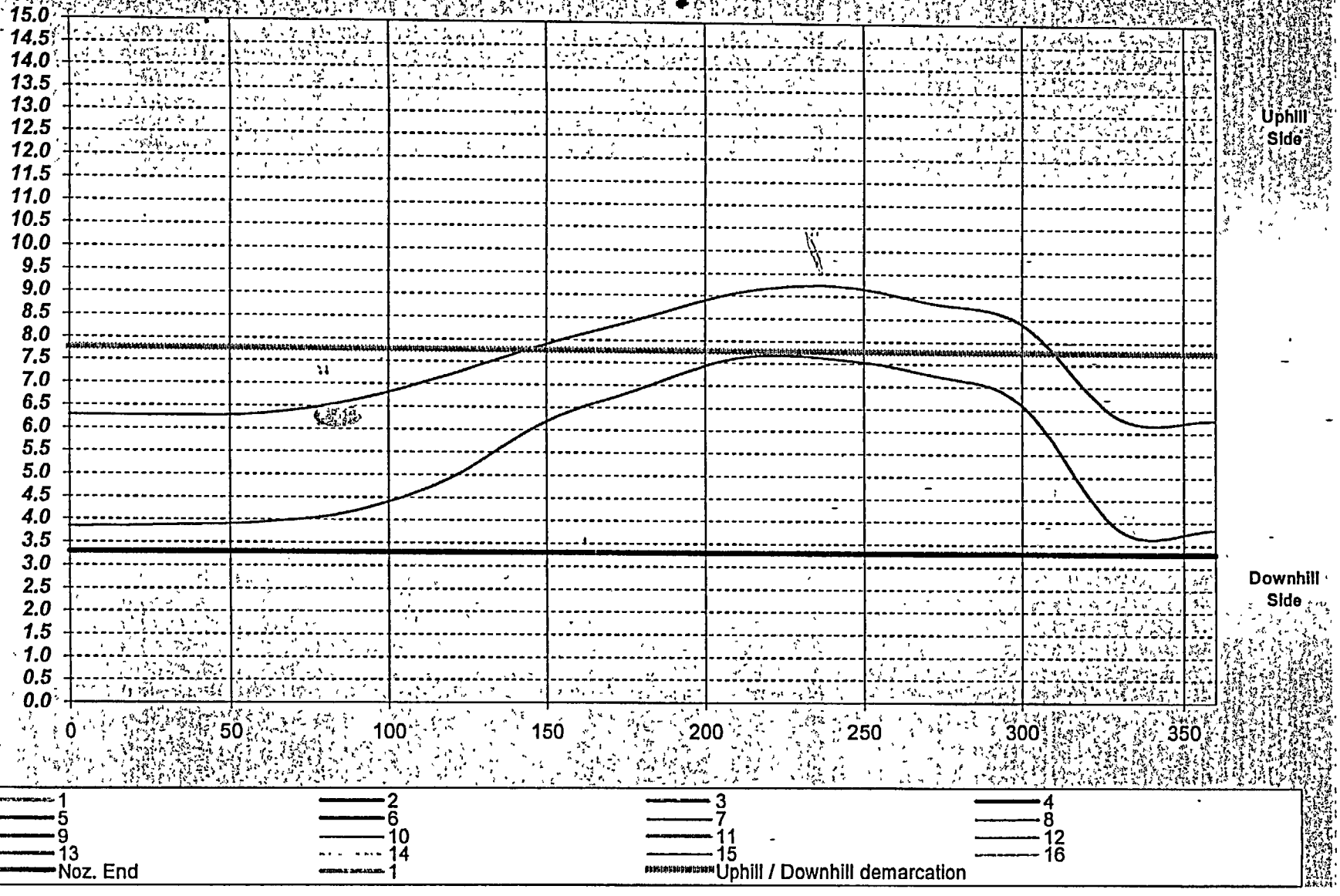
Indication #1 is located at weld root. Classified as a fab indication

Analyzed by: Date: 10/3/02 Analyzed by: N/A Date:

10/3/02

FRAMATOME ANP

Nozzle 32 Profile



FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach Unit: 1
Penetration No.: 32	Procedure: 54-ISI-100-09

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1

Scan File No.: A2272-13.56.18 - 14.07.46 - 14.20.14

Calibration Setup:
Initial Calibration File: A2272-12.43.09
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = -.7" Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 8.57" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50439CN	
			Limitation due to Nozzle/TS interference.

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

18% Coverage SEE ROTATING DAA SHEET
No PLOT

Analyzed by: [signature] Level: II Date: 9/29/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

[signature] 09-30-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Limitation Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1			Nozzle: 32
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness: 0.625
Downhill Side of Nozzle (deg.): 0	End of Noz. (in.): 0.17	Probe Serial No.'s:		Ch 1	Ch 6 n/a
Axial Scan: Start: deg @	Stop: deg @	Setup:		Ch 2 n/a	Ch 7 n/a
Files:				Ch 3 n/a	Ch 8 n/a
Circ. Scan Start: 0 deg @ 9 "	Stop: 161.39 deg @ 9 "	Setup: 3		Ch 4 n/a	Ch 9 n/a
Files: A2272_13.56.18 @ 14.07.46 @ 14.20.14	Cal Block S/N: 60119300			Ch 5 n/a	Ch 10 n/a

Acquisition Instructions:

1. Define the extents of the limitation.
2. Be very descriptive on what caused the limitation and how the limitation occurred. For example, current limit activated, probe stalled on upward stroke, rotational stall occurred.

1	Stopped SCAN AT 161.39° due to being unable to scan past @ 2.2" to 3.4"
2	WAS ALSO UNABLE TO ACQUIRE DATA BELOW THE WELD BECAUSE THE PLASTIC ON THE TRANSDUCER
3	END OF PROBE WAS CATCHING ON THE LIP OF THE FUNNEL
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	

Acquired By: CHRIS BARNES Date: 9/29/02

Lal 09-30-02

KOTAMNY

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 33	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2225-19.56.05/20.17.24/20.51.24

Calibration Setup:
Initial Calibration File: A 2262-10.28.30
Final Calibration File: A2275-22.27.08

Scan Start: Z = 0 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 20.07 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results: No Recordable Indications | Leak Path Detected
Axial Flaws Detected | Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 10-2-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

10/2/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

33

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	~~31~~ 29
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625

Downhill Side of Nozzle (deg.):	176	End of Noz. (in.):	3.36	Probe Serial No.'s:	Ch 1	35044	Ch 6	35052
Axial Scan Start:	deg @	Stop:	deg @	Setup:	Ch 2	35202	Ch 7	n/a
Files:					Ch 3	35070	Ch 8	n/a
Circ. Scan Start: -5	deg @ 0 "	Stop: 365	deg @ 20.07 "	Setup: 1	Ch 4	35044	Ch 9	n/a
Files:	A2275_19.56.05/_20.17.24_20.51.24	Cal Block S/N:	60119300		Ch 5	35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	176	206	236	266	296	326	356	26	56	86	116	146	176	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.36	Inches
MAX.	7.04	7.09	7.61	8.34	8.14	7.49	7.09	7.98	8.14	7.73	7.33	7.04	7.04	Inches
MIN.	4 57	4.61	5.30	6.44	5.83	5.14	4.86	5 83	6.03	5.55	5.10	4.78	4.57	Inches

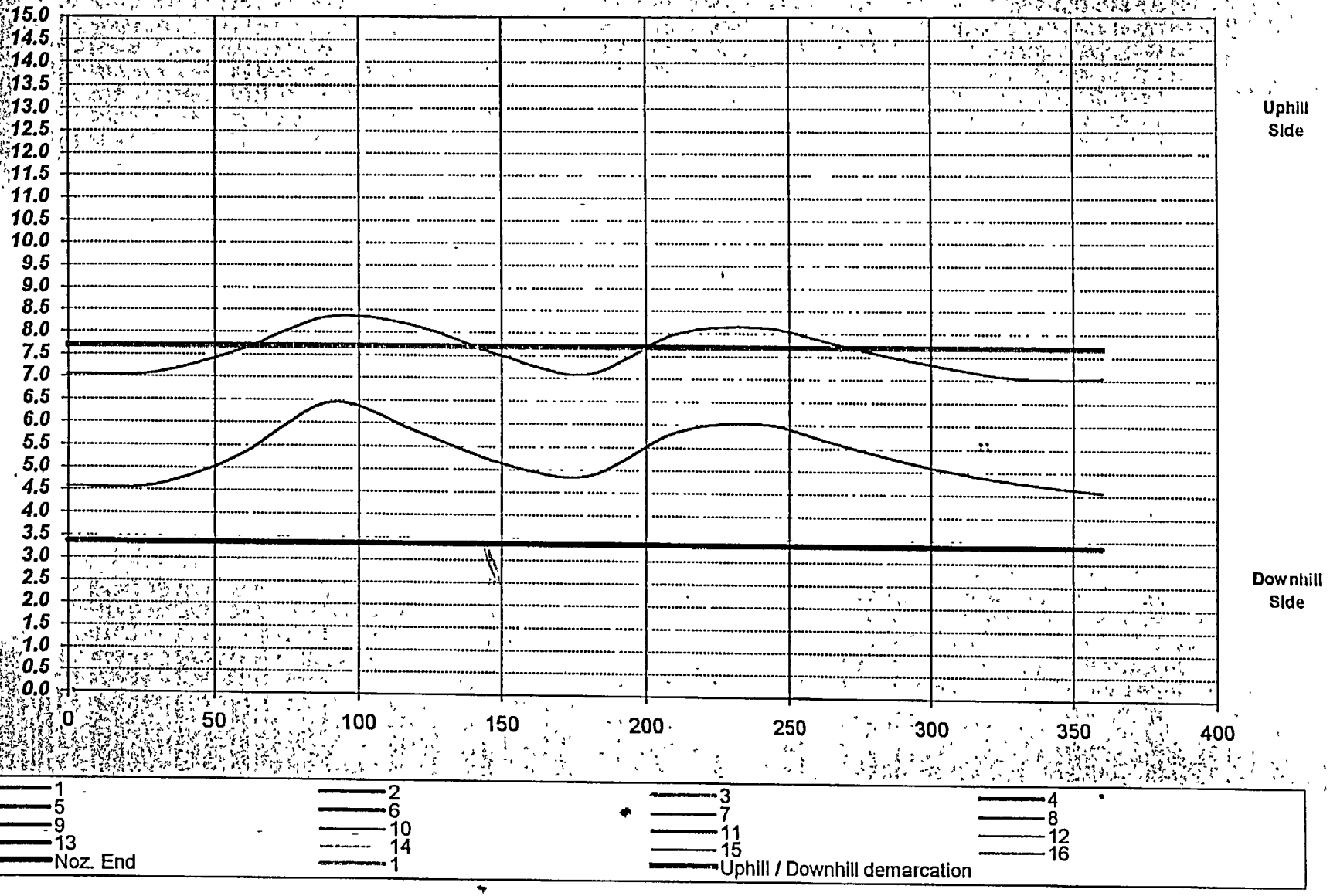
Comments: Measured Thickness: 0.67 @ theta of 330 deg with an axial position of 8.88 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 10-2-02 Analyzed by: N/A Date:

10/3/02

FRAMATOME ANP

Nozzle 33 Profile



FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 33		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: R6-174 # Intermediate Connectors: 1

Calibration Block: 601/930E1

Calibration Setup: A2272-12.43.09

Scan File No.: See below

Initial Calibration File: ~~A2272-12.34~~

Final Calibration File: CONTINUED PERFORMANCE 2.3.3.4

Scan Start: Z = -.7" Scan Start: θ = -5

Index Increment: 3°

Scan Stop: Z = 8.56" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	50°L	50439CN	
			Limited to 3%
			No PLOT

Results: ~~No Recordable Indications~~ Leak Path Detected

Axial Flaws Detected Circumferential Flaws Detected

Comments:

See rotating data

Analyzed by: [signature] Level: III Date: 9/29/02

Reviewed by: [signature] Level: III Date: 10/4/02

A2272-15.10.02
-15.16.06
-15.28.28
-15.34.26
-15.49.03
-15.51.29
-15.54.22
-15.57.14
-16.07.48

TYPICAL DATA SHEET
FIGURE 5

[signature] 09-30-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1	Nozzle: 33
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625

Downhill Side of Nozzle (deg.):	0	End of Noz. (in.):	0	Probe Serial No.'s:	Ch 1	S0439CN	Ch 6 n/a
Axial Scan Start:	deg @	" Stop:	deg @	" Setup:	Ch 2	n/a	Ch 7 n/a
Files:					Ch 3	n/a	Ch 8 n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	-365 deg @ 8 56 "	Setup: 3	Ch 4	n/a	Ch 9 n/a
Files:	A2272_15.10 02 / _15.16.06 / _15.28 28 / _15.34 26	Cal Block S/N:	60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Inches
MAX.														Inches
MIN.														Inches

Comments: Measured Thickness: 0 624 @ theta of 126 deg with an axial position of 5 86 Limited Scan? (Y/N): Y Document Limit

Limited scan as follows: 0 to 5 deg / 99 to 118 deg / 134 to 360 deg / total limitation 254 deg. Axial limitation is located between nozzle end and weld toe.

3 % coverage

The downhill side of the weld was located in the limitation region.

Analyzed by: [signature] Date: 9/29/02 Analyzed by: N/A Date:

[signature] 09-30-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Limitation Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	33
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	0	End of Noz. (in.):	0.17	Probe Serial No.'s:	Ch 1	Ch 6	n/a
Axial Scan Start:	deg @	Stop:	deg @	Setup:	Ch 2 n/a	Ch 7	n/a
Files:					Ch 3 n/a	Ch 8	n/a
Circ. Scan Start:	-5 deg @ 9 "	Stop:	135.11 deg @ 9 "	Setup:	3 Ch 4 n/a	Ch 9	n/a
Files: A2272_15.10.03 / 15.16.06 / 15.28.28 / 15.57.14 / 16.01.14		Cal Block S/N:	60119300		Ch 5 n/a	Ch 10	n/a

Acquisition Instructions:

1. Define the extents of the limitation.
2. Be very descriptive on what caused the limitation and how the limitation occurred. For example, current limit activated, probe stalled on upward stroke, rotational stall occurred.

1	Stopped SCAN WHEN GAP BECAME TO TIGHT TO REACH HIGHER THAN BETWEEN 2.2" and 4.5"
2	THERE WERE AREAS NOT ABLE TO BE SCANNED 67°-73° AND 101°-119°. IN THESE AREAS
3	THE SCAN WOULD HAVE BEEN LIMITED TO APPROX 3.5°
4	
5	
6	
7	
8	
9	
10	
11	
12	
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Acquired By: CHRIS BARNES Date: 9/29/02

09-30-02

Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 34		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Calibration Setup: 3°

Scan File No.: A2265-11.06.30

Initial Calibration File: A2262-10.28.30

Final Calibration File: A2266-05.19.37

Scan Start: Z = 0.47 Scan Start: θ = -5.0

Index Increment: 3°

Scan Stop: Z = 15.14 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Indications above weld without top signals or connection to Primary Side

Analyzed by: [signature] Level: III Date: 10/3/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

vol 09-23-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	**Plant:**	Point Beach	**Unit:**	1	**Nozzle:**	34
Procedure:	54-ISI-100-09	**Nozzle Dimensions: (in.)**		**ID:**	2.750	**OD:** 4.000	**Thickness:** 0.625

Downhill Side of Nozzle (deg.): 118 **End of Noz. (in.):** 4.06 **Probe Serial No.'s:**

Ch 1	35044	Ch 6	35052
Ch 2	35202	Ch 7	n/a
Ch 3	35070	Ch 8	n/a
Ch 4	35044	Ch 9	n/a
Ch 5	35052	Ch 10	n/a

Axial Scan Files: Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]

Circ. Scan Files: Start: -5 deg @ 0.47 " Stop: 365 deg @ 15.14 " Setup: 1

A2265_11.06.30 **Cal Block S/N:** 60119300

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI	-															
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	118	148	178	208	238	268	298	328	358	28	58	88	118	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	Inches	
MAX.	7.36	7.66	8.29	9.26	10.24	10.00	10.31	10.54	11.00	9 41	8.37	7.66	7.36	Inches	
MIN.	5.00	5.11	5.45	6.68	8.55	8.25	8.52	8 89	9.45	7.09	5.71	5 26	5.00	Inches	

Comments: **Measured Thickness:** 0.65 **@ theta of** 112 **deg with an axial position of** 14 8 **Limited Scan? (Y/N):** n

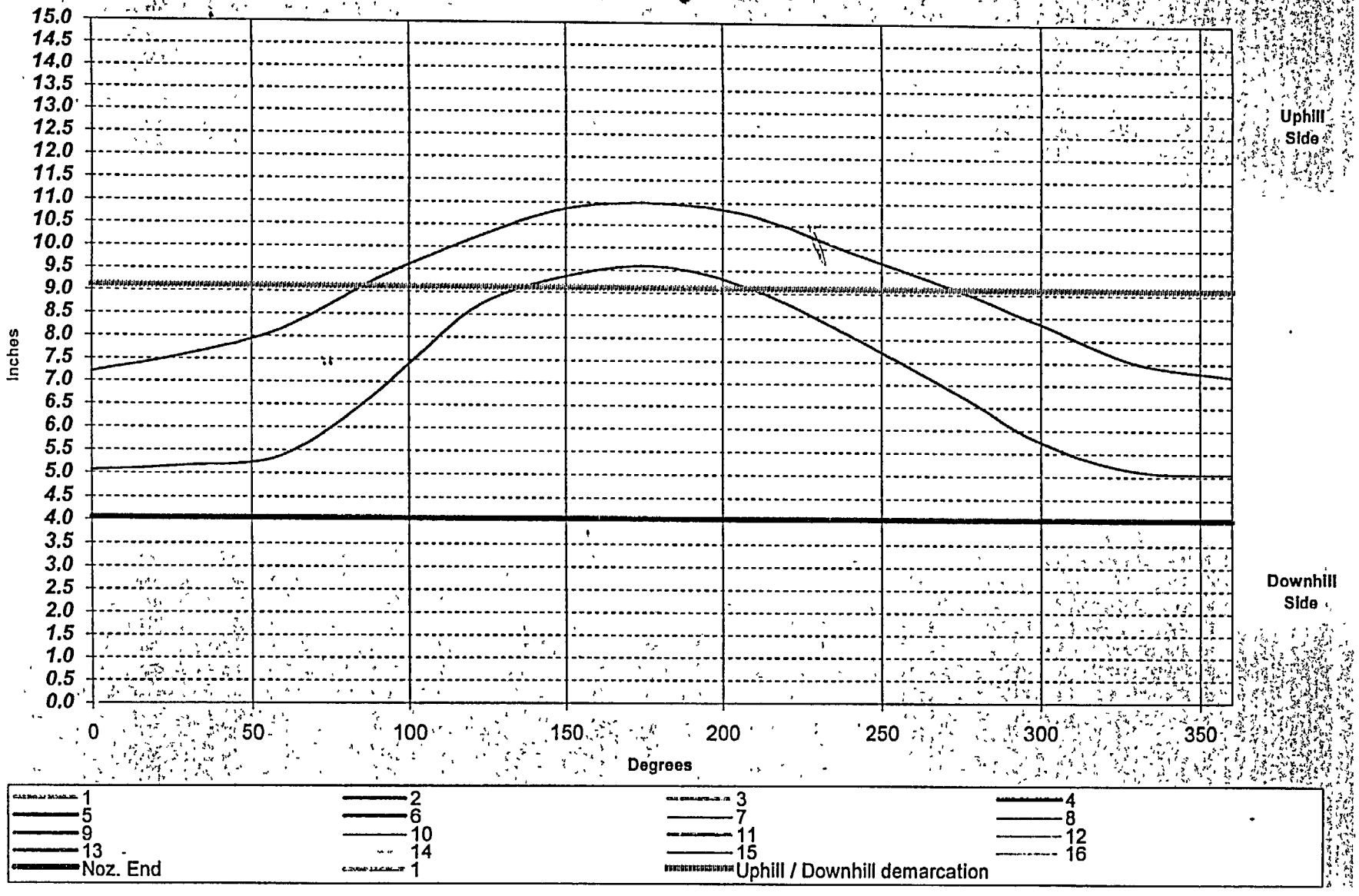
- Need To review the fabrication drawings for repair areas. Locations above compound weld area has rectangular dropout. Possible remant from repair region

Analyzed by: [signature] **Date:** 9/30/02 **Analyzed by:** N/A **Date:**

wel 09-30-02

FRAMATOME ANP

Nozzle 34 Profile (rescan)



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 35		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 JPB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1	Calibration Setup:
Scan File No.: A2266_00.48.29 A2266_01.31.03	Initial Calibration File: A2262_10.28.30 Final Calibration File: A2266_05.19.37
Scan Start: Z = .47" Scan Start: θ = -5° Index Increment: 3°	Scan Stop: Z = 19.0" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments: weld Fabrication Flaw Non crack like R12°

Analyzed by: [signature] Level: II Date: 9-22-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

(#) 9/24/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle: 35	
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625	
Downhill Side of Nozzle (deg.): 196	End of Noz. (in.): 3.94	Ch 1	35044	Ch 6	35052
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]		Ch 2	35202	Ch 7	n/a
Files: [illegible]		Ch 3	35070	Ch 8	n/a
Circ. Scan Start: -5 deg @ 0 47 " Stop: 365 deg @ 19 " Setup: 1		Ch 4	35044	Ch 9	n/a
Files: A2266_00.48.29/A2266_01.31.03	Cal Block S/N: 60119300	Ch 5	35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

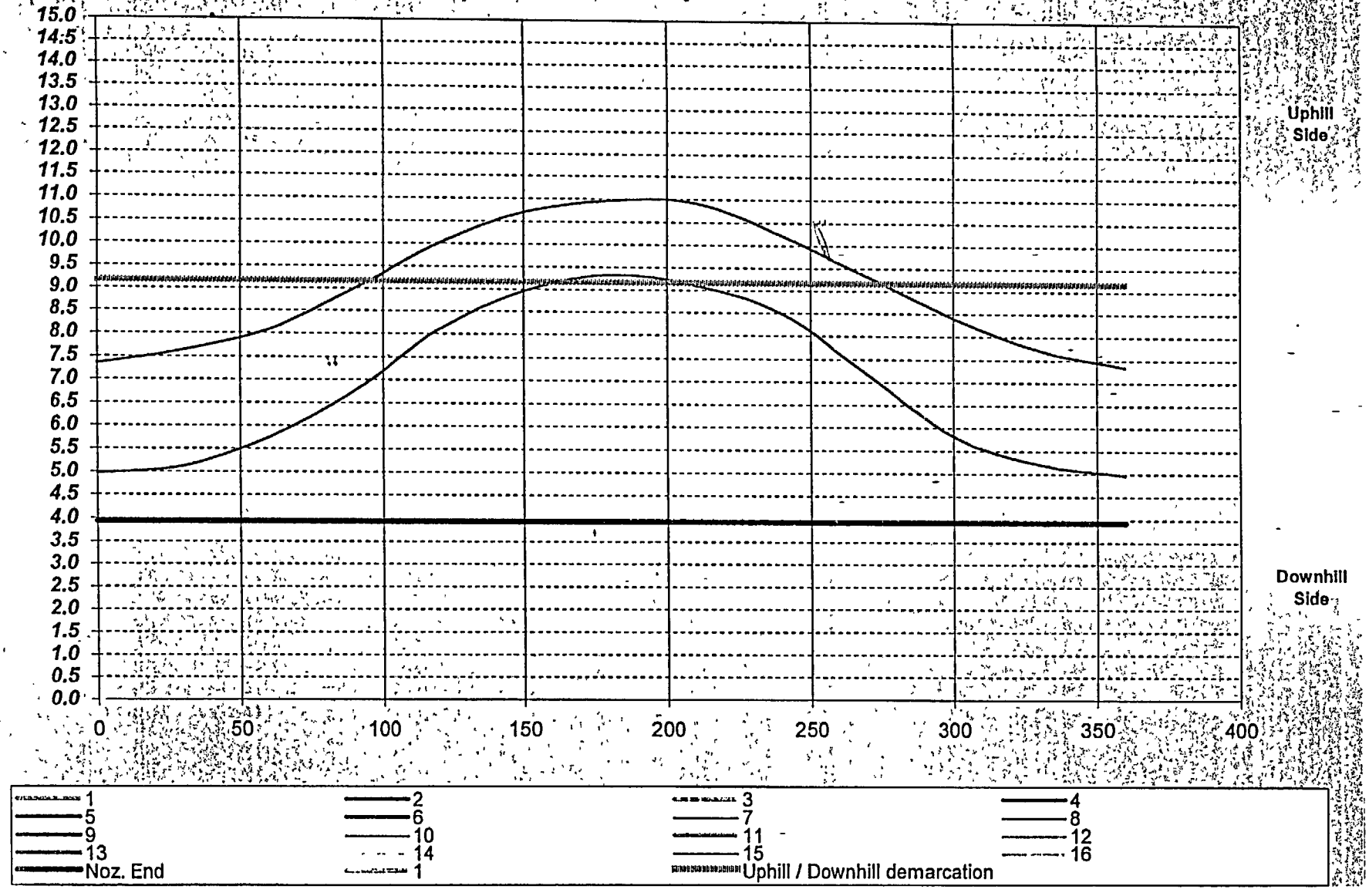
WELD PROFILE															
	Data Loc.	196	226	256	286	316	346	16	46	76	106	136	166	196	Degrees
	Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
	Noz. End	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	Inches
	MAX.	7.35	7.64	8 09	9.00	10 02	10 71	10 97	10.93	10 23	9 33	8.42	7.72	7.35	Inches
	MIN.	4.97	5.13	5 75	6.76	8.10	8.96	9 33	9.12	8.50	7.19	5 83	5.22	4.97	Inches

Comments: Measured Thickness: 0 63 @ theta of 105 deg with an axial position of 11.48 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-22-02 Analyzed by: N/A Date:

FRAMATOME ANP

Nozzle 35 Profile



Rotating

FRAMATOME-ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 36	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/27/03	20317
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5B~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601/930E1

Calibration Setup: A2262-10.28.30

Scan File No.: A2265-17.52.55

Initial Calibration File: ~~A2265~~-

Final Calibration File: A2265-05.19.37

Scan Start: Z = 0.47 Scan Start: θ = -5

Scan Stop: Z = 15 Scan Stop: θ = 365

Index Increment: 3°

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results: No Recordable Indications | Leak Path Detected

Axial Flaws Detected | Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/22/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

[signature] 09-23-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1	Nozzle: 36
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625

Downhill Side of Nozzle (deg.): 350 End of Noz. (in.): 3.9

Axial Scan Files: Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]

Circ. Scan Files: A2265_17.52.55 Start: -5 deg @ 0.47 " Stop: 365 deg @ 15 " Setup: 1

Cal Block S/N: 60119300

Probe Serial No.'s:			
Ch 1	35044	Ch 6	35052
Ch 2	35202	Ch 7	n/a
Ch 3	35070	Ch 8	n/a
Ch 4	35044	Ch 9	n/a
Ch 5	35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	350	20	50	80	110	140	170	200	230	260	290	320	350	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3 90	3.90	3.90	3.90	3.90	Inches	
MAX.	6.74	8 92	8 92	9.41	10 00	10 37	10.44	10 13	9 16	8.13	7.27	6.70	6.74	Inches	
MIN.	4.45	7.09	7.12	7.71	8.35	8 83	8 83	8 40	7.38	6.13	5.11	4 56	4.45	Inches	

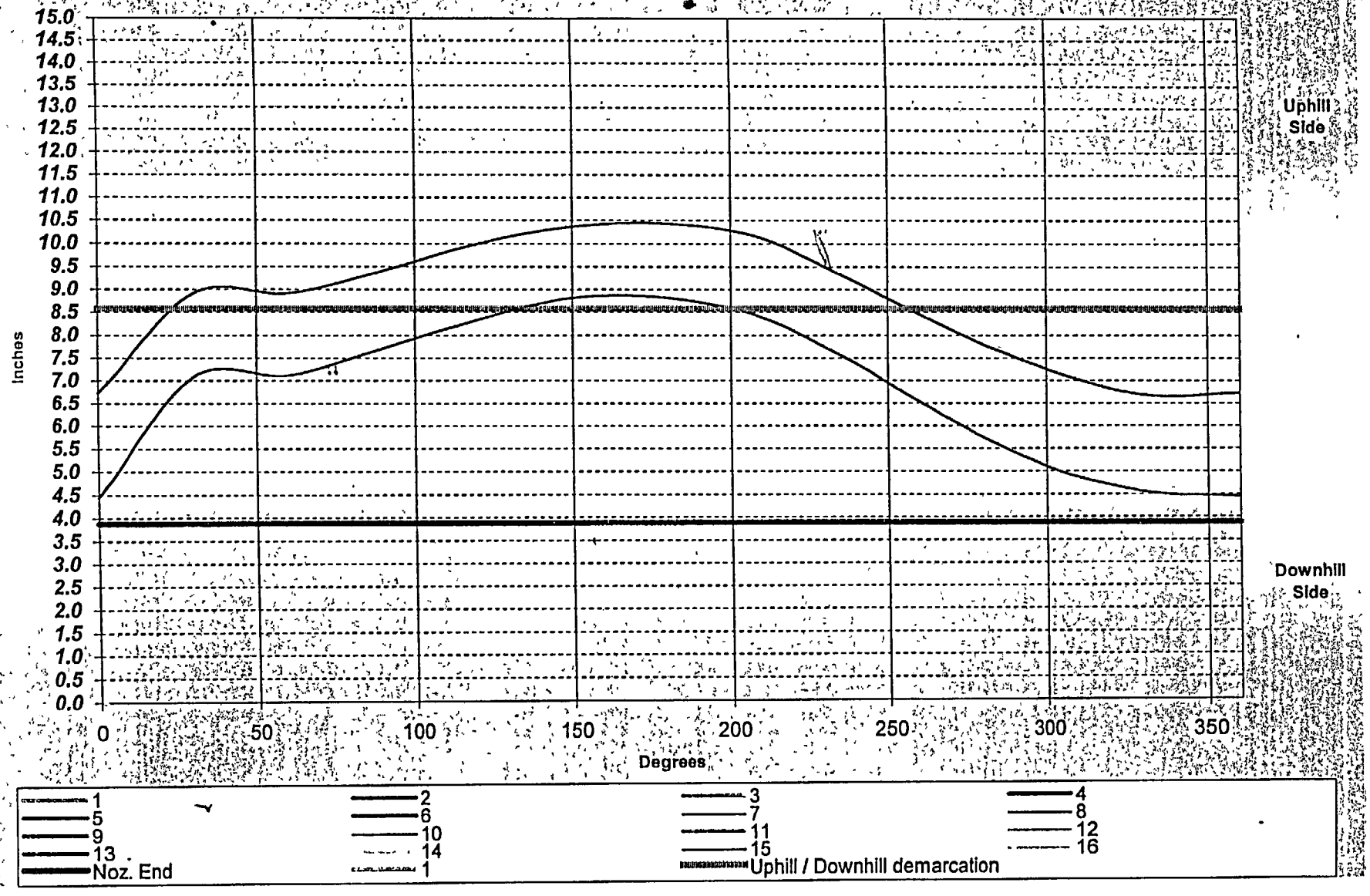
Comments: Measured Thickness: 0 63 @ theta of 93 deg with an axial position of 10 3 Limited Scan? (Y/N): n

Analyzed by: [illegible] Date: 9/22/02 Analyzed by: N/A Date:

WL 09-23-02

FRAMATOME ANP

Nozzle 36 Profile



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 37		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/27/03	20317
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265-14.03.14

Calibration Setup:
Initial Calibration File: A2262-10.28.30
Final Calibration File: A2266-05.19.37

Scan Start: Z = 0.47" Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 19" Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9/22/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

wl 09-23-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle: 37	
Procedure: 54-ISI-100-09	Nozzle Dimensions: (In.)	ID: 2.750	OD: 4.000	Thickness: 0.625	
Downhill Side of Nozzle (deg.): 0	End of Noz. (in.): 3.83	Probe Serial No.'s:	Ch 1 35044	Ch 6 35052	
Axial Scan Files: Start: deg @ " Stop: deg @ " Setup:			Ch 2 35202	Ch 7 n/a	
			Ch 3 35070	Ch 8 n/a	
Circ. Scan Files: A2265_14.03.14 Start: -5 deg @ 0.47 " Stop: 365 deg @ 19 " Setup: 1			Ch 4 35044	Ch 9 n/a	
	Cal Block S/N: 60119300		Ch 5 35052	Ch 10 n/a	

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE														
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	Inches
MAX.	7.60	9.35	9 54	9.73	10 21	10 54	11.11	11.00	10.64	9 74	8.78	8.02	7.60	Inches
MIN.	5.41	7.12	7.17	7.69	8 07	8.55	9.35	9 35	8.74	7.60	6 46	5 89	5.41	Inches

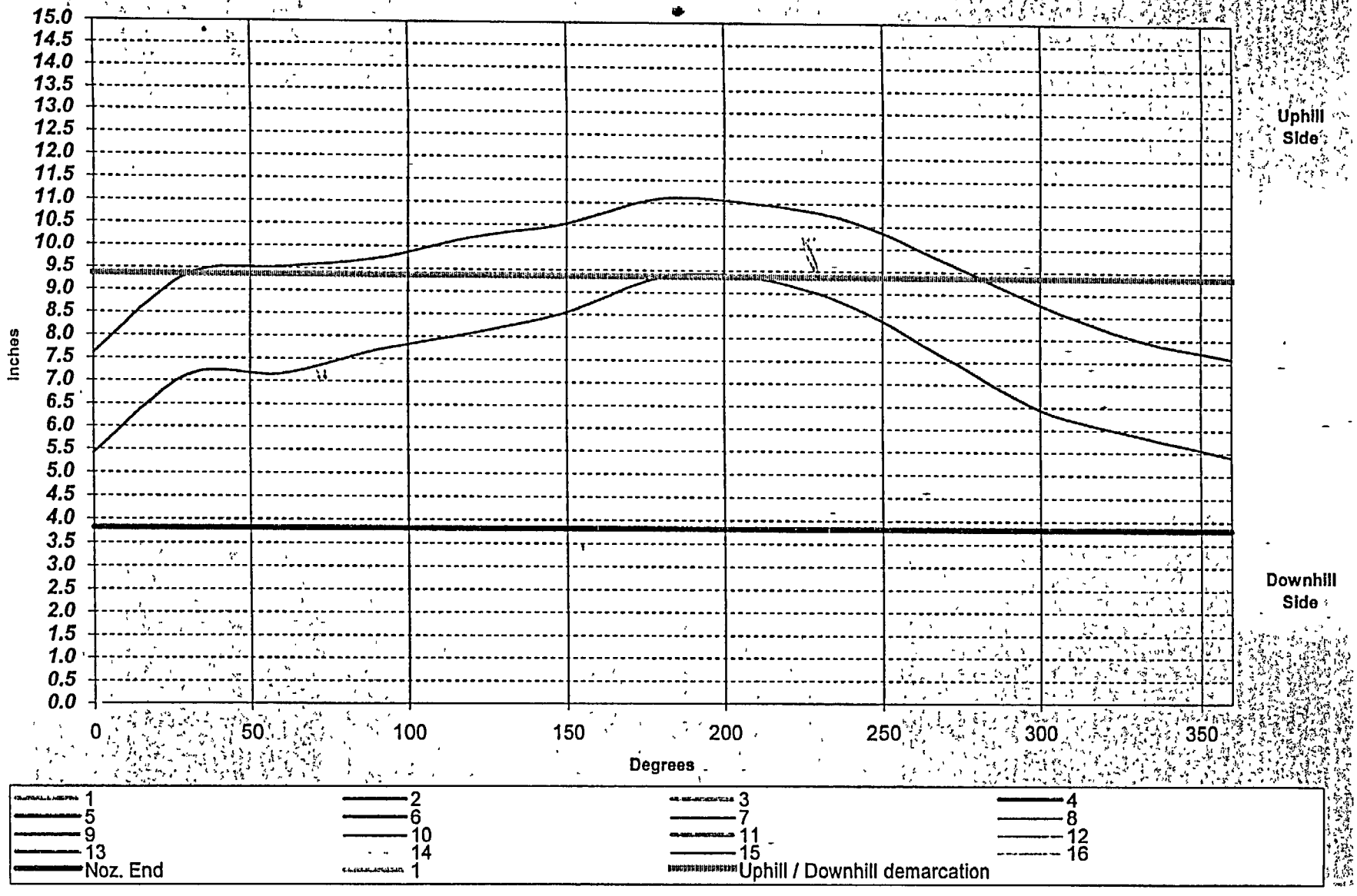
Comments: Measured Thickness: 0 63 @ theta of 212 deg with an axial position of 13 28 Limited Scan? (Y/N): n

Analyzed by: [signature] Date: 9/22/02 Analyzed by: N/A Date:

[signature] 09.23.02

FRAMATOME ANP

Nozzle 37 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 38		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 9DB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

*Scan File No.: A2267-06.23.12

Calibration Setup:
Initial Calibration File: A2266-16.28.44
Final Calibration File: CONTINUED PERFORMANCE 7.3.7.4

Scan Start: Z = -.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 5.98" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-23-02

Reviewed by: [signature] Level: III Date: 10.4.02

wl 09-24-02

TYPICAL DATA SHEET
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1			Nozzle: 38
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness: 0.625
Downhill Side of Nozzle (deg.): 36	End of Noz. (in.): 0.43	Probe Serial No.'s:	Ch 1	S0420CN	Ch 6 n/a
Axial Scan Start: deg @ " Stop: deg @ " Setup:			Ch 2	n/a	Ch 7 n/a
Files:			Ch 3	n/a	Ch 8 n/a
Circ. Scan Start: -5 deg @ -0.7 " Stop: 365 deg @ 5.98 " Setup: 3			Ch 4	n/a	Ch 9 n/a
Files:	Cal Block S/N: 60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	36	66	96	126	156	186	216	246	276	306	336	6	36	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	Inches
MAX.	3.12	3.15	3 29	3.44	3 68	3 82	3 87	3.84	3 71	3 47	3 26	3.18	3.12	Inches
MIN.	1.81	1.93	2.06	2.31	2.47	2.59	2.70	2.62	2.41	2.17	2 00	1.90	1.81	Inches

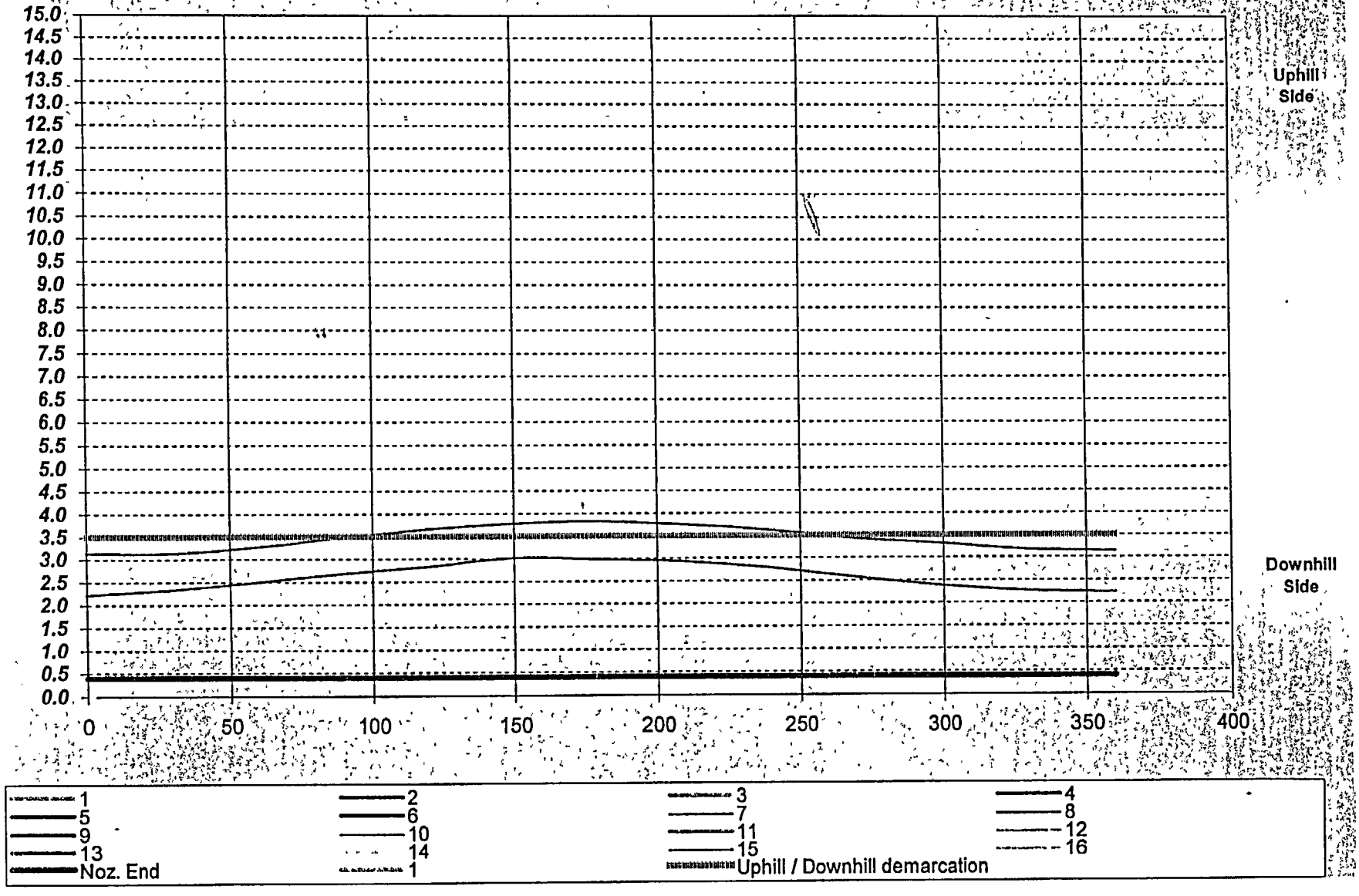
Comments: Measured Thickness: 0.63 @ theta of 19 deg with an axial position of 4.4 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-23-02 Analyzed by: N/A Date:

wl 09-24-02

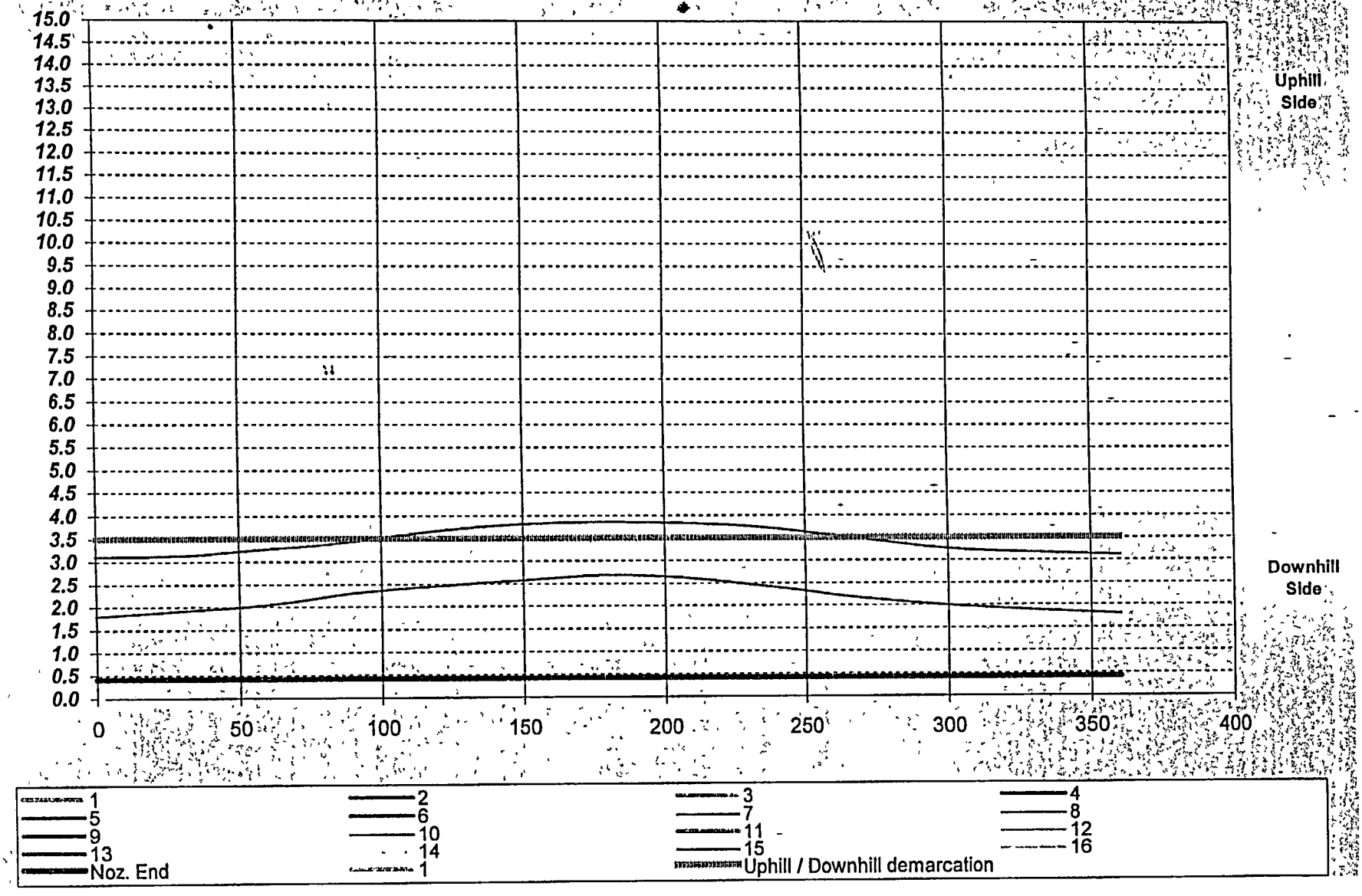
FRAMATOME ANP

Nozzle 39 Profile



FRAMATOME ANP

Nozzle 38 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 39	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 QDB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601930E1

*Scan File No.: A2267_03.27.51

Calibration Setup:
Initial Calibration File: A2266-16.28.44
Final Calibration File: CONTINUED PERFORMANCE

Scan Start: Z = -.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 5.9" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature]	Level: II	Date: 9-23-02
Reviewed by: [signature]	Level: III	Date: 10.4.02

wl 09-24-02

TYPICAL DATA SHEET
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1			Nozzle: 39
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness: 0.625
Downhill Side of Nozzle (deg.): 0	End of Noz. (in.): 0.4	Probe Serial No.'s:	Ch 1	S0420CN	Ch 6 n/a
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]			Ch 2	n/a	Ch 7 n/a
Files: [illegible]			Ch 3	n/a	Ch 8 n/a
Circ. Scan Start: -5 deg @ -0.7 " Stop: 365 deg @ 5.9 " Setup: 3			Ch 4	n/a	Ch 9 n/a
Files: A2267_03.27.51	Cal Block S/N: 60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	Inches
MAX.	3.14	3.14	3.29	3.49	3.67	3.79	3.84	3.76	3.63	3.43	3.32	3.18	3.14	Inches
MIN.	2.24	2.34	2.51	2.69	2.84	3.02	2.99	2.94	2.79	2.58	2.39	2.27	2.24	Inches

Comments: Measured Thickness: 0.65 @ theta of 143 deg with an axial position of 4.49 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-23-02 Analyzed by: N/A Date:

wl 09-24-02

CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 40		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 JDB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2267_04.31.02

Calibration Setup:
Initial Calibration File: A2266_16.28.44
Final Calibration File: CONTINUED PERFORMANCE 2.3.3.2

Scan Start: Z = -.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 5.98" Scan Stop: θ = 365.°

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-23-02

Reviewed by: [signature] Level: III Date: 10.4.02

wl 09-24-02

TYPICAL DATA SHEET
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1			Nozzle: 40
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness: 0.625
Downhill Side of Nozzle (deg.): 0	End of Noz. (in.): 0.36	Probe Serial No.'s:	Ch 1	S0420CN	Ch 6 n/a
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]			Ch 2	n/a	Ch 7 n/a
Files: [illegible]			Ch 3	n/a	Ch 8 n/a
Circ. Scan Start: -5 deg @ -0.7 " Stop: 365 deg @ 5.98 " Setup: 3			Ch 4	n/a	Ch 9 n/a
Files: A2267_04.31.02	Cal Block S/N: 60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	Inches
MAX.	2.78	2.78	2.93	3.32	3.26	3.46	3.51	3.41	3.36	3.22	2.88	2.88	2.78	Inches
MIN.	1.53	1.67	1.86	2.21	2.35	2.40	2.45	2.25	2.06	2.01	1.82	1.77	1.53	Inches

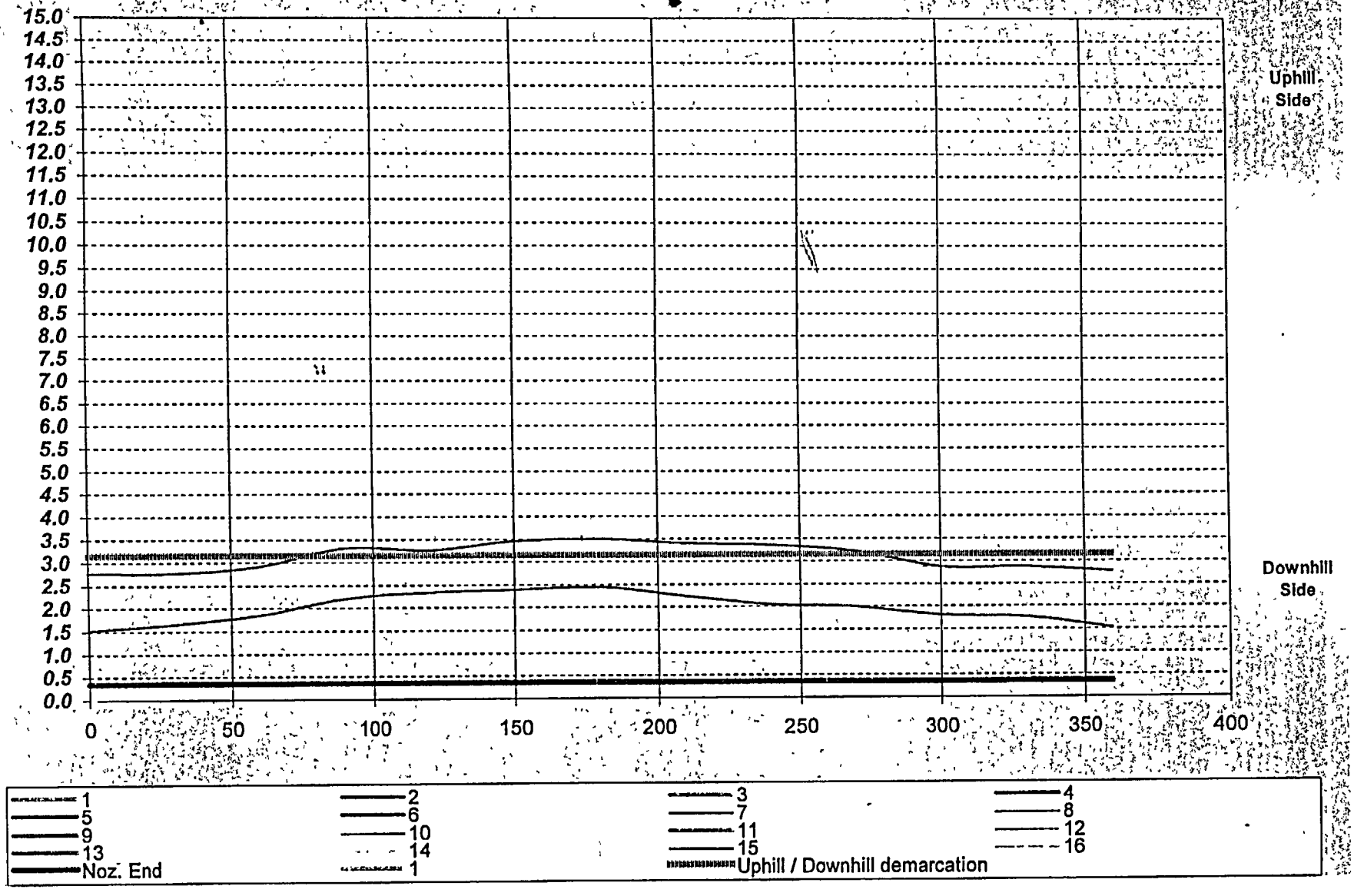
Comments: Measured Thickness: 0.64 @ theta of 357 deg with an axial position of 4.47 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-23-02 Analyzed by: N/A Date:

wl 09-24-02

FRAMATOME ANP

Nozzle 40 Profile



CIRC BLADE

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 41		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	7969	1/7/03	20284
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 [illegible]

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2267_05.39.37

Calibration Setup:
Initial Calibration File: A2266_16.28.44
Final Calibration File: CONTINUED PERFORMANCE 7.3.3.4

Scan Start: Z = -.7" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 5.98" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	50°L	50420CN	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-23-02

Reviewed by: [signature] Level: III Date: 10.4.02

[illegible] 09-24-02

TYPICAL DATA SHEET
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	41
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	30	End of Noz. (in.):	0.47	Probe Serial No.'s:	Ch 1	S0420CN	Ch 6 n/a
Axial Scan Start:	deg. @	" Stop:	deg. @	" Setup:	Ch 2	n/a	Ch 7 n/a
Files:					Ch 3	n/a	Ch 8 n/a
Circ. Scan Start:	-5 deg @ -0.7 "	Stop:	365 deg @ 5 98 '	Setup: 3	Ch 4	n/a	Ch 9 n/a
Files:	A2267_05.39.37	Cal Block S/N:	60119300		Ch 5	n/a	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	30	60	90	120	150	180	210	240	270	300	330	360	30	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	0.47	0.47	0.47	0.47	0.47	0.47	0 47	0 47	0.47	0.47	0.47	0.47	0.47	Inches
MAX.	2.99	3.18	3 62	3 66	3.66	3 66	3 61	3 47	3 42	3.38	3 28	2.99	2.99	Inches
MIN.	1.87	1 87	2 41	2.45	2 55	2.65	2 45	2.36	2.16	2 02	1.98	1.78	1.87	Inches

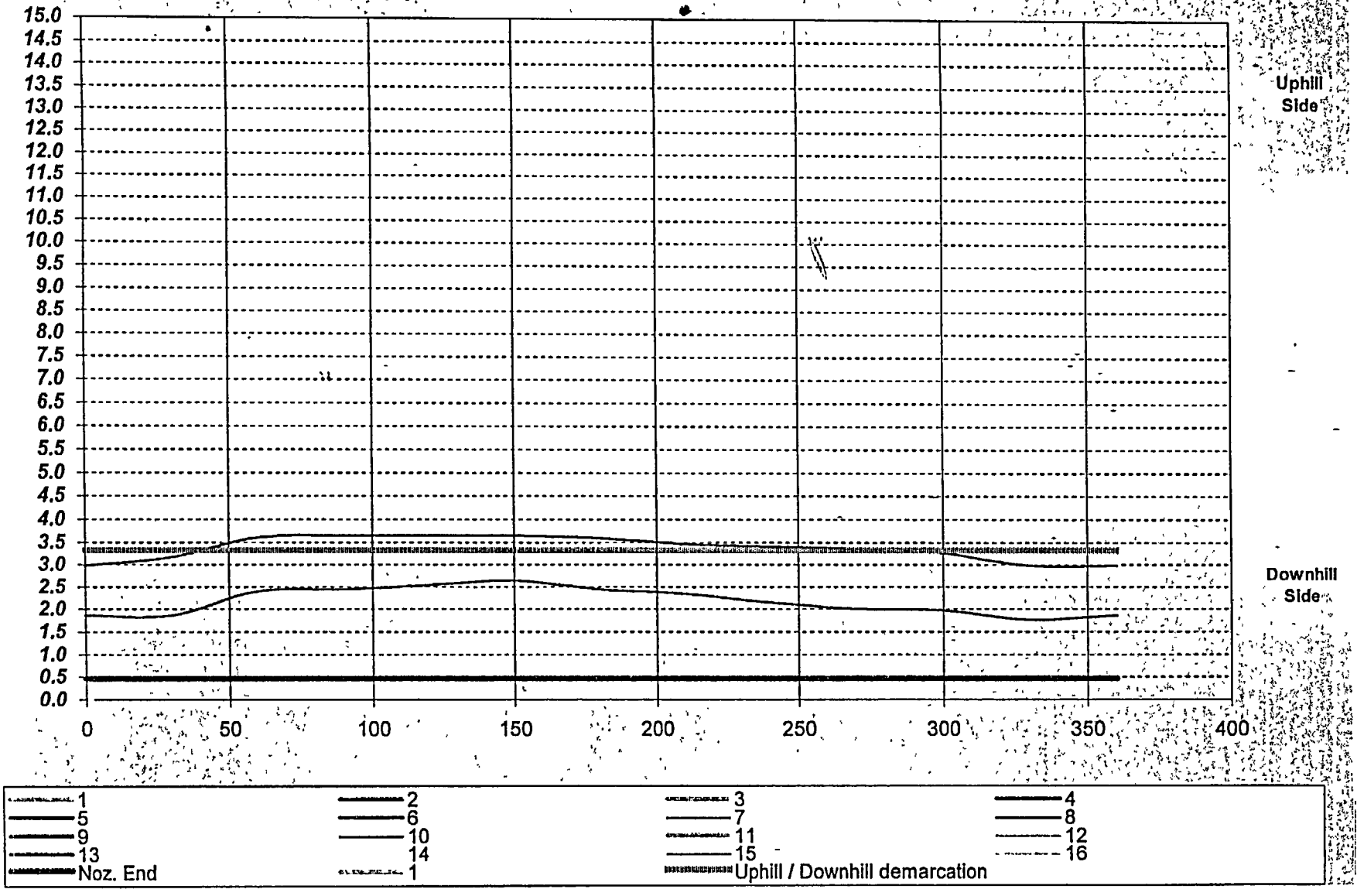
Comments: Measured Thickness: 0 63 @ theta of 358 deg with an axial position of 0 96 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-23-02 Analyzed by: N/A Date:

[signature] 09-24-02

FRAMATOME ANP

Nozzle 41 Profile



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 42		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/27/03	20317
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265_13.02.53

Calibration Setup:
Initial Calibration File: A2262-10.20.30
Final Calibration File: A2266_05.19.37

Scan Start: Z = 0.47" Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 17.86 Scan Stop: θ = 35

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	~~No Recordable Indications~~	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/22/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET
FIGURE 5

wl 09-23-02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1		Nozzle:	42
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness:	0.625
Downhill Side of Nozzle (deg.): 136	End of Noz. (in.): 3.74	Probe Serial No.'s:	Ch 1 35044	Ch 6	35052
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]			Ch 2 35202	Ch 7	n/a
Files:			Ch 3 35070	Ch 8	n/a
Circ. Scan Start: -5 deg @ 0.47 " Stop: 365 deg @ 17.86 " Setup: 1			Ch 4 35044	Ch 9	n/a
Files: A2265_13.02.53	Cal Block S/N: 60119300		Ch 5 35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
	Data Loc.	136	166	196	226	256	286	316	346	16	46	76	106	136	Degrees
	Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
	Noz. End	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	Inches
	MAX.	6.79	7.00	7.31	7.74	8.19	8 46	8.51	8 52	8 24	7.67	7.19	6.92	6.79	Inches
	MIN.	5.28	5 48	5 81	6 25	6.90	7.29	7.36	7.35	6.73	6.16	5 82	5.48	5 28	Inches

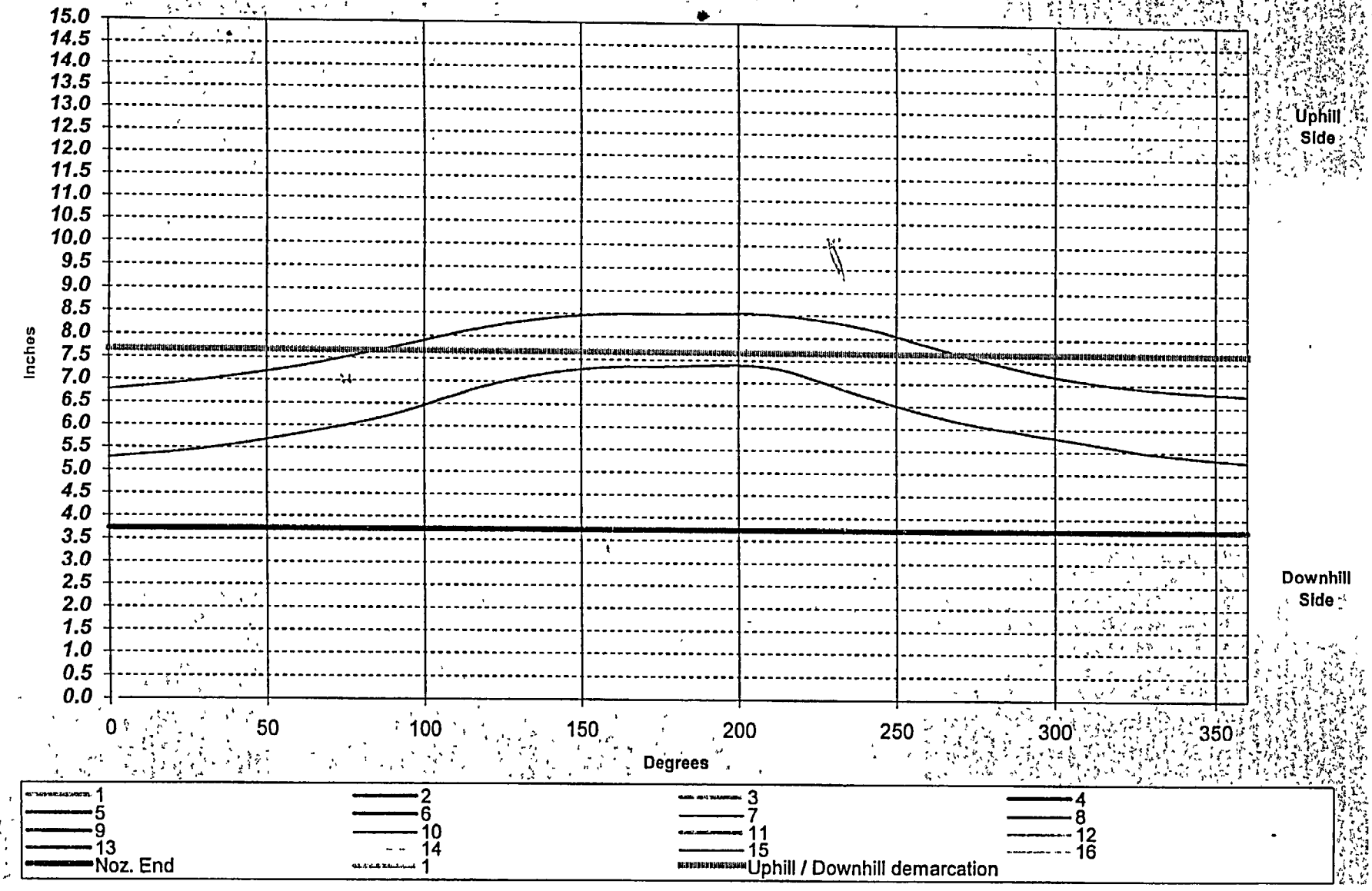
Comments: Measured Thickness: 0 64 @ theta of 0 deg with an axial position of 5 93 Limited Scan? (Y/N): n

Analyzed by: [signature] Date: 9/22/02 Analyzed by: N/A Date:

wl 09-23-02

FRAMATOME ANP

Nozzle 42 Profile



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 43	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 9/03

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2266-09.11.55

Calibration Setup:
Initial Calibration File: A2262-10.28.30
Final Calibration File: A2266-05.19.37

Scan Start: Z = .47" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 19.0" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments: weld Fabrication Flaw Non crack like 120°

Analyzed by: [signature] Level: II Date: 9-22-02

Reviewed by: [signature] Level: III Date: 10-4-02

TYPICAL DATA SHEET
FIGURE 5

9/23/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1	Nozzle: 43
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.):	48	End of Noz. (in.):	3.6	Probe Serial No.'s:	Ch 1 35044 / Ch 6 35052
Axial Scan Files:	Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]				Ch 2 35202 / Ch 7 n/a
Circ. Scan Files:	Start: 0.47 deg @ -5 " Stop: 19 deg @ 365 " Setup: 1				Ch 3 35070 / Ch 8 n/a
	A2266_04.11.55	Cal Block S/N:	60119300		Ch 4 35044 / Ch 9 n/a
					Ch 5 35052 / Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	48	78	108	138	168	198	228	258	288	318	348	18	48	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	Inches
MAX.	6.86	6 90	7 04	7.41	8.02	8.39	8 58	8 39	8.16	7.69	7.33	7.08	6 86	Inches
MIN.	4.76	4 99	5 37	5 69	6.25	6 81	6.95	6 81	6.39	5.88	5.39	5.12	4.76	Inches

Comments: Measured Thickness: 0 63 @ theta of 69 43 deg with an axial position of 9 44 Limited Scan? (Y/N): N

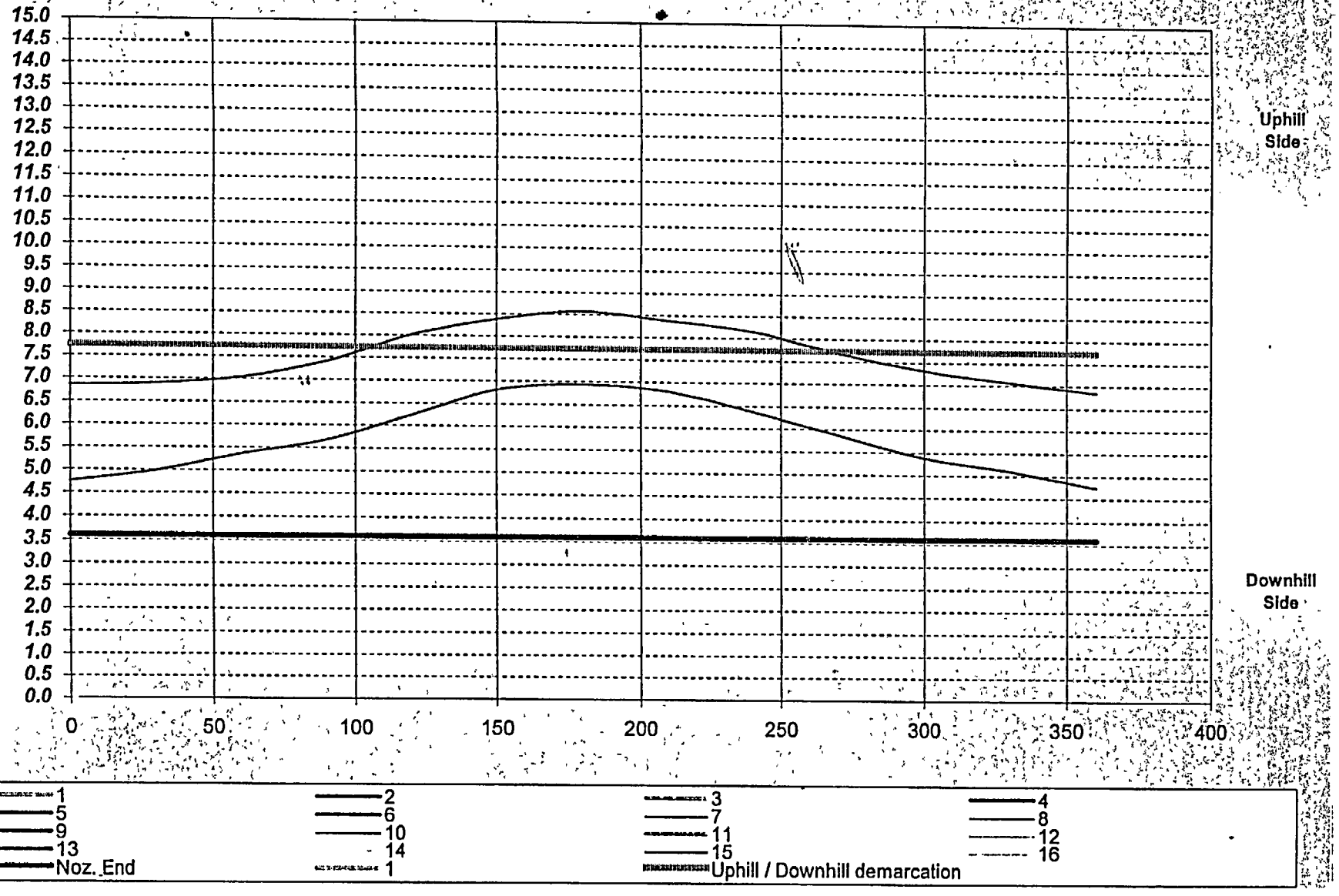
Analyzed by: [signature] Date: 9-22-02 Analyzed by: N/A Date:

9/24/02

A

FRAMATOME ANP

Nozzle 43 Profile



Rotating

Remote Ultrasonic Examination Of Reactor Head Penetrations	PROCEDURE NO.: 54-ISI-100-09 PQ NO.: PQ-100-1, 54-PQ-100-2, 3, 4 and 5

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 44		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 JDB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 6011930E1

Scan File No.: A2265_21.37.31

Calibration Setup:
Initial Calibration File: A2262_10.28.30
Final Calibration File: A2266_05.19.37

Scan Start: Z = .47" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 19.0" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-22-02

Reviewed by: [signature] Level: III Date: 10.4.02

TYPICAL DATA SHEET 9/24/02
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit: 1	Nozzle: 44
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)		ID: 2.750 OD: 4.000	Thickness: 0.625

Downhill Side of Nozzle (deg.): 263 End of Noz. (in.): 3.58 Probe Serial No.'s:

Axial Scan Start: deg @ " Stop: deg @ " Setup:
Files:

Circ. Scan Start: 0 47 deg @ -5 " Stop: 19 deg @ 365 " Setup: 1
Files: A2265_21.37.31 Cal Block S/N: 60119300

Ch 1	35044	Ch 6	35052
Ch 2	35202	Ch 7	n/a
Ch 3	35070	Ch 8	n/a
Ch 4	35044	Ch 9	n/a
Ch 5	35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

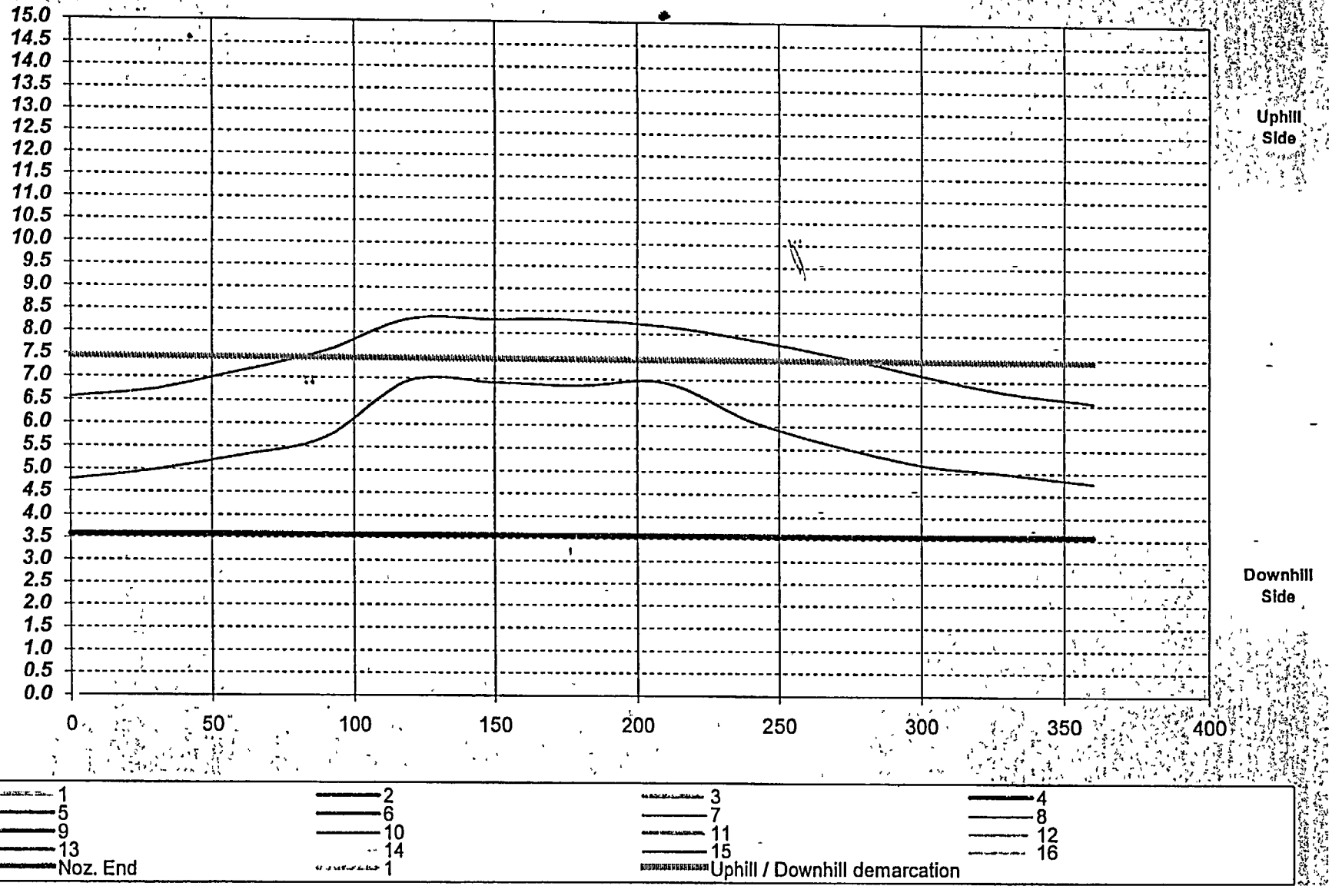
WELD PROFILE															
Data Loc.	263	293	323	353	23	53	83	113	143	173	203	233	263	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	Inches	
MAX.	6 56	6.74	7.14	7.59	8.30	8 30	8.30	8 17	7.90	7.55	7.14	6.78	6 56	Inches	
MIN.	4.78	5 00	5 31	5.72	6 96	6.92	6 87	6.95	6.14	5 60	5.18	5 00	4.78	Inches	

Comments: Measured Thickness: 0 63 @ theta of 93 deg with an axial position of 9.15 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-22-02 Analyzed by: N/A Date:

FRAMATOME ANP

Nozzle 44 Profile



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 45	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ 3.8 JVB

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265-20.16.54

Calibration Setup:
Initial Calibration File: A2262-10.28.30
Final Calibration File: A2266-05.19.37

Scan Start: Z = .47" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 19.0" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	(No Recordable Indications)	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: II Date: 9-22-02

Reviewed by: [signature] Level: III Date: 10-4-02

TYPICAL DATA SHEET
FIGURE 5

9/24/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer: Nuclear Management Corporation	Plant: Point Beach	Unit: 1	Nozzle: 45
Procedure: 54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750 OD: 4.000	Thickness: 0.625
Downhill Side of Nozzle (deg.): 285	End of Noz. (in.): 3.6		

Axial Scan Files: Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]	Ch 1 35044	Ch 6 35052
	Ch 2 35202	Ch 7 n/a
	Ch 3 35070	Ch 8 n/a
Circ. Scan Files: A2265_20.16.54 Start: -5 deg @ 0.47 " Stop: 365 deg @ 19 " Setup: 1	Ch 4 35044	Ch 9 n/a
Cal Block S/N: 60119300	Ch 5 35052	Ch 10 n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

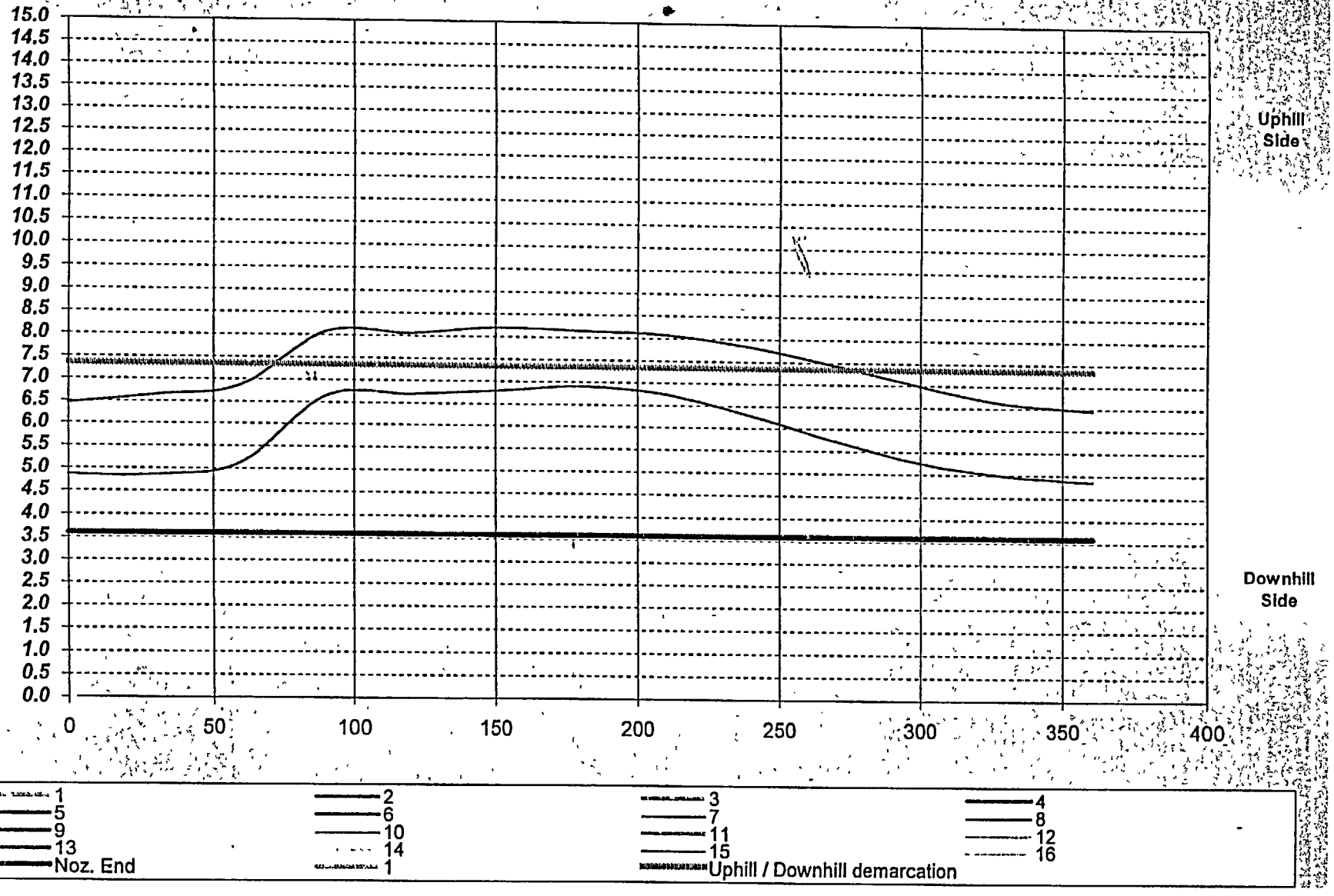
WELD PROFILE															
Data Loc.	285	315	345	15	45	75	105	135	165	195	225	255	285	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	Inches	
MAX.	6.47	6.65	6.88	8.09	8.06	8.21	8.15	8.09	7.83	7.44	7.00	6.62	6.47	Inches	
MIN.	4.87	4.87	5.14	6.65	6.71	6.79	6.91	6.76	6.29	5.73	5.26	4.99	4.87	Inches	

Comments: Measured Thickness: 0.63 @ theta of 135 deg with an axial position of 11.21 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-22-02 Analyzed by: Date:

FRAMATOME ANP

Nozzle 45 Profile



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 46	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.5~~ @ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265_17.05.27

Calibration Setup:
Initial Calibration File: A2262_10.28.30
Final Calibration File: A2265_05.19.37

Scan Start: Z = 0.47 Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 19.0 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/22/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET [signature] 09-23-02
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	46
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)		ID:	2.750	OD: 4.000	Thickness: 0.625

Downhill Side of Nozzle (deg:): 308 End of Noz. (in.): 3.67

Axial Scan Start: deg @ " Stop: deg @ " Setup:
Files:

Circ. Scan Start: -5 deg @ 0.47 " Stop: 365 deg @ " Setup: 1
Files: A2265_17.05.27 Cal Block S/N: 60119300

Probe Serial No.'s:			
Ch 1	35044	Ch 6	35052
Ch 2	35202	Ch 7	n/a
Ch 3	35070	Ch 8	n/a
Ch 4	35044	Ch 9	n/a
Ch 5	35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	308	338	8	38	68	98	128	158	188	218	248	278	308	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	Inches
MAX.	6 53	6 61	8 00	7.87	8.00	8.10	8.00	7 94	7 66	7.25	7.00	6.77	6 53	Inches
MIN.	5.12	5 20	6 77	6 69	6 92	7.00	6.95	6 69	6 39	5.87	5.47	5.22	5.12	Inches

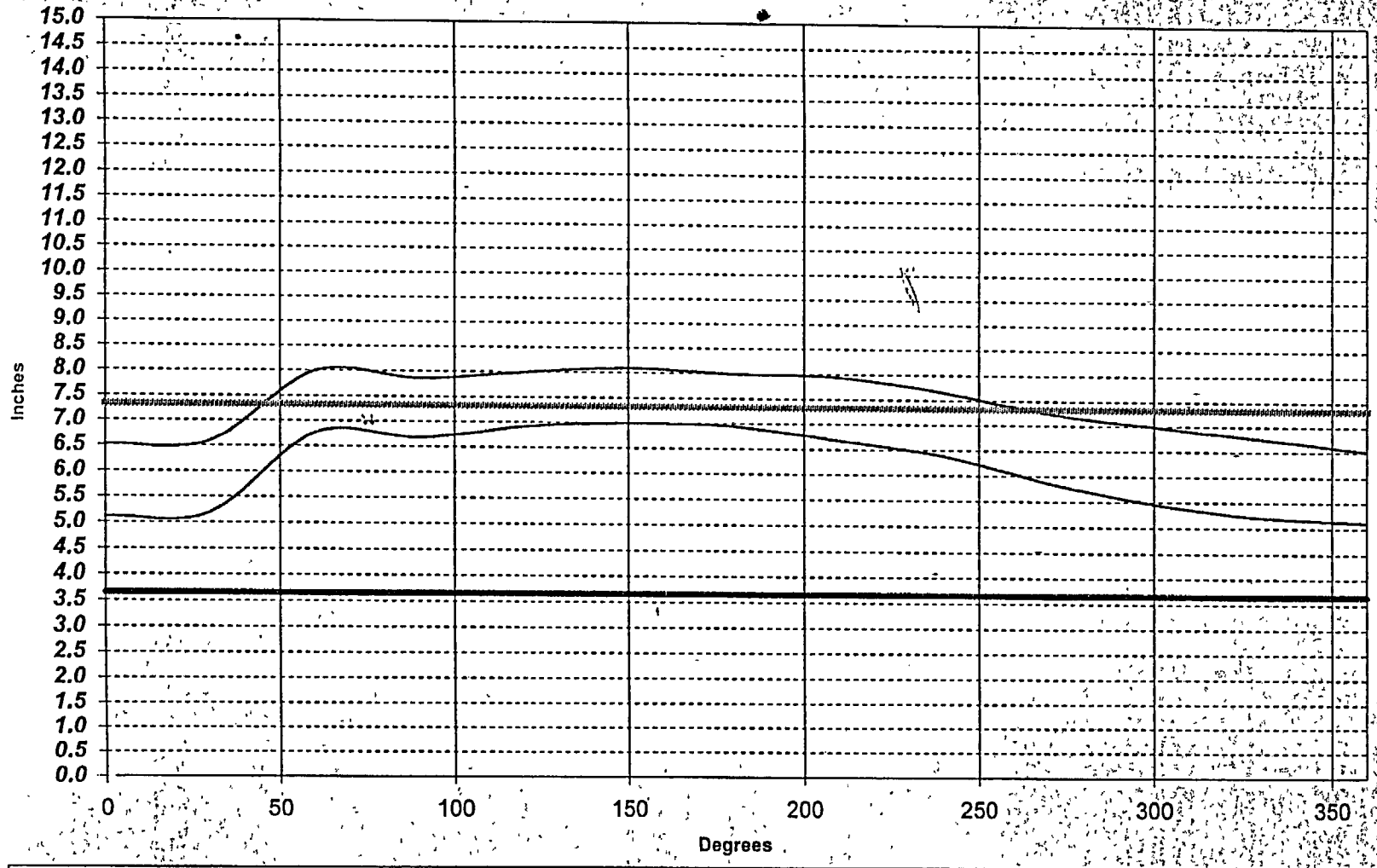
Comments: Measured Thickness: 0 62 @ theta of 1 deg with an axial position of 5 49 Limited Scan? (Y/N): n

Analyzed by: Date: 9/22/02 Analyzed by: N/A Date:

wl 09-23-02

FRAMATOME ANP

Nozzle 46 Profile



1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
Noz. End	1	Uphill / Downhill demarcation	

Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Penetration No.: 47		Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/27/03	20317
16 Channel P/R	N/A	N/A	N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version ~~3.50~~ 3.8

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265_16.07.34

Calibration Setup:
Initial Calibration File: A2262_10.28.30
Final Calibration File: A2266_05.19.37

Scan Start: Z = 0.47" Scan Start: θ = -5
Index Increment: 3°

Scan Stop: Z = 18.86 Scan Stop: θ = 365

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments:

Analyzed by: [signature] Level: III Date: 9/22/02

Reviewed by: [signature] Level: II Date: 10/4/02

TYPICAL DATA SHEET [signature] 09-23-02
FIGURE 5

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	47
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD:	4.000	Thickness:	0.625

Downhill Side of Nozzle (deg.):	315	End of Noz. (in.):	3.68	Probe Serial No.'s:	Ch 1	35044	Ch 6	35052
Axial Scan Start: [illegible] deg @ [illegible] " Stop: [illegible] deg @ [illegible] " Setup: [illegible]					Ch 2	35202	Ch 7	n/a
Files: [illegible]					Ch 3	35070	Ch 8	n/a
Circ. Scan Start: -5 deg @ 0 47 " Stop: 365 deg @ 18 86 ' Setup: 1					Ch 4	35044	Ch 9	n/a
Files: A2265_16.07.34		Cal Block S/N:	60119300		Ch 5	35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	315	345	15	45	75	105	135	165	195	225	255	285	315	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	Inches
MAX.	6.77	6.90	8.17	8.10	8 24	8.33	8 33	8 17	7.83	7.45	7.11	6.88	6.77	Inches
MIN.	5 32	5 41	6 88	6 95	7.11	7.31	7.31	7.04	6 65	6 08	5 61	5.39	5 32	Inches

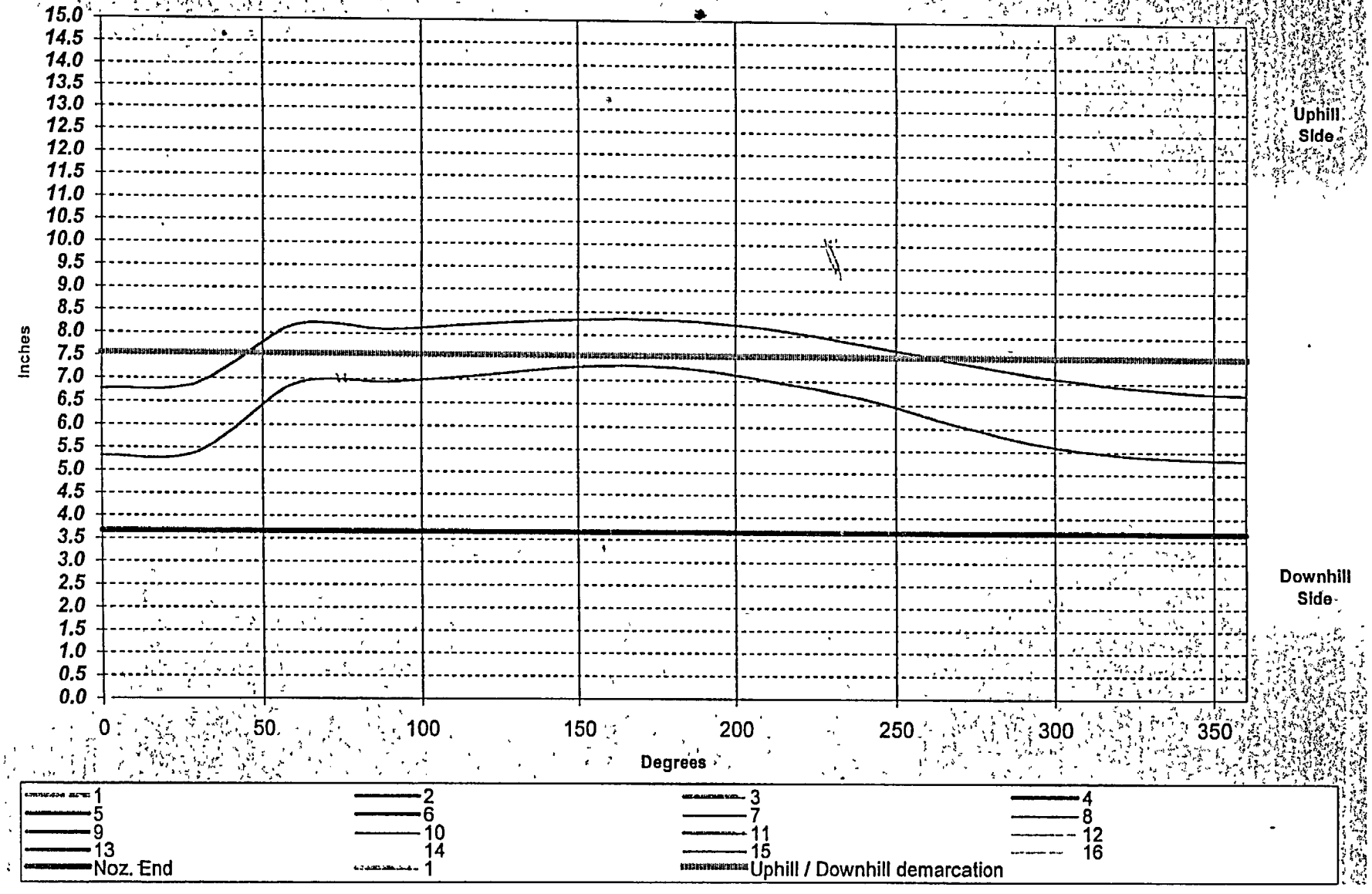
Comments: Measured Thickness: 0 63 @ theta of 1 deg with an axial position of 9 84 Limited Scan? (Y/N): n

Analyzed by: [signature] Date: 9/22/02 Analyzed by: N/A Date:

wf 09-23-02

FRAMATOME ANP

Nozzle 47 Profile



Rotating

FRAMATOME ANP	Reactor Head Penetration Ultrasonic Examination Data Sheet	
Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 48	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version 3.8 (N)

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265_01.39.25

Calibration Setup:
Initial Calibration File: A2262_10.28.30
Final Calibration File: A2266_05.19.37

Scan Start: Z = .47" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 12.71 Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results: No Recordable Indications | Leak Path Detected
Axial Flaws Detected | Circumferential Flaws Detected

Comments: NRI

Analyzed by: [signature] Level: II Date: 9-21-02

Reviewed by: [signature] Level: III Date: 10-4-02

TYPICAL DATA SHEET
FIGURE 5

9/24/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	48
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)	ID: 2.750	OD: 4.000		Thickness:	0.625
Downhill Side of Nozzle (deg.):	47	End of Noz. (in.):	1.29	Probe Serial No.'s:	Ch 1 35044	Ch 6	35052
Axial Scan Files:	Start: deg @ " Stop:	deg @ " Stop:			Ch 2 35202	Ch 7	n/a
					Ch 3 35070	Ch 8	n/a
Circ. Scan	Start: 0.47 deg @ -5 "	Stop: 12.71 deg @ 365 "	Stop:		Ch 4 35044	Ch 9	n/a
Files:	A2265_01.31.25	Cal Block S/N:	60119300		Ch 5 35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

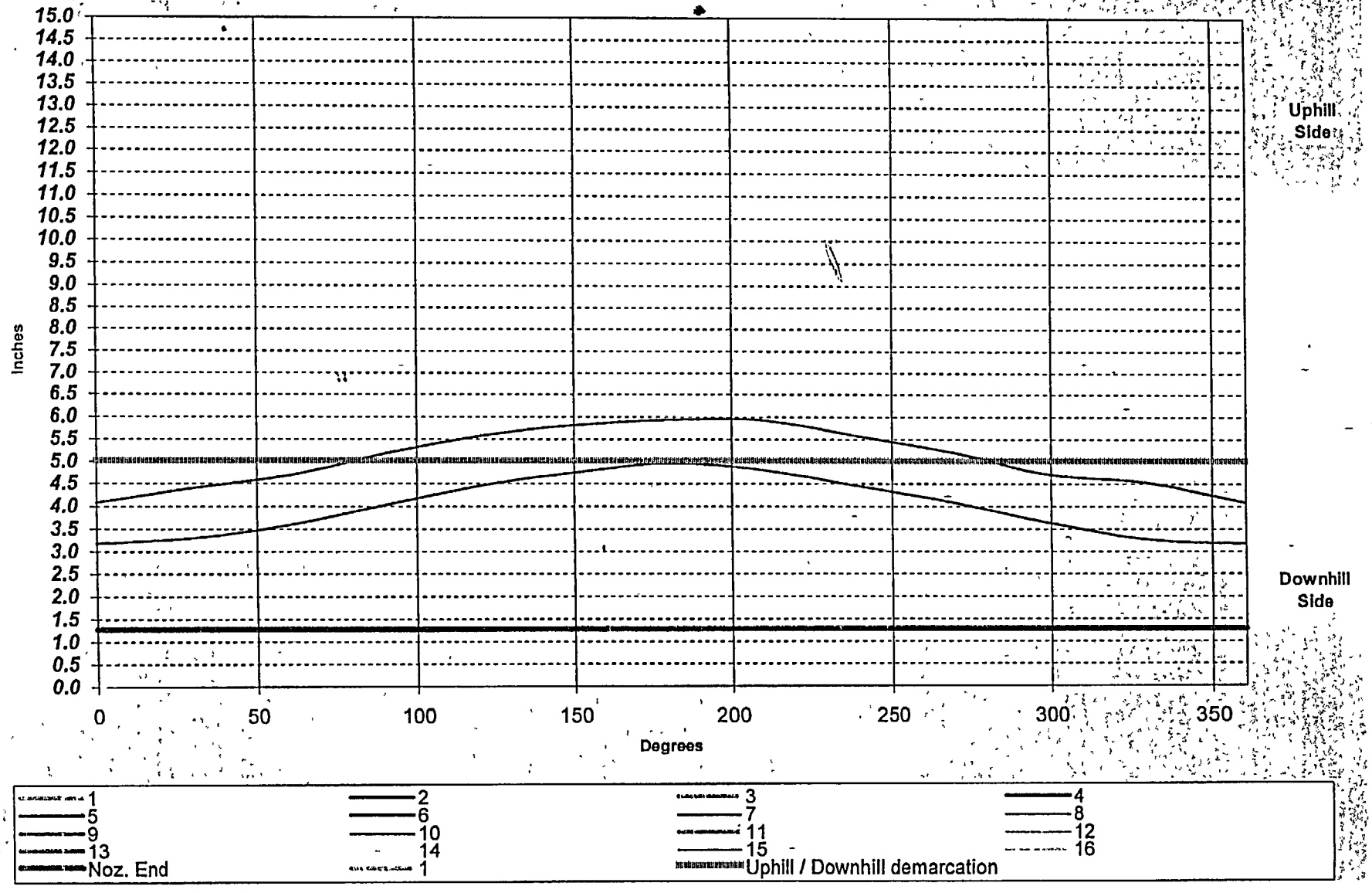
WELD PROFILE															
Data Loc.	47	77	107	137	167	197	227	257	287	317	347	17	47	Degrees
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees
Noz. End	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	Inches
MAX.	4.09	4.41	4.70	5.19	5.58	5.82	5.95	5.93	5.58	5.21	4.72	4.54	4.09	Inches
MIN.	3.19	3.31	3.60	4.03	4.46	4.76	4.97	4.82	4.46	4.09	3.64	3.27	3.19	Inches

Comments: Measured Thickness: 0.64 @ theta of 254 deg with an axial position of 9.56 Limited Scan? (Y/N): N

Analyzed by: [signature] Date: 9-21-02 Analyzed by: N/A Date:

FRAMATOME ANP

Nozzle 48 Profile



Rotating

FRAMATOME ANP

Reactor Head Penetration Ultrasonic Examination Data Sheet

Customer: NMC	Plant: Point Beach	Unit: 1
Penetration No.: 49	Procedure: 54-ISI-100-09	

Equipment:

Description	VH#	Cal. Due Date	SN#
µTomoscan	8167	2/2/03	20317
16 Channel P/R			N/A

ACCUSONEX™ Data Acquisition Software: Version 6.2.5

ACCUSONEX™ Data Analysis Software: Version 3.8 (R)

Cable Length: 50' Type: RG-174 # Intermediate Connectors: 1

Calibration Block: 601193DE1

Scan File No.: A2265-06.05.09

Calibration Setup:
Initial Calibration File: A2262-10.28.30
Final Calibration File: A2266-05.19.37

Scan Start: Z = .47" Scan Start: θ = -5°
Index Increment: 3°

Scan Stop: Z = 12.71" Scan Stop: θ = 365°

Channel	Angle	Serial No.	Comments
1	0°	35044	
2	30°L	35202	TOFD
3	60°S	35070	
4	45°LE	35044	TOFD
5	60°SE	35052	
6	60°SE	35052	

Results:	No Recordable Indications	Leak Path Detected
	Axial Flaws Detected	Circumferential Flaws Detected

Comments: NRI

Analyzed by: [signature]	Level: II	Date: 9-21-02
Reviewed by: [signature]	Level: III	Date: 10.4.02

TYPICAL DATA SHEET
FIGURE 5

9/24/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

Customer:	Nuclear Management Corporation	Plant:	Point Beach	Unit:	1	Nozzle:	49
Procedure:	54-ISI-100-09	Nozzle Dimensions: (in.)		ID:	2.750 OD: 4.000	Thickness:	0.625
Downhill Side of Nozzle (deg.):	52	End of Noz. (In.):	0.94	Probe Serial No.'s:	Ch 1 35044	Ch 6	35052
Axial Scan Start:	deg @	" Stop:	deg @	" Stop:	Ch 2 35202	Ch 7	n/a
Files:					Ch 3 35070	Ch 8	n/a
Circ. Scan Start:	-5 deg @ 0.47 "	Stop:	365 deg @ 12.71 "	Stop:	Ch 4 35044	Ch 9	n/a
Files:	A2265-06.05.09	Cal Block S/N:	60119300		Ch 5 35052	Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

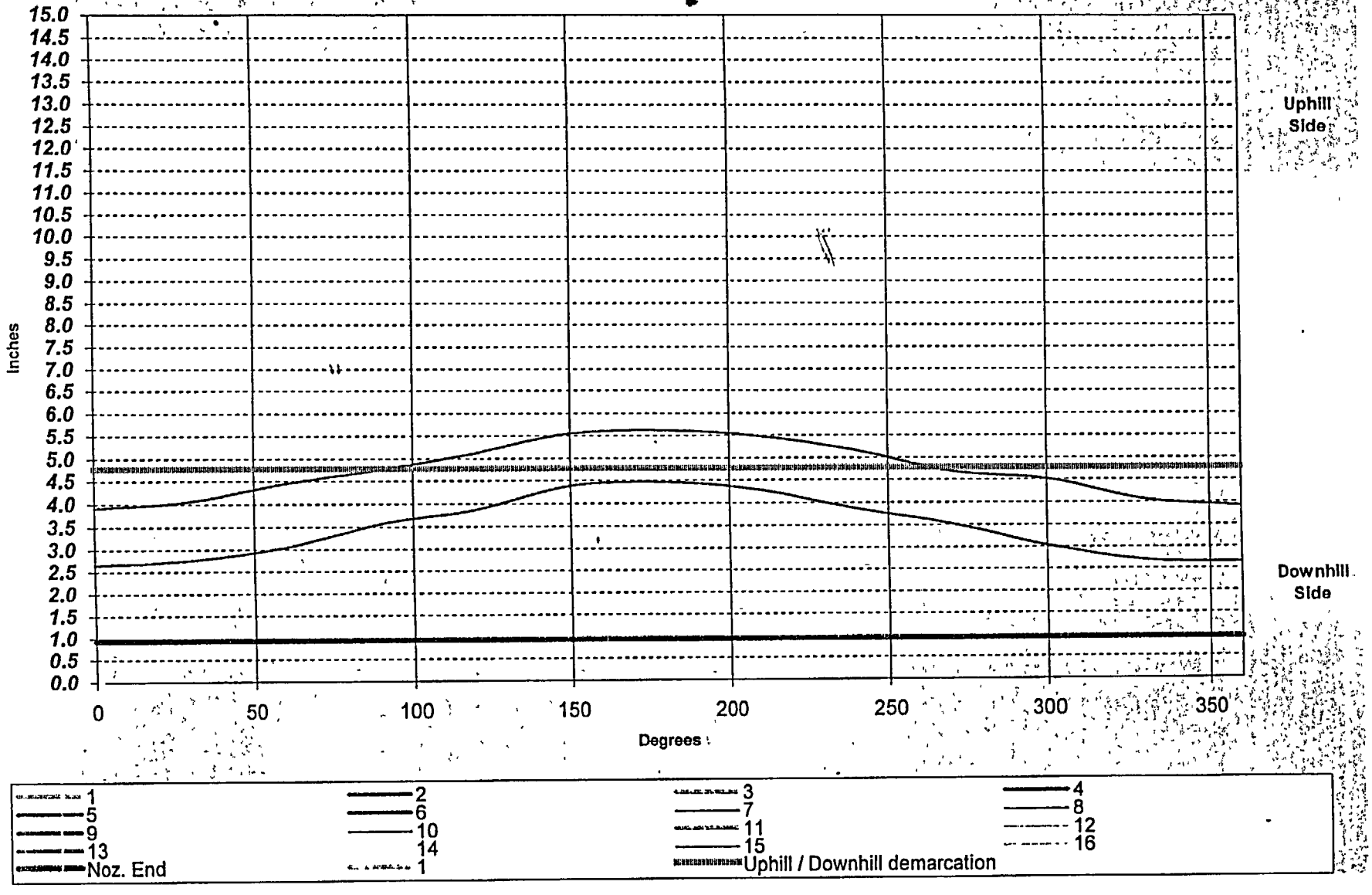
WELD PROFILE															
Data Loc.	52	82	112	142	172	202	232	262	292	322	352	22	52	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	Inches	
MAX.	3.92	4.07	4.46	4.76	5.13	5.56	5.62	5.49	5.17	4.70	4.53	4.07	3.92	Inches	
MIN.	2.66	2.76	3.05	3.58	3.88	4.39	4.47	4.29	3.88	3.53	3.04	2.70	2.66	Inches	

Comments: Measured Thickness: 0.64 @ theta of 213 deg with an axial position of 6.2 Limited Scan? (Y/N): N

Analyzed by: Jason P. Ross Date: 9-21-02 Analyzed by: N/A Date:

FRAMATOME ANP

Nozzle 49 Profile



Remote Ultrasonic Examination Of Reactor Vessel Head Vent Line Penetrations	PROCEDURE NO.: 54-ISI-137-00 PQ NO.: 54-PQ-137-01

RPV Vent Line Vent line Data Sheet

Customer: NMC		Plant: Point Beach	Unit: 1
Vent line No.: N/A		Procedure: 54-ISI-137-00	
Axial Scan		Setup: 2	
Scan Start: Z = -1.7"		Axial Scan File No.: A2266-10.29.36 -11.00.52 ~~-12.20.53~~	
Scan Stop: Z = 5.0"			
Channel	Angle	Serial No.	
1	0°L	9266-02003	
2	70°S	9266-02003	
3	70°S	9266-02003	
4	45	9266-02003	
5	45	9266-02003	
Performed by:			Date:
Analyzed by: MW KEY			Date: 9/23/02
Results:	No Flaws Detected	Axial Flaws Detected	Circ. Flaws Detected
Comments: Reviewed by: 10/4/02			

Figure 1

9/24/02

FRAMATOME ANP

CRDM Nozzle Ultrasonic Examination Data Sheet

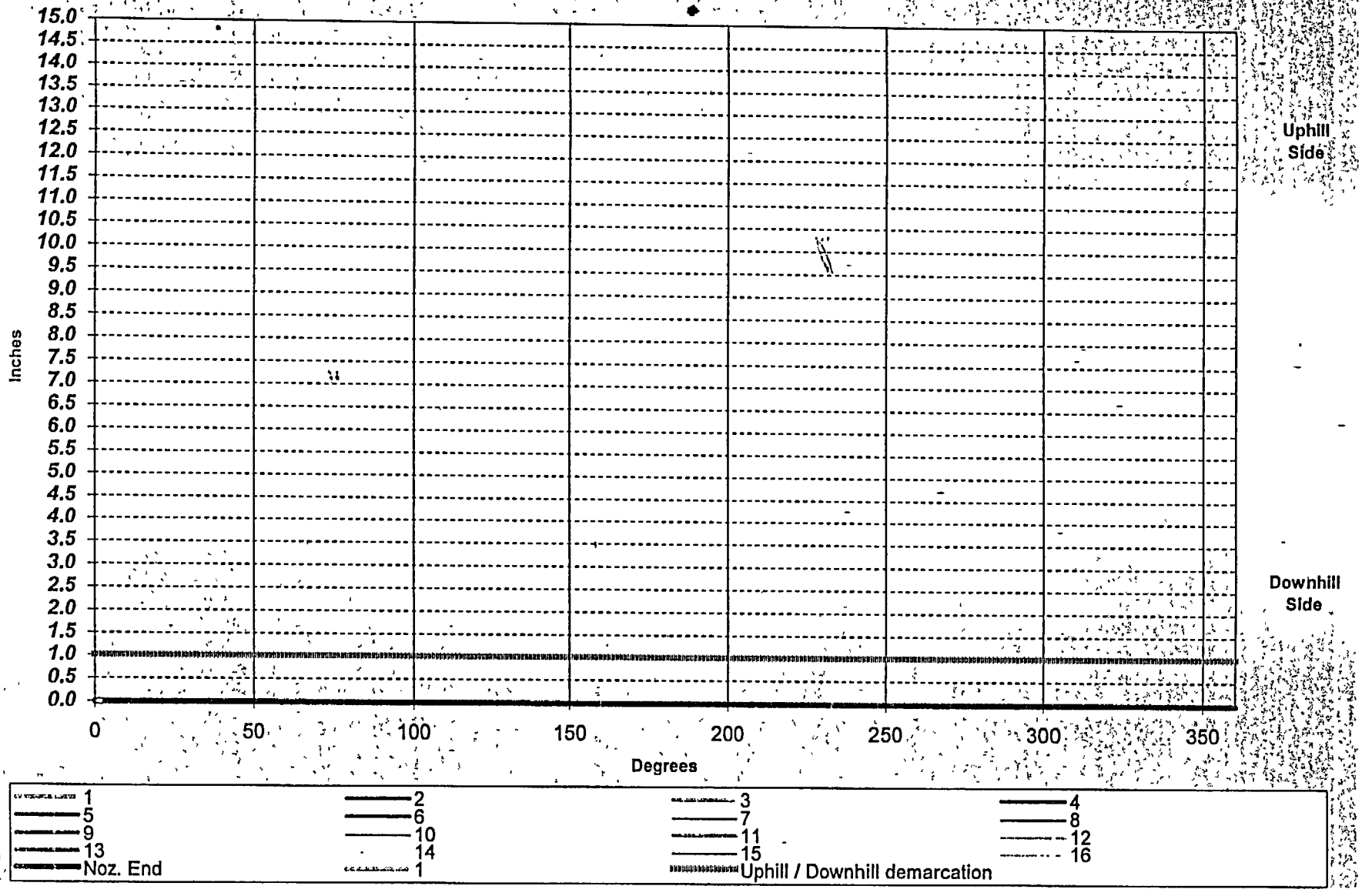
Customer:	Nuclear Management Corporation	Plant: Point Beach	Unit: 1	Nozzle:	Vent line
Procedure:	54-ISI-137-00 with C/A FRA-02-012, PB-2-004	Nozzle Dimensions: (in.)	ID: 0.750 OD: 1.046	Thickness:	0.148
Downhill Side of Nozzle (deg.):	0	End of Noz. (in.): 0	Probe Serial No.'s:	Ch 1	9266-02003
Axial Scan Files:	Start: deg @ "	Stop: deg @ "	Setup:	Ch 2	9266-02003
Circ. Scan Files:	Start: -5 deg @ -1.7 "	Stop: 365 deg @ 5 "	Setup:	Ch 3	9266-02003
	A2266_10.29.36, _11.00 52, _12.20 53	Cal Block S/N: 6012827D1		Ch 4	9266-02003
				Ch 5	9266-02003
				Ch 6	n/a
				Ch 7	n/a
				Ch 8	n/a
				Ch 9	n/a
				Ch 10	n/a

Flaw No.	Surface (ID/OD)	Depth to Flaw Tip	End Point 1 Min (in.)	End Point 1 Min (deg.)	End Point 2 Max (in.)	End Point 2 Max (deg.)	Axial Total (in.)	Adjusted Circ. Extent Min (deg.)	Adjusted Circ. Extent Max (deg.)	Adjusted Circ. Extent Total (in.)	Flaw Length (in.)	Flaw Angle (deg.)	Flaw TWD (in.)	Flaw Aspect Ratio	Flaw Orientation	Weld Location @ Flaw Min	Weld Location @ Flaw Max
1	NRI																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	

WELD PROFILE															
Data Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. Loc.	0	30	60	90	120	150	180	210	240	270	300	330	360	Degrees	
Noz. End	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Inches	
MAX.	1 00	1.00	1.00	1.00	1 00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Inches	
MIN.	0 00	0.00	0 00	0 00	0 00	0 00	0.00	0.00	0 00	0 00	0.00	0 00	0.00	Inches	

Comments: Measured Thickness: @ theta of deg with an axial position of Limited Scan? (Y/N): n

Analyzed by: Date: 9/23/02 Analyzed by: N/A Date:

FRAMATOME ANP

Vent Line Profile