



RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) / PRIVACY ACT (PA) REQUEST

2000-0014

8

RESPONSE TYPE  FINAL  PARTIAL

REQUESTER

Maria Webb

DATE

'AUG 24 2000

PART I. -- INFORMATION RELEASED

- No additional agency records subject to the request have been located.
Requested records are available through another public distribution program. See Comments section.
APPENDICES M Agency records subject to the request that are identified in the listed appendices are already available for public inspection and copying at the NRC Public Document Room.
APPENDICES N Agency records subject to the request that are identified in the listed appendices are being made available for public inspection and copying at the NRC Public Document Room.
Enclosed is information on how you may obtain access to and the charges for copying records located at the NRC Public Document Room, 2120 L Street, NW, Washington, DC.
APPENDICES N Agency records subject to the request are enclosed.
Records subject to the request that contain information originated by or of interest to another Federal agency have been referred to that agency (see comments section) for a disclosure determination and direct response to you.
We are continuing to process your request.
See Comments.

PART I.A -- FEES

AMOUNT \* \$

- You will be billed by NRC for the amount listed.
None. Minimum fee threshold not met.
You will receive a refund for the amount listed.
Fees waived.

\* See comments for details

PART I.B -- INFORMATION NOT LOCATED OR WITHHELD FROM DISCLOSURE

- No agency records subject to the request have been located.
Certain information in the requested records is being withheld from disclosure pursuant to the exemptions described in and for the reasons stated in Part II.
This determination may be appealed within 30 days by writing to the FOIA/PA Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Clearly state on the envelope and in the letter that it is a "FOIA/PA Appeal."

PART I.C COMMENTS (Use attached Comments continuation page if required)

SIGNATURE, FREEDOM OF INFORMATION ACT AND PRIVACY ACT OFFICER

Garon Ann Reed

**APPENDIX M  
RECORDS ALREADY AVAILABLE IN THE PDR**

<b><u>NO.</u></b>	<b><u>DATE</u></b>	<b><u>ACCESSION NUMBER</u></b>	<b><u>DESCRIPTION/(PAGE COUNT)</u></b>
1.	08/14/95	9508180291	Letter from L. J. Callan, Regional Administrator, NRC Region IV, to L. E. Pardi, MK, subject: Notice of Violation. (6 pages)
2.	09/13/95	9509130191	Letter from T. Zarges to USNRC, subject: Reply to a Notice of Violation. (1 page)
3.	09/13/95	9509130197	Letter from L. E. Pardi to USNRC, subject: Reply to a Notice of Violation. (8 pages)
4.	04/24/98	9804300006	Letter from Scott Patulski to USNRC regarding Reply to Apparent Violation. (6 pages)

**APPENDIX N**  
**RECORDS BEING RELEASED IN THEIR ENTIRETY**  
 (If copyrighted identify with \*)

<u>NO.</u>	<u>DATE</u>	<u>DESCRIPTION/(PAGE COUNT)</u>
1.	No date	Drawings and charts. (25 pages)
2.	06/09/88	Field Welding Procedure (8 pages)
3.	09/16/88	Field Welding Procedure (13 pages)
4.	07/17/96	Fax to D. Yeston and R. Couldstring from A. Artayet. (24 pages)
5.	08/01/96	Memorandum to E. Gorden from A. Artayet, subject: Delegation of Authority for the Point Beach SGRP. (1 page)
6.	01/14/97	Exhibit 18 to OI Report 3-97-013: Memo from A. J. Walcutt to Max Bingham, subject: Draft of Open Issues Under. (9 pages)
7.	01/22/97	Memorandum from A. Artayet to A. Walcutt regarding Concerns About MK's DC Cook WPSs. (5 pages)
8.	01/23/97	M-QM-97-004 (Determination Checklist for 10 CFR Part 21 Applicability) (5 pages)
9.	01/24/97	Quality Assurance Instruction. (1 page)
10.	01/27/97	Memorandum to Andy Walcutt from Lou Pardi, re: IOC M-QM-97-004 (1 page)
11.	01/28/97	Memorandum to Tom Zarges from Andy Walcutt, re:1996 Management Review (2 pages)
12.	02/28/97	Memorandum to File from A. Walcutt, subject: Evaluation of Potential Part 21 as Described in IOC No. M-QM-97-004. (2 pages)
13.	03/10/97	Memorandum to Wayne Kropp from Donald E. Funk, re: Additional Information Received Regarding AMS No. RIII-97-A-0035 Employment Discrimination, Inadequate Weld Procedures at Point Beach and D.C. Cook (17 pages)
14.	03/13/97	Allegation Action Plan (4 pages)
15.	03/13/97	Memorandum to Wayne Kropp from Jay Hopkins, re: Additional

Information Regarding Employment Discrimination and  
Inadequate Welding Procedures at Point Beach and D.C. Cook  
AMS No. RIII-97-A-0035 (3 pages)

16. 03/18/97 Memo from A. J. Walcutt to File. (1 page)
17. 03/20/97 Conversation Record (1 page)
18. 04/22/97 Memorandum to Geoffrey Grant from Jay Hopkins, re: OI report of Interview Morrison Knudsen: Alleged Discrimination Against a Corporate Welding Engineer for Raising Welding Concerns (OI Case 3-97-013) (AMS No RIII-97-A-0035) (1 page)
19. 05/19/97 Memorandum to Jay Hopkins from Jerome Schapker, re: OI Report of Interview Morrison Knudsen: Alleged Discrimination Against a Corporate Welding Engineer for Raising Welding Concerns (OI Case 3-97-013) (AMS No RIII-97-A-0035) (3 pages)
20. 07/24/97 Follow-up ARB ( 2 pages)
21. 08/04/97 Allegation Action Plan (5 pages)
22. 08/05/97 Letter to S.A. Patulski from John A. Grobe (2 pages)
23. 08/05/97 Letter to E.E. Fitzpatrick from John A. Grobe (2 pages)
24. 10/20/97 Memorandum to J. Gavula from Jay Hopkins, re: Additional Information Regarding Part 21 Applicability for Weld on D.C. Cook U-2 S/G Replacement, AMS No. RIII-97-A-0035 (1 page)
25. 10/29/97 Memorandum to J. Hopkins from M. Holmberg, re: Review of Licensee Investigation Report for Allegation No. RIII-97-A-0035 (1 page)
26. 11/10/97 Exhibit 32 to OI 3-97-013: Conversation Record (2 pages)
27. 2/7/98 Memorandum to J. Grobe from Jay Hopkins, re: Alleged Discrimination Against a Corporate Welding Engineer (OI Case 3-97-013) (AMS No RIII-97-A-0035) (1 page)
28. 02/24/98 Memorandum to Jay Hopkins from John Grobe, re: Review of Morrison Knudsen Corporation (MK) Investigation for Allegation No. RIII-97-A-0035, OI Case No. 3-97-013 (1 page)
29. 03/24/98 Memorandum to Jay Hopkins from James Gavula, re: Morrison Knudsen Corporation (MK) Investigation Review, Identification of Additional Concerns (1 page)
30. 3/25/98 Letter to S.A. Patulski from John Grobe, re: Apparent Violation of Employee Discrimination Requirements (U.S. Department of

Labor Case Nos. 97-ERA-34 and ARB 98-016) (4 pages)

31. 04/21/98 Memo from R. Paul to B. Clayton, subject: MK: Alleged Discrimination Against a Corp. Welding Engineer. (1 page)
32. 05/07/98 Follow-up ARB (4 pages)
33. 05/7/98 Memo from J. Hopkins to J. Gavula regarding Follow Up ARB for New Concerns Identified During ESB1's Review of OI Transcript. (1 page)
34. 10/22/98 Handwritten faxed note from Chuck Weil to Mike Stein with attachments. (7 pages)
35. 12/28/98 E-mail from M. Stein to C. Weil regarding MK. (1 page)
36. 01/28/99 Letter from R. Edmister to C. Weil enclosing overheads. (8 pages)
37. 02/8/99 EA Request & Enforcement Strategy Form. (1 page)
38. 03/01/99 E-mail from M. Stein to C. Weil, H. Clayton & J. Lieberman. (1 page)
39. 03/03/99 E-mail from M. Stein to J. Lieberman. (1 page)
40. 03/04/99 E-mail from J. Lieberman to C. Weil regarding Release of Morrison Knudsen Material. (1 page)
41. 03/11/99 E-mail from M. Stein to C. Mohrwinkel & E. Baker re allegations question. (1 page)
42. 03/15/99 E-mail from M. Stein to E. Baker. (1 page)
43. 03/18/99 Letter from R. Paul to M. Connors. (1 page)
44. 03/19/99 Memo from M. Stein to C. Weil. (1 page)

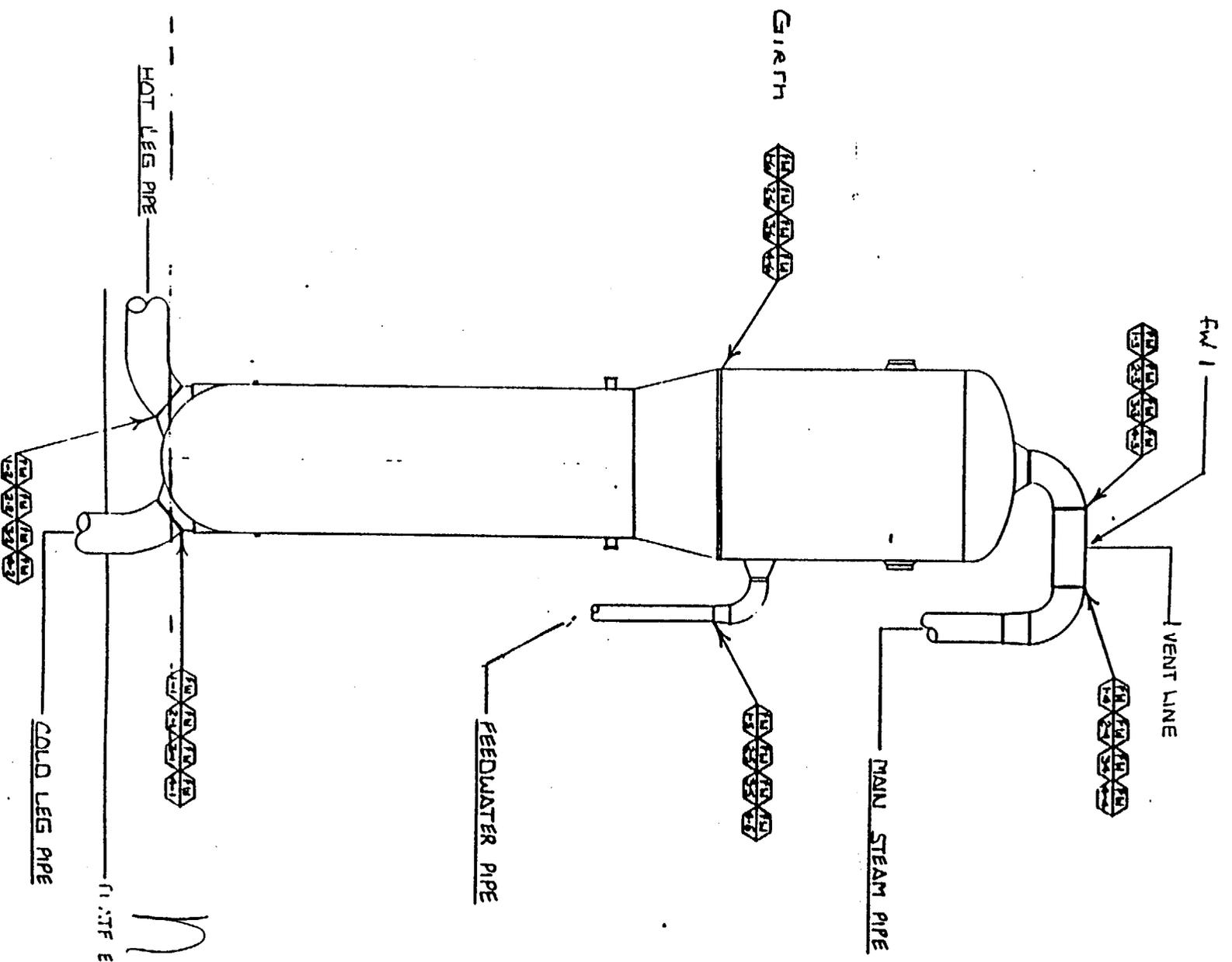
System SWI Generator 1 MAIN STEAM & REPT  
 Year Built 1978 Year repaired/replaced 1988  
 Stress relieved YES Stress relief temp 1125°F  
 Hydro Test YES PSI applied 372 ASME 79X-usinlets ACC  
 Work Package 1531A ASME Code Yr/No. MB3-589/MB3-583

*Notes -*

*DATE: 04-05-1994*

Contract: AEBC/MB30  
 Address: Cook Nuclear Plant Unit  
 Work by: TK-Ferguson Co. Cleveland C  
 Note: no sampling Required

Page 79 of 251



*111*

*F.L. EL. 59A-9X*



Name of System MAIN STEAM SG #1  
 Year Built 1970 Year repaired/replaced 1988  
 Stress relieved YES Stress relief temp 1100°F  
 Hydro Test YES PSI applied 1372.2516 results ACC  
 Work Package 1531H ASME Code Yr/No. III 83-584/1083-583

Owner: AEPSC/LEPCO  
 Address: Cook Nuclear Plant Unit  
 Work by: McFerguson Co. Cleveland  
 Note: NO STAMPING REQUIRED

										P Group	Procedure Specs.	Type/Class	ID. Nos.	Final NDE Performed	
										FUJ-3	original repair	M1-1-HB R/1	W02/001 W02/002 W01/006	E7205-2 E201B	RT MT
										FUJ-4	original repair	M1-1-HB	W02/001 W02/002 W01/005 W01/004 W01/006	E7205-2 E201B	RT MT

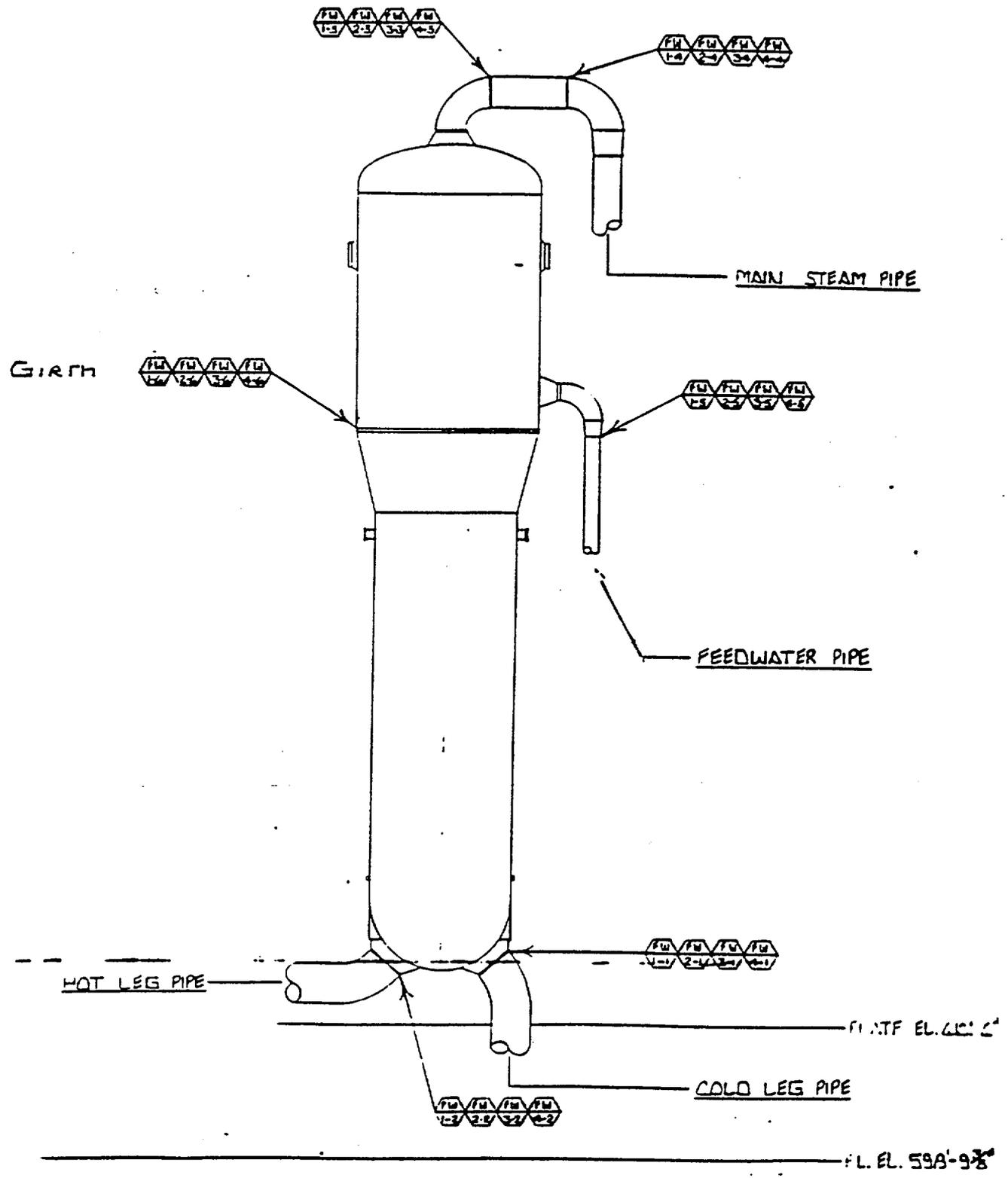






Name of System MAIN FEED WATER S/C #2  
 Year Built 1978 Year repaired/replaced 1982  
 Stress relieved NA Stress relief temp NA  
 Hydro Test 4E3 PSI applied 392516 results ACC  
 Work Package 1531B ASME Code Yr/No. MB3-584/1E3-584

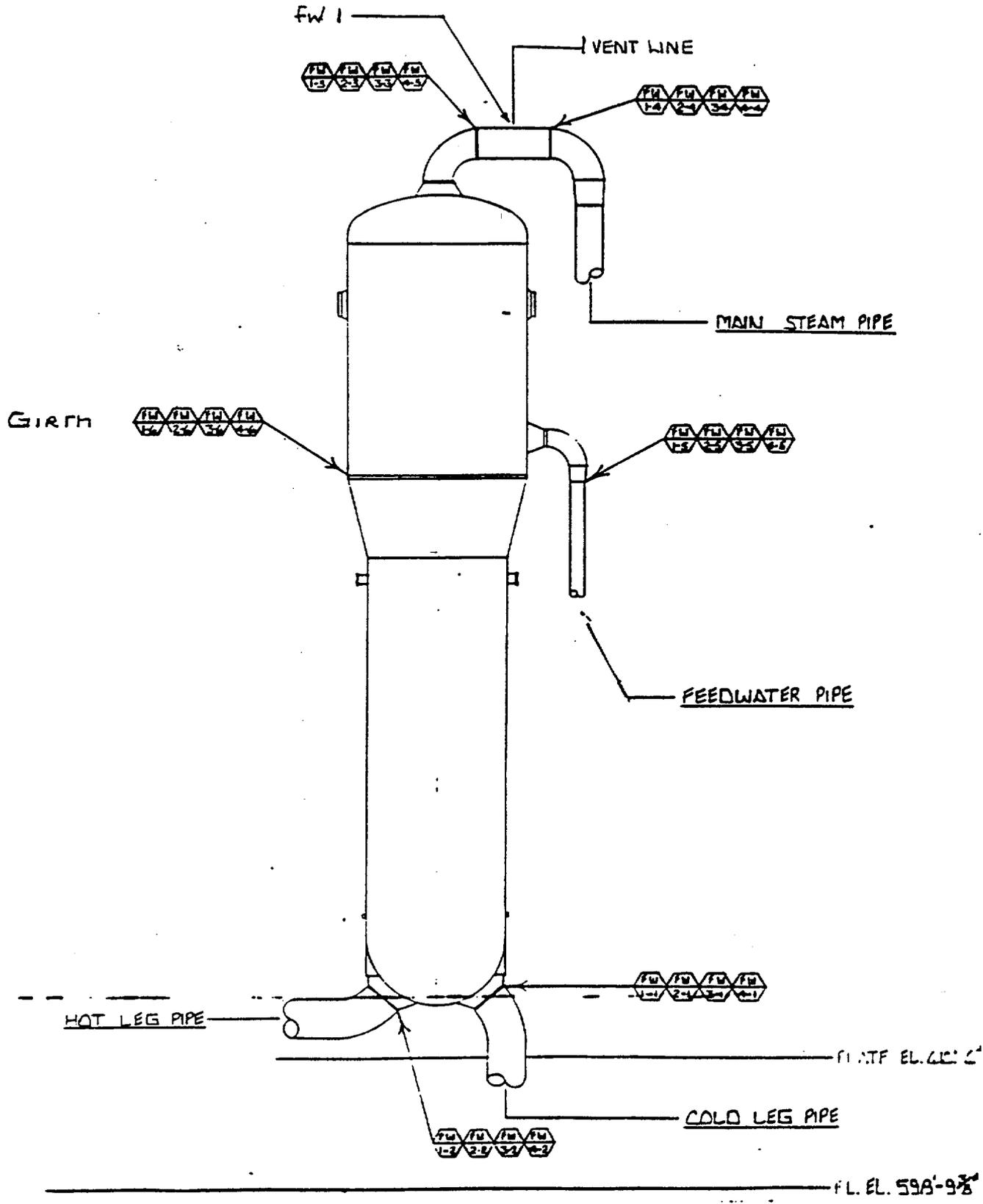
Contract: KEPSC/INFCO  
 Address: Cook Nuclear Plant Unit  
 Work by: MK-Ferguson Co. Cleveland  
 Note: no stamping required  
 Page 122 of 251





Name of System MAIN STEAM & VENT LINE  
 Year Built 1978 Year repaired/replaced 1988  
 Stress relieved YES Stress relief temp 1125°F  
 Hydro Test YES PSI applied 1350<sup>0314</sup> psig results ACC  
 Work Package 15310 ASME Code Yr/No. ME3-584/ME3-583

DRAWING NO. 514  
 PROJECT: AEFSC/IMPCO  
 Address: Cook Nuclear Plant Unit 2  
 Work by: MK-Ferguson Co. Cleveland O  
 Note: NO STAMPING REQ.  
 Page 180 of 251

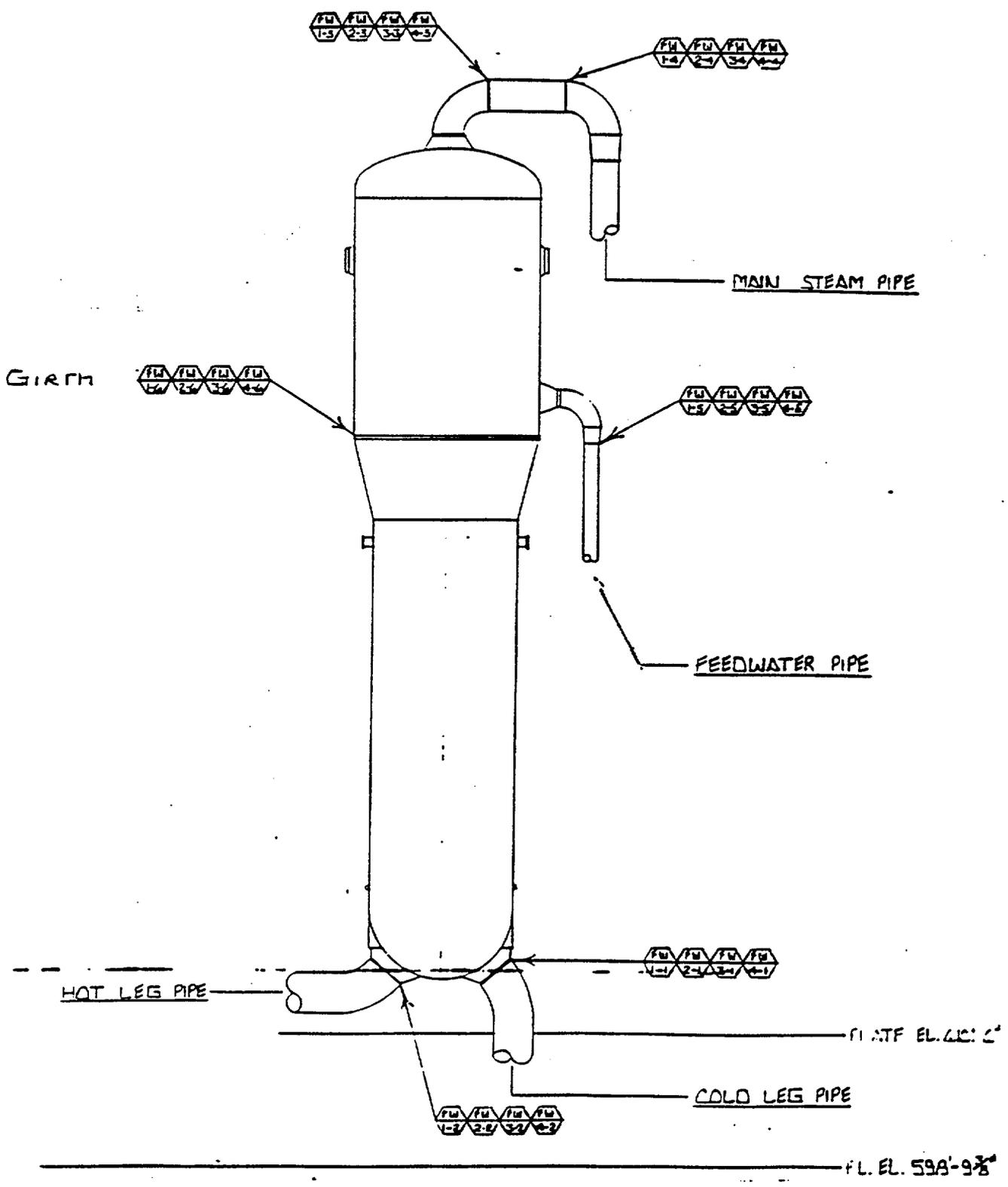






Address: Cook Nuclear Plant U  
Work by: MK-Ferguson Co. Cleveland  
Note: *no stamping require*

System 563  
Year Built \_\_\_\_\_ Year repaired/replaced \_\_\_\_\_  
Stress relieved NA Stress relief temp NA  
Hydro Test 463 PSI applied 1352 <sup>103°F</sup> results ACL  
Work Package 1531C ASME Code Yr/No. III B3-SB4/A B3-SB3



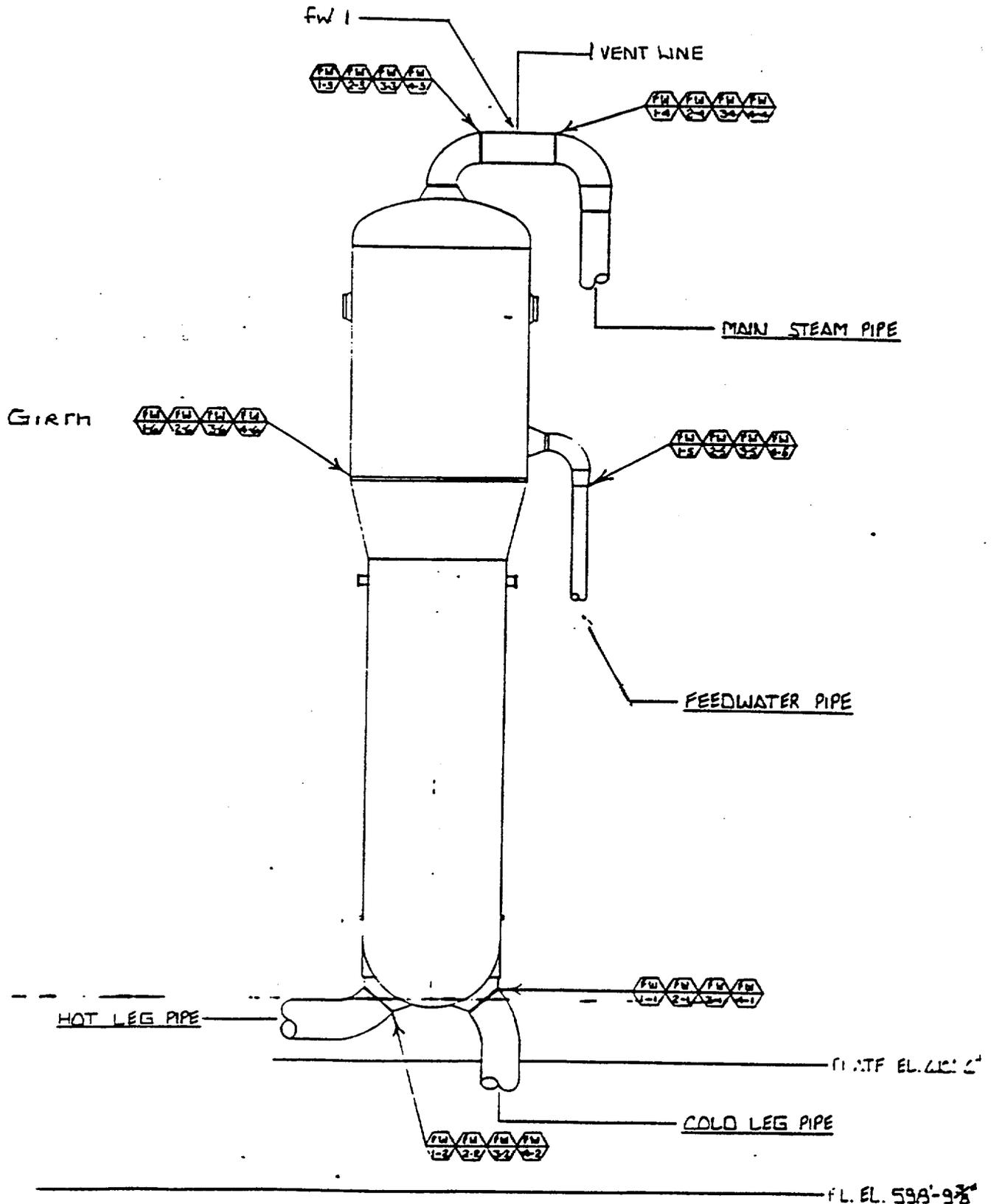


Date: JAN 5 1989

Name of System MAIN STEAM & VENT LINE SL 4A  
Year Built 1978 Year repaired/replaced 1988  
Stress relieved YES Stress relief temp 1125°F  
Hydro Test YES PSI applied 1363 results ACC  
Work Package 1740D ASME Code Yr/No. III B3-584/III B3-583

Owner: AEPSC/IMPCCO  
Address: Cook Nuclear Plant Unit  
Work by: MR-Ferguson Co. Cleveland (  
Note: NO STAMPING REQ.

Page 220 of 251

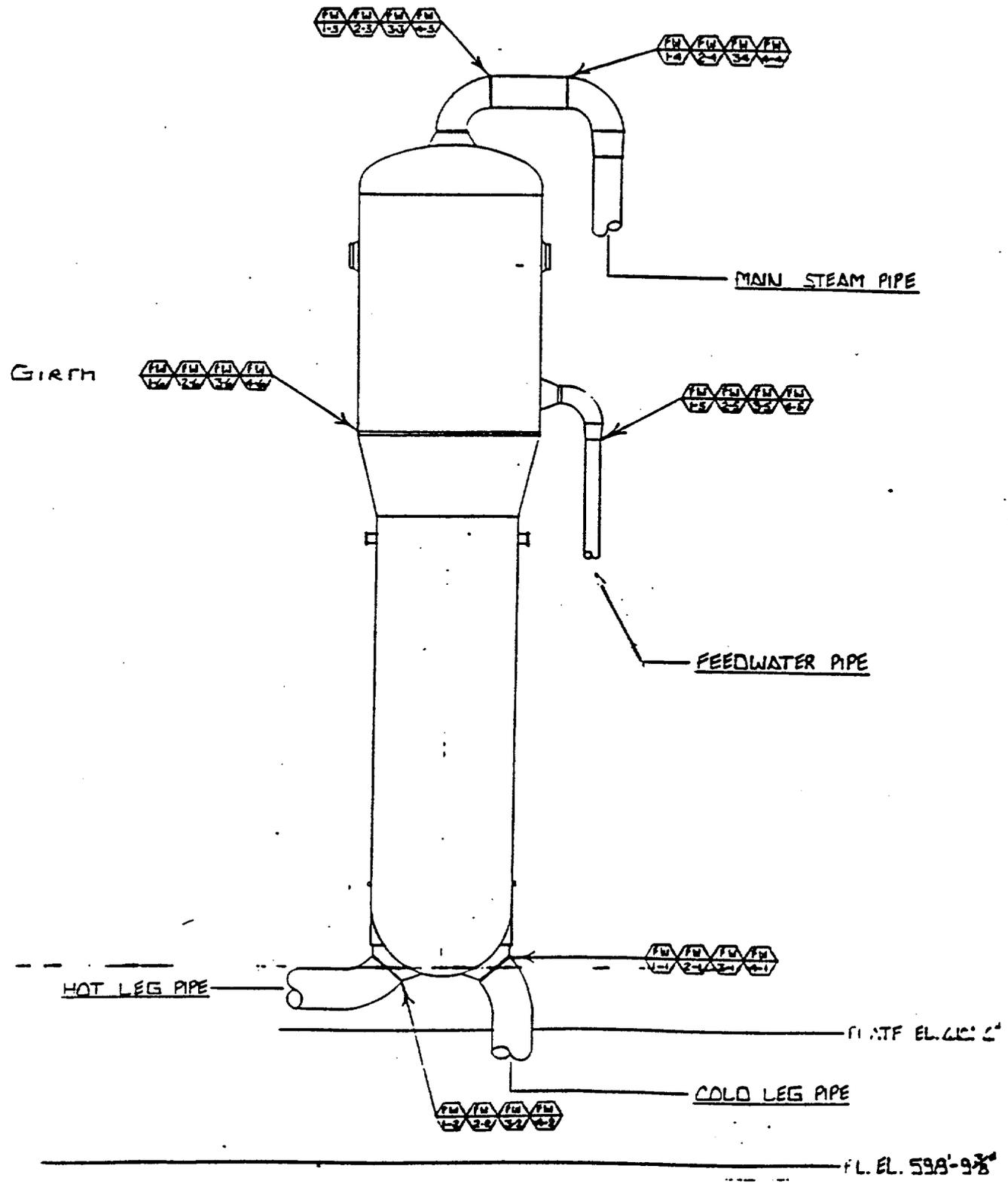






Name of System FRS0 UNIT 2L STM 610N 09  
 Year Built 1972 Year repaired/replaced 1988  
 Stress relieved NA Stress relief temp NA  
 Hydro Test YES PSI applied 1363/146/169 results ALL  
 Work Package 15310 ASME Code Yr/No. 1983-584/1983-583

DATE: JUN 05 1989  
 Owner: AEPSO/MPCO  
 Address: Cook Nuclear Plant Unit  
 Work by: MK-Ferguson Co. Cleveland  
 Note: NO STAMPING REQUIRED  
 Page 223 of 251







Contract No. <b>3669</b>	Card No. <b>1531A-80</b>	Weld No. <b>N/A</b>	Page <b>2</b> 1 of <b>2</b>
W.P.S. No. <b>M-1-1-AB</b>	Rev. <b>1</b>	Joint Type <b>Weld Build-up</b>	Pipe Diameter <b>32"</b> Weld Thickness <b>*NTE 2"</b> <i>Butt 12-17-88</i>

WELDERS / DATES			REVIEW / APPROVAL	
Tack	Root	Balance P.N. <i>8-4-88</i> <i>P9 RHW 8-4-88</i> <i>P-14 EWH 8-16-88</i> <i>P9 DTCB 8-17-88</i> <i>P14 EWH 8-17-88</i> <i>P14 EWH 8-16-88</i>	Welding Engineer <i>Engine Hardin</i>	Date <b>3-23-88</b>
			Quality Review <i>Bruce W. Stevener</i>	Date <b>5-24-88</b>
			Others Review	Date

PCD STEP	REQUIRED CONDITIONS	Q.C. HOLD POINT	OTHER HOLD POINT	CONST. RELEASE	QUALITY CONTROL RELEASE DATE	OTHER RELEASE DATE	REMARKS
1	cleanliness prior to weld	H		RW 8-3-88	G.U.T. II 8-3-88		
37	Final VT (note 2)	H		<i>42 2-13-88</i>	<i>1531A-80-3-F-0</i>		1531A-80-3-F-0
23	Pre-heat (Note 3)	H		RW 8-3-88	270°F MKF 205		
					<i>RHW 8-4-88</i> 270°F MKF 205		RHW 08/04-8-F-0
					<i>EWH 8-16-88</i> 300°F MKF-205		<i>10-11-88</i> CWH 23/11-8-F-0
					<i>DTCB 8-17-88</i> 275°F MKF 205		1531A-80-2-0-0
					<i>EWH 8-17-88</i> 290°F MKF 205		810H 08/17-4-F-0
					<i>290°F 8-18-88</i> MKF 205		1531A-80-2-F-0
					<i>280°F DTCB 8-18-88</i> MKF 205		1531A-80-2-0-0
					<i>270°F RW 8-20-88</i> MKF-005		1531A-80-2-0-0

**FILLER MATERIAL**

Bare Wire Filler Metal <b>ER70S-2</b>	W02	Coated Electrode <b>E7018</b>	W01	Other <b>N/A</b>
--	-----	----------------------------------	-----	---------------------

I.D. NUMBERS	NOTES / SPECIAL INSTRUCTIONS	Repairs
<i>W01/003 RHW 8-4-88</i>	1. SEE FWP-9.3 FOR ADDITIONAL REQUIREMENTS  2. Inspection to be performed after machining of weld prep  3. Pre-heat per heat treat record 1531A-80  * Not to exceed (ASME Class 2)	<b>N/A</b>
<i>W01/003 EWH 8-16-88</i>		Cutouts
<i>W01/005 DTCB 8-17-88</i>		<b>N/A</b>
<i>W01/005 EWH 8-17-88</i>		NCR No.
<i>W01/005 EWH 8-17-88</i>		<b>N/A</b>
<i>W01/005 8-18-88</i>		

FINAL REVIEW		FINAL REVIEW		FINAL REVIEW	
Quality Control	Date	Quality Engineer - Records	Date	Others	Date
<i>Sherry Jordan</i>	<b>12/23/88</b>	<i>Bruce W. Stevener</i>	<b>12-23-88</b>		



110 12 1000

Contract No. <b>3669</b>		Card No. <b>1531A-255</b>		Weld No. <b>FW 1-4 (note 4)</b>		Page <b>1 of 1</b>	
W.P.S. No. <b>M-1-1-AB</b>		Rev. <b>1</b>		Joint Type <b>Open Butt</b>		Pipe Diameter <b>32"</b>	
						Weld Thickness <b>1 1/8"</b>	

WELDERS / DATES				REVIEW / APPROVAL			
Tack P11 9-13-88	Root P11 9-13-88	Balance P32 9-13-88	Weld P11, P20, P21, P22, P23, P24, P25, P26, P27, P28, P29, P30, P31, P32, P33, P34, P35, P36, P37, P38, P39, P40, P41, P42, P43, P44, P45, P46, P47, P48, P49, P50, P51, P52, P53, P54, P55, P56, P57, P58, P59, P60, P61, P62, P63, P64, P65, P66, P67, P68, P69, P70, P71, P72, P73, P74, P75, P76, P77, P78, P79, P80, P81, P82, P83, P84, P85, P86, P87, P88, P89, P90, P91, P92, P93, P94, P95, P96, P97, P98, P99, P100	Welding Engineer <b>Eugene Hardin</b>		Date <b>3-22-88</b>	
				Quality Review <b>Sherry W. Stevener</b>		Date <b>5-24-88</b>	
				Welders Review		Date	

PCD STEP	REQUIRED CONDITIONS	Q.C. HOLD POINT	OTHER HOLD POINT	CONST. RELEASE	QUALITY CONTROL RELEASE DATE	OTHER RELEASE DATE	REMARKS
1	Pre fit-up	H		9-13-88	9-13-88		
2	Fit-up	H	*ANTI H	9-14-88	9-14-88		
3	Pre-heat (note 2)			9-14-88			
4	PWHT (note 3)			9-14-88			
5	Final VT	H		10-5-88	10-5-88		Including Thermocouples
6	RT	H	ACP	10-5-88	10-5-88		WITNESSED - OK
** 5A	FINAL MT	H		10-5-88	10-5-88		Including MFC03

**FILLER MATERIAL**

Bare Wire Filler Metal <b>ER70S-2</b>	W02	Coated Elect Rod <b>E7018</b>	W01	Other <b>L/A</b>
--	-----	----------------------------------	-----	---------------------

I.D. NUMBERS	NOTES / SPECIAL INSTRUCTIONS	Repairs
W02/001 9-13-88	1. SEE FWP-9.3 FOR ADDITIONAL REQUIREMENTS 2. Pre-heat per heat treat record 1531A-255. 3. PWHT per heat treat record 1531A-255 4. See Drwg. # W-001-C (ASME Class 2)	N/A
W02/002 9-14-88		Cutouts
W02/003 9-15-88		N/A
W02/004 9-16-88		NCR No.
W02/005 9-16-88		N/A
W02/006 9-16-88		N/A

FINAL REVIEW		FINAL REVIEW		FINAL REVIEW	
Quality Control <b>Sherry Pickett</b>	Date <b>12/23/88</b>	Quality Engineer - Records <b>Sherry W. Stevener</b>	Date <b>12-23-88</b>	Others	

9/16/88  
 \* Δ SWB  
 9/18/88

Contract No. <b>3669</b>		Card No. <b>1531A-290</b>		Weld No. <b>FW -1-5 (note 2)</b>		Page <b>1 of 1</b>				
W.P.S. No. <b>M-1-1-AB</b>		Joint Type <b>Open Butt</b>		Pipe Diameter <b>14"</b>		Weld Thickness <b>3/4"</b>				
WELDERS / DATES				REVIEW / APPROVAL						
Tech <b>P13</b>		Date <b>8-31-88</b>		Welding Engineer <b>Ernest Hender</b>		Date <b>6-28-88</b>				
Role <b>P13 GAL 8-31-88</b>		Reference <b>P-11 GAL 8-31-88</b>		Quality Review <b>B. K. ...</b>		Date <b>6/28/88</b>				
		<b>R-11 G.U.T. 9-1-88</b>		AMR Review		Date				
PCD STEP	REQUIRED CONDITIONS	Q.C. HOLD POINT	AMR HOLD POINT	OTHER HOLD POINT	CONST. REL.	QUALITY CONTROL RELEASE DATE	AMR REL. DATE	OTHER REL. DATE	REMARKS	
1	Pre Fit-Up	H			8-24-88	Visual Inspection			X-1. V. McCarty QC VT 8-31-88	
2	Fit-Up	H	ANII		8-31-88	J.D. McCarty VT	8-31-88		1531A-290-1-F-0	
3	(Note 3) Pre-Heat	H			9-1-88	Pre-Heat				
4	(Note 4) PWHT	H			9-1-88	PWHT				
5	Final VT	H			9-2-88	Final VT				
6	RT	H			9-2-88	RT				
5A	Final MT	H			9-2-88	Final MT				
<b>FILLER MATERIAL</b>										
Base Wire Filler Metal <b>ER70S-2</b>			Cover Gas <b>W02</b>			Cover Gas Rod <b>E7018</b>			Other <b>W01</b>	<b>N/A</b>
I.D. NUMBERS					NOTES / SPECIAL INSTRUCTIONS					
W02/001 } GAL 8-31-88					1. SEE FWP-0.3 FOR ADDITIONAL REQUIREMENTS 2. See dwg. #W-001-C 3. Pre-Heat Per Heat Treatment Record 1531A-290 4. PWHT Per Heat Treatment Record 1531A-290 9-2-88 (ASME Class 2)					
W02/002 } GAL 8-31-88										
W02/001 G.U.T. 9-1-88										
W01-002 } W.H.D. 9-1-88										
					NCR No. <b>N/A</b>					
FINAL REVIEW			FINAL REVIEW			FINAL REVIEW				
Quality Control <b>Sherry ...</b>		Date <b>12-23-88</b>		Quality Engineer - Assembly <b>Bruce W. ...</b>		Date <b>12-23-88</b>		AMR		

A GEM 8-16-88

MK-FERGUSON COMPANY, INC.  
COOK NUCLEAR PLANT - UNIT # 2 - SGRP  
REVISION #14  
FWP INDEX

<u>FIELD WELDING PROCEDURE NUMBER</u>	<u>REV</u>	<u>ISSUE DATE</u>	<u>FIELD WELDING PROCEDURE TITLE</u>
-FWP-2.1	2	09/19/88	Draft Welder Qualification
FWP-7.1	1	08/04/88	Filler Metal Control
FWP-7.1	2	10/10/88	Filler Metal Control
FWP-9.1	1	08/04/88	Control of Welding
FWP-9.2	0	02/16/88	Controlled Preheat and Post-Weld Heat Treatment
FWP-9.3	0	02/05/88	General Welding Requirements
FWP-9.4	0	02/16/88	Control of AWS Welding
FWP-9.5	0	10/01/88	STUD WELDING
FWP-9.5	1	10/10/88	Stud Welding
FWP-15.1	1	06/09/88	WPS N-8-8-A
FWP-15.2	0	05/09/88	WPS M-8-8-BF
FWP-15.3	1	06/09/88	WBS M-8-8-AB
FWP-15.4	1	06/09/88	WPS M-1-1-AB
FWP-15.5	0	05/25/88	WPS M-1-1-BF
FWP-15.6	③	10/01/88	WPS M-3-3-AB
FWP-15.7	1	06/09/88	WPS N-3-3-C
FWP-15.8	0	05/09/88	WPS M-1-1-AS
FWP-15.9	1	06/09/88	WPS M-3-1-AB
FWP-15.10	1	06/09/88	WPS M-8-8-AS
FWP-15.11	1	05/09/88	WPS M-1-1-B (AWS)
FWP-15.12	0	05/09/88	WPS N-1-1-C (AWS)
FWP-15.13	0	05/09/88	WPS M-1-8-AS

MK-FERGUSON COMPANY, INC.  
COOK NUCLEAR PLANT - UNIT # 2 - SGRP  
REVISION #14  
FWP INDEX

<u>FIELD WELDING PROCEDURE NUMBER</u>	<u>REV</u>	<u>ISSUE DATE</u>	<u>FIELD WELDING PROCEDURE TITLE</u>
<del>FWP-15.14</del>	VOID	/ /	WPS M-3-1-B
FWP-15.15	1	06/09/88	WPS M-1-8-AB
FWP-15.16	0	05/09/88	WPS M-1-8-ABF
FWP-15.16	1	10/06/88	FWP M-1-8-BF
FWP-15.17	DRAFT	/ /	WPS M-1-1-A
FWP-15.18	DRAFT	/ /	WPS SPOT-1
FWP-15.19	1	06/09/88	WPS M-8-8-A
FWP-15.22	0	09/16/88	WPS M-1-1-BA
FWP-15.23	0	09/16/88	WPS M-588-B

Procedure Title  <p style="text-align: center;">WPS M-1-1-AB</p>	Contract No. <p style="text-align: center;">3669</p>
Procedure Type <p style="text-align: center;">Field Welding Procedure</p>	
Number <p style="text-align: center;">FWP-15.4</p>	
Rev. <p style="text-align: center;">1</p>	Issue Date <p style="text-align: center;">6/9/88</p>

Set I.D. # ~~03~~ **04**

Concurrence:

PWE	<u>Eugene C. Hardin</u>	<u>6-9-88</u>
EM	<u>M. D. Czekanski</u>	<u>6/9/88</u>
PQM	<u>[Signature]</u>	<u>6-9-88</u>
PGS	<u>Rolf S. Amundson</u>	<u>6-9-88</u>
PM	<u>Richard B. Wilkenon</u>	<u>6-9-88</u>
Title	Signature	Date

Client Transmittal No. DC-383      Client Approval Status Approved

Change Status/Remarks:

Added Joint Design Details.

Procedure Approval:

PWE	<u>Eugene C. Hardin</u>	<u>6-9-88</u>
EM	<u>M. D. Czekanski</u>	<u>6/9/88</u>
PQM	<u>[Signature]</u>	<u>6-9-88</u>
PGS	<u>Rolf S. Amundson</u>	<u>6-9-88</u>
PM	<u>Richard B. Wilkenon</u>	<u>6-9-88</u>
Title	Signature	Date

# Welding Procedure Specification

Welding Procedure Specification No. M-1-1-AB	Date 6/9/88	Supporting PQR No. 1 - 124	Revision 4	Date 10/86	Supporting PQR No. 1 - 117
Revision 3	Date 10/87	Supporting PQR No.	Revision	Date	Supporting PQR No.

### WELDING PROCESS(ES)

<input checked="" type="checkbox"/> GTAW <input type="checkbox"/> FCAW <input checked="" type="checkbox"/> SMAW <input type="checkbox"/> GMAW <input type="checkbox"/> OTHER _____	<input checked="" type="checkbox"/> MANUAL <input type="checkbox"/> MACHINE <input type="checkbox"/> SEMI-AUTOMATIC
<input type="checkbox"/> ASME SECTION I <input checked="" type="checkbox"/> ASME SECTION III <input type="checkbox"/> ASME SECTION VIII <input checked="" type="checkbox"/> ANSIB31.1 <input type="checkbox"/> ANSIB31.3 <input type="checkbox"/> OTHER _____	

### GROOVE DESIGN (QW-402)

<input checked="" type="checkbox"/> VEE	<input checked="" type="checkbox"/> COMPOUND	<input checked="" type="checkbox"/> OPEN BUTT	<input type="checkbox"/> BACKING RING	<input type="checkbox"/> FILLET/SOCKETS	<input type="checkbox"/> CONSUMABLE
<input type="checkbox"/> OTHER _____					

### BASE METALS (QW-403)

P No. 1 to 1	Backing Material N/A	Diameter Range Unlimited
<b>THICKNESS RANGE</b>	ASME .187 to 8"	ANSI .187 to 8"    Other to

### FILLER METALS (QW-404)

F No.	A No.	Spec. No.	AWS No.	Size of Filler
6	1	SEA 5.18	ER70S-2	3/32 - 1/8
4	1	SEA 5.1	E7018	3/32 - 1/8

### CONSUMABLE INSERT

Spec. No. N/A	AWS No.	Size
Flux Composition	Particle Size	Electrode Flux Composition
Other		

### THICKNESS OF DEPOSITED WELD METAL

Min. Per Pass	Max. Per Pass	Total	Min. Per Pass	Max. Per Pass	Total
1/16"	1/8"	1/2"	1/16"	1/8"	7 3/8"
Process GTAW			Process SMAW		

### POSITION (QW-405)

Position of Groove A-1	Welding Progression <input checked="" type="checkbox"/> UPHILL <input type="checkbox"/> DOWNHILL
---------------------------	---

### PREHEAT (QW-406)

Preheat Temp. Min. 50° to 250°	Interpass Temp. Max. 500°	Preheat Maintenance <input checked="" type="checkbox"/> FLAME <input checked="" type="checkbox"/> ELECTRIC	Monitoring *Temp. indicating device	Other *Ref. FWP-9.3 See note 2 next page
-----------------------------------	------------------------------	---	--	---

### POSTWELD HEAT TREATMENT (QW-407)

Temperature 1125° ±25°	Time Range See FWP-9.2	Thickness ASME 1.5,    ANSI .75	Other
---------------------------	---------------------------	------------------------------------	-------

### GAS (QW-408)

Shielding Gas(es) Argon	Flow Rate 15 - 35 CFH	Backing N/A	Flow Rate N/A	Percent Composition Welding Grade	Other
----------------------------	--------------------------	----------------	------------------	--------------------------------------	-------

# Welding Procedure Specification

ASME

No. M-1-1-AB

ELECTRICAL CHARACTERISTICS (QW-409)

Page 2

Current and Polarity	Amperage	Volts	Travel Speed (ipm.)	Figure Number (Below)	Process	Size In.
DCSP	80 - 120	10 - 14	3.0 Min.	1, 2	GTAW	3/32
DCSP	90 - 135	12 - 16	3.5 Min.	1, 2	GTAW	1/8
DCRP	85 - 120	20 - 22	2.5 Min.	1, 2	SMAW	3/32
DCRP	115 - 145	22 - 27	3.8 Min.	1, 2	SMAW	1/8

Pulsating Current - GTAW <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	SFA/AWS - 5.12 - EWTH - 2 - 2% Thoriated Tungsten <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Sizes <input type="checkbox"/> 3/32" <input checked="" type="checkbox"/> 1/8" <input type="checkbox"/> 5/32"
---	--	---

TECHNIQUE (QW-410)				
String or Weave Bead Both as required	Oscillation 1/2" Max.	Dwell Time N/A	Frequency N/A	Gas Cup Size 4 - 12
Contact Tube to Work Distance N/A	Initial & Interpass Cleaning Mechanical and/or Chemical		Other	
Multipass or Single Pass (Per Side) Multiple	Single or Multiple Electrodes Single		Method of Back Gouging Mechanical/Thermal	

TYPICAL GROOVE DESIGN

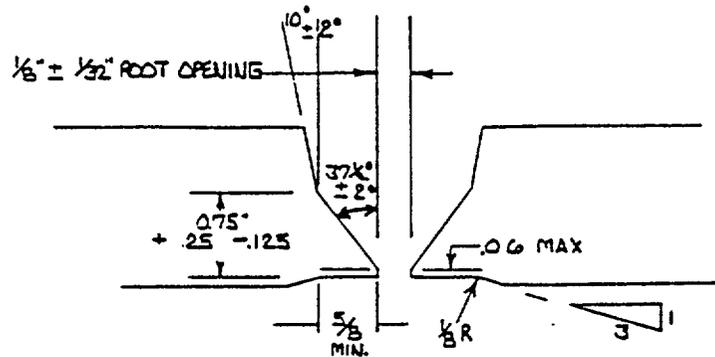


FIGURE NO. 1

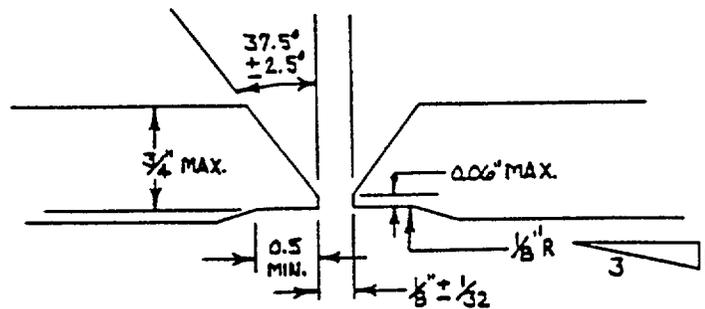


FIGURE NO. 2

Notes:

1. See FWP 9.3 for additional information and requirements.
2. Preheat 50° for welds not requiring PWHT 250° with PWHT.

# Procedure Qualification Record

PQR No.: 1-124	Welding Process(es): GTAW-SMAW	Type(s): Manual
WPS No.: 1-124A / 1-124B	GTAW-SMAW / GTAW	Manual

**(QW-402) GROOVE DESIGN USED**

**BASE METAL (QW-403)**

Material Spec.: SA-106 to SA-106	Type or Grade: B to C
P No. (Gr. No.): 1 Gr. 1 to 1 Gr. 2	
Thickness Tested: 0.906"	Diameter Tested (OD): 8.625"
Thickness Range Qualified: 0.1875" to 1.812"	
Other: N/A	

**FILLER METAL (QW-404) AND ELECTRICAL CHARACTERISTICS (QW-405)**

Bead No.	Process	Filler Metal			A No.	F No.	Current and Polarity	Amps	Volts	Travel Speed IPM	Inter Pass Temp.
		Size In.	SFA Spec.	AWS No.							
1	GTAW	1/8	5.18	ER-70S-2	1	6	DCSP	90-105	12-14	2.0	200 °F
2-4	GTAW	1/8	5.18	ER-70S-2	1	6	DCSP	105-120	13-16	2.8	300 °F
5-9	SMAW	3/32	5.5	E-7018-A1	2	4	DCRP	120-125	20-23	3.5	400 °F
Bal.	SMAW	1/8	5.5	E-7018-A1	2	4	DCRP	125-135	25-27	4.0	550 °F
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A °F
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A °F

Pulsing Current - GTAW:  Yes  No  
 SFA/AWS - 5.12 - EWTH - 2 - 2% Thoriated Tungsten  
 Size:  3/32"  1/8"  5/32"

**THICKNESS OF DEPOSITED WELD METAL QUALIFIED (QW-461)**

Min.: (GTAW) 0.0625"	Max. Per Pass: 0.125"	Total: 0.375	Position of Groove Tested: 6G Fixed
Min.: (SMAW) 0.0625"	Max. Per Pass: 0.375"	Total: 1.437"	

Weld Progression:  Uphill  Downhill

**PREHEAT & INTERPASS (QW-406)**

Minimum Temp.: 50 °F	Maximum Temp.: 550 °F	Monitoring: Contact Pyrometer	Maintenance: <input checked="" type="checkbox"/> Flame <input type="checkbox"/> Electric
----------------------	-----------------------	-------------------------------	--

**POSTWELD HEAT TREATMENT (QW-407)**

Temperature: None	Time: N/A	<input checked="" type="checkbox"/> Torch <input type="checkbox"/> Gun	<b>GAS (QW-408)</b>	
Other: N/A		Gas Cup Size: 6-8	Type of Gas or Gases: Argon	External: Argon, Internal: N/A
			% Comp. of Gas Mixture: 99.99%	N/A
			Flow Rate, cfm: 15-25	N/A

**TECHNIQUE (QW-410)**

String or Weave Bead: Both	Oscillation: 0.625"	Single or Multiple Electrodes: Single	Multiple or Single Pass (Per Side): Multiple
Dwell Time: N/A	Frequency: N/A	Cleaning: Grind. File	Other: No Peening

Rev.	1	2	3	4	PQR Ref. Test No. & Date	MK-Ferguson
Checked	DH	RD	RS	<i>[Signature]</i>	P1-124	By: <i>Muelin Ferguson</i> Date: 10/1/86
Date	8/83	5/84	8/84	10/86	10/28/82	

No. 1-124

ASME

**TENSILE TEST (QW-150)**

Specimen No.	Width	Thickness	Area	Ultimate Total Load Lb.	Ultimate Unit Stress PSI	Character of Failure and Location
A5595-1	0.750"	0.793"	0.5948 sq."	46,450	78,100	BMZ
A5595-5	0.747"	0.698"	0.5214 sq."	40,950	78,500	BMZ
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA

**GUIDED BEND TESTS (QW-160)**

Type and Figure No.	Result	Type and Figure No.	Result
Side QW-462.2	Satisfactory	Side QW-462.2	Satisfactory
Side QW-462.2	Satisfactory	Side QW-462.2	Satisfactory

**TOUGHNESS TESTS (QW-170)**

Specimen No.	Notch Location	Notch Type	Test Temp.	Impact Values Foot Pounds	Lateral Exp.		Drop Weight	
					% Shear	Mils	Break	No Break
1- TW-1	WMZ	V	30 °F	118.0	50	74.0	NA	NA
2- TW-2	WMZ	V	30 °F	103.0	50	70.0	NA	NA
3- TW-3	WMZ	V	30 °F	121.0	50	75.0	NA	NA
1- 10H-1	HAZ	V	30 °F	110.0	50	71.0	NA	NA
2- 10H-3	HAZ	V	30 °F	99.5	50	62.5	NA	NA
3- 10H-5	HAZ	V	30 °F	109.0	60	68.5	NA	NA
1- 11B-1	BMZ	V	30 °F	33.0	10	28.5	NA	NA
2- 11B-4	BMZ	V	30 °F	51.5	20	42.0	NA	NA
3- 11B-5	BMZ	V	30 °F	40.5	10	30.5	NA	NA

Head Arrest Zone Ave: 106.0 Ft. Lb. (Gp.1)      Head Arrest Zone Ave: 114.0 Ft. Lb.      Base Arrest Zone Ave: 41.5 Ft. Lb. (Gp. 1)

**FILLET WELD TEST (QW-180)**

Result - Satisfactory	Penetration and Porosity	Type and Character of Failure
NA	NA	NA
Micro-etch:	Other:	
NA	NA	

**OTHER TEST**

RT Acceptable	UT Acceptable	Chemical Analysis: NA
Other: NA		

Witness's Name: John Cooley	Class No.: NA	Stamp No.: 100
Tests Conducted By: Robert Adrian	Laboratory: Koon-Hall	Test No.: 3019-PG-169

We certify that the statements in this record are correct and that the welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME code.

Rev. 1	2	3	4
Checked: CH	RD	RS	DH
Date: 8/83	5/84	8/84	10/86
PKR No: 1-124	Reference Test No: P1-124	10/28/82	MK-Ferguson Company <i>Murline Grayson</i> Date: 10/1/86

# Procedure Qualification Record

No. 1-124

ASME

Page

**TOUGHNESS TESTS (QW-170)**

Specimen No.	Notch Location	Notch Type	Test Temp.	Impact Values	Lateral Expansion	
					% Shear	Mils
12H-2	HAZ	V	30°F	113.0 ft. lb.	60.0	68.0
12H-4	HAZ	V	30°F	127.5 ft. lb.	80.0	77.0
12H-5	HAZ	V (Gr. 2 Side)	30°F	116.5 ft. lb.	70.0	73.0
13B-1	BMZ	V	30°F	41.5 ft. lb.	10.0	35.0
13B-2	BMZ	V	30°F	42.0 ft. lb.	10.0	35.5
13B-4	BMZ	V (Gr. 2 Side)	30°F	34.5 ft. lb.	10.0	27.5

HAZ Avg. = 119.0 ft. lb. - Gr. 2

BMZ Avg. = 39.5 ft. lb. - Gr. 2



We certify that the statements in this record are correct and that the welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME code.

Rev. 1 2 3 4

Checked: CH RD RS *DL*

Date 8/83 5/84 8/84 10/86

PQR No.: 1-124 Reference Std No.: QW-170

**MK-Ferguson Company**

*Murlia Frayson*

Date: 10/1/86

# Procedure Qualification Record

POR No.: 1-117	Welding Process(es) GTAW/SAW	Type(s) Manual
WPS No.: 1-117A	GTAW/SAW	Manual

<p>(QW-402) GROOVE DESIGN USED</p>	BASE METAL (QW-403)	
	Material Spec.: SA-516 to SA-516	Type or Grade: Gr. 65 to Gr. 70
	P No. (Gp. No.): 1 Gp. 1	to 1 Gp. 2
	Thickness Tested: 2.5"	Diameter Tested (OD): N/A
	Thickness Range Qualified: 0.1875" to 8.0"	
Other: N/A		

Bead No.	Process	Filler Metal					Current and Polarity	Ampe	Volts	Travel Speed IPM	Inter Pass Temp.
		Size In.	SFA Spec.	AWS No.	A No.	F No.					
1-2	GTAW	3/32	5.18	ER-70S-2	1	6	DCSP	85-95	9-12	1.15	200°F
3-4	GTAW	1/8	5.18	ER-70S-2	1	6	DCSP	90-100	10-12	3.0	200°F
5-9	SAW	3/32	5.5	E-7018-A1	2	4	DCRP	85-95	18-22	3.0	300°F
10-15	SAW	1/8	5.5	E-7018-A1	2	4	DCRP	120-145	22-26	4.0	416°F
Bal.	SAW	5/32	5.5	E-7018-A1	2	4	DCRP	140-175	24-28	4.0	380°F
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pulsating Current - GTAW <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		SFA/AWS - 5.12 - EWTH - 2 - 2% Thoriated Tungsten <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					Sizes <input type="checkbox"/> 3/32" <input checked="" type="checkbox"/> 1/8" <input type="checkbox"/> 5/32"				

THICKNESS OF DEPOSITED WELD METAL QUALIFIED (QW-451)			POSITION (QW-405)	
Min.: 0.0625"	Max. Per Pass: 0.375"	Total: 0.625" (GTAW)	Position of Groove Tested: 3G	
Min.: 0.0625"	Max. Per Pass: 0.375"	Total: 7.375" (SAW)	Weld Progression: <input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill	

PREHEAT & INTERPASS (QW-406)			
Minimum Temp.: 200°F.	Maximum Temp.: 416°F	Monitoring: Contact Pyrometer	Maintenance <input checked="" type="checkbox"/> Flame <input type="checkbox"/> Electric

POSTWELD HEAT TREATMENT (QW-407)		GAS (QW-408)		
Temperature: 1150°F	Time: 3 Hours	<input checked="" type="checkbox"/> Torch <input type="checkbox"/> Gun	Type of Gas or Gases	External Argon
Other: 3 cycles		Gas Cup Size: 6-8	% Comp. of Gas Mixture	Internal N/A
		Flow Rate, cfm		99.9% N/A
				15-25 N/A

TECHNIQUE (QW-410)			
String or Weave Bead: Both	Oscillation: 0.625" max.	Single or Multiple Electrodes: Single	Multiple or Single Pass (Per Side): Multiple
Dwell Time: N/A	Frequency: N/A	Cleaning: Grind, File	Other: Brush

Rev.	1	2	3	4	POR Ref. Test No. & Date	MK-Ferguson By: Date: 4/8/88
Checked	DH	DH	DH		PI-117	
Date	8/83	4/85	10/87		10/28/82	



# Procedure Qualification Record

No. 1-117

QTS-W-002-2  
Rev. 8 (10-88)

ASME

## TENSILE TEST (QW-150)

Page 2

Specimen No.	Width	Thickness	Area	Ultimate Total Load Lb.	Ultimate Unit Stress PSI	Character of Failure and Location
98259-2A	0.502"	N/A	0.1979 sq."	13,600	68,700	BMZ
98259-2B	0.499"	N/A	0.1956 sq."	13,400	68,500	BMZ
98259-2C	0.504"	N/A	0.1995 sq."	13,550	67,900	BMZ
98259-5A	0.499"	N/A	0.1956 sq."	13,300	68,000	BMZ

## GUIDED BEND TESTS (QW-160)

Type and Figure No.	Result	Type and Figure No.	Result
Side QW-462.2	Acceptable	Side QW-462.2	Acceptable
Side QW-462.2	Acceptable	Side QW-462.2	Acceptable

## TOUGHNESS TESTS (QW-170)

Specimen No.	Notch Location	Notch Type	Test Temp.	Impact* Values Foot Pounds	Lateral Exp.		Drop Weight	
					% Shear	Mils	Break	No Break
1- 7W-1	WMZ	V	0 °F	32.0	10	20.0	N/A	N/A
2- 7W-2	WMZ	V	0 °F	32.0	10	21.5	N/A	N/A
3- 7W-3	WMZ	V	0 °F	20.5	10	15.0	N/A	N/A
1- 8W-1	WMZ	V	+30 °F	69.5	20	49.0	N/A	N/A
2- 8W-3A	WMZ	V	+30 °F	74.0	40	53.0	N/A	N/A
3- 8W-4A	WMZ	V	+30 °F	57.5	30	43.0	N/A	N/A
1- N/A	N/A	N/A	N/A °F	N/A	N/A	N/A	N/A	N/A
2- N/A	N/A	N/A	N/A °F	N/A	N/A	N/A	N/A	N/A
3- N/A	N/A	N/A	N/A °F	N/A	N/A	N/A	N/A	N/A

Heat Affected Zone Avg.: N/A      Weld Metal Zone Avg.: 67 at +30°F / 38 at 0°F      Base Metal Zone Avg.: N/A

## FILLET WELD TEST (QW-180)

Result - Satisfactory: N/A	Penetration into Parent Metal: N/A	Type and Character of Failure: N/A
Macro-results: N/A	Other: N/A	

## OTHER TEST

RT: Acceptable	UT: Acceptable	Deposit Analysis: N/A
Other: N/A		

Welder's Name: Don Huffstodt	Clock No.: N/A	Stamp No.: 101
Tests Conducted By: Robert Adrian	Laboratory: Koon-Hall Testing	Test No.: 2912-PG-021

We certify that the statements in this record are correct and that the welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME code.

Rev.	1	2	3	4	<b>MK-Ferguson Company</b>
Checked	DH	DH	DH		
Date	8/83	4/85	10/87		
PGR No.: 1-117	Reference Test No.: 2912-PG-021		By:		Date: 4/8/88

\*Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the code.

<p>Procedure Title</p> <p style="text-align: center;">WPS M-1-1-BA</p>	<p>Contract No.</p> <p style="text-align: center;">3669</p> <p>Procedure Type</p> <p style="text-align: center;">Field Welding Procedure</p> <p>Number</p> <p style="text-align: center;">FWP 15.22</p> <p>Rev. <u>20</u> Issue Date</p> <p style="text-align: center;">9-16-88</p>
--	---

Set # 04

Concurrence:

PWE	<i>Eugene C. Gordon</i>	8/8/88
EM	<i>Richard B. Wilkerson</i>	8-8-88
PQM	<i>[Signature]</i>	8-7-88
PGS	<i>Rolf E. Amundson</i>	8-9-88
PM	<i>[Signature]</i>	8-9-88
Title	Signature	Date

Client Transmittal No. DC-1307 Client Approval Status APPROVED

Change Status/Remarks:

Procedure Approval:

PWE	<i>Eugene C. Gordon</i>	9/17/88
EM	<i>Richard B. Wilkerson</i>	9-16-88
PQM	<i>[Signature]</i>	9-16-88
PGS	<i>Rolf E. Amundson</i>	9-16-88
PM	<i>[Signature]</i>	9-16-88
Title	Signature	Date

*148 0-07 1-25*

# Welding Procedure Specification

Welding Procedure Specification No. M-1-1-BA	Date	Supporting PQR No. 1-124	Revision 4	Date 10/86	Supporting PQR No. 1-117
Revision 3	Date 10/87	Supporting PQR No.	Revision	Date	Supporting PQR No.

### WELDING PROCESS(ES)

<input type="checkbox"/> GTAW <input type="checkbox"/> FCAW <input checked="" type="checkbox"/> SMAW <input type="checkbox"/> GMAW <input type="checkbox"/> OTHER _____	<input checked="" type="checkbox"/> MANUAL <input type="checkbox"/> MACHINE <input type="checkbox"/> SEMI-AUTOMATIC
<input type="checkbox"/> ASME SECTION I <input checked="" type="checkbox"/> ASME SECTION III <input type="checkbox"/> ASME SECTION VIII <input checked="" type="checkbox"/> ANSIB31.1 <input type="checkbox"/> ANSIB31.3 <input type="checkbox"/> OTHER _____	

### GROOVE DESIGN (QW-402)

<input checked="" type="checkbox"/> VEE	<input checked="" type="checkbox"/> COMPOUND	<input type="checkbox"/> OPEN BUTT	<input checked="" type="checkbox"/> BACKING RING	<input type="checkbox"/> FILLET/SOCKETS	<input type="checkbox"/> CONSUMABLE
<input type="checkbox"/> OTHER _____					

### BASE METALS (QW-403)

P No. 1	to	1	Backing Material P1	Diameter Range Unlimited
<b>THICKNESS RANGE</b>	<b>ASME</b>	.187" to 8"	<b>ANSI</b>	.187" to 8"      Other to

### FILLER METALS (QW-404)

F No. 4	A No. 1	Spec. No. SFA 5.1	AWS No. E7018	Size of Filler 3/32, 1/8, 5/32
F No.	A No.	Spec. No.	AWS No.	Size of Filler

### CONSUMABLE INSERT

Spec. No. N/A	AWS No.	Size
Flux Composition	Particle Size	Electrode Flux Composition
Other		

### THICKNESS OF DEPOSITED WELD METAL

Min. Per Pass 1/16"	Max. Per Pass 1/8"	Total 8"	Min. Per Pass	Max. Per Pass	Total
Process SMAW			Process		

### POSITION (QW-405)

Position of Groove All	Welding Progression <input checked="" type="checkbox"/> UPHILL <input type="checkbox"/> DOWNHILL
---------------------------	---

### PREHEAT (QW-406)

Preheat Temp. Min. 50° to 250°	Interpass Temp. Max. 500°	Preheat Maintenance * <input checked="" type="checkbox"/> FLAME <input checked="" type="checkbox"/> ELECTRIC	Monitoring temp. Indicating Device. *	Other Ref. FWP 9.3 * See Note 2 Next Page
-----------------------------------	------------------------------	---	--	--

### POSTWELD HEAT TREATMENT (QW-407)

Temperature 1125°±25°	Time Range See FWP 9.2	Thickness ASME->1.5"   ANSI->.75"	Other N/A
--------------------------	---------------------------	--------------------------------------	--------------

### GAS (QW-408)

Shielding Gas(es) N/A	Flow Rate	Backing	Flow Rate	Percent Composition	Other
--------------------------	-----------	---------	-----------	---------------------	-------

# Welding Procedure Specification

ASME

No. M-1-1-BA

ELECTRICAL CHARACTERISTICS (QW-408)

Page 2

Current and Polarity	Amperage	Volts	Travel Speed (ipm.)	Figure Number (Below)	Process	Size In.
DCRP	85 - 120	20-22	2.5"Min.	1		
DCRP	115- 145	20-27	3.3"Min.	1	SMAW	3/32"
DCRP	140- 175	22-28	3.5"Min.	1	SMAW	1/8"
					SMAW	5/32"

Pulsating Current - GTAW <input type="checkbox"/> YES <input type="checkbox"/> NO N/A	SFA/AWS - 5.12 - EWTH - 2 - 2% Thoriated Tungsten <input type="checkbox"/> YES <input type="checkbox"/> NO N/A	Sizes <input type="checkbox"/> 3/32" <input type="checkbox"/> 1/8" <input type="checkbox"/> 5/32"
--	---	--

**TECHNIQUE (QW-410)**

String or Weave Bead <u>Both as required</u>	Oscillation <u>1/2" Max</u>	Dwell Time <u>N/A</u>	Frequency <u>N/A</u>	Gas Cup Size <u>N/A</u>
Contact Tube to Work Distance <u>N/A</u>	Initial & Interpass Cleaning <u>Mechanical and/or Chemical</u>	Other		
Multipass or Single Pass (Per Side) <u>Multiple</u>	Single or Multiple Electrodes <u>Single</u>	Method of Back Gouging <u>Mechanical/Thermal</u>		

**TYPICAL GROOVE DESIGN**

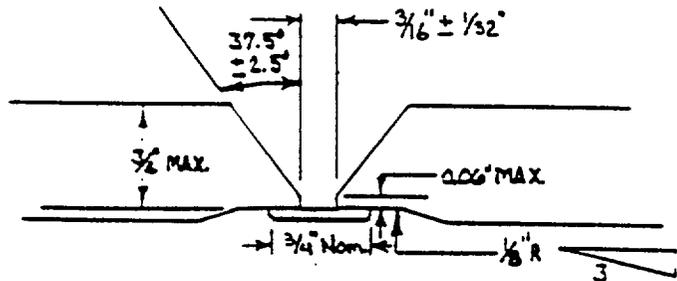


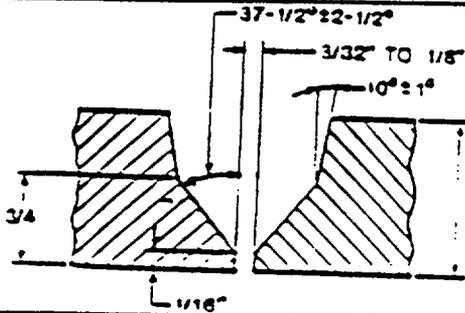
FIGURE NO. 1

- NOTES: 1. See FWP 9.3 for additional information and requirements.  
2. Preheat  $\geq 50^\circ$  for welds not requiring PWHT,  $\geq 250^\circ$  with PWHT.

# Procedure Qualification Record

PQR No.: 1-124	Welding Process(es): GTAW-SMAW	Type(s): Manual
WPS No.: 1-124A / 1-124B	GTAW-SMAW / GTAW	Manual

**(QW-402) GROOVE DESIGN USED**



**BASE METAL (QW-403)**

Material Spec.: SA-106 10	Type or Grade: SA-106 3 10 C
P No. (Gr. No.): 1 Gr. 1	Gr. 2
Thickness Tested: 0.906"	Diameter Tested (OD): 3.625"
Thickness Range Qualified: 0.1875"	1.812"
Other: N/A	

**FILLER METAL (QW-404) AND ELECTRICAL CHARACTERISTICS (QW-405)**

Bead No.	Process	Filler Metal			Current and Polarity		Amps	Volts	Travel Speed (IPM)	Inter Pass Temp.	
		Size In.	SFA Spec.	AWS No.	A No.	F No.					
1	GTAW	1/8	15.18	ER-70S-2	1	6	DCSP	90-105	12-14	2.0	200 °F
2-4	GTAW	1/8	15.18	ER-70S-2	1	6	DCSP	105-120	13-16	2.8	300 °F
5-9	SMAW	3/32	15.5	E-7018-A1	2	4	DCRP	120-125	20-23	3.5	400 °F
Bal.	SMAW	1/8	15.5	E-7018-A1	2	4	DCRP	125-135	25-27	4.0	550 °F
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A °F
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A °F

Pulsing Current - GTAW  
 Yes  No  
 SFA/AWS - 5.12 - EWTH - 2 - 2% Thoriated Tungsten  
 Yes  No  
 Sizes  
 3/32"  1/8"  5/32"

**THICKNESS OF DEPOSITED WELD METAL QUALIFIED (QW-461)**

Min.: (GTAW) 0.0625"	Max. Per Pass: 0.125"	Total: 0.375	Position of Groove Tested: 6G Fixed
Min.: (SMAW) 0.0625"	Max. Per Pass: 0.375"	Total: 1.437"	Weld Progression: <input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill

**PREHEAT & INTERPASS (QW-406)**

Minimum Temp.: 50 °F	Maximum Temp.: 550 °F	Monitoring: Contact Pyrometer	Maintenance: <input checked="" type="checkbox"/> Flame <input type="checkbox"/> Electric
-------------------------	--------------------------	----------------------------------	---

**POSTWELD HEAT TREATMENT (QW-407)**

Temperature: None	Time: N/A	<input checked="" type="checkbox"/> Torch <input type="checkbox"/> Gun	Type of Gas or Gases: Argon	External: N/A	Internal: N/A
Other: N/A	Gas Cup Size: 6-8	% Comp. of Gas Mixture: 99.99%	Flow Rate, cfm: 15-25	N/A	

**TECHNIQUE (QW-410)**

String or Weave Bead: Both	Oscillation: 0.625"	Single or Multiple Electrodes: Single	Multiple or Single Pass (Per Side): Multiple
Overlapper: N/A	Frequency: N/A	Cleaning: Grind. File	Other: No Peening

Rev.	1	2	3	4	PQR Ref. Test No. & Date	MK-Ferguson
Checked	DH	RD	RS	<i>[Signature]</i>	PL-124 10/28/82	By: <i>[Signature]</i>
Date	8/83	5/84	8/84	10/86		Date: 10/1/86

No. 1-124

ASME

**TENSILE TEST (QW-150)**

Specimen No.	Width	Thickness	Area	Ultimate Total Load Lb.	Ultimate Unit Stress PSI	Character of Failure and Location
A5595-1	0.750"	0.793"	0.5948 sq."	46,450	78,100	BMZ
A5595-5	0.747"	0.698"	0.5214 sq."	40,950	78,500	BMZ
NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA

**GUIDED BEND TESTS (QW-160)**

Type and Figure No.	Result	Type and Figure No.	Result
Side QW-462.2	Satisfactory	Side QW-462.2	Satisfactory
Side QW-462.2	Satisfactory	Side QW-462.2	Satisfactory

**TOUGHNESS TESTS (QW-170)**

Specimen No.	Notch Location	Notch Type	Test Temp.	Impact Values Foot Pounds	Lateral Exp.		Drop Weight	
					% Shear	Mils	Break	No Break
1- TW-1	WMZ	V	30 °F	118.0	50	74.0	NA	NA
2- TW-2	WMZ	V	30 °F	103.0	50	70.0	NA	NA
3- TW-3	WMZ	V	30 °F	121.0	50	75.0	NA	NA
1- 10H-1	HAZ	V	30 °F	110.0	50	71.0	NA	NA
2- 10H-3	HAZ	V	30 °F	99.5	50	62.5	NA	NA
3- 10H-5	HAZ	V	30 °F	109.0	60	68.5	NA	NA
1- 11B-1	BMZ	V	30 °F	33.0	10	28.5	NA	NA
2- 11B-4	BMZ	V	30 °F	51.5	20	42.0	NA	NA
3- 11B-5	BMZ	V	30 °F	40.5	10	30.5	NA	NA

Peak Arrest Load Ave: 106.0 Ft. Lb. (Gp.1)      Peak Arrest Load Ave: 114.0 Ft. Lb.      Peak Arrest Load Ave: 41.5 Ft. Lb. (Gp. 1)

**FILLET WELD TEST (QW-180)**

Result - Satisfactory	Penetration into Parent Metal	Type and Character of Failure
NA	NA	NA
Macro-Results	Other	
NA	NA	

**OTHER TEST**

RT	UT	Chemical Analysis
Acceptable	Acceptable	NA
Other		
NA		

Welder's Name	Class No.	Stamp No.
John Cooley	NA	100
Tests Conducted By	Laboratory	Test No.
Robert Adrian	Koon-Hall	3019-PG-169

We certify that the statements in this record are correct and that the welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME code.

Rev.	1	2	3	4	
Checked	CH	RD	RS	<i>DA</i>	
Date	8/83	5/84	8/84	10/86	
PCR No.	1-124	Reference Test No.	P1-124	10/28/82	By <i>Murlin Frayson</i>
					Date: 10/1/86

**MK-Ferguson Company**

# Procedure Qualification Record

## No. 1-124

ASME

Page

**TOUGHNESS TESTS (Q1-170)**

Specimen No.	Notch Location	Notch Type	Test Temp.	Impact Values	Lateral Expansion	
					% Shear	Mils
12H-2	HAZ	V	30°F	113.0 ft. lb.	60.0	68.0
12H-4	HAZ	V	30°F	127.5 ft. lb.	60.0	77.0
12H-5	HAZ	V	30°F	116.5 ft. lb.	70.0	73.0
		(Gr. 2 Side)				
12B-1	BMZ	V	30°F	41.5 ft. lb.	10.0	35.0
12B-2	BMZ	V	30°F	42.0 ft. lb.	10.0	35.5
12B-4	BMZ	V	30°F	34.5 ft. lb.	10.0	27.5
		(Gr. 2 Side)				

HAZ Avg. = 119.0 ft. lb. - Gr. 1

BMZ Avg. = 39.5 ft. lb. - Gr. 2

We certify that the statements in this record are correct and that the welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME code.

Rev.	1	2	3	4
Accepted:	CH	RD	PS	<i>TH</i>
Date:	8/83	5/84	8/84	10/86
FOR No.:	1-124	01-124	10/124/87	

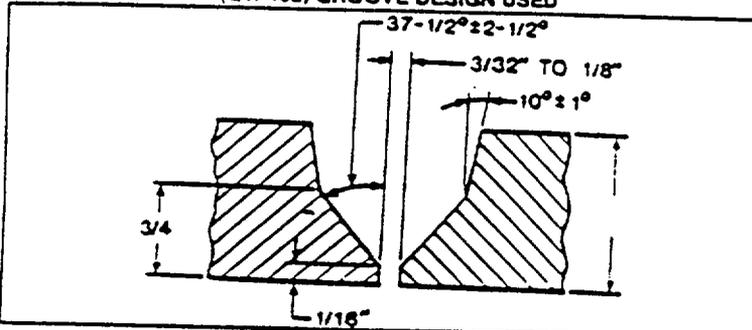
**MK-Ferguson Company**

By: *Martin Ferguson*

Date: 10/11/86

# Procedure Qualification Record

POR No.: 1-117	Welding Process(es) GTAW/SMAW	Type(s) Manual
WPS No.: 1-117A	GTAW/SMAW	Manual



BASE METAL (QW-403)

Material Spec.: SA-516 to SA-516	Type or Grade: Gr. 65 to Gr. 70
P No. (Gp. No.): 1 Gp. 1	to 1 Gp. 2
Thickness Tested: 2.5"	Diameter Tested (OD): N/A
Thickness Range Qualified: 0.1875"	to 8.0"
Other: N/A	

FILLER METAL (QW-404) AND ELECTRICAL CHARACTERISTICS (QW-405)

Bead No.	Process	Filler Metal					Current and Polarity	Ampe	Volts	Travel Speed IPM	Inter Pass Temp.
		Size In.	SFA Spec.	AWS No.	A No.	F No.					
1-2	GTAW	3/32	5.18	ER-70S-2	1	6	DCSP	85-95	9-12	1.15	200°F
3-4	GTAW	1/8	5.18	ER-70S-2	1	6	DCSP	90-100	10-12	3.0	200°F
5-9	SMAW	3/32	5.5	E-7018-A1	2	4	DCRP	85-95	18-22	3.0	300°F
10-15	SMAW	1/8	5.5	E-7018-A1	2	4	DCRP	120-145	22-26	4.0	416°F
Bal.	SMAW	5/32	5.5	E-7018-A1	2	4	DCRP	140-175	24-28	4.0	380°F
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Pulsating Current - GTAW  
 Yes  No

SFA/AWS - 5.12 - EWTH - 2 - 2% Thoriated Tungsten  
 Yes  No

Sizes  
 3/32"  1/8"  5/32"

THICKNESS OF DEPOSITED WELD METAL QUALIFIED (QW-451)

Min.: 0.0625"	Max. Per Pass: 0.375"	Total: 0.625" (GTAW)	Position of Groove Tested: 3G
Min.: 0.0625"	Max. Per Pass: 0.375"	Total: 7.375" (SMAW)	Weld Progression: <input checked="" type="checkbox"/> Uphill <input type="checkbox"/> Downhill

PREHEAT & INTERPASS (QW-406)

Minimum Temp.: 200°F.	Maximum Temp.: 416°F	Monitoring: Contact Pyrometer	Maintenance: <input checked="" type="checkbox"/> Flame <input type="checkbox"/> Electric
--------------------------	-------------------------	----------------------------------	---

POSTWELD HEAT TREATMENT (QW-407)

Temperature: 1150°F	Time: 3 Hours	<input checked="" type="checkbox"/> Torch <input type="checkbox"/> Gun	GAS (QW-408)	
Other: 3 cycles		Gas Cup Size: 6-8	Type of Gas or Gases	External Argon
			% Comp. of Gas Mixture	Internal N/A
			Flow Rate, cfm	N/A

TECHNIQUE (QW-410)

String or Weave Bead: Both	Oscillation: 0.625" max.	Single or Multiple Electrodes: Single	Multiple or Single Pass (Per Side): Multiple
Dwell Time: N/A	Frequency: N/A	Cleaning: Grind, File	Other: Brush

Rev.	1	2	3	4	POR Ref. Test No. & Date	MK-Ferguson
Checked	DH	DH	DH		P1-117	By: <i>[Signature]</i> Date: 4/8/88
Date	8/83	4/85	10/87		10/28/82	

TENSILE TEST (QW-150)

Specimen No.	Width	Thickness	Area	Ultimate Total Load Lb.	Ultimate Unit Stress PSI	Character of Failure and Location
98259-2A	0.502"	N/A	0.1979 sq."	13,600	68,700	BMZ
98259-2B	0.499"	N/A	0.1956 sq."	13,400	68,500	BMZ
98259-2C	0.504"	N/A	0.1995 sq."	13,550	67,900	BMZ
98259-5A	0.499"	N/A	0.1956 sq."	13,300	68,000	BMZ

GUIDED BEND TESTS (QW-160)

Type and Figure No.	Result	Type and Figure No.	Result
Side QW-462.2	Acceptable	Side QW-462.2	Acceptable
Side QW-462.2	Acceptable	Side QW-462.2	Acceptable

TOUGHNESS TESTS (QW-170)

Specimen No.	Notch Location	Notch Type	Test Temp.	Impact* Values Foot Pounds	Lateral Exp.		Drop Weight	
					% Shear	Mils	Break	No Break
1- 7W-1	WMZ	V	0 °F	32.0	10	20.0	N/A	N/A
2- 7W-2	WMZ	V	0 °F	32.0	10	21.5	N/A	N/A
3- 7W-3	WMZ	V	0 °F	20.5	10	15.0	N/A	N/A
1- 8W-1	WMZ	V	+30 °F	69.5	20	49.0	N/A	N/A
2- 8W-3A	WMZ	V	+30 °F	74.0	40	53.0	N/A	N/A
3- 8W-4A	WMZ	V	+30 °F	57.5	30	43.0	N/A	N/A
1- N/A	N/A	N/A	N/A °F	N/A	N/A	N/A	N/A	N/A
2- N/A	N/A	N/A	N/A °F	N/A	N/A	N/A	N/A	N/A
3- N/A	N/A	N/A	N/A °F	N/A	N/A	N/A	N/A	N/A
Heat Affected Zone Ave.:		Weld Metal Zone Ave.:			Base Metal Zone Ave.:			
N/A		67 at +30°F / 38 at 0°F			N/A			

FILLET WELD TEST (QW-180)

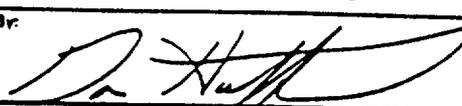
Result - Satisfactory: N/A	Penetration into Parent Metal: N/A	Type and Character of Failure: N/A
Macro-returns: N/A	Other: N/A	

OTHER TEST

RT: Acceptable	UT: Acceptable	Deposit Analysis: N/A
Other: N/A		

Welder's Name: Don Huffstodt	Clock No.: N/A	Slam no.: 101
Tests Conducted By: Robert Adrian	Laboratory: Koon-Hall Testing	Test No.: 2912-PG-021

We certify that the statements in this record are correct and that the welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME code.

Rev. 1	2	3	4	<b>MK-Ferguson Company</b>
Checked: DH	DH	DH		
Date: 8/83	4/85	10/87		
POB No.: 1-117	Reference Test No.: 2912-PG-021	Date: 4/8/88		

Procedure Title  WPS M-588-B	Contract No. 3669	
	Procedure Type Field Welding Procedure	
	Number FWP-15.23	
	Rev. 0	Issue Date 9-16-88

Set 1.04 **04**

Concurrence:

Title	Signature	Date
PWE	<i>Eugene C. Harden</i>	9/1/88
EM	<i>Richard B. Wikstrom</i>	9-1-88
PQM	<i>[Signature]</i>	9-1-88
PGS	<i>[Signature]</i>	9-1-88
PM	<i>[Signature]</i>	9-1-88

Client Transmittal No. DC-1320 Client Approval Status APPROVED

Change Status/Remarks:

Procedure Approval:

Title	Signature	Date
PWE	<i>Eugene C. Harden</i>	9/17/88
EM	<i>[Signature]</i>	9-17-88
PQM	<i>[Signature]</i>	9-17-88
PGS	<i>[Signature]</i>	9-17-88
PM	<i>[Signature]</i>	9-17-88

# Welding Procedure Specification

Welding Procedure Specification No. M-588-B	Date	Supporting PQR No. 1-126	Revision 0	Date 8/31/85	Supporting PQR No.
Revision	Date	Supporting PQR No.	Revision	Date	Supporting PQR No.

### WELDING PROCESS(ES)

<input type="checkbox"/> GTAW <input type="checkbox"/> FCAW <input checked="" type="checkbox"/> SMAW <input type="checkbox"/> GMAW	<input checked="" type="checkbox"/> MANUAL <input type="checkbox"/> MACHINE <input type="checkbox"/> SEMI-AUTOMATIC
<input type="checkbox"/> ASME SECTION I <input type="checkbox"/> ASME SECTION III <input type="checkbox"/> ASME SECTION VIII <input type="checkbox"/> ANSIB31.1 <input type="checkbox"/> ANSIB31.3	<input checked="" type="checkbox"/> OTHER ASME Section IX

### GROOVE DESIGN (QW-402)

<input checked="" type="checkbox"/> VEE <input type="checkbox"/> COMPOUND <input type="checkbox"/> OPEN BUTT <input checked="" type="checkbox"/> BACKING RING <input type="checkbox"/> FILLET/SOCKETS <input type="checkbox"/> CONSUMABLE	<input type="checkbox"/> OTHER _____
---	--------------------------------------

### BASE METALS (QW-403)

P No. A588 to A588	Backing Material A36	Diameter Range Unlimited
THICKNESS RANGE .187 to 8"	ANSI N/A to	Other N/A to

### FILLER METALS (QW-404)

F No. 4	A No. 1	Spec. No. SFA 5.1	AWS No. E7018	Size of Filler 3/32", 1/8"
F No.	A No.	Spec. No.	AWS No.	Size of Filler

### CONSUMABLE INSERT

Spec. No. N/A	AWS No.	Size
Flux Composition	Particle Size	Electrode Flux Composition
Other		

### THICKNESS OF DEPOSITED WELD METAL

Min. Per Pass 1/16	Max. Per Pass 1/8	Total 8"	Min. Per Pass	Max. Per Pass	Total
Process SMAW			Process		

### POSITION (QW-405)

Position of Groove All	Welding Progression <input checked="" type="checkbox"/> UPHILL <input type="checkbox"/> DOWNHILL
---------------------------	---

### PREHEAT (QW-406)

Preheat Temp. Min. 50°F	Interpass Temp. Max. 500°F	Preheat Maintenance * <input checked="" type="checkbox"/> FLAME <input checked="" type="checkbox"/> ELECTRIC	Monitoring Temp. Indicating Device *	Other *ref. FWP-9.3
----------------------------	-------------------------------	---	---	------------------------

### POSTWELD HEAT TREATMENT (QW-407)

Temperature N/A	Time Range	Thickness	Other
--------------------	------------	-----------	-------

### GAS (QW-408)

Shielding Gas(es) N/A	Flow Rate	Backing	Flow Rate	Percent Composition	Other
--------------------------	-----------	---------	-----------	---------------------	-------

# Welding Procedure Specification

No. N-588-B  
ELECTRICAL CHARACTERISTICS (QW-409)

Page 2

Current and Polarity	Amperage	Volts	Travel Speed (ipm.)	Figure Number (Below)	Process	Size In.
DCRP	85-120	20-22	2.5	1	SMAW	3/32
DCRP	115-145	22-27	3.8	1	SMAW	1/8

Pulsating Current - GTAW  
 YES  NO      N/A      SFA/AWS - 5.12 - EWTH - 2 - 2% Thoriated Tungsten  
 YES  NO      N/A      Sizes N/A  
 3/32"  1/8"  5/32"

**TECHNIQUE (QW-410)**

String or Weave Bead Both as required	Oscillation 1/2" Max.	Dwell Time N/A	Frequency N/A	Gas Cup Size N/A
Contact Tube to Work Distance N/A	Initial & Interpass Cleaning Mechanical/Chemical		Other N/A	
Multipass or Single Pass (Per Side) Multiple	Single or Multiple Electrodes Single		Method of Back Gouging Mechanical/Thermal	

**TYPICAL GROOVE DESIGN**

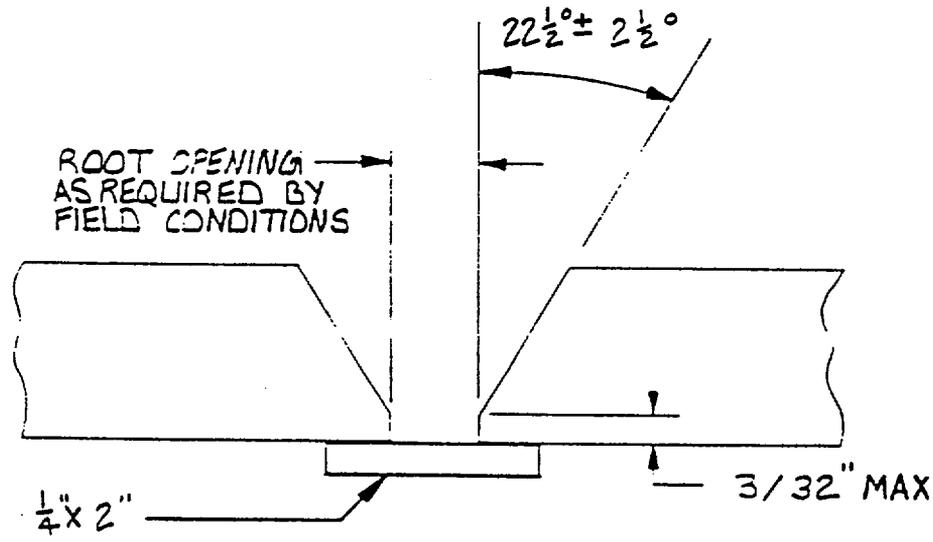
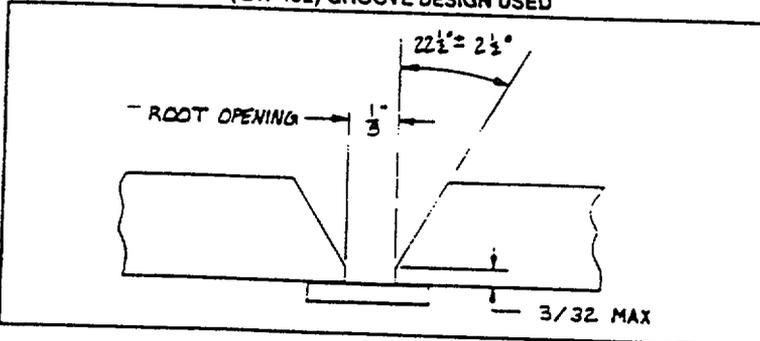


FIGURE #1

# Procedure Qualification Record

POR No.: 1-126	Welding Process(es) SMAW	Type(s) Manual
WPS No.: M-1-1-AB	SMAW	Manual



BASE METAL (QW-403)

Material Spec.: A588 to A588	Type or Grade: A to A
P No. (Gp. No.): N/A to	
Thickness Tested: 1.5"	Diameter Tested (OD): N/A
Thickness Range Qualified: .187 to 8"	
Other: A36 Backing Strap used.	

FILLER METAL (QW-404) AND ELECTRICAL CHARACTERISTICS (QW-409)

Bead No.	Process	Filler Metal					Current and Polarity	Amps	Volts	Travel Speed-IPM	Inter Pass Temp.
		Size In.	SFA Spec.	AWS No.	A No.	F No.					
1	SMAW	1/8	5.1	E7018	1	4	DCRP	135-140	20-23	3.83	300 °F
2-4	SMAW	1/8	5.1	E7018	1	4	DCRP	140-145	22-25	5.5	320 °F
5-7	SMAW	1/8	5.1	E7018	1	4	DCRP	140-145	20-25	6.0	350 °F
Ba1	SMAW	1/8	5.1	E7018	1	4	DCRP	140-145	20-25	6.0	450 °F
											°F
											°F

Pulsating Current - GTAW  
 Yes  No      SFA/AWS - 5.12 - EWTH - 2 - 2% Thoriated Tungsten  
 Yes  No      Sizes:  3/32"  1/8"  5/32"

THICKNESS OF DEPOSITED WELD METAL QUALIFIED (QW-451)

Min.: 1/16"	Max. Per Pass: 1/8"	Total: 8"	Position of Groove Tested: 1G
Min.:	Max. Per Pass:	Total:	Weld Progression: <input type="checkbox"/> Uphill <input type="checkbox"/> Downhill <input checked="" type="checkbox"/> N/A

PREHEAT & INTERPASS (QW-406)

Minimum Temp.: 70°	Maximum Temp.: 450°	Monitoring: Pyrometer	Maintenance: <input type="checkbox"/> Flame <input type="checkbox"/> Electric <input checked="" type="checkbox"/> N/A
-----------------------	------------------------	--------------------------	--

POSTWELD HEAT TREATMENT (QW-407)

Temperature: N/A	Time: N/A	GAS (QW-408)		
Other:		<input type="checkbox"/> Torch <input type="checkbox"/> Gun	External N/A	Internal N/A
		Gas Cup Size: N/A	Type of Gas or Gases	% Comp. of Gas Mixture
			Flow Rate, cfm	

TECHNIQUE (QW-410)

String or Weave Bead: Both	Oscillation: 1/2"	Single or Multiple Electrodes: Single	Multiple or Single Pass (Per Side): Multiple
Dwell Time: N/A	Frequency: N/A	Cleaning: Grind and File	Other: No Peening

Rev.	1	2	3	4	PQR Ref. Test No. & Date	MK-Ferguson	
Checked					1-126	By: Eugene C. Jordan	Date: 8/31/88
Date					8-26-88		



# Procedure Qualification Record

No. 1-126

QTS-W-002-2  
Rev. 0 (10-85)

ASME

## TENSILE TEST (QW-150)

Page 2

Specimen No.	Width	Thickness	Area	Ultimate Total Load Lb.	Ultimate Unit Stress PSI	Character of Failure and Location
G7938-1	0.503"	N/A	.1987	16,750	84,300	WMZ
G7938-2	0.504"	N/A	.1985	17,550	88,000	WMZ
G7941-1	0.501"	N/A	.1971	16,550	84,000	WMZ
G7941-2	0.500"	N/A	.1964	17,450	88,800	WMZ

## GUIDED BEND TESTS (QW-160)

Type and Figure No.	Result	Type and Figure No.	Result
Side QW-462.2	Satisfactory	Side QW-462.2	Satisfactory
Side QW-462.2	Satisfactory	Side QW 462.2	Satisfactory

## TOUGHNESS TESTS (QW-170)

Specimen No.	Notch Location	Notch Type	Test Temp.	Impact* Values Foot Pounds	Lateral Exp.		Drop Weight	
					% Shear	Mils	Break	No Break
1-G7943-1	WMZ	V	+30 °F	107.5	50	77.5	N/A	N/A
2-G7943-2	WMZ	V	+30 °F	129.0	80	79.5	N/A	N/A
3-G7943-3	WMZ	V	+30 °F	140.5	80	80.0	N/A	N/A
1-G7944-1	HAZ	V	+30 °F	48.5	40	46.5	N/A	N/A
2-G7944-2	HAZ	V	+30 °F	43.0	30	33.5	N/A	N/A
3-G7944-3	HAZ	V	+30 °F	54.0	30	44.0	N/A	N/A
1-G7945-1	BMZ	V	+30 °F	45.0	<10	34.0	N/A	N/A
2-G7945-2	BMZ	V	+30 °F	36.0	<10	26.5	N/A	N/A
3-G7945-3	BMZ	V	+30 °F	45.0	<10	34.5	N/A	N/A
Heat Affected Zone Ave.: 48.5		Weld Metal Zone Ave.: 125.5		Base Metal Zone Ave.: 42.0				

## FILLET WELD TEST (QW-180)

Result - Satisfactory: N/A	Penetration into Parent Metal: N/A	Type and Character of Failure: N/A
Macro-results: N/A	Other: N/A	

## OTHER TEST

RT: Acceptable	UT: N/A	Deposit Analysis: N/A
Other: N/A		

Welder's Name: Lindsev Royce/Merriell Wahwassuck	Clock No.: N/A	Stamp No.: B31/B29
Tests Conducted By: Robert Adrian	Laboratory: Koon Hall Testing	Test No.: 3669-301-2826

We certify that the statements in this record are correct and that the welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME code.

Rev.	1	2	3	4
Checked I				
Date				
PQR No.: 1-126	Reference Test No.: G7940	By: <i>Engineer C. T. Garden</i>		Date: 8/31/88

Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the code.

24

FAX COVER LETTER

THIS DOCUMENT IDENTIFIES AN ALLEGER

DATE 7/17/96

TO: NAME Dennis Geston & Rob Coulsting  
~~RUSTY GORDEN & PAUL EVANS~~

COMPANY MK TEI

CITY ~~TWO RIVERS, NJ~~ WEST HANOVER, MASS

FAX 617-878-2547

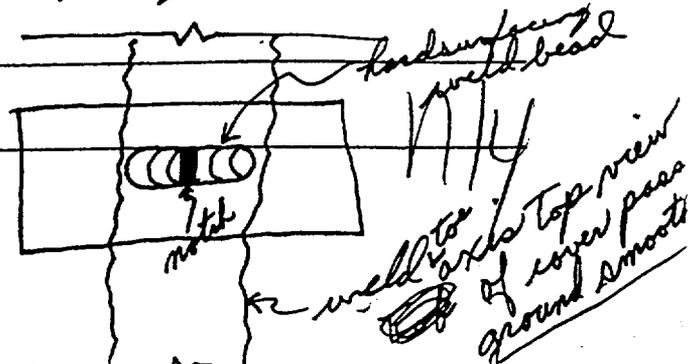
FROM: Morrison Knudsen  
MK-Ferguson Plaza  
1500 West 3rd Street  
Cleveland, OH 44113-1406  
Fax: 216-523-5612

NAME ALAIN ARTAYET

PHONE 216-523-6698

NUMBER OF PAGES (INCLUDING THIS PAGE) 12

MESSAGE TO ADDRESSEE: *As you will notice these specs. do not describe orientation specific to longitudinal axis of Weld Metal Zone for drop weight with respect to notch and <sup>weld</sup>hardsurfacing bend. This is what I propose:*



*Do you concur?*

*Thanks  
Alain*

THIS DOCUMENT IDENTIFIES AN ALLEGER

*Ben Hood & Alaw  
both referred me to  
Bill Fisher to go  
apens.*



Nuclear Projects Office  
6301 Scenic Highway  
Pensacola, FL 32514-7810

# FACSIMILE

## THIS DOCUMENT IDENTIFIES AN ALLEGER

TRANSMIT MESSAGE TO:

Alain Artaget  
Name

MK/SGT  
Company Name or (W) Division

216-523-5612  
Location

FROM:

Bill  
W. A. Fisher  
Name

Nuclear Projects, Pensacola  
Location and Department

Telephone Number  
WIN: 474-4384  
(904) 474-4384

Westinghouse Pensacola Plant (WPP) Facsimile Numbers:  
Projects Office (904) 474-4519  
Engineering Department (904) 474-4509

Comments:

Alain  
Please find material spec. C055C02 rev. B and C528C01  
rev. C that you requested. This information is being  
provided to you for use on the point beam 2 R56<sup>15</sup>  
only.

*Regards  
Bill*

No. of Pages  11	Time Sent	2:15
	Date Sent	7-17-96
	Operator	<i>[Signature]</i>

## THIS DOCUMENT IDENTIFIES AN ALLEGER



NCD

# MATERIAL SPECIFICATION NUCLEAR COMPONENTS DIVISION

SPECIFICATION NO. C055C02	REVISION NO. B
---------------------------	----------------

TITLE	Low Alloy Steel Electrode SFA 5.5 Class E9018M For Shielded Metal Arc Welding (SMAW)
-------	---

APPROVAL	REV. <u>  </u>	REV. <u>  </u>	REV. <u>  </u>	REV. <u>  </u>
AUTHOR	<i>R. Guichonchi</i>			
VERIFIER	<i>P. Hup. Lard</i>			
ENGINEERING	<i>T. B. Ford</i>			
Q. A. ENGRG.	<i>M. Lugoer</i>			
MFG. ENGRG.	<i>N/A</i>			
DESIGN ENGRG. MANAGER	<i>W. Ford</i>			

REVISION		DESCRIPTION
NO.	DATE	
B	01/28/88	Initial issue to replace Tampa dvg. 2655A71

Complies with ASME Section III

C055C02 Rev. B

**WESTINGHOUSE ELECTRIC CORPORATION**  
**NUCLEAR COMPONENTS DIVISION**  
**PENSACOLA, FLORIDA**

**WELDING FILLER METAL PROCUREMENT SPECIFICATION**  
**Low Alloy Steel Electrode SFA 5.5 Class E9018M** E9018M  
**For Shielded Metal Arc Welding (SMAW)** #37175

**1.0 SCOPE:**

- 1.1 This specification for SFA 5.5 Class E9018-M covered welding electrodes establishes the testing and other requirements for compliance to ASME Section III Division I Subsection NB paragraph 2400 and Section II Part C.
- 1.2 The applicable ASME code edition and addenda for Section III and for Section II are as stated in the purchase order.
- 1.3 The electrode diameter, length and quantity are as stated in the purchase order.

**2.0 APPLICABLE DOCUMENTS: - NONE****3.0 BASIS OF PURCHASE:**

- 3.1 ASME Section III - Electrodes and supplier shall meet the requirements of ASME Section III Division I Subsections NB-2400, and NB-2600. In accordance with schedule K classification C4 of Section II Part C SFA 5.01, each lot shall be tested for compliance to ASME Section III Subsections NB-2432.2 and 2431.1.
- 3.2 ASME Section II - Electrodes shall meet the requirements of ASME Section II Part C, SFA 5.5 Class E9018-M tested to schedule F of SFA 5.01.

**3.2.1 Chemical Requirements:** The chemical composition of the weld deposit shall be in accordance with SFA 5.5 and additional elemental analysis as listed below. The test method shall also be specified in the certification.

<u>Chemical Element</u>	<u>Composition, Wt. Percent<sup>o</sup> (Undiluted Weld Deposit)</u>
Carbon-C	0.10
Manganese-Mn	0.50 - 1.25
Phosphorus-P	0.030
Sulfur-S	0.030
Silicon-Si	0.80
Nickel-Ni	1.40 - 1.80
Chromium-Cr	0.15
Molybdenum-Mo	0.35
Vanadium-V	0.05
Copper-Cu	Information Only
Cobalt-Co	Information Only

• Single values are maximum percentages.

**3.2.2 Preheat Interpass Temperature:** The mechanical sample welds shall be made in accordance with SFA 5.5 Class E9018-M except that preheat temperature shall be 250 - 275°F with a maximum interpass temperature of 500°F.

**3.2.3 Post Weld Heat Treatment:** Specimens for mechanical property tests shall be PWHT'ed as follows:

- (a) Charge specimens into a furnace not exceeding 800°F
- (b) Heat to 1125°F ± 25°F at a heating rate not exceeding 100°F per hour above 800°F and hold at temperature for 24 hours (+1 hrs -0 hrs);
- (c) Cool in the furnace to 800°F at a cooling rate not exceeding 100°F per hour;
- (d) Cool uniformly at any rate to room temperature.

**3.2.4 Fracture Toughness:** The PWHT weld sample shall be tested according to ASME Section III Subsection NB-2330 as follows:

- (a) Prepare four (4) weld metal drop weight samples and six (6) weld metal charpy "V" notch specimens.

2 11-2-95

- (b) Test two (2) drop weight samples at  $-10^{\circ}\text{F}$  maximum temperature and three (3) impact specimens at  $+40^{\circ}\text{F}$  maximum. If this test successfully establishes an RT/NDT reference temperature of  $-20^{\circ}\text{F}$  then run the first set of (2) drop weight specimens at  $-20^{\circ}\text{F}$  maximum and the second set of (3) impact specimens at  $+30^{\circ}\text{F}$  maximum. However, if the first set of specimens fails, then run the second set of (2) drop weight specimens at  $+20^{\circ}\text{F}$  maximum and the (3) impact specimens at  $+70^{\circ}\text{F}$  maximum. The criteria for passing any one of the above tests are two (2) no-breaks for the drop weight tests and 50 ft-lbs minimum impact energy with 35 mils minimum lateral expansion for the impact specimens.

The lowest reference temperature achieved shall be reported in the certification and shall not be greater than  $\text{RT}_{\text{NDT}} = +10^{\circ}\text{F}$  to be acceptable to this specification.

- 3.2.5 Tensile Strength and Ductility Requirements: Post weld heat treated all weld metal test specimens shall meet the following:

Tensile Strength, Min. - 90,000 psi

Yield Strength, 78,000 - 90,000 psi

Elongation, Min. - 24%

#### 4.0 IDENTIFICATION MARKING:

- 4.1 Electrodes: In addition to the electrode identification requirements of ASME Section II Part C SFA 5.5, each electrode shall be imprinted at the grip end at least once with the electrode lot number. The imprinting shall appear immediately after or adjacent to the electrode classification and shall be of the same block type, location and size.
- 4.2 Unit Containers: Shall be identified with the information required by SFA 5.5, and be hermetically sealed.
- 4.3 Overpacking of Unit Containers: Each box shall be plainly marked with the same information required on the unit containers in addition to the Westinghouse Purchase Order number and this specification and revision letter.

**5.0 QUALITY ASSURANCE REQUIREMENTS:**

- 5.1 The welding electrode supplier shall meet the requirements of ASME Section III Subsection NB-2600.
- 5.2 No change shall be made in the quality of successive shipments of material furnished under this specification without first obtaining the approval of the purchaser.

**6.0 CERTIFIED TEST REPORTS:**

Certified test reports shall be submitted to Westinghouse prior to or during shipment of the electrodes and shall include:

- 6.1 Reference to the applicable ASME code edition and addenda.
- 6.2 Statement of compliance to ASME Section II Part C, SFA 5.5 Class E9018-M.
- 6.3 Results of tests required by ASME Section III Subsection NB-2400 as follows:
  - 1) Chemical analysis of undiluted weld metal and test method.
  - 2) Tensile, yield and elongation of post weld heat treated specimen.
  - 3) Fracture toughness test of post weld heat treated specimens.
- 6.4 Preheat and interpass temperature used in par. 6.3.
- 6.5 Post weld heat treatment including heating and cooling rate, holding time at temp.
- 6.6 Statement of compliance to ASME Section III Subsection NB-2600 and NCA-3800.
- 6.7 Statement of compliance to the purchase order and this specification and revision letter.

**7.0 WESTINGHOUSE INTERNAL REQUIREMENTS ONLY:**

**7.1 Receiving Inspection Dept. shall assign a W heat code to the material upon receipt. If additional in-house testing is required as indicated below, the requisitioner shall be notified upon receipt of the welding material. A QR shall not be issued until documentation of satisfactory test results is received by Receiving Inspection. A copy of the Quality Release and Certification Report shall be forwarded to the requisitioner and a copy of the QR shall be sent to the weld wire cage.**

<u>W Cat.</u>	<u>Elect. Dia.</u>	<u>W Stock No.</u>	<u>Weld Process</u>	<u>In-House Testing</u>
R	3/32"	200281	SMAW	No
R	1/8"	200043	SMAW	No
R	5/32"	200054	SMAW	No
R	3/16"	200044	SMAW	No
R	1/4"	200112	SMAW	No

**7.2 Receiving Inspection Department shall enter the following into the W computer system:**

- (a) W heat code
- (b) Vendor heat/lot number
- (c) W material category
- (d) W stock number
- (e) All of the welding processes applicable for use with purchased material.

12/28/95

WPP	MATERIAL SPECIFICATION		SPEC NO.	C528C01
			REV NO.	C
TITLE	Low Alloy Steel Filler Metals SFA-5.28 Class ER100S-1, for Gas Tungsten Arc Welding (GTAW)			
<b>WESTINGHOUSE ELECTRIC CORPORATION</b> <b>PENSACOLA PLANT</b> <b>PENSACOLA, FLORIDA</b>				
APPROVAL	SIGNATURE	DATE	SUMMARY OF CHANGES	
AUTHOR	<i>M. J. Carpenter</i>	3/14/94		
VERIFIER	<i>B. B. Hood</i>	3/14/94		
ENGINEERING	<i>J. R. Bayless</i>	3/14/94		
QA ENGRG.	<i>[Signature]</i>	3-16-94		
MFG. ENGRG.	<i>[Signature]</i>	3-18-94		
ENGRG. MGR.	<i>[Signature]</i>	3-21-94		
APPLICATIONS				
Rev. A			Not Issued	
Rev. B			Initial Release	
Rev. C.			Complies with ASME	
			Sect. III E1986; E1986A87	

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF THE WESTINGHOUSE ELECTRIC CORPORATION PENSACOLA PLANT AND IS TO BE RETURNED UPON REQUEST. ITS CONTENTS MAY NOT BE DISCLOSED TO OTHERS OR USED FOR OTHER THAN THE EXPRESSED PURPOSE FOR WHICH LOANED WITHOUT THE WRITTEN CONSENT OF WESTINGHOUSE (PENSACOLA PLANT).

**1. Scope**

1.1 This specification, for SFA 5.28 Class ER100S-1, low alloy steel filler metal establishes the testing and other requirements for compliance to ASME Section III, Division 1, Subsection NB, Paragraph 2400, Section III, Subsection NCA-3800, and Section II, Part C.

1.2 The applicable ASME Code Edition and Addenda for Section III and Section II are as stated in the purchase order.

1.3 The electrode/rod diameter, length, coil or spool size (if applicable) and quantity are as stated in the purchase order.

**2. Applicable Documents**

- ASME B & PVC Section III, Subsection, NCA
- ASME B & PVC Section III, NB
- ASME B & PVC Section II, Part C

**3. Basis of Purchase**

3.1 ASME Section II - Filler metal shall meet the requirements of ASME Section II Part C, SFA 5.28 Class ER100S-1 Tested to Schedule F Class S3 of SFA-5.01

3.2 ASME Section III - Filler metal shall meet the requirements of ASME Section III Division 1 Subsection NB-2400 and NB-2600 per Schedule K Classification S3 of Section II Part C SFA 5.01. Each lot shall be tested for compliance to ASME Section III, Subsections NB-2400 and NB-2430 as follows:

3.2.1 Chemical Requirements - The chemical analysis of the bare filler metal shall be in accordance with SFA 5.28 and additional element analysis as listed below. The test method shall also be specified in the certification (i.e., wet, Spectrometry, etc.).

<u>Chemical Element</u>	<u>Composition, Wt %*</u> <u>Bare Filler Metal</u>
Carbon-C	.08
Manganese-Mn	1.25 - 1.80
Silicon-Si	0.20 - 0.50
Sulfur-S	0.010
Phosphorus-P	0.010
Chromium-Cr	0.30
Nickel-Ni	1.40 - 2.10
Molybdenum-Mo	0.25 - 0.55
Copper-Cu	0.25
Vanadium-V	0.05
Titanium	0.10
Zirconium	0.10
Aluminum	0.10
Total Others	0.50

\* Single values are maximum percentages.

3.2.2 Weld Test Parameters - Weld one test coupon with GTAW using the parameters listed below. The test coupon shall be a minimum of 1" thick, 11" wide, and 20" long. Two coupons may be used in lieu of one. If only one set of drop weights and one set of input test specimens are required per paragraph 3.2.4.4. Then the coupon length can be reduced to 14". The test coupon material shall be low alloy steel such as SA-302, SA-508, SA-533, or SA-541. PWHT shall be in accordance with paragraph 3.2.3.

	<u>Manual GTAW</u>	<u>Machine GTAW</u>
Amperage	100/300	100/300 (.045)
Volts	12/22	10/14 (.045)
Travel	2 IPM min.	2-8 IPM, 1-5 with osc.
Gas	Argon	Argon
Preheat Temp. min.	250°F	250°F
Interpass Temp. max.	500°F	500°F

**3.2.3 Post Weld Heat Treatment - Specimens for PWHT mechanical property tests shall be treated as follows:**

- (A) Charge specimens into a furnace maintained at 800°F maximum;
- (B) Heat to 1125°F ± 25°F at a heating rate not exceeding 100°F per hour and hold at temperature for 24 hours minimum.
- (C) Cool in the furnace to 800°F at a cooling rate not exceeding 100°F per hour;
- (D) Cool uniformly at any rate to room temperature.

**3.2.4 Fracture Toughness - The PWHT'd weld sample shall be tested according to ASME Section III Subsection NB-2330 as supplemented by the following:**

**3.2.4.1 Prepare four (4) weld metal drop weight samples and six (6) weld metal charpy "V" notch specimens.**

**3.2.4.2 Test two (2) drop weight samples at +5°F maximum temperature and three (3) impact specimens at +55°F maximum. If this test successfully establishes a RT/NDT reference temperature of -5°F, then run the second set of (2) drop weight specimens at -10°F maximum, and the second set of (3) impact specimens at +40°F maximum (see note). However, if the first set of specimens fails, then run the second set of (2) drop weight specimens at +20°F maximum and the (3) impact specimens at +70°F maximum. The criteria for passing any one of the above tests are two (2) no-breaks for the drop weight tests ad 50 ft-lbs minimum impact energy with 35 mils minimum lateral expansion for the impact specimens.**

**3.2.4.3 The lowest reference temperature achieved shall be reported in the certification and shall not be greater than RTNDT = + 10°F to be acceptable to this specification.**

**3.2.4.4 NOTE: The -10°F drop weights and +40°F charpies may be run first and the results of these tests reported instead of the +5°F and +55°F tests.**

**3.2.5 Tensile Strength and Ductility Requirements - All-weld-metal test specimen shall meet the following:**

Tensile Strength, Min.	<u>PWHT</u> 90,000 psi
Yield Strength, Min.	78,000 psi
Elongation, Min.	16%

**4. Identification Marking**

**4.1 Each unit package of electrode/rod, coils or spool shall be identified with the following information:**

- (A) Material Classification and Specification Numbers
- (B) Supplier's Name and Trade Designation
- (C) Size (Diameter of Electrodes) and Net Weight
- (D) Lot, Control or Heat Number
- (E) P.O. Number
- (F) Cut length electrode shall be individually flag tagged on each end with the electrode type and manufacturers lot or heat number.

## 4.2 Packaging

Each unit package of electrodes, coils or spools shall be packaged in such a way as to prevent moisture damage during shipment and be able to be stored for one year.

## 5. Certified Material Test Reports

Certified material test reports shall be submitted to Westinghouse prior to or during shipment of the electrodes and shall include:

- 5.1 Reference to the applicable ASME Code Edition and Addenda.
- 5.2 Results of tests required by ASME Section III, Subsection NB-2400 as follows:
  - (1) Chemical analysis of bare filler metal and test method.
  - (2) Tensile, yield and elongation of post weld heat treated specimen.
  - (3) Fracture toughness test of post weld heat treated coupon.
- 5.3 Preheat and interpass temperature used for the weld test.
- 5.4 Post weld heat treatment including heating and cooling rate, holding time at temp.
- 5.5 Statement of Compliance to ASME Section II Part C, SFA 5.28 ER100S-1.
- 5.6 Statement of compliance to ASME Section III, Subsection NB-2600 and NCA-3800.
- 5.7 Statement of compliance to the purchase order and this specification and revision letter.

## 6. Westinghouse Internal Requirements Only

6.1 Receiving Inspection Dept. shall assign a Westinghouse heat code to the material upon receipt. If additional in-house testing is required as indicated below, the requisitioner shall be notified upon receipt of the welding material. A QR shall not be issued until documentation of satisfactory test results is received by Receiving Inspection. A copy of the Quality Release and Certification Report shall be forwarded to the requisitioner and a copy of the QR shall be sent to the weld wire cage.

<u>W Cat.</u>	<u>Elect. Dia.</u>	<u>W Stock No.</u>	<u>Weld Process</u>	<u>In-House Testing</u>
45	0.045"	200477	MTIG	No
45	1/16"	200478	MTIG	No
45	3/32"	200479	MTIG	No
45	1/8"	200480	MTIG	No

6.2 Receiving Inspection Department shall enter the following into the W computer system:

- (a) W heat code
- (b) Vendor heat/lot number
- (c) W material category
- (d) W stock number
- (e) All of the welding processes applicable for use with purchase material.

# Standard Test Method for Conducting Drop-Weight Test to Determine Nil-Ductility Transition Temperature of Ferritic Steels<sup>1</sup>

This standard is issued under the fixed designation E 208; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## INTRODUCTION

This drop-weight test was developed at the Naval Research Laboratory in 1952 and has been used extensively to investigate the conditions required for initiation of brittle fractures in structural steels. Drop-weight test facilities have been established at several Naval activities, research institutions, and industrial organizations in this country and abroad. The method is used for specification purposes by industrial organizations and is referenced in several ASTM specifications and the ASME Boiler and Pressure Vessel Code. This procedure was prepared to ensure that tests conducted at all locations would have a common meaning.

## 1. Scope

1.1 This test method covers the determination of the nil-ductility transition (NDT) temperature of ferritic steels,  $\frac{3}{8}$  in. (15.9 mm) and thicker.

1.2 This method may be used whenever the inquiry, contract, order, or specification states that the steels are subject to fracture toughness requirements as determined by the drop-weight test.

1.3 The values stated in inch-pound units are to be regarded as the standard.

1.4 *This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Terminology

### 2.1 Definitions:

2.1.1 *nil-ductility transition (NDT) temperature*—the maximum temperature where a standard drop-weight specimen breaks when tested according to the provisions of this method.

2.1.2 *ferritic*—the word ferritic as used hereafter refers to all  $\alpha$ -Fe steels. This includes martensitic, pearlitic, and all other nonaustenitic steels.

## 3. Summary of Test Method

3.1 The drop-weight test employs simple beam specimens specially prepared to create a material crack in their tensile surfaces at an early time interval of the test. The test is conducted by subjecting each of a series (generally four to eight) of specimens of a given material to a single impact load at a sequence of selected temperatures to determine the

maximum temperature at which a specimen breaks. The impact load is provided by a guided, free-falling weight with an energy of 250 to 1200 ft-lbf (340 to 1630 J) depending on the yield strength of the steel to be tested. The specimens are prevented by a stop from deflecting more than a few tenths of an inch.

3.2 The usual test sequence is as follows: After the preparation and temperature conditioning of the specimen, the initial drop-weight test is conducted at a test temperature estimated to be near the NDT temperature. Depending upon the results of the first test, tests of the other specimens are conducted at suitable temperature intervals to establish the limits within 10°F (5°C) for break and no-break performance. A duplicate test at the lowest no-break temperature of the series is conducted to confirm no-break performance at this temperature.

3.3 In 1984, the method of applying the crack-starter weld bead was changed from a "two-pass" technique to the current "single-pass" procedure, and the practice of "repair-welding" of the crack-starter weld bead was prohibited. For steels whose properties are influenced by tempering or are susceptible to temper embrittlement, the nil-ductility transition (NDT) temperature obtained using the "single-pass" crack-starter weld bead may not agree with that obtained using the previous "two-pass" crack-starter weld bead, or when the crack-starter bead was repaired.

## 4. Significance and Use

4.1 The fracture-strength transitions of ferritic steels used in the notched condition are markedly affected by temperature. For a given "low" temperature, the size and acuity of the flaw (notch) determines the stress level required for initiation of brittle fracture. The significance of this test method is related to establishing that temperature, defined herein as the NDT temperature, at which the "small flaw" initiation curve, Fig. 1, falls to nominal yield strength stress levels with decreasing temperature, that is, the point marked NDT in Fig. 1.

4.2 Interpretations to other conditions required for frac-

FIG. 1 Gen

ture initiat  
flaw-size, s  
diagram w  
fracture-ini  
the NDT  
Validation  
correlation  
ship, press  
steel appli

## 5. Precau

5.1 The  
ture initia  
structural  
less than

5.2 Th  
ditions to  
The use o  
tions or  
allowed t

5.3 Th  
the spec  
brittle m  
flaw in t  
lous bel

heat-affe  
weld is  
plate. T

pered st  
temper  
crack-st  
quench

cases w  
terms  
cold-w

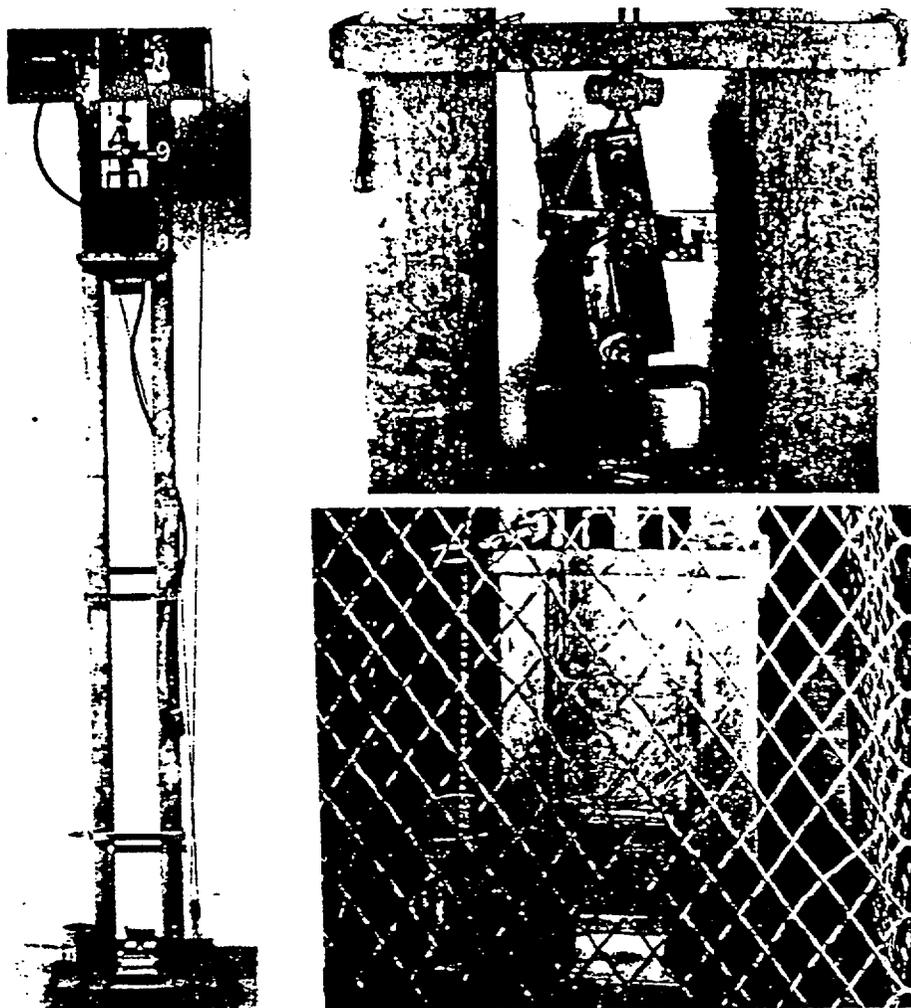
region  
is not  
of a p  
steels

fractur

<sup>1</sup> This test method is under the jurisdiction of the ASTM Committee E-28 on Mechanical Testing and is the direct responsibility of Subcommittee E28.07 on Impact Testing.

Current edition approved Jan. 25, 1991. Published March 1991. Originally published as E 208 - 63 T. Last previous edition E 208 - 87a<sup>1</sup>.





(a) Left—Complete Assembly  
 (b) Upper Right—Quick-Release Mechanism  
 (c) Lower Right—Guard Screen

FIG. 2. Drop-Weight Test Apparatus

deflection stops under the center-line of the striking tip of the weight. In general, the base will also support the guide rails, but this is not a requirement. The base shall rest on the rigid foundation. The base-foundation system shall be sufficiently rigid to allow the normal drop-weight energy (Table 1) to deflect a standard specimen to the stop at temperatures above the NDT. The base shall not jump or shift during the test, and shall be secured to the foundation if necessary to prevent motion.

6.4 A guard screen, similar to that shown in Fig. 2(c), is recommended to stop broken specimen halves of the very brittle steels which break into two pieces with both halves being ejected forcefully from the machine.

6.5 The general characteristics of two of the anvils required are illustrated in Fig. 3. The anvils shall be made in accordance with the dimensions shown in Fig. 4. The anvil supports and deflection stops shall be steel-hardened to a minimum hardness of HRC 50 throughout their cross section. The space between the two stops is provided as clearance for the crack-starter weld on the specimen. The deflection stops may be made in two separate pieces, if

desired. The anvil-base system shall be sufficiently rigid to allow the normal drop-weight energy (Table 1) to deflect the specimen to the stop at temperatures well above the NDT.

6.6 A measuring system shall be provided to assure that the weight is released from the desired height for each test, within the limits of +10, -0 %.

6.7 Modifications of the equipment or assembly details of the drop-weight machine shown in Fig. 2 are permitted provided that the modified machine is functionally equivalent. Figure 5 illustrates a portable machine design used by an industrial concern for drop-weight tests of materials used for pressure vessel components at different fabrication sites.

7. Test Specimens

7.1 *Identification of Material*—All sample material and specimens removed from a given plate, shape, forging, or casting product shall be marked to identify their particular source (heat number, slab number, etc.). A simple identification system shall be used which can be employed in conjunction with an itemized table to obtain all the pertinent information.

7.2 Orientation of specimen direction. For specimens specified by this standard and it shall be as specified by the purchaser.

7.3 Relationship of the material type test specimen required for the test.

7.4 Specifications for drop-weight size and length shall be as specified by the purchaser and shall be agreed to by the purchaser and the manufacturer.

7.4.1 Dimensions of the specimen shall be as specified by the purchaser and shall be agreed to by the purchaser and the manufacturer.

7.4.2 Specifications for test material shall be as specified by the purchaser and shall be agreed to by the purchaser and the manufacturer.

7.4.3 Specifications for quality of cast and wrought materials shall be as specified by the purchaser and shall be agreed to by the purchaser and the manufacturer.

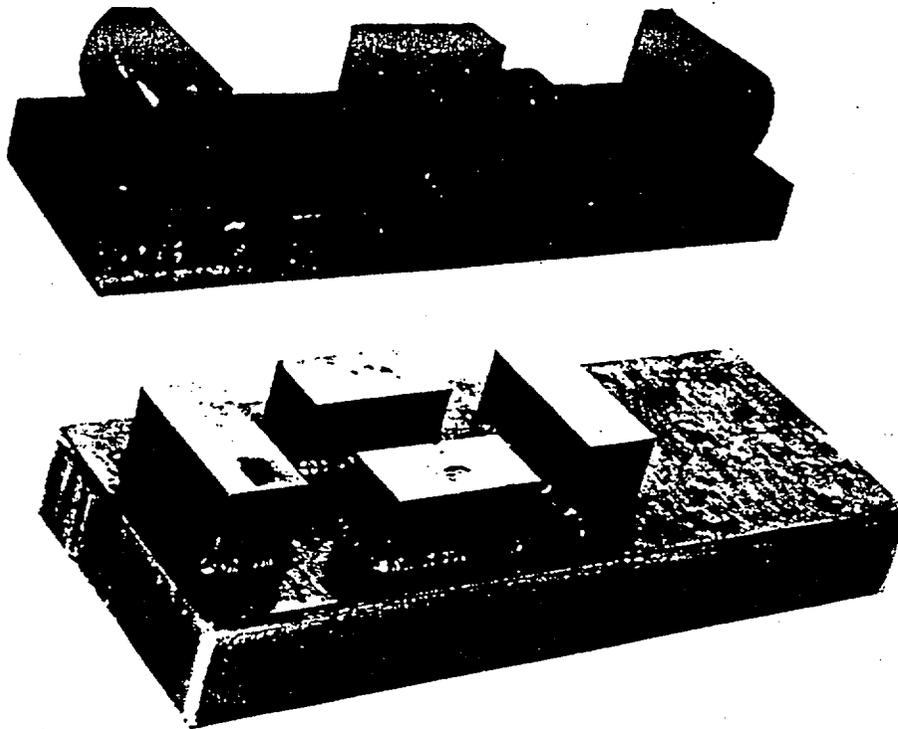


FIG. 3 General Appearance of the Anvils Required for Drop-Weight NDT Tests

**7.2 Orientation**—The drop-weight test is insensitive to specimen orientation with respect to rolling or forging direction. However, unless otherwise agreed to, all specimens specified by the purchaser shall be of the same orientation and it shall be noted in the test report.

**7.3 Relation to Other Specimens**—Unless otherwise specified by the purchaser, the specimens shall be removed from the material at positions adjacent to the location of other type test specimens (for example, mechanical test specimens) required for evaluation of other material properties.

**7.4 Special Conditions for Forgings and Castings**—Where drop-weight testing of cast or forged material is specified, the size and location of integrally attached pad projections or prolongations to be used for specimen fabrication shall be agreed to in advance by the purchaser. If the design of the casting or forging does not allow an attached test-material coupon, the following requirements shall apply:

**7.4.1** Drop-weight specimens cast or forged separately to the dimensions required for testing shall be allowed only where the product dimensions are equivalent and the purchaser agrees.

**7.4.2** Specimens may be taken from a separately produced test-material coupon if the supplier can demonstrate that it is equivalent to the product with respect to chemical composition, soundness, and metallurgical conditions. The material shall be from the same heat and shall have been fabricated under identical conditions as the product. The specimens shall be machine-cut from locations agreed to in advance by the purchaser.

**7.4.3** Specifically, in the case of casting requiring X-ray quality standard, the separate test-material coupon shall be cast separately but simultaneously with the product. Chills

shall not be used. The test-material coupon shall be in proportion to the thickness,  $T$ , in the cast product, where  $T$  is diameter of the largest circle that can be inscribed in any cross section of the casting, or where  $T$  is defined in advance by the purchaser as the nominal design thickness, as follows:

Thickness, $T$ , in. (mm)	Separately Cast, Nonchilled, Test-Coupon Size
$\frac{1}{2}$ (12.7) and less	None required
$\frac{3}{8}$ to 2 (15.9 to 50.8)	When several small castings are poured from one heat, one casting shall be used to provide test specimens, if adaptable
$\frac{3}{8}$ to 1 (15.9 to 25.4)	$T$ by 2 by 5 in. (127 mm) for irregularly shaped castings
$>1$ to 3 (25.4 to 76.2)	$T$ by 4.5 $T$ by 4.5 $T$
$>3$ to 5 (76.2 to 127)	$T$ by 3 $T$ by 3 $T$
Over 5 (127)	$T$ by 3 $T$ by 3 $T$ for castings that are representative of cast plates
Over 5 (127)	$T$ by $T$ by $6\sqrt{T}$ for castings that are representative of cast plates

**7.4.4** Specimens showing casting or metallurgical faults on broken fracture surfaces shall be "No-Test."

**7.5 Size of Blank**—Dimensions of the blank size required for standard test specimens are shown in Fig. 6. Equally significant NDT temperatures, within  $\pm 10^\circ\text{F}$  ( $\pm 5^\circ\text{C}$ ), are determined for a given steel with tests using any of the standard specimens. As may be convenient for the particular thickness of material, any of the standard specimens shown in Fig. 6 and prepared as described in Section 7 may be chosen for this method. The results obtained with standard test conditions shall comply with the requirements of this method for determining the NDT temperature.

**7.6 Specimen Cutting**—The specimen sample material and the specimen ends may be flame-cut. The specimen sides shall be saw-cut or machined, using adequate coolant to prevent specimen overheating, and shall be a minimum of 1

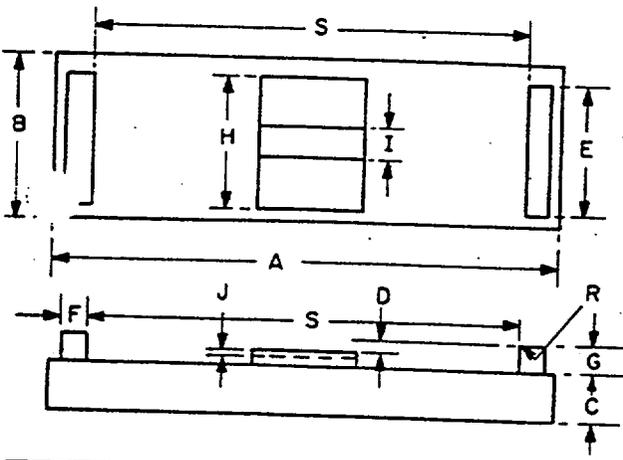
TABLE 1 Standard Drop-Weight Test Conditions

Type of Specimen	Specimen Size, in. (mm)	Span, in. (mm)	Deflection Stop, in. (mm)	Yield Strength Level, ksi (MPa)	Drop-Weight Energy	
					ft-lbf	J
P-1	1 by 3½ by 14 (25.4 by 89 by 356)	12.0 (305)	0.3 (7.6)	30 to 50 (210 to 340)	600	800
				50 to 70 (340 to 480)	800	1100
				70 to 90 (480 to 620)	1000	1350
				90 to 110 (620 to 760)	1200	1650
P-2	¾ by 2 by 5 (19 by 51 by 127)	4.0 (102)	0.06 (1.5)	30 to 60 (210 to 410)	250	350
				60 to 90 (410 to 620)	300	400
				90 to 120 (620 to 830)	350	450
				120 to 150 (830 to 1030)	400	550
P-3	¾ by 2 by 5 (15.9 by 51 by 127)	4.0 (102)	0.075 (1.9)	30 to 60 (210 to 410)	250	350
				60 to 90 (410 to 620)	300	400
				90 to 120 (620 to 830)	350	450
				120 to 150 (830 to 1030)	400	550

<sup>4</sup> Initial tests of a given strength level steel shall be conducted with the drop-weight energy stated in this column. In the event that insufficient deflection is developed (to test performance) an increased drop-weight energy shall be employed for other specimens of the given steel.

from any flame-cut surface. Products thicker than the standard specimen thickness shall be machine-cut to standard thickness from one side, preserving an as-fabricated surface unless otherwise specified, or agreed to, in advance with the purchaser. The as-fabricated surface so preserved shall

be the welded (tension) surface of the specimen during testing.



Anvil Dimension	Units	Specimen Type			Tolerance
		P-1	P-2	P-3	
Span	in.	12.0	4.0	4.0	±0.05
	mm	305	100	100	±1.5
Deflection stop	in.	0.30	0.060	0.075	±0.002
	mm	7.60	1.50	1.90	±0.05
Anvil length	not critical				
Anvil width	not critical				
Anvil thickness	in.	1.5 min	1.5 min	1.5 min	
	mm	38 min	38 min	38 min	
Support length	in.	3.5 min	2.0 min	2.0 min	
	mm	90 min	50 min	50 min	
Support width	not less than G				
Support height	in.	2.0	2.0	2.0	±1
	mm	50	50	50	±25
Support radius	in.	0.075	0.075	0.075	±0.025
	mm	1.0	1.0	1.0	±0.1
Clearance	in.	3.5 min	2.0 min	2.0 min	±2
	mm	90 min	50 min	50 min	±50
Clearance depth	in.	0.9	0.9	0.9	±0.1
	mm	22	22	22	±3
Clearance depth	in.	0.4 min	0.4 min	0.4 min	
	mm	10 min	10 min	10 min	

FIG. 4 Anvil Dimensions

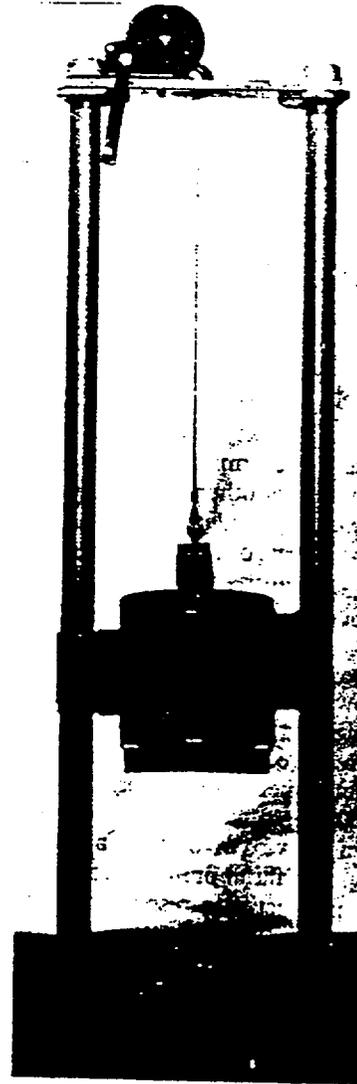


FIG. 5 Portable Drop-Weight Test Machine Used for Tests at Different Fabrication Sites

- Dimension
- T, Thickness
- L, Length
- W, Width
- WL, Weld length

NOTE—The length of the specimen shall be measured at the fixture when the specimen is in the fixture.

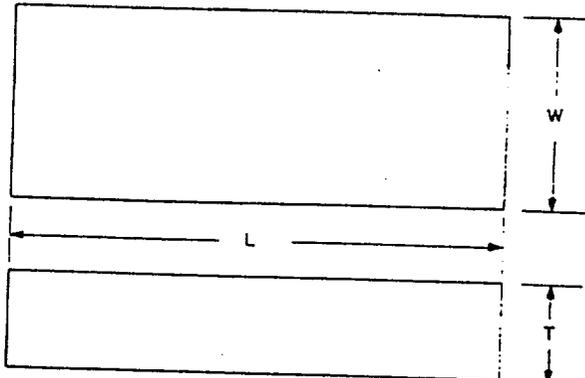
7.7 Crack-...  
a centrally located notch (10 mm long and 2 mm wide) in the as-fabricated surface. The notch shall be made in a single pass with the weld depositing metal as shown in Figure 7.7.1. The notch shall be 3-in. (76 mm) long and 1/8-in. (3.2 mm) wide. The notch shall be used. The notch shall be made by the method of weaving) to the notch. The notch shall be determined by the amount of metal deposited. A current of 18 A shall be used. The speed that will produce four passes of an as-deposited metal shall be used.

7.7.1 Microstructure  
The microstructure of the metal in the notch which is

<sup>5</sup> Previous version of this standard that were suitable for use shall no longer produce such a microstructure. Produce appropriate microstructure with appropriate parameters. Teledyne McKay, P.O. Box 402, 77 Göteborg, Sweden. From Conarco, Calle de la Industria, 10000, Madrid, Spain. Until the subcommittee has agreed on appropriate parameters, potential microstructures shall be determined in accordance with parameters. The copper temperature shall be determined for specimens since it affects the microstructure of the specimen during testing.

gy for Given Level<sup>4</sup>

J
10
20
1350
1650
350
400
450
550
350
400
450
550



Dimension	Units	Specimen Type					
		P-1		P-2		P-3	
		Dimension	Tolerance	Dimension	Tolerance	Dimension	Tolerance
T, Thickness	in.	1.0	±0.12	0.75	±0.04	0.62	±0.02
	mm	25	±2.5	19	±1.0	16	±0.5
L, Length	in.	14.0	±0.5	5.0	±0.5	5.0	±0.5
	mm	360	±10	130	±10	130	±10
W, Width	in.	3.5	±0.1	2.0	±0.04	2.0	±0.04
	mm	90	±2.0	50	±1.0	50	±1.0
WL, Weld length	in.	2.5	±1	1.75	±1.0	1.75	±1.0
	mm	63.5	±25	44.5	±25	44.5	±25.0

NOTE—The length of the weld bead is not critical, provided that the crack-starter notch is at the center of specimen and that the weld bead does not contact the support fixture when the specimen is fully deflected.

FIG. 6 Standard Drop-Weight Specimen Dimensions

7.7 Crack-Starter Weld—The crack-starter weld, which is a centrally located weld bead, approximately 2½ in. (63.5 mm) long and ½ in. (12.7 mm) wide, shall be deposited on the as-fabricated tension surface of the drop-weight specimen in a single pass.<sup>5</sup> To assist the welding operator in centering the weld deposit properly on the test piece, two punch marks as shown in Fig. 7(a) or a copper template containing a 1 by 3-in. (25 by 76-mm) centrally positioned slot, Fig. 7(b), shall be used.<sup>6</sup> The weld shall start from either Point A or D and shall proceed without interruption as a stringer bead (no weaving) to the other point. The bead appearance is determined by the amperage, arc voltage, and speed of travel used. A current of 180 to 200 A, a medium arc length, and a travel speed that will result in a moderately high-crowned bead have been found to be suitable conditions. An enlarged view of an as-deposited crack-starter weld is shown in Fig. 7(c).

7.7.1 Microstructure of Base Metal—Data presented show that the method of depositing the weld bead can influence the microstructure of the heat-affected zone under the weld notch which in turn can influence the NDT determined

especially in heat-treated steels.<sup>7</sup>

7.8 Weld Notch—The final preparation of the specimen consists of notching the deposited weld at the center of the bead length. Care shall be taken to ensure that only the weld deposit is notched and that the cutting tools do not contact the specimen surface. The notch may be cut with thin abrasive disks, as shown in Fig. 8, or other convenient cutting tools such as mechanical saws, hack saws, etc. The weld-notch details and a representative example of a notched weld is given in Fig. 9.

7.9 Measuring Weld-Notch Depth—The depth of the notch from the crown of the weld will vary with expected variations in weld-crown dimensions. The depth of the notch is not measured, since it is the thickness of the weld remaining above the specimen and under the bottom of the notch that has been standardized, as shown in Fig. 9. This weld thickness above the specimen shall be maintained across as much of the weld width as permitted by the bead contour. Figure 10 illustrates a device for measuring the thickness of weld metal at the bottom of the notch. The adjustable dial indicator with bridge-support is set at zero while in position on the specimen with the indicator tip contacting the specimen surface immediately adjacent to the notch. The bridge is then placed over the weld with the indicator tip resting on the bottom of the notch to measure the weld metal thickness directly. After the operator has gained experience in the preparation of a few specimens, the instrument need be used only in the final checking of the finished notch.

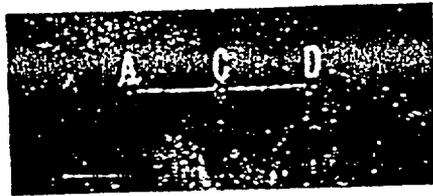
7.10 Other Crack-Starter Welds—The satisfactory com-

<sup>5</sup> Previous versions of the specification listed sources for hard facing electrodes that were suitable for producing the brittle crack-starter weld. Those sources no longer produce such electrodes. The following new sources have indicated that they produce appropriate electrodes: (1) McKay DW Electrode, available from Teledyne McKay, P.O. Box 1509, York, PA 17405-1509, (2) OK Selectrode 83.30 4 mm diameter, item number 8330404000, available from Esab AB, Box 8004, S-402 77 Göteborg, Sweden, and (3) Conarcrom 350 3 mm diameter, available from Conarco, Calle 18 No 4079-(1672 V. Lynch), Buenos Aires, Argentina.

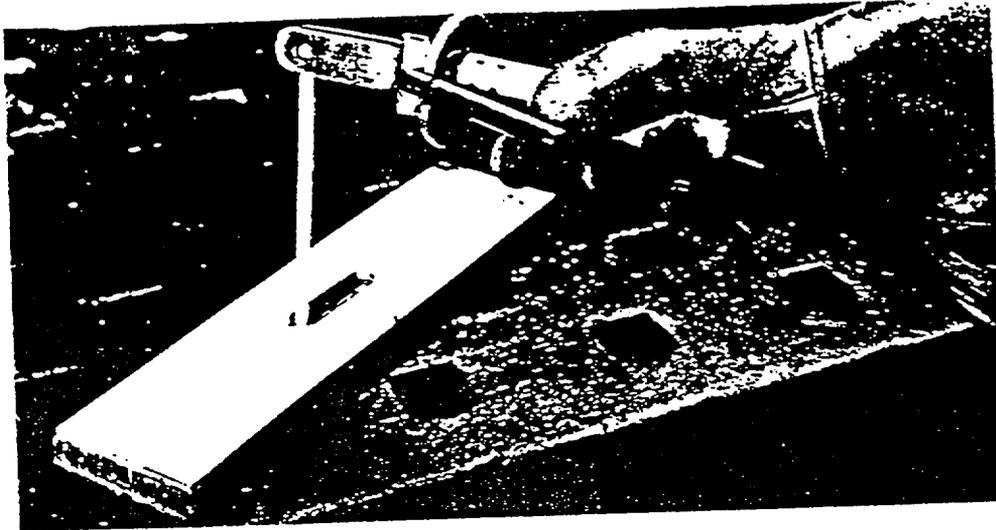
Until the subcommittee is able to perform round robin testing of these electrodes, potential users are cautioned to perform their own evaluations in accordance with paragraph 7.10.

<sup>6</sup> The copper template is especially recommended for the Type P-2 and P-3 specimens since it eliminates weld spatter which may interfere with proper seating of the specimen during test.

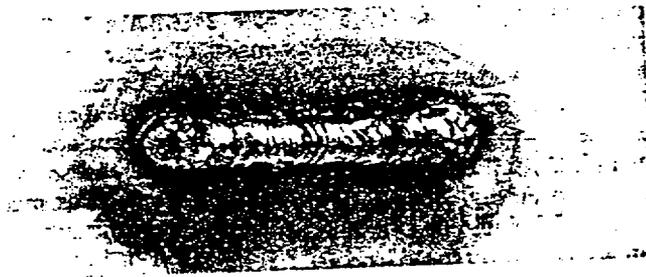
<sup>7</sup> Tsukada, H., Suzuki, I. I., and Tanaka, Y., "A Study on Drop-Weight Test Using A508 Class 2 Steel," *Japan Steel Works, Ltd.*, December 1, 1981.



(a) Punch Marks

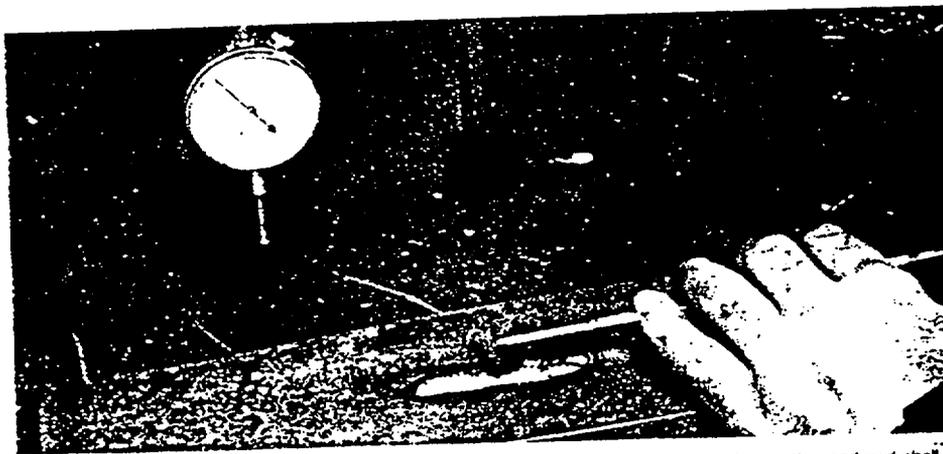


(b) Copper Template



(c) Crack-Starter Weld

FIG. 7 Methods of Locating the Weld Deposit Properly on the Test Specimen



NOTE—The weld shown does not comply with the current procedure which specifies that the weld shall start from either end and shall proceed without interruption.

FIG. 8 Notching of Crack-Starter Weld Deposit



FIG. 9

FIG. 1

pletion  
starting  
shown s  
that cra  
anvil st  
specime  
prepared  
has been  
tempera  
material  
crack-st  
high tes  
occurs  
material  
the crack  
are met  
7.10.  
three st  
SI by 1

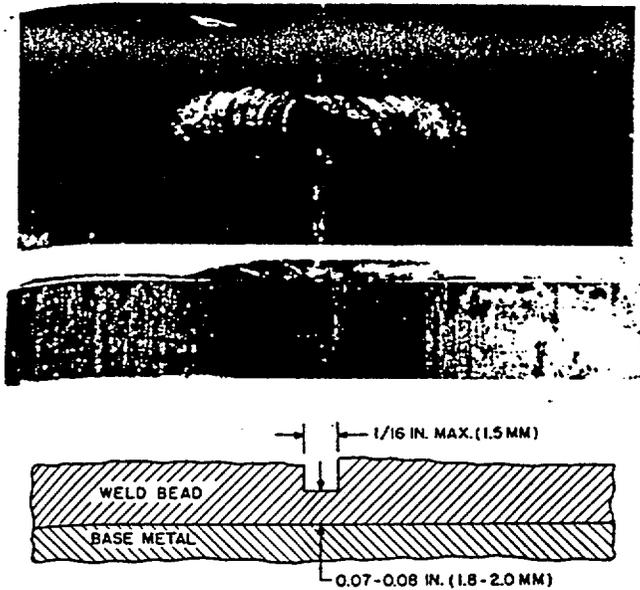


FIG. 9 Weld-Notch Details and Example of a Notched Weld

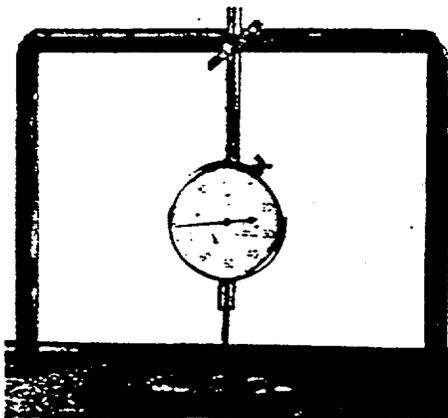


FIG. 10 Method for Measuring Weld Metal Thickness at the Bottom of the Notch

pletion of drop-weight tests is dependent upon the "crack-starting" conditions developed by the notched weld. As shown schematically in Fig. 11, the specimen deflection,  $D_C$ , that cracks the weld, is significantly less than the allowable anvil stop deflection,  $D_A$ , for all standard thickness,  $T$ , specimens tested on the proper span,  $S$ . The carefully prepared and specially handled electrode (described in 7.7<sup>5</sup>) has been proved successful for crack-starting purposes for all temperatures up to approximately 400°F (200°C). Other weld materials shall be considered to perform satisfactorily as crack-starters if they also develop cleavage cracks at suitably high test temperatures at or near the instant that yielding occurs in the surface fibers of the test specimen. Weld materials, other than those described in 7.7, may be used for the crack-starter bead provided the following requirements are met:

7.10.1 Using standard conditions as specified in Table 1, three standard Type P-2 specimens ( $\frac{3}{4}$  by 2 by 5 in.) (19 by 51 by 127 mm) shall be drop-weight tested at a temperature

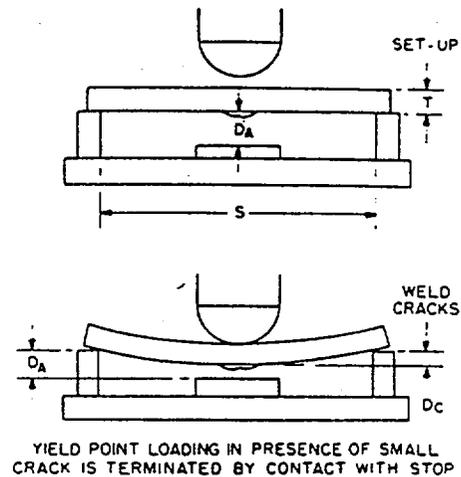


FIG. 11 Drop-Weight Test Method

100°F (55°C) or more above the NDT temperatures of the plate material.

7.10.2 If the three tests demonstrate that the weld notch is always cracked upon deflection of the specimen tension surface to the maximum amount permitted by the proper anvil stop, the other crack-starter weld shall be authorized and considered to conform to the requirements of this method.

7.10.3 Welding procedures or crack-starter weld dimensions other than those described in 7.7 shall be considered to perform satisfactorily as crack-starters if they are demonstrated to develop cleavage cracks at suitably high test temperatures at or near the instant that yielding occurs in the surface fibers of the test specimens. For example, a  $\frac{3}{4}$ -in. long crack-starter weld deposited in one direction only with the welding conditions and the electrodes described in 7.7 has been used successfully as a crack-starter weld for the Type P-3 specimen. The shorter weld reduces to total heat input into the specimen and is considered less likely to cause metallurgical changes in the specimen base materials of the low-alloy, high-tensile strength pressure vessel steels. For the Type P-1 specimen, the shorter weld does not provide the reproducibility or consistency for crack-starting purposes obtained with the standard crack-starter weld described in 7.7. Other welding procedures or crack-starter weld dimensions than those described in 7.7 may be used as the crack-starter bead for a given standard type (P-1, P-2, or P-3) specimen provided that three specimens are tested in accordance with 7.10.1 and results obtained in accordance with 7.10.2.

## 8. Procedure—General

8.1 Some care and thought are necessary to make a successful drop-weight determination of the NDT temperature. Adequate auxiliary equipment and a definite procedure will aid in making the test. The following sections will define in detail and in orderly fashion the equipment and procedure requirements:

8.2 Conduct the test by placing a specimen in a heating or cooling device until it is at the desired temperature. Then place it with minimum loss of time (see 12.4) on the anvil and align where it will be struck squarely by the weight.

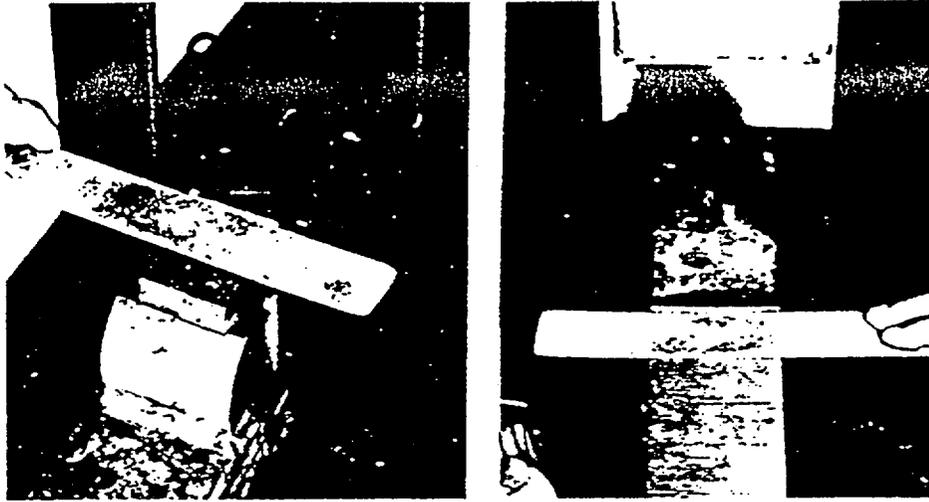
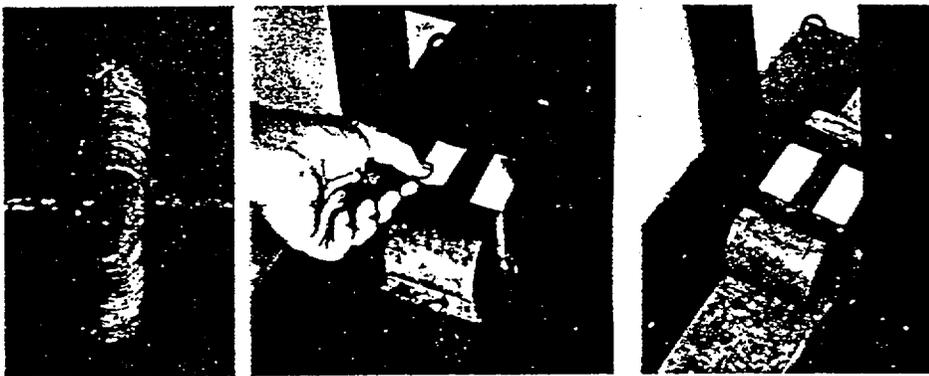


FIG. 12 Method for Alignment of Specimen



(a) Wax Pencil Line Scribed on Tension Side of a Specimen  
 (b) Application of Masking Tape to Anvil Stop Surfaces  
 (c) Transfer of Wax Lines to the Tape When the Specimen Hits the Stop

FIG. 13 Method Employed to Indicate Contact of the Specimen with the Anvil Stop

TABLE 2 Suggested Sequence of Drop-Weight Test Temperatures

Specimen Condition After Test at Temperature $T_n$	Suggested Test Temperature for Succeeding Test
No crack in weld notch	No-Test performance (see 13.2.3 and 13.3)
Weld crack extending less than 1/16 in. (1.6 mm) into specimen surface	$T_n - 60^\circ\text{F}$ $T_n - 30^\circ\text{C}$
Weld crack extending 1/8 to 1/4 in. (3.2 to 6.4 mm) into specimen surface	$T_n - 40^\circ\text{F}$ $T_n - 20^\circ\text{C}$
Weld crack extending approximately 1/2 the distance between specimen edge and toe of crack-starter weld bead	$T_n - 20^\circ\text{F}$ $T_n - 10^\circ\text{C}$
Weld crack extending to within 1/4 in. (6.4 mm) of specimen edge	$T_n - 10^\circ\text{F}$ $T_n - 5^\circ\text{C}$
Specimen "Breaks" (see 13.2.1)	$T_n + 40^\circ\text{F}$ $T_n + 20^\circ\text{C}$
	Continue testing as described in 11.1 and 11.2

Allow the weight to drop from a known preselected height on the specimen. Examine the specimen after the strike to determine its condition as defined by the requirements of this method. Repeat this process until the NDT temperature has been determined.

8.3 The number of specimens required to determine the NDT temperature is a function of the experience of the operator with the material and of the use of an adequate

procedure. A skilled operator working with known material can determine the NDT temperature with as few as three specimens. Generally, six to eight specimens are required.

### 9. Specimen—Anvil Alignment

9.1 *Anvil Requirements*—Test each type of drop-weight specimen only on the anvil designated for that type specimen in accordance with Table 1.

NOTE—This specifies that interruption.  
 FIG. 14

9.2 *Specimen*  
 test proper specimen.  
 the following

9.2.1 *Test*  
 rest on the

9.2.2 *Test*  
 specimen.  $\pm 0.1$  in. (=

9.2.3 *Notch*  
 notch in the deflection

9.2.4 *Test*  
 interference

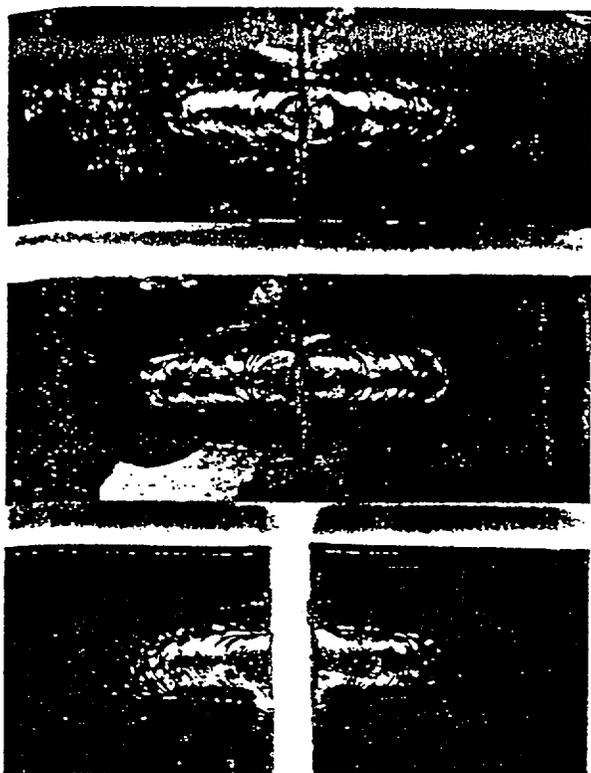
9.3 *Alignment*  
 been used specimen.

on the corner edge and the anvil s

guide bar. edge defin

10. Select

10.1 *Str*  
 adequate the weld d  
 anvil stop  
 various in



NOTE—The weld shown does not comply with the current procedure which specifies that the weld shall start from either end and shall proceed without interruption.

FIG. 14 Typical Examples of Broken Drop-Weight Specimens. Fracture Reaches to at Least One Edge

9.2 *Specimen-Anvil Alignment*—In order to obtain a valid test properly align the specimen on the anvil. Align the specimen, anvil, and weigh so the specimen is struck under the following conditions:

9.2.1 The specimen shall be horizontal and the ends shall rest on the anvil supports.

9.2.2 The striking tup of the weight shall strike within  $\pm 0.1$  in. ( $\pm 2.5$  mm) of a line on the compression side of the specimen, normal to a long edge and directly opposite the notch in the crack-starter weld.

9.2.3 No part of the crack-starter weld will touch the deflection stops at any time during the test.

9.2.4 The specimen sides and ends shall be free from any interference during the test.

9.3 *Alignment Tool*—The technique shown in Fig. 12 has been used successfully to achieve longitudinal and angular specimen alignment of the specimen. Draw a wax-pencil line on the compression surface of the specimen normal to a long edge and directly opposite the notch. Place the specimen on the anvil so this line coincides with the edge of a removable guide bar. Place the bar against the machine rails so that its edge defines the striking line of the tup on the weight.

## 10. Selection of Test Energy

10.1 Strike the specimen by a free-falling weight having adequate energy to deflect the specimen sufficiently to crack the weld deposit and to make the tension surface contact the anvil stop. The design of the machine permits the use of various impact energies to accommodate the different

strength levels of the various materials tested. The standard test conditions shown in Table 1 have been developed by experience and shall be used for the test series of a given steel unless "No-Test" performance is experienced. The indicated energies can be obtained by lifting the weight the required distance from the compression surface of the specimen.

10.2 Proper contact of the tension surface of the specimen with the deflection stop shall be defined as follows: Scribe a wax-pencil line on the tension surface of a standard specimen parallel to and in line with the mechanical notch cut in the crack-starter weld deposit, Fig. 13(a). Apply clean masking tape, or a similar material, to the top surface of the anvil deflection stop blocks, Fig. 13(b). Align the test specimen on the anvil and strike once by the weight with the standard conditions, Table 1, for the steel involved. Transfer of the wax-pencil line from specimen to the tape shall indicate that the specimen was bent sufficiently (Fig. 13(c)). The above procedure, to ensure proper contact of the tension surface of the specimen with the deflection stop blocks, is considered a "built-in" standardization feature of the test method, and it shall be employed for each drop-weight test to preclude "No-Test" performance as described in 13.2.3 and 13.3.

10.3 If the weld crack and anvil stop contact criteria are not met by the Table 1 energies, increase the drop-weight energy in 100-ft-lb increments for the Type P-1 specimens or 50-ft-lb (68-J) increments for the Type P-2 and P-3 specimens until they are met. Do not use drop-weight energies above those posted on the table unless the above procedure has been followed to determine the excess energy requirements.

## 11. Selection of Test Temperatures

11.1 The selection of test temperatures is based on finding, with as few specimens as possible, a lower temperature where the specimen breaks and an upper temperature where it does not break, and then testing at intervals between these temperatures until the temperature limits for break and no-break performance are determined within  $10^{\circ}\text{F}$  ( $5^{\circ}\text{C}$ ). The NDT temperature is the highest temperature where a specimen breaks when the test is conducted by this procedure. Test at least two specimens that show no-break performance at a temperature  $10^{\circ}\text{F}$  ( $5^{\circ}\text{C}$ ) above the temperature judged to be the NDT point.

11.2 Conduct the initial test at a temperature estimated to be near the NDT. This temperature and all subsequent test temperatures shall be integral multiples of  $10^{\circ}\text{F}$  or  $5^{\circ}\text{C}$ . Additional tests can be conducted at temperatures based on the experience of the operator or on those suggested in Table 2.

## 12. Measurement of Specimen Temperatures

12.1 The entire test specimen shall be at a known and uniform temperature during the test. It shall be assumed that if it is fully immersed in a stirred-liquid, constant temperature bath of known temperature and separated from an adjacent specimen by a minimum of 1 in. (25.4 mm) all around for a period of at least 45 min prior to the test, the specimen temperature shall be the same as the bath temperature. If a gas heat-transfer medium is used, increase the required minimum holding time to 60 min. If it can be



FIG. 15 Typical Examples of No-Break Performance in Drop-Weight Specimens. Fracture Does Not Reach Edge

shown by appropriate test techniques, such as using a thermocouple buried in the center of a dummy test specimen, that specimen equilibrium temperatures can be developed in a shorter period, the tester can reduce the specimen-holding period provided that he has prior approval of the purchaser. The constant-temperature baths or ovens may be of any type that will heat or cool the specimens to a known uniform temperature.

12.2 Measure the bath temperature by a device with calibration known to  $\pm 2^\circ\text{F}$  or  $\pm 1^\circ\text{C}$ .

12.3 Any convenient means may be used to remove the specimen from the temperature bath and transfer it to the test machine provided it shall not affect the specimen temperature control. Tongs, if used, shall be kept in the temperature bath to maintain a temperature equivalent to the specimen temperature. Rubber-gloved hands, in general, are the most convenient handling tool. The specimen shall be handled away from the fracture area.

12.4 If more than 20 s elapse in the period of removing the specimen from the bath prior to release of the weight, temperature control shall presume to have been lost and the specimen shall be returned to the bath.

12.5 Considerable experience has been accumulated with baths of the following type, and it is described here for the convenience of the tester. A deep, insulated metal container holding from  $\frac{1}{2}$  to 10 gal (1.9 to 38 L) of a suitable heat-transfer liquid, such as alcohol, will maintain a given temperature for the required specimen-holding period with minor manual adjustments. By immersing an open basket of cracked dry ice or a high-wattage electrical heat in the bath, its temperature can be adjusted slightly or can be lowered or raised to a new constant level in a short period. For low-density heat-transfer liquids, a walnut-sized piece of dry ice added to the bath will sink and bubble vigorously and help stir it. If this type of bath is used, it should be deep enough to cover the specimens fully. It has been found by experience that standing the specimens on one end in the

bath with their upper ends leaning on the vessel wall is most satisfactory. Specimens placed horizontally in the bath should be laid on a screen held at least  $\frac{1}{4}$  in. (6.4 mm) from the bottom. If multiple specimens are placed in one bath, they should be spaced a minimum of 1 in. apart to ensure adequate heat-transfer liquid flow around each. The most convenient method of bath temperature measurement is to use a bare thermocouple connected to an automatic recorder.

### 13. Interpretation of Test Results

13.1 The success of the drop-weight test depends upon the development of a small cleavage crack in the crack-starter weld after a minute bending of the test specimen. The test evaluates the ability of the steel to withstand yield point loading in the presence of a small flaw. The steel either accepts initiation of fracture readily under these test conditions and the test specimen is broken, or initiation of fracture is resisted and the specimen bends the small, additional amount permitted by the anvil stop without complete fracturing.

13.2 After completion of each drop-weight test, the specimen shall be examined and the result of the test shall be recorded in accordance with the following criteria:

13.2.1 *Break*—A specimen is considered broken if fractured to one or both edges of the tension surface. Complete separation at the compression side of the specimen is not required for break performance. Typical examples of break performance are illustrated in Fig. 14.

NOTE 1—To aid in determining whether a tightly closed crack extends across the tension surface to a corner it may be helpful to first heat-tint or dye the specimen and then to fracture it in two pieces by any convenient means. The amount of fracturing that initially occurred is then readily apparent.

NOTE 2—Should any crack, whether initiated at the crack-starter or not, propagate to the specimen edge on the tension face, consider the test a break-performance.

13.2.2 *No-Break*—The specimen develops a visible crack in the crack-starter weld bead that is not propagated to either edge of the tension surface. Typical examples of no-break performance are illustrated in Fig. 15.

13.2.3 *No-Test*—The test shall be considered not valid if either weld-deposit notch is not visibly cracked after completion of a test, or if the drop-weight specimen is not deflected fully to contact the anvil stop as evidenced by transfer of the wax-pencil lines to the masking tape on the anvil deflection stop.

13.3 A No-Test performance (13.2.3) may result from the use of insufficient impact energy, the use of a too-ductile weld metal for crack-starter purposes, or misalignment of the specimen so that the weld-crown obstructs full deflection to the anvil stop. The No-Test sample shall be discarded and a retest, using another sample, shall be required. Retests, or tests of additional specimens, of a given steel found to develop insufficient deflections with the standard test condition, Table 1, shall be conducted with higher impact energies (see 10.3).

### 14. Report

14.1 Report the following information:

14.1.1 Type of steel and heat treatment,

14.1.2  
plate num  
14.1.3  
specimen  
14.1.4  
tures em  
14.1.5  
specimen  
14.1.6

15. Use  
15.1 S  
ature, on

Selected R

Pellini, W.  
Welding

Pellini, W.

Rolled

Transac

Pellini, W.

Pressure

sium," J

Puzak, P. F.

Drop-We

May, 19

Puzak, P.

Charpy T

Am. Wel

Puzak, P.

Charpy

Septemb

Puzak, P. P.

Ship Fra

NRL Dr

33, No. 1

Selected R

abecki, A.

- 14.1.2 Identification of product tested—heat number, plate number, etc.,
- 14.1.3 Identification, orientation, and location of test specimens,
- 14.1.4 Specimen type, test conditions and test temperatures employed,
- 14.1.5 Result of test (break, no-break, or no-test) for each specimen, and
- 14.1.6 Deviations, if any, from this test method.

## 15. Use of Test for Material-Qualification Testing

- 15.1 Specification tests conducted at a given test temperature, on a go, no-go basis, shall require that a minimum of

two drop-weight specimens be tested. All specimens thus tested shall exhibit no-break performance to ensure that the NDT temperature of the steel under test is below the specification test temperature. The breaking of one (or more) specimens at the test temperature shall indicate the NDT temperature of the material to be at or above the specification test temperature.

## 16. Precision and Bias

16.1 *Precision*—The precision of this test method is being established.

16.2 *Bias*—There is no basis for determining the bias of this test method.

## ADDITIONAL REFERENCES

### *Selected References Relating to Development of Drop-Weight Test:*

- Pellini, W. S., "Notch Ductility of Weld Metal," *Welding Journal*, Am. Welding Soc., Vol 35, May, 1956, p. 217-s.
- Pellini, W. S., Brandt, F. A., and Layne, E. E., "Performance to Cast and Rolled Steels in Relation to the Problem of Brittle Fracture," *Transactions*, Am. Foundryman's Soc., Vol 61, 1953, p. 243.
- Pellini, W. S., and Srawley, J. E., "I. Evaluating Fracture Toughness in Pressure Vessels for Space, Aerospace, and Hydrospace—A Symposium," *Journal of Metals*, March, 1961, pp. 195-198.
- Puzak, P. P., and Babecki, A. J., "Normalization Procedures for NRL Drop-Weight Test," *Welding Journal*, Am. Welding Soc., Vol 38, May, 1959, p. 209-s.
- Puzak, P. P., and Pellini, W. S., "Evaluation of the Significance of Charpy Tests for Quenched and Tempered Steels," *Welding Journal*, Am. Welding Soc., Vol 35, No. 6, 1956, p. 275-s.
- Puzak, P. P., Schuster, M. E., and Pellini, W. S., "Applicability of Charpy Test Data," *Welding Journal*, Am. Welding Soc., Vol 33, September, 1954, p. 443-s.
- Puzak, P. P., Schuster, M. E., and Pellini, W. S., "Crack Starter Tests of Ship Fracture and Project Steels." Appendix entitled, "Procedures for NRL Drop Weight Test," *Welding Journal*, Am. Welding Soc., Vol 33, No. 10, October, 1954, p. 481-s.

### *Selected References Relating to Correlation of NDT to Service Failures:*

- Babecki, A. J., Puzak, P. P., and Pellini, W. S., "Report of Anomalous

- 'Brittle' Failures of Heavy Steel Forgings at Elevated Temperatures." *Paper No. 59-MET-6*, Am. Soc. Mechanical Engrs., May, 1959.
- Lange, E. A., and Klier, E. P., "A Study of Fracture Development and Materials Properties in PVRC Vessels 1 and 2," *Welding Journal*, Am. Welding Soc., Vol 41, February, 1962, p. 53-s.
- Pellini, W. S., Steele, L. E., and Hawthorne, J. R., "Analysis of Engineering and Basic Research Aspects of Neutron Embrittlement of Steels," *NRL Report 5780*, April 17, 1962; also *Welding Journal*, Am. Welding Soc., October, 1962.
- Puzak, P. P., Babecki, A. J., and Pellini, W. S., "Correlations of Brittle Fracture Service Failures with Laboratory Notch-Ductility Tests," *Welding Journal*, Am. Welding Soc., Vol 37, No. 9, September, 1958, p. 391-s.

### *Selected References Relating to Neutron Irradiation Embrittlement:*

- Hawthorne, J. R., and Steele, L. E., "Effect of Neutron Irradiation on Charpy-V Drop Weight Test Transition Temperatures of Various Steels and Weld Metals." *ASTM STP 286*, Am. Soc. Testing Mats., 1960, pp. 33-56.
- Hawthorne, J. R., Steele, L. E., and Pellini, W. S., "Effects of Properties of Reactor Structural Materials." *Paper No. 61-WA-332*, Am. Soc. Mechanical Engrs., October 1961.
- Steele, L. E., and Hawthorne, J. R., "Effect of Irradiation Temperature on Neutron-Induced Changes in Notch Ductility of Pressure-Vessel Steels." *NRL Report 5629*, June 28, 1961.

The American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, 1916 Race St., Philadelphia, PA 19103.



**THIS DOCUMENT IDENTIFIES  
AN ALLEGER**

DATE: August 1, 1996  
TO: Eugene Gorden  
FROM: Alain Artayet *AA*  
SUBJECT: DELEGATION OF AUTHORITY FOR THE POINT BEACH SGRP

This IOC is written to delegate you my authority, as Group Welding Engineer, for the preparation and qualification of Welding Procedure Specifications (WPS's) under the provisions of ASME Section III and IX, and MK's Quality Assurance Manual (QAM) for the PB SGRP. As required by the MK QAM, this delegation shall not be redelegated by you. The test coupons for qualifying the WPS's are to be welded under your supervision and control.

This delegation includes certification of MK's Procedure Qualification Records when directed to do so by phone by either myself or Mr. Andy Walcutt, Group Quality Director, if I cannot be contacted.

All original project WPS's, signed PQR's, purchase requisitions, purchase orders, C of C/CMTR for base and weld metal, PWHT strip charts, test weldment data reports, and independent laboratory test reports shall be sent to the GWE for filing. This includes all revisions.

While I am delegating my authority, I am not delegating my responsibility. This delegation for the PB SGRP stands until recinded in writing by me.

cc: M. Bingham  
M. Hendricks  
A. Walcutt  
QA Records File

*for welding  
procedure qualificat*

END

*1/5*

11/4/97 R

# EXHIBIT 18

n/6

FAX MEMO

DATE: January 14, 1997  
TO: Max Bingham  
FROM: A. J. Walcutt  
SUBJECT: Draft of Open Issues Under  
QFR C-96-022-01

M-AW-97-007

*Info. only*  
*AW* 1/14/97

Attached is the current draft of the issues raised as a result of our review of the Point Bch. WPS's. Anything with an "E" to the left side is an editorial issue. I see no benefit in correcting these editorial errors at this point in time. They are documented in case any future auditors review these WPS's and finds them.

The other items currently appear to be Code busts that have to be addressed. I still have to check a few of the items with Code people to confirm my understanding of the Code.

END

## REVIEW OF ALL POINT BEACH SGRP WPS'S

*Following*  
In response to QFR No. 01 issued as the result of the annual management review No. C-96-022, all (total of 18) ASME Section III Point Beach SGRP Welding Procedure Specifications (WPS's) distributed by this project have been reviewed. Based on this review, the WPS's require some form of action. This review was performed under the scope of ASME Section IX - 1995 edition with no addenda and ASME Section III - 1986 edition with no addenda.

### **1.0 WPS-No. FC/1.1-1 PB (Rev. No. 0, dated 9/17/96)**

1.1 This WPS is marked with an "X" to permit its use under the scope of ASME Section III, but the thickness range limit, as required by NB/NC-2311(a), is not described.

ACTION- The project is to identify if this WPS was used under the scope of ASME Section III. If used on ASME III work, confirm that the thickness ranges of the material where the WPS was used (based on the applicable PQR) were within Code limits.

1.2 The filler metal AWS Classification No. listed on the WPS is E71-T1. E71T-1 is the proper filler metal designation described in the appendix of the SFA-5.20 weld filler metal specifications. This is an editorial mistake which does not impact the integrity of the weld(s).

ACTION- The project is to confirm that this WPS is no longer in use.

### **2.0 WPS-No. FC/1.8-1 PB (Rev. No. 0, dated 9/16/96)**

E The PQR-Rev. No. 1 is dated 9/25/96, and the WPS Rev. No. 0 is dated 9/16/96. The revision date of the WPS should either be the same date as the PQR or later. This is an editorial mistake which does not impact the integrity of the weld(s).

ACTION- The project is to confirm that this WPS is no longer in use.

### **3.0 WPS-No. FC/3.3-1 PB (Rev. No. 0, dated 9/6/96)**

3.1 As an essential variable, ASME Section IX QW-406.1 permits a decrease of 100°F from the preheat temperature used during procedure qualification. The maximum qualified preheat, as recorded on the PQR, is 268°F. Therefore, the minimum preheat permitted to be used without requalification of this WPS is 168°F. Note 1 of the WPS permits the use of a minimum preheat of 150°F.

ACTION- The project is to confirm that this WPS was not used or, if used, that the minimum preheat was not lower than 168°F.

- 3.2 There is a conflict between the contact tube to work distance (CTWD) range of 3/8" to 3/4" (a nonessential variable required by ASME Section IX, QW-410.8) and the electrode stickout range of 1/2" to 1" (not required by ASME IX) described in this WPS. CTWD is defined in ASME Section IX, QW-490 (which references AWS 3.0), as the distance between the end of the contact tube (usually located inside the gas nozzle) to the workpiece. Electrode stickout is defined as the distance between the end of the gas nozzle and the tip of the flux-cored wire.

(E)

An electrode stickout of 1" exceeds the maximum CTWD of 3/4". This is a nonessential variable in which a change may be made in the WPS without requalification.

ACTION- The project is to confirm that this WPS is no longer in use.

- 4.0 WPS-No. FC/1.1-1 PB (Rev. No. 0, dated 9/17/96),  
FC/1.8-1 PB (Rev. No. 0, dated 9/16/96),  
GM/1.1-5 PB (Rev. No. 0, dated 9/17/96), and  
GT-SM/1.8-1 PB (Rev. No. 1, dated 11/23/96)

ASME Section III NB/NC-2311(a) requires notch toughness testing for carbon steel thicknesses greater than 5/8", as a supplementary essential variable. The above project WPS's were qualified without notch toughness requirements, as indicated in the respective supporting PQR(s). One, or a combination of weld joint figures 5 and 9 are marked with an "X", and these figures permit the use of these WPS's on heavywall butt joints with thicknesses greater than 3/4". WPS-No. FC/1.8-1 PB, GM/1.1.5 PB and GT-SM/1.8-1 PB indicate thickness ranges of 3/16"- 1", 1/16"- 3/4" and 1/16"- 8", respectively, for ASME Section III.

ACTION- The project is to confirm that the above 4 WPS's were not used on thicknesses greater than 5/8", as specified in NB/NC-2311(a).

- 5.0 WPS-No. GT-SM/1.1-1 PB (Rev. No. 4, dated 11/28/96)

- 5.1 ASME Section III Table NB/NC-4622.7(b)-1 exempts PWHT for thicknesses of 1 1/2" and less. This WPS was revised to permit welding on carbon steel with or without the use of PWHT. The WPS permits welding on thicknesses of 3/16" to 8". The WPS fails to indicate that exemption from PWHT only applies for thicknesses of 1 1/2" and less. By Code, PWHT for thicknesses over 1 1/2" is an essential variable.

ACTION- The project is to confirm that this WPS was not used on thicknesses greater than 1 1/2", without the use of PWHT.

5.2 Revision 3 and earlier revisions of this WPS (with no PWHT) required a maximum heat input of 28.8 kJ/in. for the GTAW process for thicknesses between 5/8" and 1 1/2". The GTAW portion of the WPS for revision 4 has maximum heat input values of 43.2, 44.8 and 47.4 kJ/in. for thicknesses between 5/8" and 1 1/2" for applications to be used with or without the use of PWHT. When a WPS is to be used for both PWHT conditions (each as essential variable), the WPS must describe the limitations of both PWHT and no PWHT applications. Revision 4 of this WPS fails to indicate the maximum heat input limitation of 28.8 kJ/in. for the GTAW process to be used on thicknesses between 5/8" and 1 1/2" without the use of PWHT.

ACTION- The project is to confirm that this WPS was not used with heat-inputs higher than 28.8 kJ/in. on thicknesses between 5/8" to 1 1/2" without PWHT.

6.0 WPS-No. GT-SM/1.8-1 PB (Rev. No. 1, dated 11/23/96)

(E) The filler metal SMAW process AWS Classification Numbers listed on the WPS are E309 or E309L. E309-15 or -16 and E309L-15 or -16 are the proper filler metal designation described in the SFA-5.4 weld filler metal specifications. This is an editorial mistake which does not impact the integrity of the weld(s).

ACTION- The project is to confirm that this WPS is no longer in use.

7.0 WPS-No. GTM/1.1-2 PB (Rev. No. 1, dated 12/02/96)

7.1 ASME Section III Table NB/NC-4622.7(b)-1 exempts PWHT for thicknesses of 1 1/2" and less. This WPS permits welding on carbon steel without the use of PWHT. The WPS permits welding on thicknesses in the range of 1/16" to 8". The WPS fails to indicate that exemption from PWHT only applies for thicknesses of 1 1/2" and less. PWHT for thicknesses over 1 1/2" is an essential variable.

ACTION- The project is to confirm that this WPS was not used on thicknesses greater than 1 1/2" without the use of PWHT.

(E) 7.2 This project WPS was not prepared based on a corporate WPS in accordance with MK's QAM paragraph 3.2.4. For program compliance purposes, continued use of this WPS on a project will require development of a corporate WPS and revision of this WPS. X

ACTION- The project is to confirm that this WPS is not being used. *CONSOLIDATE IS TO GENERATE A CONSOLIDATE WPS.*

**8.0 WPS-No. GTM/1.1-3 PB (Rev. No. 1, dated 12/03/96)**

8.1 The test report no.132449 dated November 27, 1996 for PQR-No. GT-SM/1.1-Q5 indicates that the welding procedure qualification test specimens were tested by Bodycote Taussig, Inc. Bodycote Taussig, Inc. was not on MK's Approved Suppliers List, as required by the MK QAM paragraphs 5.2.1 and 9.2.3.

ACTION- Corporate is to perform an assessment of Bodycote Taussig, Inc. to verify that they have continued implementation of the Taussig's QA program.

8.2 Mr. Paul Evans certified PQR-No. GT-SM/1.1-Q5 for Mr. Eugene Gorden on 11/27/96. Certification of this PQR was performed before the 12/5/96 delegation IOC-No. M-QM-96-091 that delegated Mr. Evans the authority by the Group Welding Engineer. This IOC was requested to be issued by the GQD on 12/5/96. Delegation is permitted by MK's QAM paragraphs 9.2.4 and Section 0.4 for "Individual Titles," but certification of a PQR should be performed after completion of the written delegation letter. This is a program control issued and not a technical issue.

(E)

ACTION- The project is to confirm that this WPS is not being used.

8.3 The test report no. 132449 written by Bodycote Taussig, Inc. indicates that ER70S-2 filler metal was used with the GTAW process for welding the test coupon. This is contrary to the ER70S-6 filler metal, which is recorded on PQR-No. GT-SM/1.1-Q5 (Rev. 0) for the GTAW process.

ACTION- The project needs to obtain a corrected test report from Bodycote Taussig, Inc., and the corrected test report will be submitted to the Group Quality Director.

8.4 This project WPS was not prepared based on a corporate WPS in accordance with MK's QAM paragraph 3.2.4. The Group Quality Director (GQD) and Group Welding Engineer (GWE) have not approved this combination of WPS and PQR.

ACTION- This project WPS and original PQR need to be submitted to the GQD for processing. For program compliance purposes, this WPS and PQR combination will be approved by the GQD and GWE prior to closure of QFR-01 for Management Review No. C-96-022.

EXHIBIT 18

PAGE 5 OF 8 PAGE(S)

- 8.5 PQR-No. GT-SM/1.1-Q5 references project specific WPS-No. GT-SM/1.1-1 PB. Unknown at the time of the 1996 management assessment performed on 12/30-31/96, WPS-No. GT-SM/1.1-1 PB was revised on 11/28/96 to include this PQR as a supporting document for permitting PWHT (see paragraph 5.3, above). It is not required to have a PQR referencing all of the WPS's that it is supporting. The PQR is acceptable as written.

No action is required on this item.

- 8.6 As requested in the above IOC-No. M-QM-96-091 and QAI-11.2 para. 4.5.1, the project has not submitted a copy of the project's purchase order and test weldment data sheet, as applicable. A faxed copy of the independent test laboratory report has been received.

ACTION- The project is to submit this information to the Group Quality Director in accordance with MK's ASME QA manual paragraph 3.2.4 and QAI-11.2.

- 9.0 WPS-No. FC/1.1-1 PB (Rev. No. 0, dated 9/17/96),  
FC/1.8-1 PB (Rev. No. 0, dated 9/16/96),  
GM/1.1-5 PB (Rev. No. 0, 9/17/96),  
GT-SM/1.1-1 PB (Rev. No. 4) with ER70S-2 or 3 & no charpy-V notch,  
GT-SM/1.8-1 PB (Rev. No. 1, dated 11/23/96), and  
GTM/1.1-2 PB (Rev. No. 1) only para. 9.2 applies for fillet weld throat

- 9.1 ASME Section III NB/NC-2311(a) requires notch toughness testing for pipe diameters greater than 6" NPS. "All" pipe diameters are permitted to be welded with these WPS's. These WPS's are qualified without notch toughness requirements for carbon steel. This is a supplementary essential variable that is applicable in this instance.

ACTION- The project is to confirm that these WPS's were not used on diameters greater than 6" NPS.

- 9.2 For components other than vessels, ASME Section III Table NB/NC-4622.7(b)-1 permits exemptions from PWHT for certain fillet weld throat thicknesses depending on nominal thicknesses (see NB/NC-4622.3), maximum carbon content, and minimum preheat. "All" fillet weld sizes are permitted to be welded with these WPS's. These WPS's are qualified without postweld heat treatment (PWHT) for carbon steel. These WPS's permit welding fillet weld throat thicknesses greater than that permitted by the table indicated above.

ACTION- The project is to confirm that these WPS's were not used on fillet weld throat thicknesses greater than that permitted by Table NB/NC-4622.7(b)-1.

**10.0 WPS-No. GT/8.43-1 PB (Rev. No. 0, dated 9/17/96),  
GT-SM/43.43-1 PB (Rev. No. 1, dated 11/23/96), and  
GTM/43.43-1 PB (Rev. No. 0, dated 11/22/96)**

**10.1** In accordance with ASME Section IX, QW-404.5 (last paragraph), the A-number designation may also be by reference to the AWS classification (where such exits), the manufacturer's trade designation (in this case, Inco 52 and 152), or other established procurement documents. The A-number designation for these WPS's should be addressed, and not as either "None" or "N/A". In this case, it is required that the filler metal manufacturer's trade designation of "Inco 52 and 152, as applicable" be used on these WPS's for A-number designation. This error does not affect the integrity of welds made with these WPS's, but for program and Code compliance purposes, continued use of these WPS's on a project will require modification of these WPS's to fully comply with ASME Section IX.

(E)

**ACTION-** The project is to confirm that these WPS's is no longer in use.

**10.2** In accordance with ASME Section III, NCA-1140d, Code Cases may be used by mutual consent of the Owner. Filler metal UNS N06052 and UNS W86152 are part of Code Cases 2142-1 and 2143-1, respectively.

CONFIRM WITH CODE PEOPLE.

**ACTION-** The project is to confirm that consent to use Code Cases 2142-1 and 2143-1 was obtained from the Owner.

**11.0 WPS-No. GT-SM/1.3-1 PB (Rev. No. 2, dated 11/19/96),  
GT-SM/3.3-2 PB (Rev. No. 2, dated 11/18/96), and  
GT-SM-BU/1.3-1 PB (Rev. No. 1, dated 11/23/96)**

MK's QAM, paragraph 3.2.4, requires that project specific WPS's be prepared "based on the corporate WPS". Therefore, a corporate WPS accompanied each of the PQR's that were submitted to the project. Currently and past MK PQR forms do not identify the use of all combinations of applicable essential and supplementary essential variables established by the PQR. For this reason, since 1989 MK has coupled WPS's with the applicable supporting PQR.

When notch toughness is required, the maximum heat input values established by the corporate WPS and by qualification are considered supplementary essential variables. The maximum heat input value described in the corporate WPS's were exceeded for one or a combination of welding processes on each of the above project WPS's. Project changes to essential variables and supplementary essential variables require requalification.

EXHIBIT 18  
PAGE 7 OF 8 PAGE(S)

- (E) A) The SMAW heat inputs of 83.7 and 85.8 kJ/in. for WPS-No. GT-SM/1.3-1 PB exceed the maximum heat input value of 82.9 kJ/in. described in the corporate WPS-No. GT-SM/1.3-1 (supported by PQR-No. GT-SM/1.3-Q1).

ACTION- The project is to confirm that this WPS is no longer in use (see Note 1, below).

- (E) B) The GTAW heat inputs of 67.2 and 73.3 kJ/in. for WPS-No. GT-SM/3.3-2 PB exceed the maximum heat input value of 64.7 kJ/in. described in the corporate WPS-No. GT-SM/3.3-3 (supported by PQR-No. GT-SM/3.3-Q2).

ACTION- The project is to confirm that this WPS is no longer in use (see Note 1, below).

- C) The GTAW heat inputs of 57.6, 67.2 and 73.3 kJ/in. and SMAW heat inputs of 79.2, 83.7 and 85.8 kJ/in. exceed the maximum heat input value of 43.3 kJ/in. for GTAW and 54.3 kJ/in. for SMAW described in the corporate WPS-No. GT-SM-BU/1.3-1. In this case, the supporting PQR-No. GT-SM-BU/1.3-Q1 has lower heat input values for both GTAW and SMAW processes than that described on the project WPS.

ACTION- The project is to confirm that WPS-No. GT-SM-BU/1.3-1 PB was not used on the Point Beach SGR project.

**Note 1:** The above project WPS's have a supporting PQR with a higher heat input value than that described by the corporate WPS (except for WPS-No. GT-SM-BU/1.3-1 PB).

[ BUT ARE HIGHER THAN THE VALUES LISTED IN THE CORPORATE WPS ]  
 The project WPS heat input values are below some of the heat input values listed on the PQR. The reason for this discrepancy is where corporate selected the heat input value to be used versus where the project selected the value to be used.

DIRECTION PLANNED  
 The corporate maximum heat input values were selected by the GWE in accordance with ASME Section III, NB/MC-4330 using the procedure qualification test weldment data sheets, and as supplemented by Interpretation No. IX-92-69. Based on the heat input in these removal locations for each welding process weld passes, the GWE selected the maximum heat input indicated on each of the corporate WPS's to be used when generating project specific WPS's.

THE PQR TESTED

TESTED

For the 1986 Edition and earlier versions of the Code, it could be interpreted that the Code did not clearly define where the maximum heat input value had to be selected. Code interpretation IX-92-69 ~~is~~ not part of the 1986 Code. For program and Code compliance reasons, continued use of these WPS's on a project will require revision to ensure that the maximum heat input values described on the project WPS's do not exceeded those indicated by the corporate WPS's.

CHECK WITH CODE PEOPLE.

AS AN "INTENT" INQUIRY INTERPRETATION IX-92-69 DOES PROVIDE THE REQUIRE CLARIFICATION AND IT IS GOOD PRACTICE TO COMPLY Page 7 of 7 WITH FULL INQUIRIES. HOWEVER,

AND COMPLIANCE WITH IT IS NOT REQUIRED.

Morrison Knudsen  
 EXHIBIT 15

**MORRISON KNUDSEN CORPORATION**  
**MK-FERGUSON GROUP**

INTER-OFFICE CORRESPONDENCE

M-QM-97-004



**DATE:** January 22, 1987  
**TO:** Andy Walcutt  
**FROM:** Alain Artayat *AA*  
**SUBJECT:** CONCERNS ABOUT MK'S D.C. COOK WPS's

This memo is written to you to confirm our conversation last night on January 21, 1987 (between the hours of 5:00 pm to 5:30 pm) about the D.C. Cook Field Welding Procedure (FWP) manual that you presented to me on my desk last Wednesday morning (January 15, 1987) between the hours of 8:00 am and 8:30 am. I waited for you to return from your St-Lucie trip before talking to you about the following concerns.

At that time last Wednesday, you asked me to review the D.C. Cook WPS's to verify as to whether or not there was something wrong with these WPS's. I briefly reviewed the subject WPS's in front of you and immediately informed you that the same mistakes that were done on the Point Beach WPS's were also made on several of the WPS's used on the D.C. Cook SGRP. More importantly, it was also pointed out to you that WPS-No(s) M-1-1-BA (Rev. 0, issue date of 9-16-88) and M-1-1-AB (Rev. 1, issue date of 6-9-88) were both describing the use of E7018 electrodes for the SMAW process on thicknesses greater than 5/8" to 8" (where notch toughness is required). Furthermore, the figures in these WPS's indicated use on production welds with thicknesses greater than 3/4". PQR-No(s). 1-117 and 1-124 both support these WPS's. These PQR's indicate the use of E7018-A1 electrodes of the SFA-5.5 filler metal specification during welding procedure qualification with the SMAW process. Therefore, E7018 electrodes from the SFA-5.1 filler metal specification on the above WPS's were not qualified (prior to use on the D.C. Cook SGRP) for applications where notch toughness was a requirement. The use of E7018 electrodes for the above conditions is not in compliance with ASME Section III NB/NC-2311 and ASME Section IX, QW-404.12.

It should be understood that by you presenting me with this D.C. Cook FWP manual early last Wednesday morning and asking me to review these WPS's for any problems, you put me in a position that obligates me (as an engineer) to disclose these concerns to you in writing because of the serious implications. As you verbally mentioned to me yesterday, I know you will take care of the above concerns after the Point Beach QFR-No. 1 issues have been completed.

cc: D. Edleman  
Files

End

*M/2*  
*ST/REC*

DATE: January 22, 1997  
TO: Andy Walcott  
FROM: Alain Artayet   
SUBJECT: CONCERNS ABOUT MK'S D.C. COOK WPS's

This memo is written to you to confirm our conversation last night on January 21, 1997 (between the hours of 8:00 pm to 8:30 pm) about the D.C. Cook Field Welding Procedure (FWP) manual that you presented to me on my desk last Wednesday morning (January 15, 1997) between the hours of 8:00 am and 8:30 am. I waited for you to return from your St-Lucie trip before talking to you about the following concerns.

At that time last Wednesday, you asked me to review the D.C. Cook WPS's to verify as to whether or not there was something wrong with these WPS's. I briefly reviewed the subject WPS's in front of you and immediately informed you that the same mistakes that were done on the Point Beach WPS's were also made on several of the WPS's used on the D.C. Cook SGRP. More importantly, it was also pointed out to you that WPS-No(s) M-1-1-BA (Rev. 0, issue date of 9-16-88) and M-1-1-AB (Rev. 1, issue date of 6-9-88) were both describing the use of E7018 electrodes for the SMAW process on thicknesses greater than 5/8" to 8" (where notch toughness is required). Furthermore, the figures in these WPS's indicated use on production welds with thicknesses greater than 3/4". PQR-No(s). 1-117 and 1-124 both support these WPS's. These PQR's indicate the use of E7018-A1 electrodes of the SFA-5.5 filler metal specification during welding procedure qualification with the SMAW process. Therefore, E7018 electrodes from the SFA-8.1 filler metal specification on the above WPS's were not qualified (prior to use on the D.C. Cook SGRP) for applications where notch toughness was a requirement. The use of E7018 electrodes for the above conditions is not in compliance with ASME Section III NB/NC-2311 and ASME Section IX, QW-404.12.

It should be understood that by you presenting me with this D.C. Cook FWP manual early last Wednesday morning and asking me to review these WPS's for any problems, you put me in a position that obligates me (as an engineer) to disclose these concerns to you in writing because of the serious implications. As you verbally mentioned to me yesterday, I know you will take care of the above concerns after the Point Beach QFR-No. 1 issues have been completed.

cc: D. Edlemen  
Files

End



MORRISON KNUDSEN CORPORATION  
MK-FERGUSON GROUP

INTER-OFFICE CORRESPONDENCE

M-QM-97-004

DATE: January 22, 1997  
 TO: Andy Walcutt  
 FROM: Alain Artayet *AA*  
 SUBJECT: CONCERNS ABOUT MK'S D.C. COOK WPS's

THIS DOCUMENT IDENTIFIES  
 AN ALLEGER

This memo is written to you to confirm our conversation last night on January 21, 1997 (between the hours of 5:00 pm to 5:30 pm) about the D.C. Cook Field Welding Procedure (FWP) manual that you presented to me on my desk last Wednesday morning (January 15, 1997) between the hours of 8:00 am and 8:30 am. I waited for you to return from your St-Lucie trip before talking to you about the following concerns.

At that time last Wednesday, you asked me to review the D.C. Cook WPS's to verify as to whether or not there was something wrong with these WPS's. I briefly reviewed the subject WPS's in front of you and immediately informed you that the same mistakes that were done on the Point Beach WPS's were also made on several of the WPS's used on the D.C. Cook SGRP. More importantly, it was also pointed out to you that WPS-No(s) M-1-1-BA (Rev. 0, issue date of 9-16-88) and M-1-1-AB (Rev. 1, issue date of 6-9-88) were both describing the use of E7018 electrodes for the SMAW process on thicknesses greater than 5/8" to 8" (where notch toughness is required). Furthermore, the figures in these WPS's indicated use on production welds with thicknesses greater than 3/4". PQR-No(s). 1-117 and 1-124 both support these WPS's. These PQR's indicate the use of E7018-A1 electrodes of the SFA-5.5 filler metal specification during welding procedure qualification with the SMAW process. Therefore, E7018 electrodes from the SFA-5.1 filler metal specification on the above WPS's were not qualified (prior to use on the D.C. Cook SGRP) for applications where notch toughness was a requirement. The use of E7018 electrodes for the above conditions is not in compliance with ASME Section III NB/NC-2311 and ASME Section IX, QW-404.12.

It should be understood that by you presenting me with this D.C. Cook FWP manual early last Wednesday morning and asking me to review these WPS's for any problems, you put me in a position that obligates me (as an engineer) to disclose these concerns to you in writing because of the serious implications. As you verbally mentioned to me yesterday, I know you will take care of the above concerns after the Point Beach QFR-No. 1 issues have been completed.

cc: D. Edleman  
 Files

THIS DOCUMENT IDENTIFIES  
 AN ALLEGER

*ANS RET - 97-1-1035*

INTER-OFFICE CORRESPONDENCE

M-QM-97-004

DATE: January 22, 1987  
TO: Andy Walcutt  
FROM: Alain Artayot *all*  
SUBJECT: CONCERNS ABOUT MK'S D.C. COOK WPS's

This memo is written to you to confirm our conversation last night on January 21, 1987 (between the hours of 5:00 pm to 5:30 pm) about the D.C. Cook Field Welding Procedure (FWP) manual that you presented to me on my desk last Wednesday morning (January 15, 1987) between the hours of 8:00 am and 8:30 am. I waited for you to return from your St-Lucie trip before talking to you about the following concerns.

At that time last Wednesday, you asked me to review the D.C. Cook WPS's to verify as to whether or not there was something wrong with these WPS's. I briefly reviewed the subject WPS's in front of you and immediately informed you that the same mistakes that were done on the Point Beach WPS's were also made on several of the WPS's used on the D.C. Cook SGRP. More importantly, it was also pointed out to you that WPS-No(s) M-1-1-BA (Rev. 0, issue date of 9-16-88) and M-1-1-AB (Rev. 1, issue date of 6-9-88) were both describing the use of E7018 electrodes for the SMAW process on thicknesses greater than 5/8" to 8" (where notch toughness is required). Furthermore, the figures in these WPS's indicated use on production welds with thicknesses greater than 3/4". PQR-No(s). 1-117 and 1-124 both support these WPS's. These PQR's indicate the use of E7018-A1 electrodes of the SFA-5.5 filler metal specification during welding procedure qualification with the SMAW process. Therefore, E7018 electrodes from the SFA-5.1 filler metal specification on the above WPS's were not qualified (prior to use on the D.C. Cook SGRP) for applications where notch toughness was a requirement. The use of E7018 electrodes for the above conditions is not in compliance with ASME Section III NB/NC-2311 and ASME Section IX, QW-404.12.

It should be understood that by you presenting me with this D.C. Cook FWP manual early last Wednesday morning and asking me to review these WPS's for any problems, you put me in a position that obligates me (as an engineer) to disclose these concerns to you in writing because of the serious implications. As you verbally mentioned to me yesterday, I know you will take care of the above concerns after the Point Beach QFR-No. 1 issues have been completed.

cc: D. Edlemen  
Files

End

Page 1 of 1

THIS DOCUMENT IDENTIFIES  
AN ALLEGED



DATE: January 22, 1997

TO: Andy Walcutt

FROM: Alain Artayet 

SUBJECT: CONCERNS ABOUT MK'S D.C. COOK WPS's

This memo is written to you to confirm our conversation last night on January 21, 1997 (between the hours of 5:00 pm to 5:30 pm) about the D.C. Cook Field Welding Procedure (FWP) manual that you presented to me on my desk last Wednesday morning (January 15, 1997) between the hours of 8:00 am and 8:30 am. I waited for you to return from your St-Lucie trip before talking to you about the following concerns.

At that time last Wednesday, you asked me to review the D.C. Cook WPS's to verify as to whether or not there was something wrong with these WPS's. I briefly reviewed the subject WPS's in front of you and immediately informed you that the same mistakes that were done on the Point Beach WPS's were also made on several of the WPS's used on the D.C. Cook SGRP. More importantly, it was also pointed out to you that WPS-No(s) M-1-1-BA (Rev. 0, Issue date of 9-16-88) and M-1-1-AB (Rev. 1, Issue date of 6-9-88) were both describing the use of E7018 electrodes for the SMAW process on thicknesses greater than 5/8" to 8" (where notch toughness is required). Furthermore, the figures in these WPS's indicated use on production welds with thicknesses greater than 3/4". PQR-No(s) 1-117 and 1-124 both support these WPS's. These PQR's indicate the use of E7018-A1 electrodes of the SFA-5.6 filler metal specification during welding procedure qualification with the SMAW process. Therefore, E7018 electrodes from the SFA-5.1 filler metal specification on the above WPS's were not qualified (prior to use on the D.C. Cook SGRP) for applications where notch toughness was a requirement. The use of E7018 electrodes for the above conditions is not in compliance with ASME Section III NB/NC-2311 and ASME Section IX, QW-404.12.

It should be understood that by you presenting me with this D.C. Cook FWP manual early last Wednesday morning and asking me to review these WPS's for any problems, you put me in a position that obligates me (as an engineer) to disclose these concerns to you in writing because of the serious implications. As you verbally mentioned to me yesterday, I know you will take care of the above concerns after the Point Beach QFR-No. 1 issues have been completed.

cc: D. Edleman  
Files

End

M-QM-97-004

5

 <b>McKESSEN-KNUDSEN CORPORATION</b> 1890 West 3rd Street, Cleveland, OH 44112	Form Source <b>QUALITY ASSURANCE INSTRUCTION</b>
--	---

<b>Form Title</b> <b>DETERMINATION CHECKLIST FOR 10 CFR PART 21 APPLICABILITY</b>	<b>Department No.</b> 038	<b>Form Page 1 of 1</b>
	<b>Form No.</b> QAI 1.1-1	<b>Form Revision Date</b> 03-Jan-95

**A. DESCRIPTION OF DEVIATION OR NONCOMPLIANCE**  
*See Attached Memo. No. M-QM-97-004.*

**B. INITIAL EVALUATION**

1. Has or is the facility, activity, or basic component:

a. Not yet been turned over to the Client?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
b. Commercial Grade?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
c. Been reported to the NRC by another organization?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

If any "Yes" option above is checked, 10 CFR Part 21 reporting by MK is not required: proceed to Section D. If all "No" options are checked, proceed with the evaluation.

2. a. Does the facility, activity, or basic component supplied violate the Atomic Energy Act of 1954 as amended, or any applicable rule, regulation, order, or license of the NRC relating to substantial safety hazards.  Yes  No  Unknown by MK

b. The facility, activity, or basic component supplied does contain defects which could create a substantial safety hazard.  Yes  No  Unknown by MK

Proceed to Section C only if "Yes" or "Unknown" is checked in 2a or 2b. In such instances, further research may be required to answer the questions in Section C. If "No" is checked in 2a and 2b, proceed to Section D.

**INITIAL EVALUATION OF PART 21 REPORTABILITY:**

10 CFR 21  does or  does not or  might possibly ..... apply.

Evaluated by: *Alvin C. [Signature]* *1/23/97*  
 Originator Date Quality Manager Date

**C. FINAL EVALUATION**

1. A deviation exists in a "facility, activity, or basic component" subject to Part 21 regulations and, on the basis of evaluation, could create a substantial safety hazard and therefore is considered a "defect".  Yes  No

2. The "facility, activity, or basic component" containing a "defect" has been delivered by MK for use by the Client.  Yes  No

3. The deviation involves a "basic component" and the deviation could contribute to the exceeding of a safety limit.  Yes  No

Comments:

**FINAL EVALUATION OF PART 21 REPORTABILITY:**

A 10 CFR 21 reportable condition  does or  does not ..... exist.

Evaluated by: \_\_\_\_\_ Date \_\_\_\_\_ Quality Manager \_\_\_\_\_ Date \_\_\_\_\_

**D. REPORTABILITY DECISION**

REPORT  DO NOT REPORT

Group Quality Director \_\_\_\_\_ Date \_\_\_\_\_

*M/S*

OF RECORD

**THIS DOCUMENT IDENTIFIES  
AN ALLEGER**

QA-004



**MORRISON KNUDSEN CORPORATION**  
1500 West 3rd Street, Cleveland, OH 44113

**ASSURANCE INSTRUCTION**

Form Title <b>DETERMINATION CHECKLIST FOR 10 CFR PART 21 APPLICABILITY</b>	Department No. 038	Form Page 1 of 1
	Form No. QAI 1.1-1	Form Revision Date 03-Jan-95

**A. DESCRIPTION OF DEVIATION OR NONCOMPLIANCE**

*See Attached Memo. No. M-QM-97-004.*

**B. INITIAL EVALUATION**

1. Has or is the facility, activity, or basic component:

- a. Not yet been turned over to the Client?  Yes  No
- b. Commercial Grade?  Yes  No
- c. Been reported to the NRC by another organization?  Yes  No

If any "Yes" option above is checked, 10 CFR Part 21 reporting by MK is not required: proceed to Section D. If all "No" options are checked, proceed with the evaluation.

- 2. a. Does the facility, activity, or basic component supplied violate the Atomic Energy Act of 1954 as amended, or any applicable rule, regulation, order, or license of the NRC relating to substantial safety hazards.  Yes  No  Unknown by MK
- b. The facility, activity, or basic component supplied does contain defects which could create a substantial safety hazard.  Yes  No  Unknown by MK

Proceed to Section C only if "Yes" or "Unknown" is checked in 2a or 2b. In such instances, further research may be required to answer the questions in Section C. If "No" is checked in 2a and 2b, proceed to Section D.

**INITIAL EVALUATION OF PART 21 REPORTABILITY:**

10 CFR 21  does or  does not or  might possibly ..... apply.

Evaluated by: Alain Coutant 1/23/97  
 Originator 1:45pm Date Quality Manager \_\_\_\_\_ Date \_\_\_\_\_

**C. FINAL EVALUATION**

- 1. A deviation exists in a "facility, activity, or basic component" subject to Part 21 regulations and, on the basis of evaluation, could create a substantial safety hazard and therefore is considered a "defect".  Yes  No
- 2. The "facility, activity, or basic component" containing a "defect" has been delivered by MK for use by the Client.  Yes  No
- 3. The deviation involves a "basic component" and the deviation could contribute to the exceeding of a safety limit.  Yes  No

Comments:

**FINAL EVALUATION OF PART 21 REPORTABILITY:**

A 10 CFR 21 reportable condition  does or  does not ..... exist.

Evaluated by: \_\_\_\_\_ Date \_\_\_\_\_ Quality Manager \_\_\_\_\_ Date \_\_\_\_\_

**D. REPORTABILITY DECISION**

- REPORT  DO NOT REPORT

Group Quality Director \_\_\_\_\_ Date \_\_\_\_\_

**THIS DOCUMENT IDENTIFIES  
AN ALLEGER**

QA RECORD



MORRISON KNUDSEN CORPORATION  
1890 West 3rd Street, Cleveland, OH 44113

Form Source

QA-203

QUALITY ASSURANCE INSTRUCTION

Form Title

DETERMINATION CHECKLIST FOR  
10 CFR PART 21 APPLICABILITY

Department No.

035

Form Page 1 of 1

Form No.

QA1 1.1-1

Form Revision Date

03-Jan-95

A. DESCRIPTION OF DEVIATION OR NONCOMPLIANCE

*See Attached Memo No. M-QM-97-004.*

B. INITIAL EVALUATION

1. Has or is the facility, activity, or basic component:

- a. Not yet been turned over to the Client?  Yes  No
- b. Commercial Grade?  Yes  No
- c. Been reported to the NRC by another organization?  Yes  No

If any "Yes" option above is checked, 10 CFR Part 21 reporting by MK is not required: proceed to Section D. If all "No" options are checked, proceed with the evaluation.

- 2. a. Does the facility, activity, or basic component supplied violate the Atomic Energy Act of 1954 as amended, or any applicable rule, regulation, order, or license of the NRC relating to substantial safety hazards.  Yes  No  Unknown by MK
- b. The facility, activity, or basic component supplied does contain defects which could create a substantial safety hazard.  Yes  No  Unknown by MK

Proceed to Section C only if "Yes" or "Unknown" is checked in 2a or 2b. In such instances, further research may be required to answer the questions in Section C. If "No" is checked in 2a and 2b, proceed to Section D.

INITIAL EVALUATION OF PART 21 REPORTABILITY:

10 CFR 21  does or  does not or  might possibly ..... apply.

Evaluated by: Alvin Chatant 1/23/97  
Originator Date Quality Manager Date

C. FINAL EVALUATION

- 1. A deviation exists in a "facility, activity, or basic component" subject to Part 21 regulations and, on the basis of evaluation, could create a substantial safety hazard and therefore is considered a "defect".  Yes  No
- 2. The "facility, activity, or basic component" containing a "defect" has been delivered by MK for use by the Client.  Yes  No
- 3. The deviation involves a "basic component" and the deviation could contribute to the exceeding of a safety limit.  Yes  No

Comments:

FINAL EVALUATION OF PART 21 REPORTABILITY:

A 10 CFR 21 reportable condition  does or  does not ..... exist.

Evaluated by: \_\_\_\_\_ Date \_\_\_\_\_ Quality Manager \_\_\_\_\_ Date \_\_\_\_\_

D. REPORTABILITY DECISION

- REPORT  DO NOT REPORT

Group Quality Director \_\_\_\_\_ Date \_\_\_\_\_

THIS DOCUMENT CONTAINS  
AN ALLEGATION

QA RECORD



JEFFERSON-JOHNSON CORPORATION  
1890 West 3rd Street, Cleveland, OH 44113

Form Source

QUALITY ASSURANCE INSTRUCTION

QA-104

Form Title

DETERMINATION CHECKLIST FOR  
10 CFR PART 21 APPLICABILITY

Department No.  
038

Form Page 1 of 1

Form No.  
QAI 1.1.1

Form Revision Date  
03-Jan-95

A. DESCRIPTION OF DEVIATION OR NONCOMPLIANCE

*See Attached Memo No. M-QM-97-004.*

B. INITIAL EVALUATION

1. Has or is the facility, activity, or basic component:

- a. Not yet been turned over to the Client?  Yes  No
- b. Commercial Grade?  Yes  No
- c. Been reported to the NRC by another organization?  Yes  No

If any "Yes" option above is checked, 10 CFR Part 21 reporting by MK is not required: proceed to Section D. If all "No" options are checked, proceed with the evaluation.

- 2. a. Does the facility, activity, or basic component supplied violate the Atomic Energy Act of 1954 as amended, or any applicable rule, regulation, order, or license of the NRC relating to substantial safety hazards.  Yes  No  Unknown by MK
- b. The facility, activity, or basic component supplied does contain defects which could create a substantial safety hazard.  Yes  No  Unknown by MK

Proceed to Section C only if "Yes" or "Unknown" is checked in 2a or 2b. In such instances, further research may be required to answer the questions in Section C. If "No" is checked in 2a and 2b, proceed to Section D.

INITIAL EVALUATION OF PART 21 REPORTABILITY:

10 CFR 21,  does or  does not or  might possibly ..... apply.

Evaluated by: *Alpine Chastant* *1/23/97*  
Originator Date Quality Manager Date

C. FINAL EVALUATION

- 1. A deviation exists in a "facility, activity, or basic component" subject to Part 21 regulations and, on the basis of evaluation, could create a substantial safety hazard and therefore is considered a "defect".  Yes  No
- 2. The "facility, activity, or basic component" containing a "defect" has been delivered by MK for use by the Client.  Yes  No
- 3. The deviation involves a "basic component" and the deviation could contribute to the exceeding of a safety limit.  Yes  No

Comments:

FINAL EVALUATION OF PART 21 REPORTABILITY:

A 10 CFR 21 reportable condition  does or  does not ..... exist.

Evaluated by: \_\_\_\_\_ Date \_\_\_\_\_ Quality Manager \_\_\_\_\_ Date \_\_\_\_\_

D. REPORTABILITY DECISION

- REPORT
- DO NOT REPORT

Group Quality Director \_\_\_\_\_ Date \_\_\_\_\_



**MORRISON KNUDSEN CORPORATION**  
1800 West 3rd Street, Cleveland, OH 44118

Form Source

QA-104

**QUALITY ASSURANCE INSTRUCTION**

Form Title

**DETERMINATION CHECKLIST FOR  
10 CFR PART 21 APPLICABILITY**

Department No.  
**038**  
Form No.  
**QAI 1.1-1**

Form Page 1 of 1  
Form Revision Date  
**03-Jan-95**

**A. DESCRIPTION OF DEVIATION OR NONCOMPLIANCE**

*See Attached Memo. No. M-QM-97-004.*

**B. INITIAL EVALUATION**

1. Has or is the facility, activity, or basic component:

- a. Not yet been turned over to the Client?  Yes  No
- b. Commercial Grade?  Yes  No
- c. Been reported to the NRC by another organization?  Yes  No

If any "Yes" option above is checked, 10 CFR Part 21 reporting by MK is not required: proceed to Section D. If all "No" options are checked, proceed with the evaluation.

- 2. a. Does the facility, activity, or basic component supplied violate the Atomic Energy Act of 1954 as amended, or any applicable rule, regulation, order, or license of the NRC relating to substantial safety hazards.  Yes  No  Unknown by MK
- b. The facility, activity, or basic component supplied does contain defects which could create a substantial safety hazard.  Yes  No  Unknown by MK

Proceed to Section C only if "Yes" or "Unknown" is checked in 2a or 2b. In such instances, further research may be required to answer the questions in Section C. If "No" is checked in 2a and 2b, proceed to Section D.

**INITIAL EVALUATION OF PART 21 REPORTABILITY:**

10 CFR 21  does or  does not or  might possibly ..... apply.

Evaluated by: *Olivia Catgut* *1/23/97* \_\_\_\_\_  
Originator Date Quality Manager Date

**C. FINAL EVALUATION**

- 1. A deviation exists in a "facility, activity, or basic component" subject to Part 21 regulations and, on the basis of evaluation, could create a substantial safety hazard and therefore is considered a "defect".  Yes  No
- 2. The "facility, activity, or basic component" containing a "defect" has been delivered by MK for use by the Client.  Yes  No
- 3. The deviation involves a "basic component" and the deviation could contribute to the exceeding of a safety limit.  Yes  No

Comments:

**FINAL EVALUATION OF PART 21 REPORTABILITY:**

A 10 CFR 21 reportable condition  does or  does not ..... exist.

Evaluated by: \_\_\_\_\_  
Originator Date Quality Manager Date

**D. REPORTABILITY DECISION**

- REPORT
- DO NOT REPORT

\_\_\_\_\_  
Group Quality Director Date

THIS DOCUMENT CONTAINS  
AN ALLEGATION

QA RECORD

3/18/97

R

~~THIS DOCUMENT IDENTIFIES AN ALLEGER~~

QA-004



MORRISON KNUDSEN CORPORATION  
1600 West 3rd Street, Cleveland, OH 44113

~~AN ALLEGER~~

QUALITY ASSURANCE INSTRUCTION

Form Title <b>DETERMINATION CHECKLIST FOR 10 CFR PART 21 APPLICABILITY</b>	Department No. <b>038</b>	Form Page 1 of 1
	Form No. <b>QAI 1.1-1</b>	Form Revision Date <b>03-Jan-95</b>

A. DESCRIPTION OF DEVIATION OR NONCOMPLIANCE

*See Attached Memo. No. M-QM-97-004.*

B. INITIAL EVALUATION

1. Has or is the facility, activity, or basic component:

- a. Not yet been turned over to the Client?  Yes  No
- b. Commercial Grade?  Yes  No
- c. Been reported to the NRC by another organization?  Yes  No

If any "Yes" option above is checked, 10 CFR Part 21 reporting by MK is not required: proceed to Section D. If all "No" options are checked, proceed with the evaluation.

- 2. a. Does the facility, activity, or basic component supplied violate the Atomic Energy Act of 1954 as amended, or any applicable rule, regulation, order, or license of the NRC relating to substantial safety hazards.  Yes  No  Unknown by MK  
*INFORMATION SUPPLIED INDICATES A POSSIBLE PROBLEM. RESEARCH IS REQUIRED TO EVALUATE WHETHER OR NOT THERE IS A PLANT AFFECTING ISSUE.*
- b. The facility, activity, or basic component supplied does contain defects which could create a substantial safety hazard.  Yes  No  Unknown by MK  
*1/24/97*

Proceed to Section C only if "Yes" or "Unknown" is checked in 2a or 2b. In such instances, further research may be required to answer the questions in Section C. If "No" is checked in 2a and 2b, proceed to Section D.

INITIAL EVALUATION OF PART 21 REPORTABILITY: *SEE NOTE ABOVE*

10 CFR 21  does *As 1/24/96* or  does not or  might possibly *(AN)* apply.

Evaluated by: *Clair Costant* *1/23/97* *[Signature]* *1-24-97*  
 Originator Date Quality Manager Date

C. FINAL EVALUATION

- 1. A deviation exists in a "facility, activity, or basic component" subject to Part 21 regulations and, on the basis of evaluation, could create a substantial safety hazard and therefore is considered a "defect".  Yes  No
- 2. The "facility, activity, or basic component" containing a "defect" has been delivered by MK for use by the Client.  Yes  No
- 3. The deviation involves a "basic component" and the deviation could contribute to the exceeding of a safety limit.  Yes  No

Comments: *REFER TO IOC # M-QM-97-013 DATED 28-FEB-97*  
*not enough info. was provided for my evaluation. let it be 3/17/97*

FINAL EVALUATION OF PART 21 REPORTABILITY:  
 A 10 CFR 21 reportable condition  does or  does not ..... exist.

Evaluated by: \_\_\_\_\_ Date \_\_\_\_\_ Quality Manager \_\_\_\_\_ Date \_\_\_\_\_

D. REPORTABILITY DECISION

REPORT  DO NOT REPORT *Let IOC # M-QM-97-019*

*[Signature]* *3-18-97* *[Signature]* *3/19*  
 Group Quality Director Date IDENTIFIES

~~AN ALLEGER~~

QA RECORD

JAN 28 1997



INTER-OFFICE CORRESPONDENCE

DATE: January 27, 1997  
TO: Andy Walcutt  
FROM: Lou Pardi *LP*  
SUBJECT: IOC M-QM-97-004

The subject IOC indicates a concern that MK welding procedures developed and used in 1988 may have permitted the use of E7018 electrodes in applications requiring notch toughness testing as part of the weld procedure qualifications. Implications are that such notch toughness tests were made on coupons welded with E7018-A1 instead of E7018 and that these tests therefore did not comply with applicable codes at that time.

I have had our welding engineer at St. Lucie research this matter and have determined that MK currently has procedure qualification records indicating that test coupons made with E7018 electrodes passed all required notch toughness requirements in both the "as welded" and post weld heat treat conditions.

If, in fact, we did have a procedural violation in 1988, the technically advisable resolution would have been to requalify the suspect procedures to assure E7018 met all the necessary requirements. Since we in effect have test data indicating E7018 does meet these requirements I consider this matter resolved.

LEP:plo

cc: M. Cepkauskas  
D. Edelman

*N/10*

DATE: January 28, 1997  
TO: Tom Zarges  
FROM: Andy Walcutt   
SUBJECT: 1996 Management Review

As requested, we have evaluated the 1996 Management Review that was conducted on December 30 & 31, 1996. This review was conducted to independently evaluate the Corporate QA Programs and confirm that the Group Quality Director (GQD) is implementing his assigned responsibilities.

Four Findings and two Observations were identified as a result of this Review. They have been addressed as follows:

Finding 1

No Training Matrix available for a Corporate ASME Manual Change dated 20-Aug-96

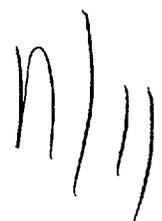
QFR-02 was issued to address this Finding. The Program requires that when a Manual is changed, that the GQD review the changes and identify those requiring training. The Quality Document Management System has a preset Training Matrix that generates "Read Records" along with the Transmittals that send the changes out to "Controlled" Manual holders. The Quality Department Document Management System did cause the required training to be done.

The step that was missed was the printing out of the Training Matrix and the GQD's review and approval, or change, of the Matrix. The Document Control Clerk position, the position that generates the printout, was unfilled at the time and the step was missed. This Training Matrix was issued during the Management Review.

Findings 2, 3 and 4

Point Beach WPS exceeds heat input limits established by the Corporate WPS, no letter of delegation and no GQD review and approval of WPS GTM 1.1-3PB

QFR-01 was issued to address these Findings. The Corporate Quality Program requires that the GQD review and approve all Corporate WP's/PQR's. WPS GTM 1.1-3PB was qualified and used at Point Beach. The WPS/PQR was generated on site but the required documentation had not been transmitted to the GQD for approval at the time of the Management Review. After noting additional errors with the WPS, the Assessor selected Point Beach generated WPS GT-SM/3.3-2PB at random. Errors were noted in this WPS.



To: Tom Zarges

M-QM-97-009

In responding to QFR-01, all Point Beach generated ASME related WPS's were reviewed. Eleven out of the eighteen WPS's contained one or more errors. Causes of these errors were characterized as being administrative, interpretation differences and editorial. Evaluation has determined that there are no open hardware affecting issues.

It is my opinion that these errors could have been prevented by effective communication between the Group and Project Welding Engineers (GWE & PWE), PWE knowledge of Corporate QA Program requirements when performing Corporate functions and, in the absence of specific Code words, acceptance by the PWE of GWE Code interpretations.

Corrective actions being taken to resolve this QFR involve replacement of the GWE and revisions to Corporate QAI's to clarify the PQR and WPS generation process.

#### Observations

The first Observation is a specific example of an editorial error. This error was addressed as a part of QFR-01.

The second observation involved the Certification of a project assigned Lead Assessor who was performing supplier qualification audits to add suppliers to the Corporate Approved Supplier's List. Although Mr. Beckley's Qualifications were on file, they did not include a history of assessments performed. It was explained that this history is compiled every January. Since Mr. Beckley was certified in 1996, no history was on file. Mr. Beckley's 96 Assessment History and the yearly Personnel Performance Review have been generated and both are now on file.

I believe that we have responded to the issues raised by the 1996 Management Review. Unless otherwise directed, I consider this process to be complete.

cc: L. E. Pardi  
M.D. Cepkauskas

END



**MORRISON KNUDSEN CORPORATION**  
**MK-FERGUSON GROUP**

INTER-OFFICE CORRESPONDENCE

M-QM-97-013

DATE: February 28, 1997

TO: File

FROM: A. J. Walcutt *AW*

SUBJECT: Evaluation of Potential Part 21 As Described In  
IOC No M-QM-97-004 dated 1/22/97

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGER~~

My review of the Initial Evaluation provided by Alain Artayet was that while the system had been turned over to operations, the conditions described may or may not have resulted in a hardware affecting condition that did not comply to ASME Code. For that reason, I revised the answer to Section B 2a. from "Yes" to "Unknown to MK". This resulted in my changing the Section B "Initial Evaluation of Part 21 Reportability" from "Does" to "Might Possibly" apply. A request was then made to the responsible Project personnel for input.

IOC No. M-QM-97-004 indicated that D.C. Cook WPS's M-1-1-AB and M-1-1-BA specified the use of E7018 filler material while the referenced PQR's identify that they were qualified using E7018-A1. The IOC also indicated that the concerns identified with the Point Beach WPS's, as described in QFR No. C-96-022-QFR-01, were also applicable to the D.C. Cook WPS's. Note, because the QFR issues were resolved prior to turnover of affected work to the Owner, no Potential Part 21 condition existed at Point Beach.

Attached is IOC dated Jan-21-97 from L. Pardi stating that the use of E7018 welding electrodes at D.C. Cook was not a current hardware affecting problem because PQR's have subsequently been generated that qualify the E7018 welding electrodes in the D.C. Cook applications where they were used. This IOC specifically addressed the E7018 vs 7018-A1 issue.

We have independently researched this response. The PQR that appears to have been referenced was PQR No. GT-SM/1.1-Q4 Dated 10/23/96. This PQR was qualified using E7018 filler material and had a heat input range of 39.4 to 86.4 KJ/in.. This PQR does resolve the filler material qualification concern raised by IOC M-QM-97-004.

Since IOC No. M-QM-97-004 stated that the E7018 vs E7018-A1 problem was limited to heavy wall carbon steel welds where Charpy Impact testing was required (in such instances, the a specific type and grade of filler material identified by the PQR needs to be specified on the WPS) research was conducted to identify all such welds. Welds potentially affected were the Girth, Feedwater and Mainsteam welds. *M/12*

~~THIS DOCUMENT IDENTIF  
AN ALLEGER~~

THIS DOCUMENT IDENTIFIES  
AN ALLEGER

To: File

M-QM-97-013

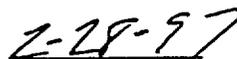
Review of the D.C. Cook NIS-2 package found that the WPS's used were, for the Girth welds, M-3-3-AB and N-3-3-C, for the Feedwater welds M-1-1-AB and for the Mainsteam welds, M-1-1-B. The PQR's referenced for the Girth Weld properly supported those WPS's. The PQR's for the Feedwater and Mainsteam identified the use of E7018-A1 filler material while the WPS's referenced E-7018. Not referenced by the WPS's was PQR 1-126 which was qualified using E7018 filler material (PQR 1-126 does reference WPS M-1-1-AB).

While PQR 1-126 does appear to address the E7018-A1 vs E7018 issue, it was not acceptable on the basis of the qualified heat input. Heat Inputs were found to be in the 61.8 KJ/in range in the WPS's and only in the 36.3 KJ/in range for the PQR. WPS M-588-B also falls into this category. Resolution of the heat input issue for these WPS's did require the use of PQR No. GT-SM/1.1-Q4 Dated 10/23/96 (86.4KJ/in).

The remaining QFR C-96-022-QFR-01 issues were reviewed and evaluated against the D.C. Cook WPS's/PQR's. The conclusion of this review was that there was no affect on permanent plant items released to the Owner. Since the actions being taken under QFR C-96-022-QFR-01 will resolve the root causes of the concern identified with the D.C. Cook WPS's, no further corrective action tracking documentation is required.

Based on the above I have concluded that a reportable condition does not exist and closed the Potential Part 21 checklist.

  
Andrew J. Walcutt

  
Date

END

THIS DOCUMENT IDENTIFIES  
AN ALLEGER

March 10, 1997

MEMORANDUM TO: Wayne Kropp, Engineering Specialists 1, DRS  
 FROM: Donald E. Funk Jr., Office Allegation Coordinator  
 SUBJECT: ADDITIONAL INFORMATION RECEIVED REGARDING AMS NO. RIII-97-A-0035  
 EMPLOYMENT DISCRIMINATION, INADEQUATE WELD PROCEDURES AT POINT  
 BEACH AND D.C. COOK

Attached for your information is a record of telephone conversation between Jay Hopkins and the Concerned Individual on February 20, 1997. This is supplemental information from the initial information received by FAX on February 18, 1997. An Allegation Review Board will be scheduled to review the issues.

cc w/attachments: OI:RIII

- Attachments:
1. 3/5/97 conversation record
  2. QA report C-96-022
  3. 10 CFR part 21 applicability checklist

n/B

MEMORANDUM TO: AMS FILE RIII-97-A-0035

FROM: J. Hopkins, RIII-OAC; 3/8/97 *JH 3-8-97*

SUBJECT: Conversation Record of Initial Telephone Call with CI on 2/20/97.

Made initial telephone contact with Concerned Individual (CI) on Thursday, 2/20/97, from 1:00 to 2:45 p.m. (CST). Parties involved in the call were Jay Hopkins and Roger Doornbos, OAC-RIII; the CI; and the CI's attorney, Steven Bell. (Roger Doornbos stayed for about the first 30 minutes.)

I identified myself and explained that the purpose of the call was to ensure that the NRC had a clear understanding of the CI's concerns. I explained the allegation process and asked if the CI objected to being identified to his employer, Morrison Knudsen (MK) Corporation, as the source of the NRC's allegation. The CI stated that he had no objections. Additionally I explained that OSHA now was responsible for investigating allegations of discrimination and gave him the phone number for the OSHA field office in Cleveland, OH. The CI's attorney stated that he was aware of the change in responsibilities.

Below is a summary of the additional information developed from the call:

Brief Background and Time line:

The CI was the Corporate Welding Engineer for Morrison Knudsen (MK) from 1988 to 2/10/97. The Hartford Steam Boiler Inspection and Insurance Co. conducted a routine audit of the welding procedures covered by 10 CFR part 50, Appendix B on 12/30 - 12/31/96. The audit identified that certain weld procedures used at Pt. Beach-2 during the U-2 1996 steam generator (SG) replacement project were not in compliance with applicable codes and standards. The results of the audit were in a letter to MK which was stamped received on 1/6/97 (NRC RIII does NOT have the audit results).

The CI was asked by MK's Group Quality Director, Andy Walcut, to perform a review of all welding procedures used at Pt. Beach-2 during the SG project. The CI's draft report submitted on 1/13/97 concluded that 14 of 18 welding procedures used failed to meet relevant Quality Assurance (QA) standards. The draft findings were documented in MK Quality Finding Report No. C-96-022 (attached). On 1/14/97, the CI was informed that the VP of the Power Division was "unhappy" about the contents of the report and that the CI was "expendable" as MK's Corporate Welding Engineer.

On 1/15/97, the CI was asked by MK's Group Quality Director to review MK's field procedures used at DC Cook-2 during the 1988 SG replacement project. The CI pointed out to me that the welding procedures for DC Cook-2 and Pt. Beach-2 were written by the same person. On the same day, the CI verbally informed the Group

~~THIS DOCUMENT IDENTIFIES AN ALLEGATION~~

Quality Director of deficiencies in the DC Cook-2 documentation. Additionally, the CI concluded that the deficiencies were of a nature that required a 10 CFR Part 21 notification and completed MK's Part 21 Applicability Checklist (attached). Included in the Part 21 Checklist is a memo which describes the CI's concerns with DC Cook-2 procedures. Later that same day, the CI was informed that he was being "fired" from his position as Corporate Welding Engineer and that the MK's CEO concurred with the decision. On 2/7/97, the CI was informed that he was being demoted and re-assigned to a non-nuclear position with MK. (See the 2/18/97 DOL Complaint for additional information.)

Additional Information on the 3 Specific Concerns:

Concern 1: Employment discrimination by MK because the CI reported deficiencies in MK's welding procedures. (See the 2/18/97 DOL Complaint for additional information.)

- The CI believes that the draft report of his audit findings on Pt. Beach-2 welding procedures were the basis for him being removed from his position.
- The CI was told that the reason for being removed was a personality conflict between himself and upper management (president and project director) of the Steam Generator Team. The SG Team is a joint venture between MK and Duke Engineering Services. The president is Marty Cepkauskas and the project director is Max Bingham.
- Prior to Christmas 1996, the CI was informed that he was being removed from the Nuclear side of Corporate Welding Engineering. The reason was personality conflicts.
- In 7/96, MK's project manager for the Pt. Beach-2 SG project, Marty Cepkauskas, told the CI that he did not value the CI's ASME Code interpretations. The CI stated that after subsequent discussions, he believed that the differences between himself and Mr. Cepkauskas had been adequately resolved.
- The CI was informed by a co-worker (unsolicited) that there was a conspiracy against him by the Pt. Beach-2 project manager. (I don't have any other details about this statement.)

Concern 2: 14 of 18 welding procedures used at Point Beach-2 failed to meet relevant QA standards. (See MK Quality Finding Report No. C-96-022 (attached) for technical details).

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGED~~

- The CI reviewed the weld procedures used during the 1996 SG replacement project. He was not aware of which specific welds were used performed using MK's procedures.
- The CI reviewed the welding procedures against ASME Section 3 & 9 criteria.
- MK had concluded that the deficiencies were only documentation problems and not hardware code violations.
- The Pt. Beach-2 welding procedure were qualified for E7018 electrodes.
- The CI was unaware if a 10 CFR Part 21 notification was made or if Pt. Beach licensee management was informed of the deficiencies.

Concern 3: Deficiencies in documentation of welding procedures used at DC Cook U-2. (See MK's Part 21 Applicability Checklist (attached) for technical details.)

- The deficiency concerned the electrode that was used for the welds. The weld procedure was qualified using an E7018-A1 electrode with a SFA-5.5 filler metal (ASME Code Section 2.c). Based on the CI's review of the records, the actual electrode used was E7018. The CI was unsure if using E7018 was proper for the job.
- Welding procedures were used at Cook-2 during the 1988 SG replacement project. The welds in question were on the feedwater nozzle connections and the main steam line connections on the SGs. There were about 3 to 4 weld per SG that were effected.
- The welding was on material with a thickness that was greater than 5/8 inch. The CI stated that welding of this thickness required a "sharp" test and one was not performed for the E7018 electrode.
- The CI had concluded that using the E7018 electrode vice the E7018-A1 would require requalification of the welding procedure. The CI consulted the ASME Section 9 Chairman, Michael Houle, who agreed that using the different electrode would require a requalification of the weld procedure.
- The CI documented the concerns with DC Cooks welding procedures in a one page internal memo. This memo (attached) was provided to the NRC via FAX during the call.

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGER~~

- The CI completed a 10 CFR Part 21 applicability checklist on 1/23/97 because of the concerns with the procedures. That checklist (attached) was provided to the NRC via FAX during the call.
- The CI stated that to the best of his knowledge, DC Cook had NOT been informed of the deficiency. The CI stated that MK's QA director stated that there was no need to contact DC Cook.
- The calculated heat input for the Cook-2 welds qualification was lower than the heat input for Pt. Beach -2 in 1996 weld qualification. Based on this lower calculated heat input, MK believes this ensures the Cook-2 welds are acceptable.

Other Information Developed During Call:

- Work Package Development - The CI gave a brief summary of how MK develops work packages.
  - Test data from welds is reviewed.
  - Corporate welding procedures are then developed and reviewed and approved by Corporate Welding Engineer and QA Director.
  - Site (licensee) reviews and approves
  - MK develops project specific weld procedures.  
Project specific procedures sent to site, SG vendor (in this case), and MK's site Quality group.
- The CI stated that he had reviewed 9 of Pt. Beach SG replacement project specific weld procedures. On 11/15 he had faxed his comments back to the MK personnel on site. On 12/13, during routine distribution of project specific weld procedures to the corporate office, the CI determined that none of his concerns were addressed. The CI stated that MK's normal practice was NOT to send the project specific procedures to corporate for review and approval.
- The CI was not aware if the certification of the welders was affected by the procedure problems identified during the audit.

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGER~~



**MORRISON KNUDSEN CORPORATION**  
1800 West 3rd Street, Cleveland, OH 44113

Form Source

**QUALITY ASSURANCE INSTRUCTION**

Form Title

**QUALITY FINDING REPORT**

Department No.

038

Form Page 1 of 2

Form No.

QAI 18.1-3

Form Revision Date

03-Jan-96

Assessment or Vendor Surveillance Report Number:

C-98-022

QFR Number:

QFR - 01

Date:

18-Jan-97

**COMPLETED BY MK ASSESSOR / INSPECTOR**

Organization / Project:

MK Corporate  
Project No. 4621- Point Beach SGRP

Person Contacted:

A.J. Walcutt

Referenced Requirements (Section Number, Paragraph Number, etc.)

1. ASME Section III QA Manual Paragraph 3.2.4 requires that Project specific WPS's be based on Corporate PQR's/WPS's.
2. ASME Section III QA Manual Paragraph 3.2.3 specifies that Corporate PQR's/WPS's are approved by the Group Welding Engineer.
3. ASME Section III QA Manual paragraph 3.2.4 requires that Project specific WPS's be based on Corporate PQR's/WPS's, and Paragraph 3.2.3 requires Corporate PQR's/WPS's to be approved by the GWE/QGD.

FINDING - Include Specific Requirement(s) Violated:

1. Contrary to the requirements specified in Item 1 above, the Point Beach Project specific WPS (WPS No. GT-SM/3.3-2PB) exceeds the heat input limits specified by Corporate WPS No. GT-SM/3.3-3 (Management Assessment finding 2).
2. Contrary to the requirements specified in Item 2 above, there was no letter from the GWE delegating Mr. Paul Evans the authority to sign PQR No. GT-SM/1.1-Q5 Rev. 0 on the date the PQR was signed. The sign-off indicates that it was made for the PWE. (Management Assessment finding 3).
3. Contrary to the requirements specified in Item 3 above, Project specific WPS No. GTM/1.1-3PB was generated without a Corporate WPS being issued. (Management Assessment finding 4).

Note: As a result of these three (3) findings a review of all Point Beach generated WPS's and the one (1) PQR has been performed by MK Corporate Quality. Additional findings were noted. All findings, including those listed above, are identified in Attachment 1. Responses are to be identified in terms of the Attachment 1 numbering scheme. (Attachment 1 consisting of eight (8) pages).

Response Due Date:

31-Jan-97

Assessor's / Inspector's Signature:

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGOR~~

QA RECORD

**REVIEW OF ALL POINT BEACH SGRP WPS's**

In response to QFR No. 01 issued as the result of the annual management review No. C-96-022, all (total of 18) ASME Section III Point Beach SGRP Welding Procedure Specifications (WPS's) distributed by this project have been reviewed. Based on this review, the following WPS's require some form of action. This review was performed under the scope of ASME Section IX - 1995 edition with no addenda and ASME Section III - 1986 edition with no addenda.

**1.0 WPS-No. FC/1.1-1 PB (Rev. No. 0, dated 9/17/96)**

- 1.1 This WPS is marked with an "X" to permit its use under the scope of ASME Section III, but the thickness range limit, as required by NB/NC-2311(a), is not described.

**ACTION-** The project is to identify if this WPS was used under the scope of ASME Section III. If used on ASME III work, confirm that the thickness ranges of the material where the WPS was used (based on the applicable PQR) were within Code limits.

- 1.2 The filler metal AWS Classification No. listed on the WPS is E71-T1. E71T-1 is the proper filler metal designation described in the appendix of the SFA-5.20 weld filler metal specifications. This is an editorial mistake which does not impact the integrity of the weld(s).

**ACTION-** The project is to confirm that this WPS is no longer in use.

**2.0 WPS-No. FC/1.8-1 PB (Rev. No. 0, dated 9/16/96)**

The PQR-Rev. No. 1 is dated 9/25/96, and the WPS Rev. No. 0 is dated 9/16/96. The revision date of the WPS should either be the same date as the PQR or later. This is an editorial mistake which does not impact the integrity of the weld(s).

**ACTION-** The project is to confirm that this WPS is no longer in use.

**THIS DOCUMENT IDENTIFIES  
AN ALLEGED**

**3.0 WPS-No. FC/3.3-1 PB (Rev. No. 0, dated 9/6/96)**

- 3.1 As an essential variable, ASME Section IX QW-406.1 permits a decrease of 100°F from the preheat temperature used during procedure qualification. The maximum qualified preheat, as recorded on the PQR, is 268°F. Therefore, the minimum preheat permitted to be used without requalification of this WPS is 168°F. Note 1 of the WPS permits the use of a minimum preheat of 150°F.

**ACTION-** The project is to confirm that this WPS was not used or, if used, that the minimum preheat was not lower than 168°F.

- 3.2 There is a conflict between the contact tube to work distance (CTWD) range of 3/8" to 3/4" (a nonessential variable required by ASME Section IX, QW-410.8) and the electrode stickout range of 1/2" to 1" (not required by ASME IX) described in this WPS. CTWD is defined in ASME Section IX, QW-490 (which references AWS 3.0), as the distance between the end of the contact tube (usually located inside the gas nozzle) to the workpiece. Electrode stickout is defined as the distance between the end of the gas nozzle and the tip of the flux-cored wire.

An electrode stickout of 1" exceeds the maximum CTWD of 3/4". This is a nonessential variable in which a change may be made in the WPS without requalification.

**ACTION-** The project is to confirm that this WPS is no longer in use.

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGER~~

- 4.0 WPS-No. FC/1.1-1 PB (Rev. No. 0, dated 9/17/96),  
FC/1.8-1 PB (Rev. No. 0, dated 9/16/96),  
GM/1.1-5 PB (Rev. No. 0, dated 9/17/96), and  
GT-SM/1.8-1 PB (Rev. No. 1, dated 11/23/96)

ASME Section III NB/NC-2311(a) requires notch toughness testing for carbon steel thicknesses greater than 5/8", as a supplementary essential variable. The above project WPS's were qualified without notch toughness requirements, as indicated in the respective supporting PQR(s). One, or a combination of weld joint figures 5 and 9 are marked with an "X", and these figures permit the use of these WPS's on heavywall butt joints with thicknesses greater than 3/4". WPS-No. FC/1.8-1 PB, GM/1.1.5 PB and GT-SM/1.8-1 PB indicate thickness ranges of 3/16" - 1", 1/16" - 3/4" and 1/16" - 8", respectively, for ASME Section III.

**ACTION-** The project is to confirm that the above 4 WPS's were not used on thicknesses greater than 5/8", as specified in NB/NC-2311(a).

- 5.0 WPS-No. GT-SM/1.1-1 PB (Rev. No. 4, dated 11/28/96)

5.1 ASME Section III Table NB/NC-4622.7(b)-1 exempts PWHT for thicknesses of 1/2" and less. This WPS was revised to permit welding on carbon steel with or without the use of PWHT. The WPS permits welding on thicknesses of 3/16" to 8". The WPS fails to indicate that exemption from PWHT only applies for thicknesses of 1/2" and less. By Code, PWHT for thicknesses over 1/2" is an essential variable.

**ACTION-** The project is to confirm that this WPS was not used on thicknesses greater than 1/2", without the use of PWHT.

5.2 Revision 3 and earlier revisions of this WPS (with no PWHT) required a maximum heat input of 28.8 kJ/in. for the GTAW process for thicknesses between 5/8" and 1/2". The GTAW portion of the WPS for Revision 4 has maximum heat input values of 43.2, 44.8 and 47.4 kJ/in. for thicknesses between 5/8" and 1/2" for applications to be used with or without the use of PWHT. When a WPS is to be used for both PWHT conditions (each as essential variable), the WPS must describe the limitations of both PWHT and no PWHT applications. Revision 4 of this WPS fails to indicate the maximum heat input limitation of 28.8 kJ/in. for the GTAW process to be used on thicknesses between 5/8" and 1/2" without the use of PWHT.

**ACTION-** The project is to confirm that this WPS was not used with heat inputs higher than 28.8 kJ/in. on thicknesses between 5/8" to 1/2" without PWHT.

**6.0 WPS-No. GT-SM/1.8-1 PB (Rev. No. 1, dated 11/23/96)**

The filler metal SMAW process AWS Classification Numbers listed on the WPS are E309 or E309L. E309-15 or -16 and E309L-15 or -16 are the proper filler metal designation described in the SFA-5.4 weld filler metal specifications. This is an editorial mistake which does not impact the integrity of the weld(s).

**ACTION-** The project is to confirm that this WPS is no longer in use.

**7.0 WPS-No. GTM/1.1-2 PB (Rev. No. 1, dated 12/02/96)**

**7.1 ASME Section III Table NB/NC-4022.7(b)-1 exempts PWHT for thicknesses of 1 1/2" and less. This WPS permits welding on carbon steel without the use of PWHT. The WPS permits welding on thicknesses in the range of 1/16" to 8". The WPS fails to indicate that exemption from PWHT only applies for thicknesses of 1 1/2" and less. PWHT for thicknesses over 1 1/2" is an essential variable.**

**ACTION-** The project is to confirm that this WPS was not used on thicknesses greater than 1 1/2" without the use of PWHT.

**7.2 This project WPS was not prepared based on a corporate WPS in accordance with MK's QAM paragraph 3.2.4. For program compliance purposes, continued use of this WPS on a project will require development of a corporate WPS and revision of this WPS.**

**ACTION-** The project is to confirm that this WPS is not being used. Corporate is to generate a corporate WPS.

**8.0 WPS-No. GTM/1.1-3 PB (Rev. No. 1, dated 12/03/96)**

**8.1 The test report no.132449 dated November 27, 1996 for PQR-No. GT-SM/1.1-Q5 indicates that the welding procedure qualification test specimens were tested by Bodycote Taussig, Inc. Bodycote Taussig, Inc. was not on MK's Approved Suppliers List, as required by the MK QAM paragraphs 5.2.1 and 9.2.3.**

**ACTION-** Corporate is to perform an assessment of Bodycote Taussig, Inc. to verify that they have continued implementation of the Taussig's QA program.

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGED~~

- 8.2 Mr. Paul Evans certified PQR-No. GT-SM/1.1-Q5 for Mr. Eugene Gordon on 11/27/96. Certification of this PQR was performed before the 12/5/96 delegation IOC-No. M-QM-96-091 that delegated Mr. Evans the authority by the Group Welding Engineer. This IOC was requested to be issued by the GQD on 12/5/96. Delegation is permitted by MK's QAM paragraphs 9.2.4 and Section 0.4 for "Individual Titles," but certification of a PQR should be performed after completion of the written delegation letter. This is a program control issued and not a technical issue.

**ACTION-** The project is to confirm that this WPS is not being used.

- 8.3 The test report no. 132449 written by Bodycote Taussig, Inc. indicates that ER70S-2 filler metal was used with the GTAW process for welding the test coupon. This is contrary to the ER70S-6 filler metal, which is recorded on PQR-No. GT-SM/1.1-Q5 (Rev. 0) for the GTAW process.

**ACTION-** The project needs to obtain a corrected test report from Bodycote Taussig, Inc., and submit the corrected test report to the Group Quality Director.

- 8.4 This project WPS was not prepared based on a corporate WPS in accordance with MK's QAM paragraph 3.2.4. The Group Quality Director (GQD) and Group Welding Engineer (GWE) have not approved this combination of WPS and PQR.

**ACTION-** This project WPS and original PQR need to be submitted to the GQD for processing. For program compliance purposes, this WPS and PQR combination will be approved by the GQD and GWE prior to closure of QFR-01 for Management Review No. C-96-022.

- 8.5 PQR-No. GT-SM/1.1-Q5 references project specific WPS-No. GT-SM/1.1-1 PB. Unknown at the time of the 1996 management assessment performed on 12/30-31/96, WPS-No. GT-SM/1.1-1 PB was revised on 11/28/96 to include this PQR as a supporting document for permitting PWHT (see paragraph 5.3, above). It is not required to have a PQR referencing all of the WPS's that it is supporting. The PQR is acceptable as written.

No action is required on this item.

~~HIS DOCUMENT IS UNCLASSIFIED~~  
~~ANALYSIS~~

- 8.6 As requested in the above IOC-No. M-QM-96-091 and QAI-11.2 para. 4.5.1, the project has not submitted a copy of the project's purchase order and test weldment data sheet, as applicable. A faxed copy of the independent test laboratory report has been received.

**ACTION-** The project is to submit this information to the Group Quality Director in accordance with MK's ASME QA manual paragraph 3.2.4 and QAI-11.2.

- 9.0 WPS-No. FC/1.1-1 PB (Rev. No. 0, dated 9/17/96),  
FC/1.8-1 PB (Rev. No. 0, dated 9/16/96),  
GM/1.1-5 PB (Rev. No. 0, 9/17/96),  
GT-SM/1.1-1 PB (Rev. No. 4) with ER70S-2 or 3 & no charpy-V notch,  
GT-SM/1.8-1 PB (Rev. No. 1, dated 11/23/96), and  
GTM/1.1-2 PB (Rev. No. 1) only para. 9.2 applies for fillet weld throat

- 9.1 ASME Section III NB/NC-2311(a) requires notch toughness testing for pipe diameters greater than 6" NPS. "All" pipe diameters are permitted to be welded with these WPS's. These WPS's are qualified without notch toughness requirements for carbon steel. This is a supplementary essential variable that is applicable in this instance.

**ACTION-** The project is to confirm that these WPS's were not used on diameters greater than 6" NPS.

- 9.2 For components other than vessels, ASME Section III Table NB/NC-4622.7(b)-1 permits exemptions from PWHT for certain fillet weld throat thicknesses depending on nominal thicknesses (see NB/NC-4622.3), maximum carbon content, and minimum preheat. "All" fillet weld sizes are permitted to be welded with these WPS's. These WPS's are qualified without postweld heat treatment (PWHT) for carbon steel. These WPS's permit welding fillet weld throat thicknesses greater than that permitted by the table indicated above.

**ACTION-** The project is to confirm that these WPS's were not used on fillet weld throat thicknesses greater than that permitted by Table NB/NC-4622.7(b)-1.

~~THIS DOCUMENT IDENTIFIES~~

- 10.0 WPS-No. GT/8.43-1 PB (Rev. No. 0, dated 9/17/96),  
 GT-SM/43.43-1 PB (Rev. No. 1, dated 11/23/96), and  
 GTM/43.43-1 PB (Rev. No. 0, dated 11/22/96)

In accordance with ASME Section IX, QW-404.5 (last paragraph), the A-number designation may also be by reference to the AWS classification (where such exists), the manufacturer's trade designation (in this case, Inco 52 and 152), or other established procurement documents. The A-number designation for these WPS's should be addressed, and not as either "None" or "N/A". In this case, it is required that the filler metal manufacturer's trade designation of "Inco 52 and 152, as applicable" be used on these WPS's for A-number designation. This error does not affect the integrity of welds made with these WPS's, but for program and Code compliance purposes, continued use of these WPS's on a project will require modification of these WPS's to fully comply with ASME Section IX.

**ACTION-** The project is to confirm that these WPS's are no longer in use.

- 11.0 WPS-No. GT-SM/1.3-1 PB (Rev. No. 2, dated 11/19/96),  
 GT-SM/3.3-2 PB (Rev. No. 2, dated 11/18/96), and  
 GT-SM-BU/1.3-1 PB (Rev. No. 1, dated 11/23/96)

MK's QAM, paragraph 3.2.4, requires that project specific WPS's be prepared "based on the corporate WPS". Therefore, a corporate WPS accompanied each of the PQR's that were submitted to the project. Currently and past MK PQR forms do not identify the use of all combinations of applicable essential and supplementary essential variables established by the PQR. For this reason, since 1989 MK has coupled WPS's with the applicable supporting PQR.

When notch toughness is required, the maximum heat input values established by the corporate WPS and by qualification are considered supplementary essential variables. The maximum heat input value described in the corporate WPS's were exceeded for one or a combination of welding processes on each of the above project WPS's. Project changes to essential variables and supplementary essential variables require requalification.

- A) The SMAW heat inputs of 83.7 and 85.8 kJ/in. for WPS-No. GT-SM/1.3-1 PB exceed the maximum heat input value of 82.9 kJ/in. described in the corporate WPS-No. GT-SM/1.3-1 (supported by PQR-No. GT-SM/1.3-Q1).

**ACTION-** The project is to confirm that this WPS is no longer in use (see Note 1, below).

- B) The GTAW heat inputs of 67.2 and 73.3 kJ/in. for WPS-No. GT-SM/3.3-2 PB exceed the maximum heat input value of 64.7 kJ/in. described in the corporate WPS-No. GT-SM/3.3-3 (supported by PQR-No. GT-SM/3.3-Q2).

**ACTION-** The project is to confirm that this WPS is no longer in use (see Note 1, below).

- C) The GTAW heat inputs of 57.6, 67.2 and 73.3 kJ/in. and SMAW heat inputs of 79.2, 83.7 and 85.8 kJ/in. exceed the maximum heat input value of 43.3 kJ/in. for GTAW and 54.3 kJ/in. for SMAW described in the corporate WPS-No. GT-SM-BU/1.3-1. In this case, the supporting PQR-No. GT-SM-BU/1.3-Q1 has lower heat input values for both GTAW and SMAW processes than that described on the project WPS.

**ACTION-** The project is to confirm that WPS-No. GT-SM-BU/1.3-1 PB was not used on the Point Beach SGR project.

**Note 1:** The above project WPS's have a supporting PQR with a higher heat input value than that described by the corporate WPS (except for WPS-No. GT-SM-BU/1.3-1 PB).

The project WPS heat input values are below some of the heat input values listed on the PQR, but are higher than the values listed in the corporate WPS. The reason for this discrepancy is where corporate selected the heat input value to be used versus where the project selected the value to be used.

The corporate maximum heat input values were selected by the GWE in accordance with ASME Section III, NB/NC-4330 using the procedure qualification test weldment data sheets, and direction provided by Interpretation No. IX-92-69. Based on the heat input in the removal locations of the welding process weld passes tested, the GWE selected the maximum heat input indicated on each of the corporate WPS's to be used when generating project specific WPS's.

For the 1986 Edition and earlier versions of the Code, it could be interpreted that the Code did not clearly define where the maximum heat input value had to be selected. As an "intent" inquiry, Interpretation IX-92-69 does provide the required clarification and it is good practice to comply with such inquiries. However, Code Interpretation IX-92-69 is not part of the 1986 Code and compliance with it is not required.

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGED~~

ULMER & BERNE LLP  
ATTORNEYS AT LAW

Internet Address  
http://www.ulmer.com

Bond Court Building  
1300 East Ninth Street, Suite 900  
Cleveland, Ohio 44114-1583  
Fax (216) 621-7488

Columbus Office  
88 East Broad Street, Suite 1980  
Columbus, Ohio 43215-3506  
Fax (614) 228-8561  
Telephone (614) 228-8400

(216) 621-8400

TELECOPIER TRANSMITTAL

DATE: 2/20/97 FILE NUMBER: 22729-0

Number of Pages (including cover sheet): 210

To: JAY HOPKINS

Firm Name: \_\_\_\_\_

Teletype #: 630/515-1096

Telephone No. To Confirm Receipt: \_\_\_\_\_

AN ORIGINAL OF THIS FAX  WILL BE MAILED  WILL NOT BE MAILED

From: STEVEN D. BELL

Time of Transmission: \_\_\_\_\_ AM PM Sent By: Kathy

- See attached
- For your information
- For your file
- As you requested
- Please sign
- Please complete

- Please telephone upon receipt
- Please read and advise
- Please acknowledge receipt
- Please handle
- Please comment
- Please read

MESSAGE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Should you have any problems with receipt of this transmission, or if the stated number of pages does not follow, please contact us at (216) 621-8400, Ext. 2421.*

**UNLESS OTHERWISE INDICATED, THE INFORMATION IN THIS TRANSMITTAL IS CONFIDENTIAL AND INTENDED ONLY FOR THE RECIPIENT LISTED ABOVE. IF YOU ARE NEITHER THE INTENDED RECIPIENT NOR A PERSON RESPONSIBLE FOR DELIVERING THIS TRANSMITTAL TO THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISTRIBUTION OR COPYING OF THIS TRANSMITTAL IS PROHIBITED. IF YOU RECEIVED THIS TRANSMITTAL IN ERROR, PLEASE IMMEDIATELY NOTIFY US AND RETURN THE TRANSMITTAL TO US AT OUR EXPENSE.**

ULMER & BERNE LLP  
ATTORNEYS AT LAW

Internet Address  
http://www.ulmer.com/

Bond Court Building  
1300 East Ninth Street, Suite 900  
Cleveland, Ohio 44114-1583  
Fax (216) 621-7488

Columbus Office  
89 East Broad Street, Suite 1980  
Columbus, Ohio 43215-3506  
Fax (614) 228-8561  
Telephone (614) 228-8400

(216) 621-8400

TELECOPIER TRANSMITTAL

DATE: 2/20/97 FILE NUMBER: 22729-0

Number of Pages (including cover sheet): 3

To: JAY HOPKINS

Firm Name: \_\_\_\_\_

Telecopy #: 630/515-1096

Telephone No. To Confirm Receipt: \_\_\_\_\_

AN ORIGINAL OF THIS FAX \_\_\_ WILL BE MAILED  WILL NOT BE MAILED

From: STEVEN D. BELL

Time of Transmission: \_\_\_\_\_ AM PM Sent By: Kathy

- See attached
- For your information
- For your file
- As you requested
- Please sign
- Please complete

- Please telephone upon receipt
- Please read and advise
- Please acknowledge receipt
- Please handle
- Please comment
- Please read

MESSAGE: \_\_\_\_\_

*Should you have any problems with receipt of this transmission, or if the stated number of pages does not follow, please contact us at (216) 621-8400, Ext. 2421.*

UNLESS OTHERWISE INDICATED, THE INFORMATION IN THIS TRANSMITTAL IS CONFIDENTIAL AND INTENDED ONLY FOR THE RECIPIENT LISTED ABOVE. IF YOU ARE NEITHER THE INTENDED RECIPIENT NOR A PERSON RESPONSIBLE FOR DELIVERING THIS TRANSMITTAL TO THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISTRIBUTION OR COPYING OF THIS TRANSMITTAL IS PROHIBITED. IF YOU RECEIVED THIS TRANSMITTAL IN ERROR, PLEASE IMMEDIATELY NOTIFY US AND RETURN THE TRANSMITTAL TO US AT OUR EXPENSE.

ULMER & BERNE LLP  
ATTORNEYS AT LAW

Internet Address  
http://www.ulmer.com/

Bond Court Building  
1300 East Ninth Street, Suite 900  
Cleveland, Ohio 44114-1583  
Fax (216) 621-7488

Columbus Office  
88 East Broad Street, Suite 1980  
Columbus, Ohio 43215-3506  
Fax (614) 228-8561  
Telephone (614) 228-8400

(216) 621-8400

TELECOPIER TRANSMITTAL

DATE: 2/20/97 FILE NUMBER: 22729-0

Number of Pages (including cover sheet): 3

To: JAY HOPKINS

Firm Name: \_\_\_\_\_

Telecop #: 630/515-1096

Telephone No. To Confirm Receipt: \_\_\_\_\_

AN ORIGINAL OF THIS FAX  WILL BE MAILED  WILL NOT BE MAILED

From: STEVEN D. BELL

Time of Transmission: \_\_\_\_\_ AM  PM Sent By: Kathy

- See attached
- For your information
- For your file
- As you requested
- Please sign
- Please complete

- Please telephone upon receipt
- Please read and advise
- Please acknowledge receipt
- Please handle
- Please comment
- Please read

MESSAGE: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Should you have any problems with receipt of this transmission, or if the stated number of pages does not follow, please contact us at (216) 621-8400, Ext. 2421.*

**UNLESS OTHERWISE INDICATED, THE INFORMATION IN THIS TRANSMITTAL IS CONFIDENTIAL AND INTENDED ONLY FOR THE RECIPIENT LISTED ABOVE. IF YOU ARE NEITHER THE INTENDED RECIPIENT NOR A PERSON RESPONSIBLE FOR DELIVERING THIS TRANSMITTAL TO THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY DISTRIBUTION OR COPYING OF THIS TRANSMITTAL IS PROHIBITED. IF YOU RECEIVED THIS TRANSMITTAL IN ERROR, PLEASE IMMEDIATELY NOTIFY US AND RETURN THE TRANSMITTAL TO US AT OUR EXPENSE.**

HAUL (OI)  
3/13/97 4

Licensees: Point Beach Unit 2; D. C. Cook, Units 1 and 2

Assigned Division: DRS

Attached Pertinent Documents: See Attached.

I. Action

Approved by:

Wayne J. Kropp  
Wayne J. Kropp, Chief  
Engineering Specialist Branch 1

March 12, 1997

Charles H. Weil  
Charles H. Weil, Senior Allegation  
and Enforcement Coordinator

March 12, 1997

II. Allegation Review Board Membership:

Benson Kropp  
Daphne  
Grant

III. Remarks

Each concern and recommendation is contained on the attached "DRS Technical Assessment."

IV. Regulatory Basis

10 CFR Part 50, Appendix B  
10 CFR 50.7

V. Recommendation

Immediately forward information to both licensees to determine if an immediate safety issue exists and to provide a description of how the issues were dispositioned. Review the licensee's response for technical adequacy and reboard.

Safety Significance: HIGH MEDIUM LOW NA

Approved As Is OR

Approved with Modifications as Documented in Plan.

Disapproved for Following Reasons:

Yes  No OI (Priority: HIGH NORMAL LOW )

March \_\_, 1997

Allegation Review Board Chairman

M/14

ALLEGATION ACTION PLAN  
ALLEGATION NO. RIII-1997-A-0035

Documents:

1. DRS Technical Assessment of Concerns
2. D. Funk's 3/10/97 Memo to W. Kropp
3. Dept. of Labor Letter

Point Beach - 2 & D.C. Cook 2 Allegation (AMS RIII-97-A-0035)

Source: Former Corporate Welding Engineer for Morrison Knudsen

Region III DRS technical assessment of concerns:

Concern 1: Employment Discrimination.

Discussion: Timing of events supports the concerned individual's (CI) case that he was discriminated against. Note that the licensees (Point Beach & D.C. Cook) are most likely unaware of these events.

Recommended

Actions: Defer issue until DOL/ OSHA resolve this matter. Note that if they find for the CI, than what actions do we take against the licensees?

Concern 2: 14 of 18 welding procedures used at Point Beach-2 failed to meet relevant QA standards (Licensee may be unaware of this issue).

Discussion: 9 of the 20 findings listed in the audit report for Point Beach Unit 2 welding call into question the Code "qualification" status of welds. If the CI is correct, than the affected welds potentially have not been properly demonstrated per Code requirements as being adequate to meet service conditions.

Recommended

Actions: 1) Inform the licensee immediately and with a followup letter of the specific potential problems with the weld procedures. Request that the licensee identify all welds which are affected and their planned corrective actions, including a schedule for completing these actions. The licensee should also address the potential need for a Part 21 notification.

2) Perform an inspection following the licensee's response to our letter on this issue. Also, the vendor inspection branch of NRR should send a "welding expert" to inspect Morrison Knudsen records (go back to at least 1988 time frame) for other plants that have used them as welding contractors.

Concern 3: Deficiencies in documentation of welding procedures used at DC Cook U-2 (Licensee may be unaware of this issue).

Discussion: The use of improper filler metal and the lack of a charpy impact specimen for procedure qualification welds means the affected field welds are not Code "qualified." If the CI is correct than the welds on the feedwater nozzles and main steam lines and possibly others have not been demonstrated per Code requirements as being adequate to meet service conditions.

Recommended

Actions: 1) Inform the licensee immediately and with a followup letter of the specific potential problems with the weld procedures and

supporting qualification welds. Request that the licensee identify all plant welds which are affected and their planned corrective actions, including a schedule for completing these actions. The licensee should also address the potential need for a Part 21 notification.

2) Same as 2 above.

March 13, 1997

MEMORANDUM TO: Wayne Kropp, Chief,  
Engineering Specialists Section 1, DRS

FROM: Jay Hopkins, OAC RIII *JH 3-13-97*

SUBJECT: NEW CONCERN AND ADDITIONAL INFORMATION REGARDING  
EMPLOYMENT DISCRIMINATION AND INADEQUATE WELDING  
PROCEDURES AT DC COOK AND PT. BEACH.  
AMS NO. RIII-97-A-0035

Attached for your information is a record of a telephone conversation between Jay Hopkins and the Concerned Individual (CI) on 3/13/97. This is an additional supplement to the information already provided for the ARB held on 3/13/97. A new concern was identified by the CI regarding a group of project managers from Morrison Knudsen (MK) Corporation which have made mistakes in the past and may continue to make the same mistakes. A follow up ARB may be required for this new concern.

cc w/ attachment: ~~OT:RIII~~  
RC:RIII

Attachment: 3/13/97 Conversation Record

*n/15*

CONVERSATION RECORD

AMS RIII-97-A-0035

MEMORANDUM TO: AMS FILE RIII-97-A-0035

FROM: J. Hopkins, RIII-OAC; 3/13/97 JH 3-13-97

SUBJECT: NEW CONCERN IDENTIFIED During a Follow up Telephone Call with Concerned Individual (CI) on 3/13/97.

On March 13, 1997, at approximately 5:30 pm (CST), I contacted the CI to inform him of the NRCs planned actions to assess the deficiencies in the welding procedures used at Pt. Beach-2 and DC Cook-2 and the discrimination by his employer, Morrison Knudsen (MK) Corporation. Additionally, I informed the CI that the NRC believed that the two licensees (DC Cook and Pt. Beach) were in the best position to review and resolve the welding procedure concerns and that the NRC planned to forward the technical issues to the licensee for resolution. I also told the CI that our Office of Investigation would be investigating the discrimination issue. I asked the CI if he had any concerns with the NRC sending the technical issues to the respective licensee for evaluation even though there was a high probability that his identity would be revealed to the licensees during the review. The CI clearly stated that he had no objections.

During the course of the conversation, the CI stated that an acquaintance (unnamed by the CI) had recently informed him that MK had been the subject on an NRC "investigation" during the Fort Saint Vrain decommissioning project in 1995-1996. The investigation was for a hostile work environment and for intimidating an HP technician. The acquaintance believed that the NRC had given MK a violation. The CI was aware of the person's name but declined to provide it until he (the CI) had permission. As an additional bit of information, the CI named the NRC personnel involved in the Ft. St. Vrain inspection - Joe Armenta and Nick Economus. (The CI provided the spelling.) Note that based on the CI's information, the Ft. St. Vrain decommissioning project in 1995-1996 was a joint venture between MK and Westinghouse.

Based on this new information of MKs previous problems, the CI was concerned that a group of MK project managers which move from project to project (Ft. St. Vrain, DC Cook-2, Pt. Beach-2, and now the St. Lucie steam generator project) don't respect the rules.

- The CI is concerned that this same group of people made errors in the past and will continue to make these same errors. (When I asked him to describe the errors, the CI stated that the people who were working on the Ft. St. Vrain project and were cited by the NRC are still working for MK and could be making the same mistakes. The CI was unable to be more specific.)

**CONVERSATION RECORD**

**AMS RIII-97-A-0035**

Below is a list of the MK project managers and the projects:

	Ft. St. Vrain	DC Cook-2	Pt. Beach-2	St. Lucie
Tom Dieter (Superintendent)	X	X	X	?
Danny Hicks (Superintendent)	X	?	X	?
Eugene "Rusty" Gorden (Project Welding Engineer)	?	?	?	X
Max Bingham (Project Manager)	X	X	X	X
Marty Cepkauskas (Project Director)	X	X	X	X

The CI believes that this clique protects the other members if something goes wrong and does not protect someone outside of the clique. The CI said he was not in the clique and subsequently was not protected when problems were identified in the Pt. Beach-2 and DC Cook-2 welding procedures.

**ADDITIONAL INFORMATION ON THE DISCRIMINATION ISSUE:**

The CI has been made aware (from an unidentified source) that there was a rumor going around MK that the reason he was "fired" as corporate welding engineer was that he (the CI) informed the Hartford Steam Boiler Inspection and Insurance Co., about the problems with the Pt. Beach-2 welding procedures. The CI denies that and believes that Max Bingham started the rumor. Recall that Hartford conducted a routine audit of MKs welding procedures in 12/96.

**CHANGE OF ADDRESS:**

Friday, March 14, 1997, will be the last day that we can contact the CI at the apartment in West Virginia. The CI will provide RIII with a new phone number. In the interim, the CI can be reached through his attorney or by leaving a message at his home in Ohio.



MORRISON KNUDSEN CORPORATION

MK-FERGUSON GROUP

INTER-OFFICE CORRESPONDENCE

M-QM-97-019

DATE: March 18, 1997

TO: File

FROM: A. J. Walcutt

SUBJECT: Closure of Potential Part 21 Report  
Dated 1/23/97 and Supported by  
IOC No. M-QM-97-004 dated 22-Jan-97

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGER~~

As required by paragraph 4.1.6.3 of QAI 1.1 dated 25-Feb-97 and titled, Reporting of Defects and Noncompliance, the above referenced Potential Part 21 and evaluation results were reviewed with the originator, Alain Artayet, on Monday March 17, 1997. Alain indicated that IOC No. M-QM-97-013 did not, in his opinion contain enough information for him to evaluate the resolution of the condition he reported. At my request, Alain documented this concern on the Determination Checklist For Part 21 Reporting.

When I was presenting the research to Alain he repeatedly asked who, outside the Company, I had reported this to. He specifically referred to the NRC and Hartford Steam Boiler as MK's Authorized Inspection Agency and AEP as the Owner.

I explained the law and that reporting was required when only evaluation determined that a defect existed that constituted a substantial safety hazard at an operating nuclear plant. I explained that the issue that Alain had raised had been evaluated and resolved by the subsequent qualification of other Welding Procedure Specifications. I further explained, that I had researched all other potential D.C. Cook welding problems and concluded that there were no physical deficiencies. Program related issues are being resolved through QFR C-96-022 QFR-01. As such I saw no reason to make a Report.

Alain continues to believe that others, outside of MK, should be informed. This Potential Part 21 was generated after Mr. Artayet had been removed from his position of Group Welding Engineer on the basis that he failed to develop a working relationship with the project personnel he was supposed to support. Alain was unhappy with this reassignment. My conclusion is that Alain is trying to resolve a personal issue by getting outside agencies involved whether or not there is any technical merit to their involvement.

Based on this further information, I have again determined that the reported Potential Part 21 is not "reportable".

END

~~THIS DOCUMENT IDENTIFIES  
AN ALLEGER~~

March 20, 1997

CONVERSATION RECORD

AMS RIII-97-A-0035  
OI CASE No. 3-97-013

On 3/20/97, I contacted the CI to confirm his new phone number in West Va. During the discussion, the CI stated that the QA Director of Morrison Knudsen (MK) had contacted him at work in West Va. The QA Director asked if the CI would sign MK's evaluation memo that the problems identified with the welding procedures used at Pt. Beach and DC Cook had not met the threshold for a 10 CFR Part 21 notification. The CI refused to sign the memo because he did not have enough readily available information to review that supported the conclusion.

Additionally, the CI stated that the QA Director informed him (the CI) that MK was continuing with the hiring process of a new corporate welding engineer. The CI informed the QA Director that a DOL complaint had been filed. The QA Director was already aware of it. However, the CI stated that he did not believe that MK was aware that the NRC had been contacted. The CI stated that the QA Director said that he (the CI) was to blame for the problems with the welding procedures. I'm not sure exactly what the CI or the QA Director meant by that.

The CI asked if the licensee's had been contacted about the welding problems. I stated that the letters were being developed. Finally, the CI stated that Joe Ulie, OI- RIII, had set up an interview for 4/11/97.

Jay Hopkins

*Jay Hopkins 3/20/97*

cc: H. B. Clayton  
R. Paul, OI  
J. Ulie, OI  
W. Kropp, DRS  
J. McCormick-Barger, DRP  
B. Burgess, DRP  
B. Berson, RC-RIII

*n/17*

April 22, 1997

MEMORANDUM TO: Geoffrey E. Grant, Director, Division of Reactor Safety  
FROM: Jay Hopkins, Senior Allegation Coordinator *JH 4-22-97*  
SUBJECT: OI REPORT OF INTERVIEW MORRISON KNUDSEN: ALLEGED  
DISCRIMINATION AGAINST A CORPORATE WELDING ENGINEER FOR  
RAISING WELDING CONCERNS (OI CASE NO. 3-97-013)  
(AMS NO. RIII-97-A-0035)

By memorandum dated April 21, 1997 the Office of Investigations has forwarded their Report of Interview of the above subject to Region III and a copy is enclosed for evaluation by your staff. After review please notify me of the staffs readiness to discuss the interview at an Allegation Review Board (ARB) within 30 days of the date of this memorandum. At the ARB the Division should be prepared to discuss its decision whether further OI involvement is requested and if so at what priority, ie... High, Normal, or Low.

Attachment: As stated

cc w/attachment:  
B. Berson

cc w/o attachment:  
J. Gavula  
OI:RIII

*m/18*

May 19, 1997

MEMORANDUM TO: Jay Hopkins, Senior Allegation Coordinator

FROM: Jerome F. Schapker, Reactor Inspector, Division of  
Reactor Safety *AD 5/19/97*

SUBJECT: OI REPORT OF INTERVIEW MORRISON KNUDSEN: ALLEGED  
DISCRIMINATION AGAINST A CORPORATE WELDING ENGINEER  
FOR RAISING WELDING CONCERNS (OI CASE NO. 3-97-013)  
(AMS NO. RIII-97-A-0035)

Initial review of the technical data supplied by the concerned individual concluded that there appears to be substance to the alleged concerns and warrants further review by regional or headquarters specialist. OI involvement is ongoing and should be present for the ARB.

cc: J. Guvula  
C. Pederson

*7/19*  
*(24)*

CONVERSATION RECORD

AMS RIII-97-A-0035

MEMORANDUM TO: AMS FILE RIII-97-A-0035

FROM: J. Hopkins, RIII-OAC; 3/13/97 JH 3-13-97

SUBJECT: NEW CONCERN IDENTIFIED During a Follow up Telephone Call with Concerned Individual (CI) on 3/13/97.

On March 13, 1997, at approximately 5:30 pm (CST), I contacted the CI to inform him of the NRCs planned actions to assess the deficiencies in the welding procedures used at Pt. Beach-2 and DC Cook-2 and the discrimination by his employer, Morrison Knudsen (MK) Corporation. Additionally, I informed the CI that the NRC believed that the two licensees (DC Cook and Pt. Beach) were in the best position to review and resolve the welding procedure concerns and that the NRC planned to forward the technical issues to the licensee for resolution. I also told the CI that our Office of Investigation would be investigating the discrimination issue. I asked the CI if he had any concerns with the NRC sending the technical issues to the respective licensee for evaluation even though there was a high probability that his identity would be revealed to the licensees during the review. The CI clearly stated that he had no objections.

During the course of the conversation, the CI stated that an acquaintance (unnamed by the CI) had recently informed him that MK had been the subject on an NRC "investigation" during the Fort Saint Vrain decommissioning project in 1995-1996. The investigation was for a hostile work environment and for intimidating an HP technician. The acquaintance believed that the NRC had given MK a violation. The CI was aware of the person's name but declined to provide it until he (the CI) had permission. As an additional bit of information, the CI named the NRC personnel involved in the Ft. St. Vrain inspection - Joe Armenta and Nick Economus. (The CI provided the spelling.) Note that based on the CI's information, the Ft. St. Vrain decommissioning project in 1995-1996 was a joint venture between MK and Westinghouse.

Based on this new information of MKs previous problems, the CI was concerned that a group of MK project managers which move from project to project (Ft. St. Vrain, DC Cook-2, Pt. Beach-2, and now the St. Lucie steam generator project) don't respect the rules.

- The CI is concerned that this same group of people made errors in the past and will continue to make these same errors. (When I asked him to describe the errors, the CI stated that the people who were working on the Ft. St. Vrain project and were cited by the NRC are still working for MK and could be making the same mistakes. The CI was unable to be more specific.)

**CONVERSATION RECORD**

**AMS RIII-97-A-0035**

Below is a list of the MK project managers and the projects:

	Ft. St. Vrain	DC Cook-2	Pt. Beach-2	St. Lucie
Tom Dieter (Superintendent)	X	X	X	?
Danny Hicks (Superintendent)	X	?	X	?
Eugene "Rusty" Gorden (Project Welding Engineer)	?	?	?	X
Max Bingham (Project Manager)	X	X	X	X
Marty Cepkauskas (Project Director)	X	X	X	X

The CI believes that this clique protects the other members if something goes wrong and does not protect someone outside of the clique. The CI said he was not in the clique and subsequently was not protected when problems were identified in the Pt. Beach-2 and DC Cook-2 welding procedures,

**ADDITIONAL INFORMATION ON THE DISCRIMINATION ISSUE:**

The CI has been made aware (from an unidentified source) that there was a rumor going around MK that the reason he was "fired" as corporate welding engineer was that he (the CI) informed the Hartford Steam Boiler Inspection and Insurance Co., about the problems with the Pt. Beach-2 welding procedures. The CI denies that and believes that Max Bingham started the rumor. Recall that Hartford conducted a routine audit of MKs welding procedures in 12/96.

**CHANGE OF ADDRESS:**

Friday, March 14, 1997, will be the last day that we can contact the CI at the apartment in West Virginia. The CI will provide RIII with a new phone number. In the interim, the CI can be reached through his attorney or by leaving a message at his home in Ohio.

# FOLLOW UP ARB: RIII-97-A-0035

July 24, 1997

MEMORANDUM TO: J. Gavula, Chief, ESB1, DRS

FROM: J. Hopkins / R. Doornbos, RIII - OAC

*J. Hopkins* 7-24-97

SUBJECT: FOLLOW UP ARB: RIII-97-A-0035 (Morrison Knudsen, DC Cook & Pt. Beach)

A Follow up ARB has been tentatively scheduled for Monday August 4, 1997. The purpose of the ARB is to determine if additional OI involvement is needed for Concern # 1, to provide the status of Concerns # 2 & 3, and to hold the initial ARB for Concern # 4.

- 1) Review the attached information to prepare for the ARB: (i) 3/13/97 conversation record, (ii) 5/19/97 memo from J. Schapker, and (iii) Summary of Concerns. Contact the OAC by WEDNESDAY, 7/30 (before ARB) if needed.
- 2) At the ARB be prepared to:
  - Discuss the status of each concern (as applicable).
  - Recommend a method to resolve each concern discussed.
  - Recommend a completion date.

Below are examples of methods to resolve each concern:

- A. Send to Licensee Requesting Response in \_\_\_\_ Days (At the ARB, be prepared to discuss the areas we expect the licensee to address.)
- B. Priority RIII Follow up
- C. Follow up During Routine Inspection Within \_\_\_\_ Days
- D. Refer to OI
- E. No Action - Outside NRC's Charter (At the ARB, be prepared to discuss the basis)
- F. No Action - Without Merit (At the ARB, be prepared to discuss the basis)
- G. Other (At the ARB, be prepared to discuss the specifics)

cc w/o attachments: OAC

cc w/attachments:

AMS File No. RIII-97-A-0035  
OI-RIII - Y  
RC-RIII - Y  
McCormick-Barger, RPB7 DRP

cc w/ Summary of Concerns:  
Deputy RA

*N/20*

## ALLEGATION SUMMARY OF CONCERNS

AMS NO. RIII-97-A-0035 (Morrison & Knudsen)

No. of Concerns: 4

- 1) Employment discrimination by MK because the CI reported deficiencies in MK's welding procedures.

Regulatory Basis:

- 2) 14 of 18 welding procedures used at Point Beach-2 failed to meet relevant QA standards during S/G replacement project in 1996. (See MK Quality Finding Report No. C-96-022 (attached) for technical details).

Regulatory Basis:

- 3) Deficiencies in documentation of welding procedures used at DC Cook U-2 during 1988 S/G replacement project.

Regulatory Basis:

- 4) A group of MK project managers, who previously worked at the Fort Saint Vrain decommissioning project in 1995 and 1996, move from project to project (Ft. St. Vrain, D. C. Cook, Point. Beach, and now St. Lucie), don't respect the rules, and could be making more errors.

Regulatory Basis:

5)

Regulatory Basis:

6)

Regulatory Basis:

7)

Regulatory Basis:

ALLEGATION ACTION PLAN

97-A-0035  
AMS NO. RIII-97-A-0777

JH

Licensees: D. C. Cook U-2 & Pt. Beach U-2

Docket/License No: 50-316 & 50-301

Assigned Division/Branch: DRS ESB1

Allegation Review Board Membership:

Chairman -

G. Grant

J. Altie

J. Hopkins

R. Paul OI

M. Krowski - via phone

J. Cavata, J. Schopker

GENERIC CONCERNS: If Yes Explain:

SAFETY SIGNIFICANCE: HIGH MEDIUM LOW NA

Basis for Significance:

OI ACCEPTANCE: YES NO (Priority: HIGH NORMAL LOW)

Basis for priority: Continuation of high priority

COMMENTS: Status for # 1, 2, 3.  
Are you Initial ARB for # 4.

*[Signature]*

Allegation Review Board Chairman

8-4-97

Date

*[Handwritten initials]*  
30



Each stated concern or NRC identified issue should be documented on a separate sheet. Each concern must be documented and written with enough detail to allow thorough follow up.

Concern No. 2

14 of 18 welding procedures used at Point Beach-2 failed to meet relevant QA standards during S/G replacement project in 1996. (See MK Quality Finding Report No. C-96-022 (attached) for technical details).

Regulatory Basis:

- I. Action Evaluation: The following method of resolution is recommended (circle):
- A. Send to Licensee Requesting Response in \_\_\_\_ Days. (Describe the general areas we expect the licensee to address.)
  - B. Priority RIII Follow up
  - C. Follow up During Routine Inspection Within \_\_\_\_ Days
  - D. Refer to OI
  - E. No Action - Outside NRC's Charter (describe basis)

F. No Action - Without Merit (describe basis)

G Other (specify) *Staff Letters sent*

Responsible for Action - *EFC*

II. Special Considerations/Instructions:

Each stated concern or NRC identified issue should be documented on a separate sheet. Each concern must be documented and written with enough detail to allow thorough follow up.

Concern No. 3

Deficiencies in documentation of welding procedures used at DC Cook U-2 during 1988 S/G replacement project

Regulatory Basis:

I. Action Evaluation: The following method of resolution is recommended (circle):

- A. Send to Licensee Requesting Response in \_\_\_\_ Days. (Describe the general areas we expect the licensee to address.)
- B. Priority RIII Follow up
- C. Follow up During Routine Inspection Within \_\_\_\_ Days
- D. Refer to OI
- E. No Action - Outside NRC's Charter (describe basis)
  
- F. No Action - Without Merit (describe basis)

G. Other (specify) *Status Letters sent*

Responsible for Action - *FICS*

II. Special Considerations/Instructions:

Each stated concern or NRC identified issue should be documented on a separate sheet. Each concern must be documented and written with enough detail to allow thorough follow up.

Concern No. 4

A group of MK project managers, who previously worked at the Fort Saint Vrain decommissioning project in 1995 and 1996, move from project to project (Ft. St. Vrain, D. C. Cook, Point. Beach, and now St. Lucie), don't respect the rules, and could be making more errors.

Regulatory Basis:

I. Action Evaluation: The following method of resolution is recommended (circle):

- A. Send to Licensee Requesting Response in \_\_\_\_ Days. (Describe the general areas we expect the licensee to address.)
- B. Priority RIII Follow up
- C. Follow up During Routine Inspection Within \_\_\_\_ Days
- D. Refer to OI
- E. No Action - Outside NRC's Charter (describe basis)
- F. No Action - Without Merit (describe basis)

(G.) Other (specify) *Forward to MRR based on possible generic problems w/ MK.*  
Responsible for Action - *FJCS.*

II. Special Considerations/Instructions:

*Contact RII w/ a heads up on information.*



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

August 5, 1997

Mr. S. A. Patulski  
Site Vice President  
Point Beach Nuclear Plant  
Wisconsin Electric Power Company  
6610 Nuclear Road  
Two Rivers, WI 54241

Dear Mr. Patulski:

The U. S. Nuclear Regulatory Commission (NRC) recently received information concerning activities at Point Beach Nuclear Plant. The details are enclosed for your evaluation.

We request that the results of your evaluation of this matter be submitted to Region III within 30 days of the date of this letter. Your response to this request should not be docketed, and should be sent in an envelope addressed to my attention. We also request that your response contain no personal privacy, proprietary, or safeguards information. If necessary, such information shall be contained in a separate attachment which will be withheld from public disclosure. The affidavit required by 10 CFR 2.790(b) must accompany your response if proprietary information is included.

The NRC review of your response will include whether: (a) the organization or individual conducting the evaluation was independent; (b) the evaluation was of sufficient depth and scope; (c) appropriate root causes and generic implications were considered, if the concerns were substantiated; and (d) the corrective actions, both planned and completed, were sufficient to correct the specific example(s) and generic implications and to prevent recurrence.

The enclosure to this letter should be controlled and distribution should be limited to personnel with a "need to know" until your evaluation has been completed and reviewed by NRC Region III. The enclosure to this letter is considered "NOT FOR PUBLIC DISCLOSURE."

We appreciate your cooperation and will gladly discuss any questions you may have concerning this information.

Sincerely,

A handwritten signature in black ink that reads "John A. Grobe".

John A. Grobe, Acting Director  
Division of Reactor Safety

Enclosure: Details  
(NOT FOR PUBLIC DISCLOSURE)

Handwritten initials "M/22" and a circled number "27".

AMS RIII-97-A-0035

**NOT FOR PUBLIC DISCLOSURE**

Details

Information provided to our office indicates that 14 of 18 welding procedures used during the Steam Generator Replacement Project at Point Beach Unit 2 failed to meet relevant quality assurance standards. This information is described in a Morrison Knudsen Corporation Quality Finding Report dated January 15, 1997 (Report Number C-96-022). This report, as well as other information provided to us, calls into question the ability of welding procedures (and associated welds fabricated with these procedures) to meet ASME Code criteria.

We request that you perform an evaluation to address the above concern. Your evaluation should determine the safety and regulatory significance of this issue. This evaluation should also:

1. Describe whether Morrison Knudsen Corporation has informed you of this potential quality assurance issue, and if so, what was the extent of the information, and when did they inform you.
2. Describe to what extent the welding procedures utilized fail to meet relevant quality assurance standards and/or ASME Code requirements.
3. Identify all of the welds at your plant which are affected by welding procedures that do not meet these quality assurance standards and/or ASME Code requirements.
4. Indicate whether a 10 CFR Part 21 notification is required for this issue.
5. Detail your immediate and planned corrective actions to alleviate this problem.

**NOT FOR PUBLIC DISCLOSURE**

9708140066



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

August 5, 1997

Mr. E. E. Fitzpatrick  
Executive Vice President  
Nuclear Generation Group  
American Electric Power  
500 Circle Drive  
Buchanan, MI 49107-1395

Dear Mr. Fitzpatrick:

The U. S. Nuclear Regulatory Commission (NRC) recently received information concerning activities at D. C. Cook Nuclear Generating Plant. The details are enclosed for your evaluation.

We request that the results of your evaluation of this matter be submitted to Region III within 30 days of the date of this letter. Your response to this request should not be docketed, and should be sent in an envelope addressed to my attention. We also request that your response contain no personal privacy, proprietary, or safeguards information. If necessary, such information shall be contained in a separate attachment which will be withheld from public disclosure. The affidavit required by 10 CFR 2.790(b) must accompany your response if proprietary information is included.

The NRC review of your response will include whether: (a) the organization or individual conducting the evaluation was independent; (b) the evaluation was of sufficient depth and scope; (c) appropriate root causes and generic implications were considered, if the concerns were substantiated; and (d) the corrective actions, both planned and completed, were sufficient to correct the specific example(s) and generic implications and to prevent recurrence.

The enclosure to this letter should be controlled and distribution should be limited to personnel with a "need to know" until your evaluation has been completed and reviewed by NRC Region III. The enclosure to this letter is considered "NOT FOR PUBLIC DISCLOSURE."

We appreciate your cooperation and will gladly discuss any questions you may have concerning this information.

Sincerely,

John A. Grobe, Acting Director  
Division of Reactor Safety

Enclosure: Details  
(NOT FOR PUBLIC DISCLOSURE)

M/23

26

NOT FOR PUBLIC DISCLOSURE

Details

Information provided to our office indicates that some welds performed during the 1988 steam generator replacement project, specifically on feedwater nozzles and main steam lines (and possibly others), may not have been demonstrated per ASME Code requirements as being adequate to meet service conditions. The information provided to us calls into question the ability of the welding procedures used (and associated welds fabricated with these procedures) to meet ASME Code criteria. These welding procedures were developed by Morrison Knudsen Corporation.

Specifically, our information indicates that weld procedures for this project (WPS-No. M-1-1-BA [Rev. 0, dated September 16, 1988] and WPS-No. M-1-1-AB [Rev. 1, dated June 9, 1988]) specify the use of an E7018 electrode of SFA-5.1 filler metal specification. However, PQR 1-117 and PQR 1-124 indicate that these welding procedures were qualified for use with E7018-A1 electrodes of the SFA-5.5 filler metal specification. We are concerned that this substitution would require requalification of the welding procedure and that the improper filler metal may have been used. Additionally, our information indicates that welds were performed on thicknesses (greater than 5/8 inch) for which ASME Code required charpy impact tests, and none were completed.

We request that you perform an evaluation to address the above concerns. Your evaluation should determine the safety and regulatory significance of this issue. This evaluation should also:

1. Describe to what extent you were aware, before receipt of this letter, of the potential quality assurance problems with these welds. In addition, indicate whether Morrison Knudsen Corporation has provided information to you regarding this issue and, if so, the extent of that information.
2. Describe to what extent the welding procedures utilized fail to meet relevant quality assurance standards and/or ASME Code requirements.
3. Identify all of the welds at your plant which are affected by welding procedures that do not meet required quality assurance standards and/or ASME Code requirements.
4. Indicate whether a 10 CFR Part 21 notification is required for this issue.
5. Detail your immediate and planned corrective actions to alleviate this problem.

NOT FOR PUBLIC DISCLOSURE

62

October 20, 1997

MEMO TO: J. Gavula, Chief, ESB1, DRS  
FROM: J. Hopkins, OAC *J. Hopkins*  
SUBJECT: ADDITIONAL INFORMATION FROM CONCERNED INDIVIDUAL REGARDING  
PART 21 APPLICABILITY FOR WELDS ON D.C. COOK U-2 S/G  
REPLACEMENT. AMS File No. RIII-97-A-0035; OI Case No. 3-97-013

Attached is (1) information related to the Part 21 Reportability of the inadequate welds on the D.C. Cook U-2 S/G welds and (2) information related to the Pt. Beach S/G replacement project. Please review the documentation and determine if there are any new concerns. Please provide the results of your review to EICS w/in 30 days. The results may be provided via E-mail or by memo in both hard copy and electronic form (e-mail address for the memo is OAC3).

Attachments: as stated

cc w/attachments:  
J. Ulie, OI RIII

*mb*  
*24*  
*(42)*



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

Board  
Scheduled for  
11/3/97

October 29, 1997

MEMORANUM TO: J. Hopkins  
Senior Allegation Coordinator

THRU: J. A. Gavula, Chief *J. A. Gavula*  
Engineering Specialist Branch 1, DRS

FROM: M. S. Holmberg *M. S. Holmberg*  
Senior Reactor Engineer, DRS

SUBJECT: REVIEW OF LICENSEE INVESTIGATION REPORT FOR ALLEGATION  
NO. RIII-97-A-0035

In accordance with your memoranda dated September 17, and 26, 1997, and October 28, 1997, Engineering Specialist Branch 1 reviewed the responses from Wisconsin Electric Power Company (Point Beach) and Indiana Michigan Power Company (DCCook), concerning the subject welding procedure allegation.

For Point Beach, the licensee performed an audit of a weld matrix prepared by Morrison Knudsen Corporation dispositioning the quality assurance findings raised by the allegor. The licensee concluded that the quality assurance issues did not affect the welds of concern for the steam generator replacement. The licensee stated that all permanent plant welds met or were subsequently demonstrated to meet relevant quality assurance standards and/or ASME Code requirements. However, the licensee did not provide the matrix of weld information used to disposition the quality assurance findings and the licensee will only make this matrix available for onsite NRC reviews. Thus, an onsite inspection is required to determine the validity of the licensee dispositioned quality assurance audit findings raised by this allegation.

For DC Cook, the licensee's response indicated that the welds of concern for the steam generator replacement meet the "applicable" requirements. However, the "applicable" requirement (as documented in page 74 of the ASME Code repair/replacement report for the Unit 2 steam generator replacement) has conflicting construction Codes listed for the replacement piping. An onsite inspection of the steam generator replacement documentation is needed to resolve the conflicting Codes to validate the allegation or substantiate the licensee's response.

Based on our reviews, another allegation review board appears to be warranted, to determine what additional actions are required to address the concerns.

Please note that headquarters and OI are actively involved in this allegation. It is our understanding that headquarters is following up the generic implications of the allegations with the vendor (Morrison Knudsen Corporation), and OI is investigating the employment discrimination issue.

*11/25*

*HL*

# EXHIBIT 32

CASE NO. 3-97-013

M/26

EXHIBIT 32

CONVERSATION RECORD

11/10/97 AMS RIII-97-A-0035 (Morrison Knudson)

OI Case No. 3-97-013

DOL Case No. 97-ERA-34

On 11/10/97 at about 5:00 p.m., the Concerned Individual (CI) called with the following information regarding his/her employment re-instatement:

- The CI was informed by MK Human Resources (HR) officer that s/he was being re-instated tomorrow (11/11/97). No specific details were provided by the HR officer. The HR officer did inform the CI that s/he was on the payroll effective today, 11/10. Recall that the ALJ's 10/28/97 decision was to reinstate the CI to the CI's former position.
- The CI was informed by co-workers that his/her new supervisor was a Mr. Lou Pardee (unsure of spelling). The CI stated that Mr. Pardee was the driving force behind getting the CI terminated in the first place and that it was unacceptable to report to Mr. Pardee. The CI was informed of this from John Luff and Rich Hart. The CI stated that they heard it from Bruce Kovacs, MK Quality Engineer.
- I informed the CI that since nothing had actually occurred, the CI should wait until tomorrow to see what develops. I reminded the CI that DOL would be the organization to contact if the CI believed the terms of the re-instatement were not appropriate or in accordance with the ALJ's 10/28/97 decision. Additionally, I asked the CI to keep the NRC informed of any developments.

Jay Hopkins, RIII-OAC



cc: R. Paul, OI  
J. Ulie  
B. Berson  
B. Clayton



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

February 7, 1998

MEMORANDUM TO: J. Grobe, Director, DRS

FROM: J. Hopkins, Senior Allegation Coordinator

A handwritten signature in black ink, appearing to read "John R. Hopkins".

SUBJECT: OI INVESTIGATION MORRISON KNUDSEN CORPORATION: ALLEGED  
DISCRIMINATION AGAINST THE CORPORATE WELDING ENGINEER  
(OI CASE NO. 3-97-013) (AMS NO. RIII-97-A-0035)

The above subject Office of Investigations' Report of Investigation has been received in Region III and a copy is attached for evaluation by your staff. OI concluded employment discrimination did occur against the corporate welding engineer; therefore, it appears that enforcement action is warranted. Therefore, the report must be reviewed to determine appropriate enforcement action and identify any unresolved technical issues. EICS review of the allegation file indicates that ESB1 should review this report.

The Report of Investigation must be kept in a secure cabinet and access granted on a need to know basis. At the time all of the actions are completed by your Division, the report must be returned to the Enforcement and Investigation Coordination Staff for disposition. No portions of the Report of Investigation can be reproduced or released without the specific approval of the Director, Office of Investigations.

Please document the results of your review within 15 days of the date of this memorandum in a memo to H. B. Clayton, Enforcement Officer, with a copy to OI and a copy to me. This memo should be provided in both hard copy and electronic form (e-mail address for the memo is OAC3), and should clearly indicate whether the Division agrees with the OI conclusion, or if not, the basis for disagreement. In addition, we will need to discuss this case at an enforcement panel on or about February 19, 1998. If you have questions regarding this matter, please review Regional Procedure 1215 Handling Office of Investigation Reports and Information or contact one of the allegation coordinators.

Attachment: as stated

cc w/o attachment:

OI

RC

AMS File No. RIII-97-A-0035

Handwritten initials in black ink, appearing to be "N/27".

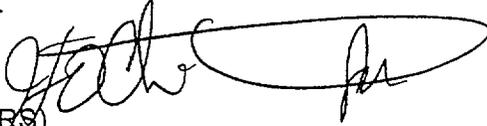


UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

February 24, 1998

MEMORANDUM TO: Jay Hopkins  
Senior Allegation Coordinator

FROM: John A. Grobe, Director  
Division of Reactor Safety (DRS) 

SUBJECT: REVIEW OF OI MORRISON KNUDSEN CORPORATION (MK)  
INVESTIGATION FOR ALLEGATION AMS NO. RIII-97-A-0035  
OI CASE NO. 3-97-013

In accordance with the Jay Hopkins Memo dated February 7, 1998, a review of the Office of Investigations (OI) Report entitled "Morrison Knudsen Corporation Alleged Discrimination Against the Corporate Welding Engineer" (OI Case No. 3-97-013) was conducted in order:

- (1) Identify any unresolved technical issues concerning the subject weld allegation.
- (2) Indicate whether the division agrees with the OI conclusion that employment discrimination did occur against the corporate welding engineer.

After review of the OI Case, DRS concurs with the OI conclusion that employment discrimination did occur against the corporate welding engineer. One unresolved technical issue concerning ASME required drop weight testing for welds fabricated at Point Beach and D. C. Cook was identified. Therefore we recommend a reboard of this allegation to determine what additional actions are required to address this issue.

*Handwritten:* 1/28 76



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

March 24, 1998

MEMORANDUM TO: Jay Hopkins, Senior Allegations Coordinator

FROM:  James Gavula, Chief, Engineering Specialist Branch 1

SUBJECT: MORRISON KNUDSEN (MK), NO. RIII-97-A-0035, OI  
INVESTIGATION REVIEW, IDENTIFICATION OF ADDITIONAL  
CONCERNS

In accordance with your memo dated February 7, 1998, ESB1 had previously reviewed OI Report, Case No. 3-97-013, "Morrison Knudsen Corporation Alleged Discrimination Against the Corporate Welding Engineer," and had responded in a memo to you on February 24, 1998.

During further evaluations of the technical issues related to MK's involvement in the Point Beach steam generator replacement project (SGRP), an additional potential concern was identified relating to MK's compliance with their corporate Quality Assurance program requirements.

In several of the report's exhibits, MK employees made statements acknowledging that weld procedures did not fully meet ASME Code requirements at the time of implementation. However, due to schedule constraints, decisions were made to retrofit the qualification process. This approach also appears to have been used by individuals signing ASME documentation without the required "delegation of authority" on file at the time. Examples of this are contained in:

- Exhibit 1, pages 46-52, and page 57;
- Exhibit 5, pages 2-6;
- Exhibit 10, pages 18-19;
- Exhibit 11, page 16;
- Exhibit 12, page 18;
- Exhibit 14, page 11;
- Exhibit 19, page 9.

Although, to date, our inspections have not found material problems resulting from the identified procedural deficiencies, MK's apparent cavalier attitude toward compliance with Quality Assurance program requirements is of concern. This may be an ongoing problem because in discussions with Point Beach as recent as January 1998, MK did not acknowledge this concern and openly communicate this information to Point Beach.

cc: J. Grobe, Director, DRS

CONTACT: Katherine Green-Bates  
(630) 829-9738

  
82



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

March 25, 1998

EA 98-081

Mr. S. A. Patulski  
Site Vice President  
Point Beach Nuclear Plant  
Wisconsin Electric Power Company  
6610 Nuclear Road  
Two Rivers, WI 54241

SUBJECT: APPARENT VIOLATION OF EMPLOYEE DISCRIMINATION REQUIREMENTS  
(U. S. DEPARTMENT OF LABOR CASE NOS. 97-ERA-34 and ARB 98-016)  
(NRC OFFICE OF INVESTIGATIONS CASE NO. 3-97-013)

Dear Mr. Patulski:

This is in reference to an apparent violation of NRC requirements prohibiting discrimination against employees who engage in protected activities (i.e., 10 CFR 50.7). The apparent violation involves the Morrison Knudsen Corporation (MK) discriminating against one of its employees. At the time of the apparent violation, MK was involved in the replacement of steam generators at the Wisconsin Electric Power Company's (WEPCo) Point Beach Nuclear Plant. Although enforcement action is being considered against MK, WEPCo's contractor, the NRC holds WEPCo responsible for ensuring compliance with NRC requirements by contract personnel. This apparent violation was discussed with Douglas Johnson of your staff on March 16, 1998.

The apparent violation is based on findings from a U.S. Department of Labor (DOL) proceeding (97-ERA-34). The presiding Administrative Law Judge (ALJ) in the DOL proceeding found, in a Recommended Decision and Order issued on October 28, 1997, that MK's removal of the complainant from his position as group welding engineer (GWE) and his subsequent reassignment to an "inferior job" constituted an adverse employment action. Further, the removal of complainant from the position as GWE within 24 hours after he engaged in protected conduct (his findings concerning weld procedures used by MK at the Point Beach plant) raises the inference as a matter of law that his removal was in retaliation for his protected activities. The DOL ALJ's Recommended Order required MK to reinstate the complainant to the position of GWE at MK's office in Cleveland, OH, and the complainant be given the same compensation, terms, conditions, and privileges as he previously had as GWE. In a Preliminary Order, issued on November 4, 1997, the DOL Administrative Review Board (ARB) (ARB Case No. 98-016) confirmed the findings and order of the DOL ALJ. Copies of the DOL ALJ's Recommended Decision and Order and the DOL ARB's Preliminary Decision are enclosed (Enclosures 1 and 2).

The NRC Office of Investigations (OI) also investigated this matter (OI Case No. 3-97-013,) and reached the same conclusion as the DOL. Enclosure 3 is the synopsis of the OI report.

n/30

84

The NRC staff's review of the DOL and OI findings indicate that the action taken against this individual was in apparent violation of 10 CFR 50.7. Therefore, this apparent violation is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600 (Enclosure 4). The NRC is not issuing a Notice of Violation at this time; you will be advised by separate correspondence of the results of our deliberations on this matter. Also, please be aware that the characterization of the apparent violation described in this letter may change as a result of further NRC review.

A transcribed predecisional enforcement conference with WEPCo and MK to discuss this apparent violation has been scheduled for April 16, 1998. Since the performance of certain MK employees will be discussed during the conference, it will be closed to public observation. However, the NRC's Enforcement Policy, as amended by, Policy and Procedure for Enforcement Actions: Policy Statement, 62 FR 13906 (March 24, 1997), permits the employee or former employee who was the subject of the alleged discrimination to participate in the conference. Accordingly, the complainant will be invited to attend the conference. He may participate by observing the conference and if desired, following the presentations by MK and WEPCo, make a presentation to address his view on why he believes discrimination occurred and his views on the other presentations. In no case will the NRC staff permit you or the individual to cross-examine or question each other. Morrison Knudsen and WEPCo will then be afforded an opportunity to respond, and the NRC may ask some clarifying questions.

The decision to hold an enforcement conference does not mean that the NRC has made a final determination on enforcement action in this case. While the NRC normally relies on the DOL's findings in determining whether a violation occurred when such findings are based on an adjudicatory proceeding, the conference is being held to obtain any additional information that will enable the NRC to make an informed enforcement decision. In addition, the conference is an opportunity for WEPCo and MK to provide perspectives on: 1) the severity level of the apparent violation; 2) the application of the factors that the NRC considers when it determines the amount of a civil penalty that may be assessed in accordance with Section VI.B.2 of the Enforcement Policy; and 3) any other application of the Enforcement Policy to this case, including the exercise of discretion in accordance with Section VII. WEPCo is also asked to address the questions listed in Enclosure 4 at the April 16, 1998 conference.

We note that MK was the subject of a previous NRC escalated enforcement action (EA 95-079). That enforcement action was issued on August 14, 1995, and concerned a Severity Level II violation of 10 CFR 50.7 by MK at the Fort St. Vrain nuclear plant (Enclosure 5). By letter dated September 13, 1995, MK responded to that violation and provided a description of the corrective actions taken to prevent recurrence of a similar violation in the future (Enclosure 6). In this regard, the NRC has requested that MK be prepared to address why its actions in response to the previous employment discrimination violation were not effective in precluding the action taken against the complainant in the current matter.

While we recognize that MK has appealed the DOL ALJ's decision in this case, the NRC must review this matter to determine whether a violation of 10 CFR 50.7 may have occurred. Such a violation, if it occurred, could have a chilling effect on other MK or WEPCo employees in that it might deter them from identifying any nuclear safety related concerns they may have.

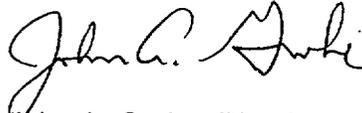
In addition, pursuant to sections 161c, 161o, 182 and 186 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR 2.204, in order for the Commission to determine whether regulatory action needs to be taken pending a determination as to whether enforcement action is to be taken for the issues to be discussed at the conference, and to ensure compliance with NRC regulatory requirements, you are required to provide this office, within 30 days of the date of this letter, or if possible before the April 16, 1998 conference, a response in writing and under oath or affirmation that describes:

1. Your position regarding whether the actions affecting this individual violated 10 CFR 50.7 and the basis for your position, including the results of any investigations you may have conducted to determine whether a violation occurred; and
2. Actions you have already taken or plan to take to assure that this matter is not having a chilling effect on the willingness of other employees to raise safety and compliance concerns within you organization.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and the required written response will be placed in the NRC Public Document Room (PDR). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or

provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Sincerely,



John A. Grobe, Director  
Division of Reactor Safety

Docket Nos. 50-266; 50-301  
License Nos. DPR-24; DPR-27

- Enclosures:
1. ALJ's Recommended Decision and Order
  2. ARB's Preliminary Order
  3. OI Report Synopsis
  4. List of Questions
  5. Previous Notice of Violation to MK (EA 95-079)
  6. MK's 9/13/95 Letter in Response to EA 95-079

cc w/enclosures:

R. Grigg, President and  
Chief Operating Officer, WEPCo  
A. Cayia, Plant Manager  
B. Burks, P.E., Director  
Bureau of Field Operations  
Cheryl L. Parrino, Chairman,  
Wisconsin Public Service Commission  
State Liaison Officer  
T. Zarges, MK President and  
Chief Executive Officer  
NRC Office of Enforcement  
J. Goldberg, OGC  
B. Boger, NRR  
C. Carpenter, NRR  
L. Gundrum, NRR  
R. Medlock, Director,  
OSHA Cleveland Area Office

bcc w/o enclosures:

Region III Office Allegation Coordinator  
(AMS No. RIII-1997-A-0035)



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INVESTIGATIONS FIELD OFFICE, REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

Ref to OI R  
2000-0014

April 21, 1998

MEMORANDUM TO: H. Brent Clayton, Enforcement Officer  
Region III

FROM: Richard C. Paul, Director *RJK for RCP*  
Office of Investigations Field Office  
Region III

SUBJECT: MORRISON KNUDSEN CORPORATION (MK): ALLEGED DISCRIMINATION  
AGAINST A CORPORATE WELDING ENGINEER FOR RAISING WELDING  
CONCERNS (OI CASE NO. 3-97-013)

Enclosed is a copy of the information requested during the meeting with Ms. Mary Jane Cooper and Mr. Edwin Stier relevant to the subject investigation for your use. Also, please share this information with the technical staff and/or the Office of Enforcement as deemed appropriate.

Attachments: As stated

*M/31*  
CALLED MIKE STEIN. HE ALREADY  
HAD COPY. *W/S/5/98*

*EA 98-081*

SENSITIVE ALLEGATION MATERIAL

*file in OI case  
3-97-013*

**FOLLOW UP ARB: RIII-97-A-0035**

May 7, 1998

MEMORANDUM TO: J. Gavula, Chief, ESB1, DRS

FROM: J. Hopkins / R. Doornbos, RIII - OAC

*J. Hopkins 5-7-98*

SUBJECT: **FOLLOW UP ARB: RIII-97-A-0035 (Morrison-Knudsen)**

Based on ESB1's review of the OI report, two new technical concerns (# 8 & # 9) were identified. **A Follow up ARB has been scheduled for Monday, 5/11/98.** Please review the following information to prepare for the ARB:

- 1) Review the attached information. Contact the OAC before the ARB if needed.
- 2) **At the ARB be prepared to:**
  - Discuss the status of each concern (as applicable).**
  - Recommend a method to resolve each concern discussed.**
  - Recommend a completion date.**

Below are examples of methods to resolve each concern:

- A. Send to Licensee Requesting Response in \_\_\_\_\_ Days (At the ARB, be prepared to discuss the areas we expect the licensee to address.)
- B. Priority RIII Follow up
- C. Follow up During Routine Inspection Within \_\_\_\_\_ Days
- D. Refer to OI
- E. Outside NRC's Jurisdiction. (At the ARB, be prepared to discuss the basis)
- F. Too General for Follow-up. (At the ARB, be prepared to discuss the basis).
- G. Other (At the ARB, be prepared to discuss the specifics)

cc w/attachments:

- ARB Copy
- OI
- RC
- DRP Br Chief RPB6
- DRP Br Chief RPB7
- DRS Division Director For Rx Cases

*n/32  
(90)*

**SENSITIVE ALLEGATION MATERIAL**

AMS No. RIII-97-A-0035

Each stated concern or NRC identified issue should be documented on a separate sheet. Each concern must be documented and written with enough detail to allow thorough follow up.

Concern No. 8

ASME required drop weight testing performed by Morrison-Knudsen (MK) employees for welds fabricated at Point Beach and Cook were not conducted properly.

Regulatory Basis: Technical Specification Requirement for ISI Program.

I. Action Evaluation: The following method of resolution is recommended (circle):

- A. Send to Licensee Requesting Response in \_\_\_\_\_ Days. (Describe the general areas we expect the licensee to address.)
- B. Priority RIII Follow up and Closure Memo to OAC.
- C. Follow up During Routine Inspection Within \_\_\_\_\_ Days and Closure Memo to OAC.
- D. Refer to OI
- E. Outside NRC's Jurisdiction. Describe Basis Below.
- F. Too General for Follow-up. Describe Basis Below.

**G. Other (Specify) - Vendor Issue. Refer to NRR. MK Team inspection scheduled to begin 5/18/98.**

Responsible for Action - EICS to Write Referral Letter to NRR

II. Special Considerations/Instructions:

**SENSITIVE ALLEGATION MATERIAL**

AMS No. RIII-97-A-0035

Each stated concern or NRC identified issue should be documented on a separate sheet. Each concern must be documented and written with enough detail to allow thorough follow up.

Concern No. 9

During the steam generator replacement project at Point Beach, Morrison-Knudsen (MK) employees were aware that the welding procedures did not fully meet ASME Code requirements. MK management decided to retrofit the welding qualification process

Regulatory Basis: Technical Specification Requirement for ISI Program.

I. Action Evaluation: The following method of resolution is recommended (circle):

- A. Send to Licensee Requesting Response in \_\_\_\_\_ Days. (Describe the general areas we expect the licensee to address.)
- B. Priority RIII Follow up and Closure Memo to OAC.
- C. Follow up During Routine Inspection Within \_\_\_\_\_ Days and Closure Memo to OAC.
- D. Refer to OI
- E. Outside NRC's Jurisdiction. Describe Basis Below.
- F. Too General for Follow-up. Describe Basis Below.

**G. Other (Specify) - Vendor Issue. Refer to NRR. MK Team inspection scheduled to begin 5/18/98.**

Responsible for Action - EICS to Write Referral Letter to NRR

II. Special Considerations/Instructions:

SENSITIVE ALLEGATION MATERIAL

May 7, 1998

MEMO TO: J. Gavula, Chief, ESB1  
FROM: J. Hopkins, OAC *J. Hopkins 5-7-98*  
SUBJECT: FOLLOW UP ARB FOR NEW CONCERNS IDENTIFIED DURING ESB1'S  
REVIEW OF OI TRANSCRIPT.  
AMS File No. RIII-97-A-0035 (Morrison-Knudsen, Point Beach, & Cook)

Background

On 2/24/98, ESB1 completed its review of the OI report and identified one unresolved technical issue concerning ASME required drop weight testing for welds fabricated at Pt. Beach and Cook. (See attached 2/24/98 memo). A Follow up ARB was held on 3/3/98. During the ARB, an inspector indicated that there was another technical issue that should be reviewed at an ARB. The ARB Chairman (J. Grobe) decided to stop the ARB and reconvene after the other issue was reviewed by the ESB1 and the OAC.

On 3/24/98, ESB1 provided a memo describing the other technical concern. (See attached 3/24/98 memo).

Follow up ARB

A Follow up ARB has been scheduled for Monday, 5/11/98, to determine the action to resolve the concerns.

cc:

B. Clayton  
J. Grobe

SENSITIVE ALLEGATION MATERIAL

*n/33*  
*(89)*

*R*

10/22/98

EA 98-081

6 PAGES + COVER

OPTIONAL FORM 99 (7-90)

TO: **FAX TRANSMITTAL** # of pages ▶ 7

FROM: In MIKE STEIN From CHUCK WHEEL

Dept / Agency \_\_\_\_\_ Phone # \_\_\_\_\_

Fax # \_\_\_\_\_ Fax # \_\_\_\_\_

NSN 7540 01 317 7368 5098 101 CENTRAL SERVICES ADMINISTRATION

ATTACHED IS LETTER FROM MARRISON-KNUDSEN (EA 98-081) REQUESTING THAT INVESTIGATION REPORT BY STEIN, ANDERSON AND MARIONE BE WITHHELD FROM PUBLIC DISCLOSURE. PLEASE ADVISE ON HANDLING. I HAVE ORIGINAL WITH RISEID SEAL.

THANKS

CHUCK

cc: B. BERSON

n/34  


**MORRISON KNUDSEN CORPORATION**

MK FERGUSON PLAZA  
1500 WEST 3RD STREET  
CLEVELAND, OHIO U.S.A. 44113-1406  
PHONE: (216) 523-5606  
FAX: (216) 523-8147  
E-MAIL: richard.edmister@mk.com

**RICHARD R. EDMISTER**  
ASSOCIATE GENERAL COUNSEL  
ENGINEERS & CONSTRUCTORS

October 13, 1998

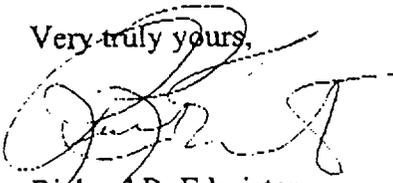
Mr. John A. Grobe, Director  
Division of Reactor Safety  
U.S. Nuclear Regulatory Commission  
Region III  
801 Warrenville Road  
Lisle, Illinois 60532-4351

Dear Mr. Grobe:

This letter represents our application pursuant to Section 10 C.F.R. § 2.790 for exemption of the investigative report forwarded under separate cover entitled, "Allegations of Retaliatory Actions by Morrison Knudsen Management Against the Group Welding Engineer" dated October 1998 by Stier, Anderson & Malone.

Mr. Zarges' affidavit supporting the request for exemption is enclosed. The report and supporting documentation is voluminous and is being transmitted under separate cover by Stier, Anderson & Malone.

Very truly yours,



Richard R. Edmister

RRE:fyb  
Enclosure

OCT 19 1998

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of:

Apparent Violation of Employee  
Discrimination Requirements  
(U.S. Department of Labor  
Case Nos. 97-ERA-34 and ARB 98-016)

NRC Office of Investigations  
Case No. 3-97-013

AFFIDAVIT OF THOMAS H. ZARGES  
Pursuant to 10 C.F.R. § 2.790

City of Cleveland )  
 ) SS:  
State of Ohio )

I, Thomas H. Zarges being duly sworn, states as follows:

1. I am President and Chief Executive Officer for Morrison Knudsen Corporation's Engineers and Constructors Group located in Cleveland, Ohio. In that capacity I am responsible for the operational and managerial matters of the Energy Division, which performs, among other work, nuclear construction and maintenance.
2. Morrison Knudsen Corporation is voluntarily providing the Nuclear Regulatory Commission (NRC) with multiple copies of a Report by Stier, Anderson & Malone

entitled, "Allegations of Retaliatory Actions by Morrison Knudsen Management Against the Group Welding Engineer" dated October 1998. This Report consists of three volumes and approximately 11,000 pages of supporting documentation. The Report and its exhibits contain throughout sensitive, confidential, commercial and technical information that could cause great harm to Morrison Knudsen if it were made publicly available as well as personal information of a private nature. Accordingly, Morrison Knudsen requests that the NRC withhold this information, developed and owned by them, from public disclosure pursuant to 10 C.F.R. § 2.790 and its regulations. This affidavit supplies the reasons why this information should be withheld from public disclosure as required by the regulation.

3. The complete version of this Report and back-up material containing the sensitive confidential information which Morrison Knudsen requests that the Commission treat as proprietary are transmitted separately. A redacted version is not available as the Report deals with the confidential internal procedures and technical operations developed by the company throughout the Report and the proprietary activities of the company and its employees in developing, implementing and monitoring these procedures. The Report focuses upon these procedures and how they evolved and developed, as well as the procedures themselves. The confidential information has been interwoven and dispersed throughout the Report and findings. Substantial redactions would be necessary to protect this information. The investigators' logic and findings are complex and turn upon fine technical points and distinctions. Consequently redaction would very likely mislead or confuse readers and diminishes the Report's usefulness. This would cause harm to the process and the Company.
4. In conducting the investigation numerous recorded interviews were conducted of employees of the company and others who reasonably understood that their comments with regard to others were to be used only within the context of this investigation. It would constitute a personal invasion of their privacy to publish these interviews and

extracted comments by making public disclosure of this information. Complete transcriptions of all interviews are an important part of the accompanying backup documentation. Identifiable extractions and inferences are embodied within the Report. I believe that public disclosure of this information, which many people freely provided in candor under the above circumstances may diminish their and others willingness to be so forthcoming in responding to future investigators' questions and to be less cooperative in volunteering information. Making this available for public inspection and publication may decrease the generally cooperative spirit that attended this investigation and chill our ability to learn of sensitive, essential information in future matters. This would certainly cause harm to the operation of the company.

5. I am familiar with the sensitive commercial information contained in the Report and its supporting documents. I am authorized to speak to the practice of Morrison Knudsen and its subsidiaries in maintaining such information confidential and to the harm that would befall them if it were publicly disclosed.
6. This Report contains the method of development and procedures by the company for replacing steam generators at nuclear facilities and copies of many of the proprietary company procedures in performing welding on the vessels. Morrison Knudsen does not disclose this type of information to the public and it is not available through public sources. Morrison Knudsen employees sign non disclosure agreements. Administrative and Quality Procedure manuals are serially numbered and issued to key employees.
7. The rationale and basis for not disclosing this type of information is that the information is commercially sensitive to the conduct of Morrison Knudsen in performing the welding for the removal and replacement of steam generators in nuclear facilities. Morrison Knudsen is one of two companies currently performing this type of work. The contracts

are typically let only to companies pre-qualified by the utility to perform this type of work. Pre-qualification is based in large part on past experience as applied through the use of our welding procedures. These procedures provide MK with a corporate advantage in performing the work on a quality basis in less time and lower cost than our competition. The welding procedures contain technical specifications controlling the method of welding. These welding procedures are unique to Morrison Knudsen and have been developed at the Company's expense over many years.

8. The rationale and basis for protecting from disclosure other procedures is that Steam Generator Replacement contracts are typically awarded based on the lowest proposed cost to perform the work within a very tight schedule. If the information contained in this Report and its supporting documents became available to our competitors, those parties would learn of the administrative, construction and quality procedures of the company and way the company is organized and operates which has been developed at a great cost over the course of many years. Many of the procedures provide specific information relating to how MK performs construction activities on nuclear projects and achieves its competitive cost and schedule advantage while maintaining its quality standards. We consider our organization, programs and procedures, that is, the way we execute a project, to be an important part of our competitive position and this information should therefore remain confidential.
9. This information is not available from public sources and our competitor does not make available to us similar information.
10. Accordingly, the information included in Stier, Anderson & Malone's Report entitled, "Allegations of Retaliatory Actions by Morrison Knudsen Management Against the Group Welding Engineer" dated October 1998, and its supporting documentation, is being transmitted in multiple copies to the Commission in confidence under the provisions of 10 C.F.R. §2.790 with the understanding that it will be received and held in

confidence by the NRC and withheld from public disclosure.

*Tom Zarges*

\_\_\_\_\_  
Thomas H. Zarges

State of Ohio

County of Cuyahoga

Sworn to before me this 12<sup>th</sup> day of October 1998

*Frances E. Buford* \_\_\_\_\_ Notary

FRANCES E. BUFORD, Notary Public  
State of Ohio  
My Commission Expires Nov. 20, 1999

R

**From:** Michael Stein -OE  
**To:** C. H. Weil III  
**Date:** Mon, Dec 28, 1998 9:22 AM  
**Subject:** Re: Morrison Knudsen Discussion Topics

Chuck,

I rereviewed the letter with the discussion topics for MK. Your 4 bullets look good. I would just add:

A. How the 1996 Performance appraisal differs from Arteyet's past appraisals.

B. "areas in which the Hartford Steam Boiler Company found deficiencies."- Your sentence needs to be completed. Do we want to limit this discussion to Hartford Company. How about cases where another audit company made positive findings and the employee was rewarded or was disciplined for negative findings by another audit company.

C. Good

D. I would add the EA number of the Ft. St. Vrain finding. I think it was EA 95-079 dated 8/14/95 (Discrimination Case against MK) in which they received a SLII NOV for a hostile work environment situation created by MK supervisors at Ft. St. Vrain.

I wouldn't add any more generic topics for the company. I have some interesting questions for the 2 individuals. Chuck, what is most interesting is that the recipient of the 1995 NOV letter and the chief manager who attended the PEC for the 1995 case was Mr. Pardi.

Please call if you need any additional help.

Thanks

Mike

>>> C. H. Weil 12/24 12:17 PM >>>

I prepared a list for discussion topics for the Morrison Knudsen enforcement conference. It is the first enclosure to the attached letter. Please review and provide your comments by noon on Monday, 12/28/99. We need to have this letter in the mail ASAP.

A preconference strategy session is scheduled for Monday, January 25, 1999, at 10:00 a.m. (Central) in the IRC Conference Room.

For Jack Grobe, Linda has put the strategy meeting on your calendar for 1/25.

For Susan and Mike, the enforcement coordinator counterpart meeting conflicted with having the strategy session on Thursday, 1/21/99, and with Susan unavailable on Friday, 1/22/99, Monday 1/25/99 was the next best option.

Chuck

**CC:** H. Brent Clayton, Richard Borchardt

N/35

8



MK-FERGUSON PLAZA  
1500 WEST 3RD STREET  
CLEVELAND, OHIO U.S.A. 44113-1406  
PHONE: (216) 523-5506  
FAX: (216) 523-8147  
E-MAIL: richard\_edmister@mk.com

**RICHARD R. EDMISTER**  
ASSOCIATE GENERAL COUNSEL  
ENGINEERS & CONSTRUCTORS

TRANSMITTED BY FAX WITH  
CONFIRMING HARD COPY MAILED

January 28, 1999

Mr. Charles Wyle  
U.S. Nuclear Regulatory Commission  
Office of Investigations Field Office  
Region III  
801 Warrenville Road  
Lisle, Illinois 60532-4351

SUBJECT: MORRISON KNUDSEN CORPORATION

Dear Mr. Wyle:

Enclosed is a copy of the overheads used by Mr. Thomas Zarges in the presentation on January 27, 1999.

Very truly yours,

Richard R. Edmister

RRE:fyb  
Enclosures

11/36

# **NRC Enforcement Conference**

*January 27, 1999  
Docket Nos. 50-266; 50-301*



## ***Fort St. Vrain***

---

- ▶ MK received Level IV 10CFR50.7 violation without penalty (Aug. 14, 1995)
- ▶ Violation committed by a first line supervisor
- ▶ Believe violation was without penalty because of PSC and MK's thorough investigation and thorough and prompt corrective action
- ▶ PSC commissioned Stier Anderson Malone to perform an independent investigation



## ***Fort St. Vrain***

---

- ▶ Lou Pardi was not directly involved in Fort St. Vrain violation
- ▶ Recognized seriousness of a 50.7 violation and personally got involved in the investigation and led the development of all of MK's corrective actions



## ***Corrective Actions Resulting from Fort St. Vrain***

---

- ▶ Tom Zarges issued company-wide "Safety Alert Bulletin" stating MK policy towards protected employees
- ▶ Lou Pardi drafted Project Management Bulletin 2.9 (effective 8/24/95) requiring:
  - Each project must have procedure to address harassment and intimidation
  - Training of all MK project personnel
  - Indoctrination of all employees regarding expression of safety concerns
  - A method of collecting and dispositioning concerns



## **Corrective Actions**

- ▶ Implement comprehensive programs at Pt. Beach, St. Lucie, and Waltz Mill including:
  - Required reading of Fort St. Vrain violation and corrective actions
  - Procedures prohibiting harassment of protected personnel
  - Employee open communication procedures
  - Procedures requiring exit interviews to assure employees do not have any unreported safety concerns
  - Training and indoctrination of all MK and subcontractor personnel
  - Copies of most of these procedures are included in my letter to J.A. Grobe dated April 21, 1998



## **Corrective Actions**

- ▶ List of policies/procedures developed and implemented by MK or MK/SGT:
 

- Safety Alert Bulletin	June 6, 1995
- Project Management Bulletin No. 2.9	August 24, 1995
- Pt. Beach Equal Employment Opportunity Policy	September 1995
- Pt. Beach "Rules of Conduct on the Job"	Aug.-Sept. 1995
- Pt. Beach Procedure MSP 2.0 "Harassment of Protected Personnel", final revision	Sept. 11, 1996
- St. Lucie Procedure MCP 1.1 "Harassment of Protected Personnel", final revision	July 17, 1997
- Pt. Beach Procedure MSP 1.0 "Employee Open Communication and Condition Evaluation Requests", final revision	May 9, 1996
- St. Lucie Procedure MCP 1.2 "Employee Open Communication and Condition Evaluation Requests", final revision	July 17, 1997
- Pt. Beach "Exit/Termination Process"	Sept. 25, 1996
- St. Lucie "SGRP Personnel In-Processing and Out-Processing", final revision	Oct. 14, 1997
- Similar programs at Waltz Mill and Calvert Cliffs	



## ***Corrective Actions***

### ***Results***

- ▶ Employment and termination of over 1,500 employees on two demanding projects
- ▶ No concerns regarding safety in the work environment at St. Lucie
- ▶ One concern at Pt. Beach
  - Quickly and effectively dealt with
  - Described in detail in letter of April 21, 1998
  - Additional recent employee concerns at Waltz Mill also effectively dealt with
  - Personnel who filed concerns at both Pt. Beach and Waltz Mill were not MK employees, but they utilized MK's program to bring forth their concerns



## ***Current Apparent Violation***

- ▶ Surprised by filing of complaint
  - Sensitivity caused by Fort St. Vrain
  - Home office employee
    - Small nuclear staff 3-5 people
    - All ten year or greater employees
    - Informal office atmosphere with access to all senior management
- ▶ Initial DOL investigation provided some comfort
  - No retaliation
- ▶ Dismayed at ALJ decision
- ▶ Commissioned Stier to do independent investigation
- ▶ Stier investigation provided detailed and compelling evidence that MK **did not** commit a 50.7 violation



## ***Current Apparent Violation***

- ▶ Careful consideration of conflicting results of Stier conclusion and the ALJ decision
  - ALJ decision is flawed
    - Stier investigation extremely detailed
    - Stier investigation provided facts and insights not available to ALJ
  - Stier established four critical points
    - Artayet was not capable of performing his job
    - FAX re: DWT not available to ALJ
      - Led judge to think MK's removal was pretextual
    - Lou Pardi decided on Jan. 2 to remove Alain from Power projects, based on Alain's performance and not pretextual
    - Decision to remove Alain from work was made two weeks before QFR
      - January 2 decision made January 15 decision inevitable
- ▶ Chilling did not occur
  - Stier did not find any evidence of chilling
  - Work at Pt. Beach basically complete; DOL notice Feb. 1997
  - Small, long-term corporate nuclear staff with direct access to management



## ***Organizational Inadequacies and Corrective Action***

- ▶ Inadequate supervision of Group Welding Engineer
  - GWE now reports to Lou Pardi who has technical knowledge; can monitor performance and provide support for the GWE when needed
- ▶ To assure enhanced visibility and support of QA organization
  - Group QA Director reports directly to me
  - Daily work activities directed and supported by Lou Pardi



### ***Program to Encourage a Safety Conscious Work Environment is Operating Effectively***

- ▶ Thoroughness of our systems and procedures
- ▶ Effective implementation at Pt. Beach, St. Lucie, and Waltz Mill
- ▶ Recent review at BG&E Calvert Cliffs
  - Systems in place
  - No incidents to date
- ▶ Recent outside audit of CHO "hotline" implementation
  - System is adequate
  - No incidents to date
- ▶ We believe our program has and will continue to prevent any possible "chilling effect" from developing at our field sites and in our home office



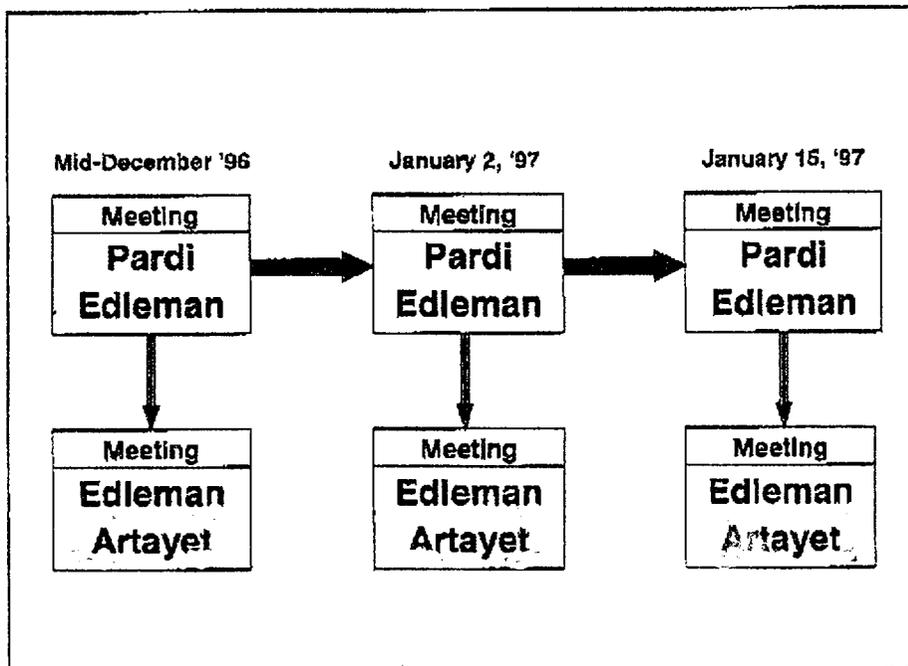
### ***Improved Quality and Welding Program***

- ▶ Refinements in Quality Program as a result of internal and external audits
  - DE&S contracted to do two in-depth audits
  - "Best practice" recommendations implemented
  - Improvement in Part 21 Procedure implemented
- ▶ Improvements in Welding Procedure Specifications
  - Previous procedures complex with widely ranging applications
  - Revised procedures are/will be simplified
  - Very limited applications of each procedure



### **Enforcement Is Not Warranted**

- ▶ MK did not retaliate against Alain Artayet
- ▶ Decision to remove Alain from Power Division work was the decision that ultimately led to employment action taken
- ▶ Lou Pardi decision was made strictly on performance issues and was not pretextual
- ▶ Decision made on January 15 was not in retaliation for Artayet having written the QFR



TO: Brent Clayton / Bruce Berman

FROM: Mike Stein

(301) 415-168

EA REQUEST & ENFORCEMENT STRATEGY FORM

Del Case: \_\_\_ 1st Panel: \_\_\_ Post Panel: \_\_\_ Re-Panel: \_\_\_ Post Caucus: \_\_\_ Re-Caucus:  Other: \_\_\_

EATS Data Entry Information

EA 98-081

# 6

Date of Request: 2/8/99 Region: III Case Type: R Small Entity  No  Yes

Licensee: Vendor: Morrison Knudsen (Contractor) Facility (Unit)/Location: Corporate MK

Doc. No.: N/A Last Day of Insp.: ID Date: 10/98 <sup>Stein</sup> Report date

Date of Ref.: 3/13/97 OI Rpt No.: 3-97-013 OI Rpt Date: 2/16/98 Conf. Closed?:

Referral to DOJ: Action Date DOJ: Recommended Action: D (Decline) or P (Prosecute)

Summary of Facts: Alleged discrimination against a former Corporate Group vendor Engineer for safety concerns

Inspection Rpt No. Keywords for SLIVs and NCVs:

REMARKS FOR EATS ON BACK

ES: N45

Significance: Actual \_\_\_ Potential \_\_\_ Regulatory \_\_\_; SALP Area(s) \_\_\_

1. SL \_\_\_ Supp \_\_\_

Details: Caucus Participants included Mike Stein & Bill Buchardt (OE); Susan Chirdakel (OGC);

Bruce Berman, Jack Gube, Brent Clayton, Chuck Wast (Region III), Jim Cavala (Region III);

OGC described the legal basis to proceed on discrimination case and its conclusion

that a reasonable person could conclude that discrimination occurred.

OE, OGC & Region III reached tentative conclusion that a 50.7 violation occurred.

Bruce Berman to prepare an analysis during the week of 2/15/99 to Mike S & Susan C

for review and changes. Region III to look at the STP order issued on

June 9, 1998 (EA 97-341) as model.

Tentative action is to speak with MK about a confirmatory order

to improve MK's E.C.P. via training and third party review

Still awaiting review of transcript & comments from Complainant and their MK review of

Complainant's comments. Additional material by MK.

- 2. A. Risk Significant Case? 2. B. Regulatory Significance? 3. Prior Escalated Action? 4. Lic. ID? 5. Corrective Action? 6. Conference Needed? 7. CP? 8. Discretion or Order Needed? 9. Willfulness Involved? 10. Program Office Represented? 11. OGC Represented? 12. Action? 13. Comments:

COPY TO: J. GROSE B. BERMAN R. PAUL J. GAVULA B. CLAYTON

14. Approved: B-9 Date: 2-9-99 Faxed:

From: Michael Stein *OE Res III* *OE*  
To: Charles H. Weil, H. Brent Clayton, James Lieberm...  
Date: Mon, Mar 1, 1999 3:41 PM  
Subject: Fwd: MK Assessment

Folks,

Bruce Berson just prepared the assessment of the MK case. I will be putting a copy on the OE strategy form for EA 98-081. Please distribute this document in the Region III to other parties, i.e. the technical staff and perhaps OI.

Also, Maitiri, this is a good summary of the case. Please send this information to the Point Beach and perhaps the vendor inspection folks for their information. I would be happy to answer any questions you might have on this case.

I understand that Mr. Artyet will be sending us his comments on the transcript and that we will then get comments on his submittal from MK. Afterwards we should reconvene to see if our strategy is still valid.

Mike

*MB*

OE

From: Michael Stein } OE  
To: James Lieberman }  
Date: Wed, Mar 3, 1999 3:02 PM  
Subject: MK

Today was a very meeting filled union day- I received your e-mail about my opinion on MK. My opinion actually is that we have a stronger case than that outlined by Bruce but essentially he hit on all the major points. I am available tomorrow or Friday to discuss this case and both days are very light on Union activities. Friday morning would probably be best for a verbal briefing.

There is a question on the release of documents given to us by MK related to the complainants false statements. The question is can we release these documents to him. OGC advised that Region III could release them to the complainant. I am more hesitant given the nature of this allegation against the complainant and the fact that the information was supplied to us after the PEC. The Region is looking for some advice from OE, I would advise at this point to release given that OGC thinks it is appropriate and has documented their position in an e-mail to Chuck Weil.

Mike

11/39

CE

From: James Lieberman <sup>OE</sup>  
To: Charles H. Weil <sup>CE</sup>  
Date: Thu, Mar 4, 1999 4:31 PM  
Subject: Re: RELEASE OF MORRISON KNUDSEN MATERIAL

mike stein will be getting back to you, this should be considered in the allegation porcess and maybe given to dol in which case i would not give it further distribution

>>> Charles H. Weil 03/04 1:44 PM >>>

This morning I spoke to Rich Paul, OI:R111, about releasing to the complainant the additional material about him submitted by Morrison Knudsen after the conference. Rich did not have an objection to releasing the material if agreed by OE. As previously reported, OGC does not object to releasing. Need your decision soonest to that I can tell complainant whether, or not, his requested material will be sent to him. Chuck

N/40

OE

From: Michael Stein -OE  
To: Carl Mohrwinkel, Edward Baker -NLR  
Date: Thu, Mar 11, 1999 3:31 PM  
Subject: Allegations question

Region III has an issue dealing with the release of information regarding a DOL Complainant to the Complainant relative to the Complainant's false statements to a DOL ALJ. The Complainant is currently reviewing the PEC transcripts and wants the information submitted to the NRC as promised by statements made by the PEC participants related to Complainant's veracity in the DOL process. I spoke with Jim and he asked me to contact you because we both realized this question has come up before and that there may be Allegations Guidance in this area. Could you send me any guidance on release of such information to the subject of the allegation.

I am planning to ask Region III to work this issue through allegations (Jay Hopkins) because Region III may want to refer this to the DOL OIG. From what I understand, OGC does not have a problem with releasing the information but I believe that the Regional Counsel needs to get involved in this allegation issue as well.

Please give me a call at your convenience.

Mike

CC: Charles H. Weil

3/11/99 COPIES TO: BRUCE BERSON  
JAY HOPKINS  
JIM GROVULA  
JACK GROBE  
BRENT CLAYTON  
RICH PAUL

n/4/

WE

**From:** Michael Stein -OE  
**To:** Edward Baker NR  
**Date:** Mon, Mar 15, 1999 7:32 AM  
**Subject:** Re: Allegations question

Sorry Telephone number 415-1688. Predecisional enforcement Conference transcript. The transcript was sent to the DOL complainant and at this PEC, MK made allegations that the complainant lied at the DOL hearing. There is a 2/12 letter from MK to Jack Grobe discussing this allegation and a 2/18 cover memo from Brent Clayton to Rich Paul OI forwarding the allegation to OI. The question is can we release this to the Complainant for his review. OGC says release and we are a bit more hesitant. Please forward any guidance you may have in allegations related to such a release. I asked Chuck Weil in Region III to discuss this with Jay Hopkins and Bruce Berson as well. Thanks.

Mike

>>> Edward Baker 03/11 5:33 PM >>>  
What's your phone number? What is a PEC transcript?

>>> Michael Stein 03/11 4:31 PM >>>  
Region III has an issue dealing with the release of information regarding a DOL Complainant to the Complainant relative to the Complainant's false statements to a DOL ALJ. The Complainant is currently reviewing the PEC transcripts and wants the information submitted to the NRC as promised by statements made by the PEC participants related to Complainant's veracity in the DOL process. I spoke with Jim and he asked me to contact you because we both realized this question has come up before and that there may be Allegations Guidance in this area. Could you send me any guidance on release of such information to the subject of the allegation.

I am planning to ask Region III to work this issue through allegations (Jay Hopkins) because Region III may want to refer this to the DOL OIG. From what I understand OGC does not have a problem with releasing the information but I believe that the Regional Counsel needs to get involved in this allegation issue as well.

Please give me a call at your convenience.

Mike

CC: Charles H. Weil, H. Brent Clayton, James Lieberm...

7/42

OT

EICS

Check for  
EA file &  
allegation to

EA 98-081

March 18, 1999

Mr. Michael G. Connors  
Regional Administrator  
U.S. Department of Labor-OSHA  
230 S. Dearborn Street, Room 3244  
Chicago, IL 60604

Dear Mr. Connors:

Mr. John Hermanson of your staff spoke with Mr. Joseph Ulie of my staff regarding an allegation that false information was provided to the Department of Labor during an Administrative Law Judge Hearing about employment discrimination involving the Morrison Knudsen Company (97-ERA-34 and ARB98-016). Enclosed please find the backup information related to this allegation.

If you have any questions about the information provided, please contact me at (630) 829-9672.

Sincerely,

Richard C. Paul, Director  
Office of Investigations  
Field Office, Region III

Enclosure: As stated

Enclosures released  
in previous response,  
Appendix C

11/43

To receive a copy of this document, indicate in the box "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	OI:RIII	OI:RIII				
NAME	Julie:nh	RPaul	RCF			
DATE	03/18/99	03/18/99				

OFFICIAL RECORD COPY

copy to OG 5/15/99

OE

**From:** Michael Stein — OE  
**To:** Charles Weil — III  
**Date:** Fri, Mar 19, 1999 8:44 AM  
**Subject:** Re: LETTER TO MK COMPLAINANT

Nice letter. For what its worth, you have my concurrence. I take it that 15 days after receipt of this letter and their response we will send everything to MK, give them additional time, take that MK response and caucus one last time. In the meantime should we not be considering drafting a confirmatory order against MK?

Thanks

Mike

>>> Charles Weil 03/18 4:17 PM >>>

Earlier this afternoon I sent you an "e-mail" with a draft letter to the MK complainant attached to that e-mail and asked for your review and comments. Within the last hour I've talked to the complainant and had to make a slight alteration to the original draft. Please disregard FILE: G:\EICS\98-081.COM and use the attached, G:\EICS\98-081.CO2.

Sorry for any inconvenience, but you now have the latest and greatest. Chuck

**CC:** Richard Borchardt

1/44

**NRC Form 8-C**

(4-79)

NRCM 0240

**COVER SHEET FOR CORRESPONDENCE**

Use this Cover Sheet to Protect Originals of Multi-Page Correspondence.