

# The Light company

Houston Lighting & Power

P.O. Box 1700 Houston, Texas 77001 (713) 228-9211

September 8, 1988  
ST-HL-AE-2771  
File No.: G3.3  
10CFR50

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

South Texas Project Electric Generating Station  
Units 1 and 2  
Docket Nos. STN 50-498, STN 50-499  
Response to NRC Bulletin 88-05 and Supplements 1 and 2

Reference 1: NUMARC, "Report on Generic Analysis and Evaluations of Suspect Material Identified in NRC Bulletin 88-05," dated July 21, 1988 (attached to Bulletin 88-05 Supplement 2).

Houston Lighting & Power Company (HL&P) has received and addressed NRC Bulletin 88-05 and its Supplements 1 and 2 concerning materials supplied by West Jersey Manufacturing Company (WJM), Piping Supplies, Inc. (PSI) and Chews Landing Metal Manufacturers Incorporated (CLM).

According to Supplement 2:

1. Holders of full power operating licenses are required to report the results of their records review, testing, and analysis performed as of the date of this supplement in accordance with the 120 day reporting requirement specified in Paragraph 1 of Bulletin 88-05. This requirement applies to Unit 1.
2. Holders of construction permits are required to report the results of the records review, testing, and analysis prior to the planned fuel load date. This requirement applies to Unit 2.

## Unit 1

At the time of receipt of Supplement 2, HL&P had completed record review, testing and analysis efforts for WJM, PSI, and CLM flanges. In addition, the review of records for the non-flange product forms was under way and no non-flange products from WJM, PSI, or CLM had been identified. HL&P has identified one hundred ten (110) flanges installed in Unit 1 that were manufactured by WJM. No stainless steel products were identified.

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In-situ hardness testing was performed in conjunction with the NUMARC generic testing program. For the flanges installed in Unit 1, twenty-one (21) values are below the 137 Brinell Hardness Number (BHN) lower limit and nineteen (19) are above the BHN upper limit (187 BHN for SA105 material and 197 BHN for SA350/LF2 material). HL&P notified the NRC of these results and prepared Justifications for Continued Operation (JCO's) in accordance with the requirements of Supplement 1.

Where the measured hardness, converted to Brinell, was less than 137 BHN, JCO's were prepared on the conservative assumption that the tensile strength corresponds to the hardness value. In all cases, substantial safety margins exist for the strength values associated with the tested hardness values. Later, the NUMARC report (Reference 1) indicated that the materials are acceptable for ASME Code applications as low as 350 Leeb hardness measured by the EQUOTIP test.

As noted on Attachment 2, hardness values for seven SA 105 flanges exceeded the upper limit of 187 BHN specified in Supplement 1 in Bulletin 88-05. However, since the hardness test is not a requirement of SA 105 and the material has no upper limit on strength, marginal deviations of hardness can be expected on retest. The NUMARC report has indicated that higher strength and hardness is not a concern in SA 105 material.

SA 350/LF2 flanges have been used on SITEGS interchangeably with the SA 105 flanges. When tested on the accessible surface (circumference), twelve SA 350/LF2 flanges appeared to have higher hardness values than the limit of 197 BHN required by the specification. Specimens of a heat that had exhibited this behavior were sectioned and tested across their cross-section by EQUOTIP and laboratory methods. The apparent high hardness was demonstrated to be a surface phenomenon; the volume of the material complied with the material specification for hardness.

Attachment 1 is a tabulation of the flanges installed in Unit 1.

Attachment 2 is a tabulation of the results of Unit 1 flange in-situ testing.

Unit 2


HL&P has completed record review and testing for flanges on Unit 2. The record review for non-flange product forms is complete with no items identified.

HL&P is conducting an evaluation of the results of the Unit 2 in-situ testing as well as the NUMARC generic testing. All test results fall within the range considered acceptable for code material per the NUMARC report. HL&P will obtain concurrence of the Authorized Inspection Agency and the State of Texas with the resolution of the test results. The final report will be provided prior to Unit 2 fuel load.

In addition, unused WJM/PSI flanges are being retained in the warehouse. Unless instructed otherwise, HL&P plans to scrap unused WJM/PSI material regardless of the results of the test program.

HL&P will continue to supply review and testing results to the industry via the INPO Network and the NUMARC data base.

If you should have any questions on this matter, please contact Mr. S. M. Head at (512) 972-8392.

  
J. H. Goldberg  
Group Vice President  
Nuclear

JHG/PLW/n1

Attachments: 1) Flanges Installed in Unit 1  
2) Results of Unit 1 In-Situ Testing

cc:

Regional Administrator, Region IV  
Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 1000  
Arlington, TX 76011

George Dick  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Jack E. Bess  
Resident Inspector/Operations  
c/o U. S. Nuclear Regulatory Commission  
P. O. Box 910  
Bay City, TX 77414

Don L. Garrison  
Resident Inspector/Construction  
c/o U. S. Nuclear Regulatory Commission  
P. O. Box 910  
Bay City, TX 77414

J. R. Newman, Esquire  
Newman & Holtzinger, P.C.  
1615 L Street, N.W.  
Washington, DC 20036

R. L. Range/R. P. Verret  
Central Power & Light Company  
P. O. Box 2121  
Corpus Christi, TX 78403

R. John Miner (2 copies)  
Chief Operating Officer  
City of Austin Electric Utility  
721 Barton Springs Road  
Austin, TX 78704

R. J. Costello/M. T. Hardt  
City Public Service Board  
P. O. Box 1771  
San Antonio, TX 78296

Rufus S. Scott  
Associated General Counsel  
Houston Lighting & Power Company  
P. O. Box 1700  
Houston, TX 77001

INPO  
Records Center  
160 Circle 75 Parkway  
Atlanta, Ga. 30339-3064

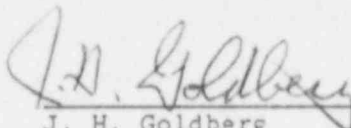
Dr. Joseph M. Hendrix  
50 Bellport Lane  
Bellport, NY 11713

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter	)	
	)	
Houston Lighting & Power	)	Docket Nos. 50-498
Company, et al.,	)	50-499
	)	
South Texas Project	)	
Units 1 and 2	)	

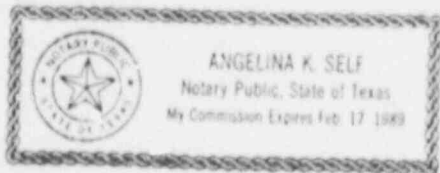
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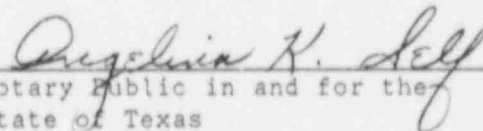
J. H. Goldberg being duly sworn, hereby deposes and says that he is Group Vice President, Nuclear of Houston Lighting & Power Company; that he is duly authorized to sign and file with the Nuclear Regulator, Commission the attached response to NRC Bulletin 88-005, is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge and belief.



\_\_\_\_\_  
J. H. Goldberg  
Group Vice President, Nuclear

Subscribed and sworn to before me, a Notary Public in and for The State of Texas this 8<sup>th</sup> day of SEPTEMBER, 1988.



  
\_\_\_\_\_  
Notary Public in and for the  
State of Texas

ATTACHMENT 1  
TABULATION OF MATERIAL INSTALLED IN UNIT 1

Column Key

Heat - Heat number of the flange

RIP - Receiving Inspection Package Number

Size - Self explanatory

Rating - Flange Pressure Rating

Description - Type of flange product form

Spec/Grade - ASME SA Material Specification

System Line No. - STP system designator followed by piping line number

Item - Isometric drawing unique item number

Bulk/VDP - Identifies whether flange was bulk purchased or supplied by an equipment vendor

Weld No. - Identifies the attaching field weld number if applicable

TPNS No. - The STP Total Plant Numbering System location identifier

Supplier - Identifies the vendor who supplied the material/equipment containing material as well as any other intermediate suppliers in the chain.

Mfg. - Identifies the manufacturer who certified the material

Remarks - Primarily additional identifying information such as serial numbers

MRR - Material Received Report (Warehouse receiving document) number

PO Number - Purchase Order Number

CMTR Date - The date of certification on the CMTR

Unit - Self explanatory

ID Date - The date of location identification

SOUTH TEXAS PROJECT  
HEATING DATABASE  
BY UNIT & HEAT NO.

ATTACHMENT /  
ST-HL-AE-2771  
PAGE / OF

HEAT	PIP	SIZE	NOTING	DESCRIPTION	SPEC/GRADE	SYSTEM	BULK WELD	ITER	WBP	NO.	TPMS NO	SUPPLIER	REG.	REMARKS	PH	CNTR	UNIT	DATE	TOTAL
1785	7825	1.8	158	RF SW FLC	SA358/1F2	CC7548	951	B	FWS445	ICC7548-BB-A1		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/17/88
1785	7825	1.8	158	RF SW FLC	SA358/1F2	CC7548	951	B	FWS444	ICC7548-BB-A1		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/17/88
1785	7825	1.8	158	RF SW FLC	SA358/1F2	CC7548	1481	B	FWS447	ICC7548-CA-A1		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/17/88
1785	7825	1.8	158	RF SW FLC	SA358/1F2	CC7548	1851	B	FWS446	ICC7548-CA-A1		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/17/88
1785	7825	1.8	158	RF SW FLC	SA358/1F2	CC1282	41	B	FWS889	CC1282-A-01		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/17/88
1785	7825	1.8	158	RF SW FLC	SA358/1F2	801811	114	B	FWS886	801811-C-A81		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
1785	7825	1.8	158	RF SW FLC	SA358/1F2	801811	118	B	FWS888	801811-B-A81		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
1785	7825	1.8	158	RF SW FLC	SA358/1F2	801811	119	B	FWS819	801811-B-A81		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
1785	7825	1.8	158	RF SW FLC	SA358/1F2	801811	128	B	FWS828	801811-E-A81		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1325	7851	B	FWS829	CH1325-A1-A22		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1449	82	B	FWS828	CH1449-B-A89		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1445	188	B	FWS838	CH1445-H-A33		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1338	84	B	FWS843	CH1338-C-A84		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1338	85	B	FWS832	CH1338-C-A84		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1338	92	B	FWS831	CH1338-F-A84		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1338	4451	B	FWS829	CH1338-C-A81		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1443	113	B	FWS828	CH1443-C-A24		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	152	RF SW FLC	SA358/1F2	CH1444	851	B	FWS839	CH1444-A-A24		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1317	114	B	FWS881	CH1317-F-A24		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1214	117	B	FWS824	CH1214-C-A24		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/21/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1221	98	B	FWS881	CH1221-A-A18		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1323	124	B	FWS881	CH1323-A-A28		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1322	125	B	FWS838	CH1322-H-A28		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1447	115	B	FWS848	CH1447-B-A17		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA358/1F2	CH1325	4351	B	FWS823	CH1325-B		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA185	CC1519	751	B	FWS111	CC1519		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA185	CC1478	151	B	FWS113	CC1478		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA185	CC1516	851	B	FWS181	CC1516-A1		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA185	CC1493	451	B	FWS187	CC1493-B-A1		LOUIS P. CAMUSO	MJM		819515	4400	84/18/85	1	64/22/88
5488	7825	1.5	158	RF THRD FLC	SA185	CC1448	NA	Y	MA	IP5V4418		LOUIS P. CAMUSO	MJM	S/M 778243-37-1	821872	4835	82/18/85	1	64/22/88
5488	7825	1.5	158	RF THRD FLC	SA185	CC1441	NA	Y	MA	IP5V4417		LOUIS P. CAMUSO	MJM	S/M 778243-38-1	824294	8835	82/18/85	1	87/25/88
5488	7825	1.8	158	LAP JOINT FLC	SA185	CH1448	NA	Y	MA	IP5V4718		LOUIS P. CAMUSO	MJM	S/M 778243-82-1	824514	4835	81/04/85	1	64/22/88
5488	7825	1.8	158	LAP JOINT FLC	SA185	CH1457	NA	Y	MA	IP5V4941		LOUIS P. CAMUSO	MJM	S/M 778243-84-1	824514	4835	81/04/85	1	64/22/88
5488	7825	1.8	158	LAP JOINT FLC	SA185	CH1449	NA	Y	MA	IP5V4918		LOUIS P. CAMUSO	MJM	S/M 778243-88-1	824514	4835	81/04/85	1	64/22/88
5488	7825	1.8	158	LAP JOINT FLC	SA185	CH1459	NA	Y	MA	IP5V4941		LOUIS P. CAMUSO	MJM	S/M 778243-87-1	824514	4835	81/04/85	1	64/22/88
5488	7825	1.8	158	LAP JOINT FLC	SA185	CH1458	NA	Y	MA	IP5V4918		LOUIS P. CAMUSO	MJM	S/M 778243-88-1	824514	4835	81/04/85	1	64/22/88
5488	7825	1.5	158	RF SW FLC	SA185	CH1219	93	B	FWS831	CH1219-F-A18		LOUIS P. CAMUSO	MJM	S/M 778243-37-1	814286	8835	81/22/85	1	64/22/88

SOUTH TEXAS PROJECT  
HEATLDC DATABASE  
& HEAT NO.

ATTACHMENT 1  
ST-HL-AE-2771  
PAGE 2 OF 4

HEAT	RIP	SIZE	BRATING	DESCRIPTION	SPEC/GRADE	SYSTEM	BULK WELD	TP. NO	SUPPLIER	REF.	REMARKS	PD	CRTR	UNIT	DATE	TOTAL
AA1-84	5015	.75	150	RF SW FLG	SA185	CH1219	94		COLFALLOT	MJR					84/22/88	
AA1-84	5015	.75	150	RF SW FLG	SA185	CH1498	23F1		COLFALLOT	MJR					84/22/88	
AA1-84	5015	.75	150	RF SW FLG	SA185	CH1125	134		COLFALLOT	MJR					84/22/88	
AA1-84	5015	.75	150	RF SW FLG	SA185	CH1124	138		COLFALLOT	MJR					84/22/88	
AA1-84	5015	.75	150	RF SW FLG	SA185	CH1125	133		COLFALLOT	MJR					84/22/88	
AA1-84	8931	1.8	150	LAP JOINT FLG	SA185	CH1455	MA		J.C. LOMERGAN	MJR	S/N 7788243-81-1				84/22/88	
AA1-84	5015	.75	150	RF SW FLG	SA185	AF8055	23F1		COLFALLOT	MJR					84/22/88	
AA1-84	5015	.75	150	RF SW FLG	SA185	CC1314	4F1		COLFALLOT	MJR					84/22/88	
AA1-84	5015	.75	150	RF SW FLG	SA185	CC1582	29F1		COLFALLOT	MJR					84/22/88	
AA1-84	5015	.75	150	RF SW FLG	SA185	CC1495	1F1		COLFALLOT	MJR					84/22/88	
AA1-84	8922	1.8	150	RF THRB FLG	SA185	CC1441	MA		LOUIS P. CARUSO	MJR	778817-28-1				84/22/88	
BWC	7855	1.5	1500	RF SW FLG	SA185	AF1818	8Y		CAPITOL PIPE	MJR					84/27/88	
BWC	7855	1.5	1500	RF SW FLG	SA185	AF1824	91		CAPITOL PIPE	MJR					84/27/88	
BWC	7855	1.5	1500	RF SW FLG	SA185	AF1822	91		CAPITOL PIPE	MJR					84/27/88	
BWC	7855	1.5	1500	RF SW FLG	SA185	AF1838	92		CAPITOL PIPE	MJR					84/27/88	
CHY	1783	.75	600	RF SW FLG	SA185	CC1519	8F1		RCJUNKIN	MJR					84/27/88	
CHY	1783	.75	600	RF SW FLG	SA185	CC1478	2F1		RCJUNKIN	MJR					84/27/88	
CHY	1783	.75	600	RF SW FLG	SA185	CC1587	9F1		RCJUNKIN	MJR					84/27/88	
CHY	1783	.75	600	RF SW FLG	SA185	CC1483	5F1		RCJUNKIN	MJR					84/27/88	
CHY	1783	.75	600	RF SW FLG	SA185	CC1582	38F1		RCJUNKIN	MJR					84/27/88	
CHY	1783	.75	600	RF SW FLG	SA185	CC1514	5F1		RCJUNKIN	MJR					84/27/88	
CHY	1783	.75	600	RF SW FLG	SA185	CC1498	24F1		RCJUNKIN	MJR					84/27/88	
CHY	1783	.75	600	RF SW FLG	SA185	CC1495	2F1		RCJUNKIN	MJR					84/27/88	
CHY	1783	1.5	900	RF SW FLG	SA185	AF1853	22		RCJUNKIN	MJR					84/27/88	
CHY	18812	3.0	150	RF THRB FLG	SA185	LO1878	AI-1		CUTON ALLOT	MJR					84/27/88	
CHY	18812	3.0	150	RF THRB FLG	SA185	LO1880	AI-1		CUTON ALLOT	MJR					84/27/88	
CHY	18812	3.0	150	RF THRB FLG	SA185	LO1879	AI-1		CUTON ALLOT	MJR					84/27/88	
CHY	3085	3.0	150	RF SW FLG	SA185	CC1474	6A1-1		HUB	MJR					84/27/88	
CHY	3085	3.0	150	RF SW FLG	SA185	CC1484	M-2		HUB	MJR					84/27/88	
CHY	3085	3.0	150	RF SW FLG	SA185	CC1484	M-1		HUB	MJR					84/27/88	
CHY	3085	3.0	150	RF SW FLG	SA185	CC1474	6-2		HUB	MJR					84/27/88	
GA	1841	3.0	150	INLET FLG	SA185	301518H134	MA		E.T. WEGAND	MJR	S/N M-39 & 2725				84/27/88	
GA	1841	3.0	150	OUTLET FLG	SA185	301518H134	MA		E.T. WEGAND	MJR	S/N M-39 & 2725				84/27/88	
GA	75	3.0	150	OUTLET FLG	SA185	301518H134	MA		E.T. WEGAND	MJR	S/N M-41 & 2727				84/27/88	
GA	75	3.0	150	INLET FLG	SA185	301518H134	MA		E.T. WEGAND	MJR	S/N M-41 & 2727				84/27/88	
GA	1841	3.0	150	OUTLET FLG	SA185	301518H134	MA		E.T. WEGAND	MJR	S/N M-38 & 2723				84/27/88	
GA	1841	3.0	150	INLET FLG	SA185	301518H134	MA		E.T. WEGAND	MJR	S/N M-38 & 2723				84/27/88	
GA	1841	3.0	150	OUTLET FLG	SA185	301518H135	MA		E.T. WEGAND	MJR	S/N M-45 & 2719				84/27/88	
GA	1841	3.0	150	INLET FLG	SA185	301518H135	MA		E.T. WEGAND	MJR	S/N M-45 & 2719				84/27/88	
GA	75	3.0	150	OUTLET FLG	SA185	301518H135	MA		E.T. WEGAND	MJR	S/N M-47 & 2726				84/27/88	
GA	75	3.0	150	INLET FLG	SA185	301518H135	MA		E.T. WEGAND	MJR	S/N M-47 & 2726				84/27/88	
GA	75	3.0	150	OUTLET FLG	SA185	301518H135	MA		E.T. WEGAND	MJR	S/N M-46 & 2718				84/27/88	
GA	75	3.0	150	INLET FLG	SA185	301518H135	MA		E.T. WEGAND	MJR	S/N M-46 & 2718				84/27/88	
W8818		4.0	150	RF SW FLG	SA185	30281057131A	14		TECH ENG. TO	MJR	S/N 7585 (1 OF 2 FLGS)				84/27/88	

PROC EQUIP CO TO  
ZURN INC



MS PROJECT  
BY UNIT & HEAT NO.

ATTACHMENT 1  
ST-HL-AE-2771  
PAGE 3 OF 4

HEAT	REF	SIZE	RATING	DESCRIPTION	SPEC/GRADE	SYSTEM	LINE NO.	ITEM	WVP	NO.	WELP	SUPPLIER	MFG.	REMARKS	PNR	CNTR	DATE	UNIT	DATE	TOTAL
M881K	158	4.8	RF 50 FLG	SA18S			3828HNSP181A	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7585 (2 OF 2 FLGS)	4854	81/18/78	1	86/27/88		
M881K	158	4.8	RF 50 FLG	SA18S			3828HNSP181B	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7586 (1 OF 2 FLGS)	4854	81/18/78	1	86/27/88		
M881K	158	4.8	RF 50 FLG	SA18S			3828HNSP181B	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7586 (2 OF 2 FLGS)	4854	81/18/78	1	86/27/88		
M881K	158	4.8	RF 50 FLG	SA18S			3828HNSP181C	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7587 (1 OF 2 FLGS)	4854	81/18/78	1	86/27/88		
M881K	158	4.8	RF 50 FLG	SA18S			3828HNSP181C	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7587 (2 OF 2 FLGS)	4854	81/18/78	1	86/27/88		
T2848	158	5.8	RF 50 FLG	SA18S			3828HNSP181A	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7585 (2 OF 2 FLGS)	4841	/ / 1	87/26/88			
T2848	158	5.8	RF 50 FLG	SA18S			3828HNSP181A	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7585 (1 OF 2 FLGS)	4841	/ / 1	87/26/88			
T2848	158	5.8	RF 50 FLG	SA18S			3828HNSP181B	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7586 (1 OF 2 FLGS)	4841	/ / 1	87/26/88			
T2848	158	5.8	RF 50 FLG	SA18S			3828HNSP181B	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7586 (2 OF 2 FLGS)	4841	/ / 1	87/26/88			
T2848	158	5.8	RF 50 FLG	SA18S			3828HNSP181C	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7587 (1 OF 2 FLGS)	4841	/ / 1	87/26/88			
T2848	158	5.8	RF 50 FLG	SA18S			3828HNSP181C	14	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7587 (2 OF 2 FLGS)	4841	/ / 1	87/26/88			
M7258	158	38.8	RF 50 FLG	SA18S			3828HNSP181A	12	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7585 (2 OF 2 FLGS)	4854	81/18/78	1	86/27/88		
M7258	158	38.8	RF 50 FLG	SA18S			3828HNSP181B	12	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7586 (1 OF 2 FLGS)	4854	81/18/78	1	86/27/88		
M7258	158	38.8	RF 50 FLG	SA18S			3828HNSP181B	12	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7586 (2 OF 2 FLGS)	4854	81/18/78	1	86/27/88		
M7258	158	38.8	RF 50 FLG	SA18S			3828HNSP181C	12	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7587 (1 OF 2 FLGS)	4854	81/18/78	1	86/27/88		
M7258	158	38.8	RF 50 FLG	SA18S			3828HNSP181C	12	Y	NA		TECH ENG TO PROC EQUIP CO TO	WJM	S/N 7587 (2 OF 2 FLGS)	4854	81/18/78	1	86/27/88		



ATTACHMENT 2  
TABULATION OF UNIT 1 IN-SITU EQUOTIP  
TESTING RESULTS

Column Key

- ID Num - Unique identifying number for use by the test technicians
- TPNS Num - Total plant numbering system location identifier
- Ht. Num - Material heat number
- Size - Flange size in inches
- Spec & Grd - ASME SA specification
- Unit - Self explanatory
- Sch. Comp. - Date when 30 day time limit for completion of testing expired under terms of Supplement 1
- Access - Y: Accessible to test with Unit critical  
N: Inaccessible to test with Unit critical (inside containment)
- To Test - Date when preliminary stress calculation information was compiled, walkdowns for accessibility were performed and flange was released for testing
- Test Comp - Date when Equotip testing was performed
- Evaluated - Date when Engineering evaluation of test results was completed
- Results - Brinell hardness value after conversion from Equotip/Leeb Hardness value: \* asterisk items were those falling below 137BHN or above 187BHN (SA105) and 197BHN (SA350).
- NRC Notify - Date of NRC notification when required
- JCO Comp - Date the justification for continued operation documentation was completed
- PORC Rev. - Date of the Plant Operations Review Committee review of the JCO
- NCR Item - The Nonconformance Report item number for formal documentation of testing and evaluation

All Unit 1 testing was documented on NCR 86-126

ID.NUM.....	TPNS.NUM.....	HT.NUM.....	SIZE.....	SPEC & GRD..	UNIT	SCH	COMP.	ACCESS	TO.TEST.	TEST.COMP	EVALUATED	RESULT	NRC.NOTIFY	JCO COMP..	PORC.REV..	NCR.ITEM
3Q151MHT0134-A-BAY	3Q151MHT0134	T2040	5.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	113*	07-29-88	07-29-88	07-29-88		G13PG3
3Q151MHT0134-INLET	3Q151MHT0134	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	125*	07-29-88	07-29-88	07-29-88		G1PG2
3Q151MHT0134-OUTLET	3Q151MHT0134	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	165					G2PG2
3Q151MHT0135-A-BAY	3Q151MHT0135	T2040	5.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	116*	07-29-88	07-29-88	07-29-88		G16PG3
3Q151MHT0135-INLET	3Q151MHT0135	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	132*	07-29-88	07-29-88	07-29-88		G7PG2
3Q151MHT0135-OUTLET	3Q151MHT0135	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	120*	07-29-88	07-29-88	07-29-88		G8PG2
3Q151MHT0234-B-BAY	3Q151MHT0234	T2040	5.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	116*	07-29-88	07-29-88	07-29-88		G14PG3
3Q151MHT0234-INLET	3Q151MHT0234	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	221*	07-29-88	07-29-88	07-29-88		G3PG2
3Q151MHT0234-OUTLET	3Q151MHT0234	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	198*	07-29-88	07-29-88	07-29-88		G4PG2
3Q151MHT0235-B-BAY	3Q151MHT0235	T2040	5.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	110*	07-29-88	07-29-88	07-29-88		G17PG3
3Q151MHT0235-INLET	3Q151MHT0235	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	107*	07-29-88	07-29-88	07-29-88		G9PG2
3Q151MHT0235-OUTLET	3Q151MHT0235	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	153					G10PG2
3Q151MHT0334-C-BAY	3Q151MHT0334	T2040	5.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	112*	07-29-88	07-29-88	07-29-88		G15PG3
3Q151MHT0334-INLET	3Q151MHT0334	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	166					G5PG2
3Q151MHT0334-OUTLET	3Q151MHT0334	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	179					G6PG2
3Q151MHT0335-C-BAY	3Q151MHT0335	T2040	5.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	151					G18PG3
3Q151MHT0335-INLET	3Q151MHT0335	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	169					G11PG2
3Q151MHT0335-OUTLET	3Q151MHT0335	GA	3.0	SA105	1	08-25-88	Y	07-27-88	07-28-88	07-29-88	115*	07-29-88	07-29-88	07-29-83		G12PG2
AF1018-89	AF1018-A-A01	BWC	1.5	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	152					C1PG5

ATTACHMENT 2  
ST-HL-AE-2771  
PAGE 1 OF 1

ID.NUM	TPNS.NUM	HT.NUM	SIZE	SPEC & GRD	UNIT	SCH	COMP	ACCESS	TO	TEST	TEST.COMP	EVALUATED	RESULT	NRC	NOTIFY	JCO	COMP	PORC	REV	NCR	ITEM	
AF1022-90	AF1022-A-A01	BWC	1.5	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	142										C2PG5	
AF1026-91	AF1026-A-A01	BWC	1.5	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	155											C3PG5
AF1030-92	AF1030-A-A01	BWC	1.5	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	164											C4PG5
AF1053-23	AF1053-E-A03	CIX	1.5	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	129*	07-08-88	07-08-88	07-19-88								C6PG5
AF8055-22F1	AF8055-AA-A04	AAV-84	.75	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	159											C5PG5
CC1105-SUCT	2R161NHX101A	W6154	20.0	SA105	1	07-23-88	Y	06-22-88	06-24-88	06-24-88	166											A9
CC1106-DISCH	2R161NHX101A	W6154	20.0	SA105	1	07-23-88	Y	06-22-88	06-24-88	06-24-88	171											A10
CC1202-61	CC1202-A-A1	1705	1.0	SA350/LF2	1	07-17-88	Y	07-01-88	07-07-88	07-08-88	217*	07-08-88	07-12-88	07-19-88								C5PG3
CC1205-SUCT	2R161NHX101B	W6154	20.0	SA105	1	07-23-88	Y	06-22-88	06-24-88	06-24-88	159											A11
CC1206-DISCH	2R161NHX101B	W6154	20.0	SA105	1	07-23-88	Y	06-22-88	06-24-88	06-24-88	167											A12
CC1305-SUCT	2R161NHX101C	W6154	20.0	SA105	1	07-23-88	Y	06-22-88	06-24-88	06-24-88	164											A13
CC1306-DISCH	2R161NHX101C	W6154	20.0	SA105	1	07-23-88	Y	06-22-88	06-24-88	06-24-88	160											A14
CC1440-INLET	1PSV4610	AAV-84	.75	SA105	1	07-22-88	Y	07-06-88	07-07-88	07-07-88	171											D1PG4
CC1441-INLET	1PSV4612	AAV-84	.75	SA105	1	07-22-88	Y	07-06-88	07-07-88	07-08-88	156											D2PG4
CC1441-OUTLET	1PSV4612	AAV-84	1.0	SA105	1	08-24-88	Y	07-25-88	07-29-88	08-03-88	156											F1PG2
CC1474-G-2	CC1474-G	COX	3.0	SA105	1	07-23-88	Y	06-23-88	06-24-88	06-24-88	169											B7
CC1474-GA1-1	CC1474-GA1	COX	3.0	SA105	1	07-23-88	Y	07-19-88	07-19-88	07-20-88	172											B6
CC1478-1F1	CC1478-E-A1	AAV-84	.75	SA105	1	07-17-88	Y	06-22-88	06-24-88	06-24-88	180											A3
CC1478-2F1	CC1478-E-A1	CHV	.75	SA105	1	07-17-88	Y	06-22-88	06-24-88	06-24-88	121*	07-01-88	07-05-88	07-19-88								A4

ATTACHMENT 2  
ST-HL-AE-2771  
PAGE 2 OF 4

ID.NUM.....	TPNS.NUM.....	HT.NUM.....	SIZE.....	SPEC & GRD..	UNIT	SCH	COMP.	ACCESS	TO.TEST.	TEST.COMP	EVALUATED	RESULT	NRC.NOTIFY	JCO	COMP..	PORC.REV..	NCR.ITEM
CC1483-4F1	CC1483-B-A1	AAY-84	.75	SA105	1	07-21-88	Y	06-22-88	06-24-88	06-24-88	156						A7
CC1483-5F1	CC1483-B-A1	CHV	.75	SA105	1	07-21-88	Y	06-22-88	06-24-88	06-24-88	122*	07-01-88	07-05-88	07-19-88			A8
CC1486-H-2	CC1486-H	COX	3.0	SA105	1	07-22-88	Y	06-23-88	06-24-88	06-24-88	137						B8
CC1486-HA1-1	CC1436-HA1	COX	3.0	SA105	1	07-22-88	Y	06-23-88	06-24-88	06-24-88	163						B9
CC1490-23F1	CC1498-B-A2	AAY-84	.75	SA105	1	07-23-88	Y	06-23-88	06-24-88	06-24-88	161						B3
CC1490-24F1	CC1490-P-A2	CHV	.75	SA105	1	07-23-88	N	07-01-88	07-19-88	07-20-88	129*	07-22-88	07-21-88	08-02-88			C5PG4
CC1495-1F1	CC1495-B-A1	AAY-84	.75	SA105	1	07-30-88	N	07-01-88	07-19-88	07-20-88	153						C3PG4
CC1495-2F1	CC1495-B-A1	CHV	.75	SA105	1	07-30-88	N	07-01-88	07-19-88	07-20-88	134*	07-22-88	07-21-88	08-02-88			C4PG4
CC1502-29F1	CC1502-D-A1	AAY-84	.75	SA105	1	07-28-88	N	07-01-88	07-19-88	07-20-88	169						C1PG4
CC1502-30F1	CC1502-D-A1	CHV	.75	SA105	1	07-23-88	Y	06-23-88	06-24-88	06-24-88	161						B2
CC1507-8F1	CC1507D-A1	AAY-84	.75	SA105	1	07-17-88	Y	06-22-88	06-24-88	06-24-88	165						A5
CC1507-9F1	CC1507D-A1	CHV	.75	SA105	1	07-17-88	Y	06-22-88	06-24-88	06-24-88	198*	07-01-88	07-05-88	07-19-88			A6
CC1514-4F1	CC1514-B-A04	AAY-84	.75	SA105	1	07-28-88	N	07-01-88	07-19-88	07-20-88	192*	07-22-88	07-21-88	08-02-88			C2PG4
CC1514-5F1	CC1514-B-A04	CHV	.75	SA105	1	07-28-88	Y	06-23-88	06-24-88	06-24-88	162						B4
CC1519-7F1	CC1519B-A1	AAY-84	.75	SA105	1	07-17-88	Y	06-23-88	06-24-88	06-24-88	195*	07-01-88	07-05-88	07-19-88			A2
CC1519-8F1	CC1519B-A1	CHV	.75	SA105	1	07-17-88	Y	06-23-88	06-24-88	06-24-88	126*	07-01-88	07-05-88	07-19-88			A1
CC7568-10F1	1CC7568-CA-A1	1705	1.0	SA350/LF2	1	07-17-88	Y	07-01-88	07-07-88	07-08-88	223*	07-08-88	07-12-88	07-19-88			C4PG2
CC7568-14F1	1CC7568-CA-A1	1705	1.0	SA350/LF2	1	07-17-88	Y	07-01-88	07-07-88	07-08-88	180						C3PG2
CC7568-5F1	1CC7568-BA-A1	1705	1.0	SA350/LF2	1	07-17-88	Y	07-01-88	07-07-88	07-08-88	221*	07-08-88	07-12-88	07-19-88			C2PG2

ATTACHMENT 2  
 ST-HL-AE-2771  
 PAGE 3 OF 6

ID.NUM.....	TPNS.NUM.....	HT.NUM.....	SIZE.....	SPEC & GRD..	UNIT	SCH	COMP.	ACCESS	TO.TEST.	TEST.COMP	EVALUATED	RESULT	NRC.NOTIFY	JCO COMP..	PORC.REV..	NCR.ITEM
CC7568-9F1	1CC7568-BA-A1	1705	1.0	SA350/LF2	1	07-17-88	Y	07-01-88	07-07-88	07-08-88	221*	07-08-88	07-12-88	07-19-88	C1PG2	
CH1124-130	CH1124-F-A20	AAY-84	.75	SA105	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	167				C12PG3	
CH1125-133	CH1125-A-A20	AAY-84	.75	SA105	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	179				C13PG3	
CH1125-134	CH1125-D-A20	AAY-84	.75	SA105	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	184				C14PG3	
CH1216-117	CH1216-G-A26	5680	1.5	SA350/LF2	1	07-21-88	Y	07-01-88	07-07-88	07-08-88	177				C9PG2	
CH1219-93	CH1219-F-A18	AAY-84	.75	SA105	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	163				C2PG3	
CH1219-94	CH1219-G-A18	AAY-84	.75	SA105	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	156				C3PG3	
CH1221-98	CH1221-A-A10	5680	1.5	SA350/LF2	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	208*	07-08-88	07-12-88	07-19-88	C9PG3	
CH1317-116	CH1317-F-A26	5680	1.5	SA350/LF2	1	07-21-88	Y	07-01-88	07-07-88	07-08-88	180				C10PG2	
CH1318-64F1	CH1318-G-A11	5680	1.5	SA350/LF2	1	07-21-88	Y	07-01-88	07-07-88	07-08-88	182				C5PG2	
CH1322-125	CH1322-H-A20	5680	1.5	SA350/LF2	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	167				C10PG3	
CH1323-126	CH1323-A-A20	5680	1.5	SA350/LF2	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	170				C11PG3	
CH1325-63F1	CH1325-A1-A22	5680	1.5	SA350/LF2	1	07-30-88	Y	07-01-88	07-07-88	07-08-88	180				C15PG3	
CH1325-70F1	CH1325-A1-A22	5680	1.5	SA350/LF2	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	185				C6PG2	
CH1330-85	CH1330-G-A04	5680	1.5	SA350/LF2	1	07-21-88	Y	07-01-88	07-07-88	07-08-88	181				C13PG2	
CH1330-86	CH1330-G-A04	5680	1.5	SA350/LF2	1	07-21-88	Y	07-01-88	07-07-88	07-08-88	181				C14PG2	
CH1330-92	CH1330-F-A04	5680	1.5	SA350/LF2	1	07-21-88	Y	07-01-88	07-07-88	07-08-88	185				C15PG2	
CH1448-INLET	1PSV9471A	AAY-84	1.0	SA105	1	07-22-88	Y	07-06-88	07-07-88	07-08-88	153				D1PG3	
CH1449-INLET	1PSV9481A	AAY-84	1.0	SA105	1	07-22-88	Y	07-06-88	07-07-88	07-08-88	175				D3PG3	

ATTACHMENT 2  
 ST-HL-AE-2771  
 PAGE 4 OF 6

ID.NUM.....	TPNS.NUM.....	HT.NUM.....	SIZE.....	SPEC & GRD..	UNIT	SCH	COMP.	ACCESS	TO.TEST.	TEST.COMP	EVALUATED	RESULT	NRC.NOTIFY	JCO COMP..	PORC.REV..	NCR.ITEM
CH1450-INLET	1PSV9491A	AAV-84	1.0	SA105	1	07-22-88	Y	07-06-88	07-07-88	07-08-88	142					D5PG3
CH1455-INLET	1PSV9471	AAV-84	1.0	SA105	1	07-22-88	Y	07-06-88	07-08-88	07-11-88	139					D6PG3
CH1457-INLET	1PSV9481	AAV-84	1.0	SA105	1	07-22-88	Y	07-06-88	07-07-88	07-08-88	140					D2PG3
CH1459-INLET	1PSV9491	AAV-84	1.0	SA105	1	07-22-88	Y	07-06-88	07-07-88	07-08-88	142					D4PG3
CH1463-113	CH1463-C-A26	5680	1.5	SA350/LF2	1	07-21-88	Y	07-01-88	07-07-88	07-08-88	205*	07-08-88	07-12-88	07-19-88		C11PG2
CH1464-8F1	CH1464-A-A26	5680	1.5	SA350/LF2	1	07-21-88	Y	07-01-88	07-07-88	07-08-88	213*	07-08-88	07-12-88	07-19-88		C12PG2
CH1465-108	CH1465-H-A33	5680	1.5	SA350/LF2	1	07-21-88	Y	07-06-88	07-07-88	07-08-88	174					C8PG2
CH1467-115	CH1467-H-A17	5680	1.5	SA350/LF2	1	07-22-88	Y	07-01-88	07-07-88	07-08-88	171					C1PG3
CH1469-82	CH1469-H-A09	5680	1.5	SA350/LF2	1	07-21-88	Y	07-01-88	07-07-88	07-08-88	209*	07-08-88	07-12-88	07-19-88		C7PG2
DO1011-116	DO1011-C-A01	1705	1.0	SA350/LF2	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	234*	07-08-88	07-08-88	07-19-88		C1PG8
DO1011-118	DO1011-D-A01	1705	1.0	SA350/LF2	1	07-27-88	Y	07-01-88	07-08-88	07-11-88	227*	07-12-88	07-12-88	07-19-88		C2PG8
DO1011-119	DO1011-D-A01	1705	1.0	SA350/LF2	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	229*	07-08-88	07-08-88	07-19-88		C3PG8
DO1011-120	DO1011-E-A01	1705	1.0	SA350/LF2	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	219*	07-08-88	07-08-88	07-19-88		C4PG8
EW.SYS.STRN.BODY-A	3R281NSP101A	W8628	66.125	SA105	1	08-07-88	Y	07-20-88	07-21-88	07-22-88	181					E1
EW.SYS.STRN.BODY-B	3R281NSP101B	W8726	66.125	SA105	1	08-07-88	Y	07-20-88	07-21-88	07-22-88	186					E3
EW.SYS.STRN.BODY-C	3R281NSP101C	W8678	66.125	SA105	1	08-07-88	Y	07-20-88	07-21-88	07-22-88	164					E5
EW.SYS.STRN.COVER-A	3R281BS0101A	W8628	66.125	SA105	1	08-07-88	Y	07-20-88	07-21-88	07-22-88	172					E2
EW.SYS.STRN.COVER-B	3R281NSP101B	W8628	66.125	SA105	1	08-07-88	Y	07-20-88	07-21-88	07-22-88	180					E4
EW.SYS.STRN.COVER-C	3R281NSP101C	W8678	66.125	SA105	1	08-07-88	Y	07-20-88	07-21-88	07-22-88	169					E6

ATTACHMENT 2  
 ST-HL-AE-2771  
 PAGE 5 OF 6



ID.NUM.....	TPWS.NUM.....	HT.NUM.....	SIZE.....	SPEC & GRD..	UNIT	SCH COMP.	ACCESS	TO.TEST.	TEST.COMP	EVALUATED	REC..T	NRC.NOTIFY	JCO COMP..	PORC.REV..	NCR.ITEM
EW1101-INLET	3R2C1NSP101A	W725J	30.0	SA105	1	07-27-88	Y	07-06-88	07-06-88	07-07-88	170				D1PG5
EW1102-OUTLET	3R2B1NSP101A	W7250	30.0	SA105	1	07-27-88	Y	07-06-88	07-06-88	07-07-88	185				D2PG5
EW1121-NA	3R2B1NSP101A	H801K	6.0	SA1C5	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	143				C2PG7
EW1201-INLET	3R2B1NSP101B	W7250	30.0	SA105	1	07-27-88	Y	07-06-88	07-06-88	07-07-88	180				D3PG5
EW1202-OUTLET	3R2B1NSP101B	W7250	30.0	SA105	1	07-27-88	Y	07-06-88	07-06-88	07-07-88	160				D4PG5
EW1221-NA	3R2B1NSP101B	H801K	6.0	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	127*	07-08-88	07-08-88	07-19-88	C4PG7
EW1301-INLET	3R2B1NSP101C	W7250	30.0	SA105	1	07-27-88	Y	07-06-88	07-28-88	07-29-88	204*	07-29-88	07-29-88	07-29-88	D5PG5
EW1302-OUTLET	3R2B1NSP101C	W7250	30.0	SA105	1	07-27-88	Y	07-06-88	07-06-88	07-07-88	192*	07-08-88	07-08-88	07-19-88	D6PG5
EW1321-NA	3R2B1NSP101C	H801K	6.0	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	134*	07-08-88	07-08-88	07-19-88	C6PG7
EW1416-BLIND	3R2B1NSP101A	H801K	6.0	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	123*	07-08-88	07-08-88	07-19-88	C1PG7
EW1417-BLIND	3R2B1NSP101B	H801K	6.0	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	129*	07-08-88	07-08-88	07-19-88	C3PG7
EW1418-BLIND	3R2B1NSP101C	H801K	6.0	SA105	1	07-27-88	Y	07-01-88	07-06-88	07-07-88	129*	07-08-88	07-08-88	07-19-88	C5PG7
LU1078-A1-1	LU1078-A1	COX	3.0	SA105	1	07-17-88	Y	07-06-88	07-06-88	07-07-88	172				D1PG2
LU1079-A1-1	LU1079-A1	COX	3.0	SA105	1	07-17-88	Y	07-06-88	07-06-88	07-07-88	150				D2PG2
LU1080-A1-1	LU1080-A1	COX	3.0	SA105	1	07-17-88	Y	07-06-88	07-06-88	07-07-88	176				D3PG2

ATTACHMENT 2  
 ST-HL-AE-2771  
 PAGE 4 OF 6