

First Time



D.L. RICCI CORP. PWHT JOB ANALYSIS SHEET

CUSTOMER: Major Tool
 JOBSITE: Indianapolis Indiana
 DATE: 1-31-06 CUSTOMER CONTACT: Doug McCorkle
 TECHNICIAN: Eric, Herb, Bret, Joe, Seth, Kevin PROCEDURE/MATERIAL: In cond/stainless steel
 WORK ORDER#: 65678/LO JOB LOCATION: Major tool shop
 SYSTEM #: _____ RECORDER S/N#: R-91, R-088, R-074, R-079
 I.S.O. LINE #: _____ R-070, R-093, R-037, R-092, R-94, R-93, R-95
 SPOOL #: _____
 FIELD WELD #: _____
 CHART #: 11 TOTAL WELDS: _____ TOTAL TC'S: 101

WORK DESCRIPTION: ran a bake at 707° on the vessel and 275°-311° on the parts

parts
 HEAT CYCLE: 300° at 50°/hr 120 min. at 300° held 21 hours
70 min. at 707° held 24 hours.
 AMBIENT TO 707° F AT 50°/hr F/HR, ABOVE _____ F AT _____ F/HR
 HOLD FOR _____ HRS AT _____ F/HR, +/- _____ F, COOL TO _____ F AT _____ F/HR.
 COOL TO AMBIENT UNDER INSULATION Y/N _____.

PWHT CYCLE INFORMATION:

started at Ambient and ramped up 50° every 70 min on the vessel till 707
started at ambient and slowly ramped up on the parts 50° every
2 hours or so.
When the vessel got to 700° we held it the first time 24 hours First Time
when the parts got to 300° we held them 21 hours the First Time
when held time was complete we ramp down on the vessel 50° per ~~hour~~ 70 min.
Till about 500° and then the parts fell out of sack and then we

* TO INCLUDE ALL INFORMATION RELEVANT TO PWHT CYCLE*

Nerd Jacobs 2/11/06
 TECHNICIAN DATE

CUSTOMER ACCEPTANCE*: [Signature]
 * SIGNATURE ACCEPTS ABOVE HEAT CYCLE PROCEDURE

DATE: 11 Feb 2006

K Drive: Job Sheet- Excel File

start to ramp the parts down 50° per ~~hour~~ 70 min to 200°
and at 500° we changed the ramp rate on the vessel to 90° per hour
and target temp to 100° per ~~hour~~ step and we would hold each step till
we were within 10° Top to Bottom



D.L. RICCI CORP.

TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-6

CUSTOMER CONTACT: _____

TECHNICIAN: _____

PROCEDURE/MATERIAL: _____

WORK ORDER#: _____

JOB LOCATION: _____

SYSTEM #: _____

RECORDER SERIAL #: AH 999 E 070

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 20

TOTAL WELDS: _____

TOTAL TC'S: 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
14:12	70	70	70	69	70	70	69	69	70	70	70	70
14:42	123	124	128	128	126	127	127	128	129	130	129	132
15:12	127	128	149	152	131	135	135	146	149	141	135	151
15:42	130	130	152	152	130	133	134	144	147	135	132	149
16:12	135	133	151	148	132	135	137	144	146	135	134	145
16:42	160	158	175	174	157	160	162	169	171	160	158	171
17:12	172	171	180	181	172	174	174	177	179	175	173	183
17:42	173	171	177	176	171	171	171	175	176	171	172	178
18:12	173	171	173	170	171	171	170	171	172	171	172	173
18:42	173	170	172	170	171	171	170	171	172	171	172	171
19:12	171	170	172	170	171	172	170	171	172	175	172	172
19:42	173	171	173	171	173	173	173	173	173	185	175	173
20:12	197	196	199	197	198	198	198	197	200	210	200	201
20:42	221	220	223	222	221	223	222	223	224	224	227	224
21:12	222	220	229	226	220	224	221	225	226	220	222	225
21:42	245	243	252	249	244	247	245	249	250	245	246	249
22:12	271	268	276	273	268	272	276	273	274	270	271	274
22:42	284	282	291	290	282	285	285	288	291	286	285	290
23:12	309	307	315	314	307	310	310	312	314	311	310	315
23:42	321	320	326	325	320	323	321	325	324	321	322	325
00:12	334	332	337	336	334	334	333	336	335	336	336	335
00:42	359	358	361	360	359	359	358	361	360	360	361	360
1:12	380	378	383	381	379	382	382	384	383	383	380	384
1:42	404	403	408	406	404	406	407	408	408	407	406	409
2:12	422	421	424	423	421	422	421	424	423	421	423	424
2:42	446	445	449	448	446	447	445	448	446	446	447	449
3:12	470	469	473	471	470	471	470	472	471	471	472	473
3:42	487	485	488	486	486	489	486	489	488	486	488	489
4:12	512	510	514	511	511	513	511	514	516	507	513	514

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.

2nd Time



D.L. RICCI CORP. PWHT JOB ANALYSIS SHEET

CUSTOMER: Major Tool
 JOBSITE: Indianapolis Indiana
 DATE: 2-9-06 CUSTOMER CONTACT: Doug McCorkle
 TECHNICIAN: Eric, Herb, Bret, Joe, Seth, Kevin PROCEDURE/MATERIAL: Inconel/stainless steel
 WORK ORDER#: _____ JOB LOCATION: Major Tool Shop
 SYSTEM #: _____ RECORDER S/N#: R-91, RC-088, 074, 079, 070
 I.S.O. LINE #: _____ RC-093, RC037, RC-092, R-94, R-93, R-9
 SPOOL #: _____
 FIELD WELD #: _____
 CHART #: 11 charts TOTAL WELDS: _____ TOTAL TC'S: 101

WORK DESCRIPTION: When Temps were all lower then 212° we ^{started} ~~started~~ ramping up the vessel and parts. till we got the parts back up to 300° & vessel Back up to 707° and then held parts at Temp for 21 hours & The vessel for 18 hours so the both had a total of 42 hours of soak

vessel Parts from 200° to 300° at 50°/per 120 min; then Held 21 hours
 HEAT CYCLE From 200° to 707° at 50°/per 70 min Then Held 18 hours.
 AMBIENT TO _____ F AT _____ F/HR, ABOVE _____ F AT _____ F/HR
 HOLD FOR _____ HRS AT _____ F/HR, +/- _____ F, COOL TO _____ F AT _____ F/HR.
 COOL TO AMBIENT UNDER INSULATION Y/N _____.

PWHT CYCLE INFORMATION:
When hold time was complete we ramped down on the vessel at 50° per hour till 500° to ~~to~~ keep parts in soak for 3 extra hours so we would have 42 hours on both parts and vessel after we were at 500° we set the ramp to 90° per hour and the target temp Down 100° and held at each target temp till even and then set Target temp 100° less untill we were and 200° Then we shut off machs. and let cool.

* TO INCLUDE ALL INFORMATION RELEVANT TO PWHT CYCLE*

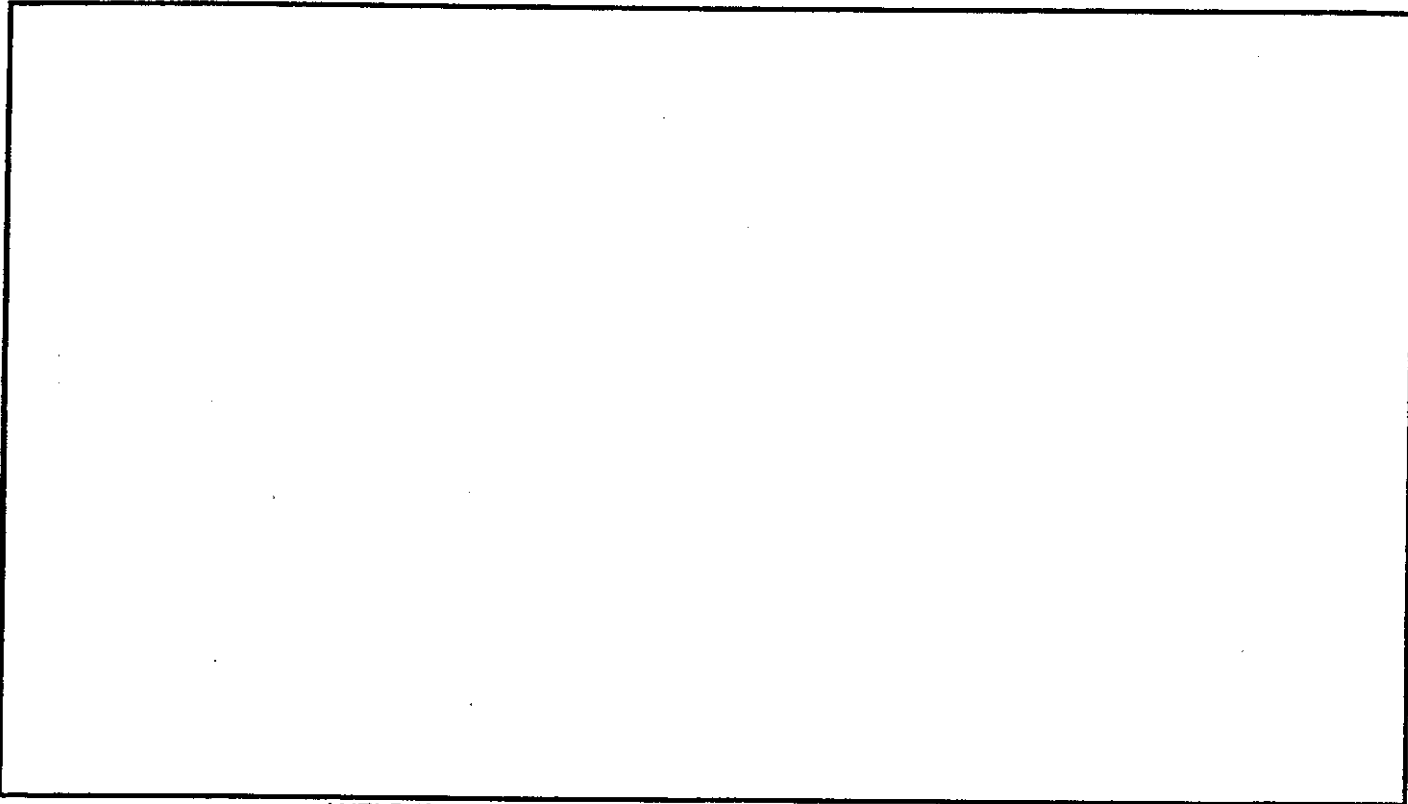
Herb Spedon 2/11/06
 TECHNICIAN DATE

CUSTOMER ACCEPTANCE*: [Signature] DATE: 11/18/06
 * SIGNATURE ACCEPTS ABOVE HEAT CYCLE PROCEDURE



D.L. RICCI CORP.
WELD AND THERMOCOUPLE IDENTIFICATION

DATE: 2-9-06 CUSTOMER CONTACT: Doug McCorkle
 TECHNICIAN: Eric, Herb, Brad, Joe, Seth, Kevin PROCEDURE/MATERIAL: Inconel/Stainless Steel
 WORK ORDER#: _____ JOB LOCATION: _____
 SYSTEM #: _____ RECORDER S/N#: R-91, R-088, R-074, R-079
 I.S.O. LINE #: _____ RC-070, RC-093, RC-037, RC-092, R-94, R-93, R-95
 SPOOL #: _____
 FIELD WELD #: _____
 CHART #: 11 Records TOTAL WELDS: _____ TOTAL TC'S: 101



WELD IDENTIFICATION AND THERMOCOUPLE LAYOUT
 THIS I.S.O. DRAWING IS COMPLETED BY THE PWHT TECHNICIAN

 TECHNICIAN

 DATE



PWHT QUALITY CONTROL SHEET

CUSTOMER Major Tool W/O# _____

DATE: 2-9-06

1. Customer has given specific direction to D.L. Ricci, as to which welds need PWHT. Heat Treating Documentation packet has been given to the technician. The technician as reviewed the procedure.
Nest Jacob
Technician
2. Drawings of each spool piece have been completed. Each drawing shows the spool piece number and describes each weld on the spool.
Nest Jacob
Technician
3. Welds are wrapped and troubleshooting is complete. All zones are working properly. Technician has reviewed procedure (ramp rate, soak temperature, soak time).
Nest Jacob
Technician
4. Welds are at soak temperature. Technician has reviewed chart (checking ramp rate up to soak).
Nest Jacob
Technician
5. When soak is complete, technician has reviewed chart, checked soak time/temperature and reviewed ramp rate to completion.
Nest Jacob
Technician
6. PWHT is complete. Technician has reviewed chart and everything is correct. (Do not unwrap welds until this stage is signed off)
Nest Jacob
Technician
7. Unwrap welds. Take hardness test if required and record results.

Technician



D.L. RICCI CORP.

TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-7 CUSTOMER CONTACT: _____

TECHNICIAN: _____ PROCEDURE/MATERIAL: _____

WORK ORDER#: _____ JOB LOCATION: _____

SYSTEM #: _____ RECORDER SERIAL #: AH 999 E070

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 2 TOTAL WELDS: _____ TOTAL TC'S: 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
4:42	526	525	527	525	526	527	527	530	533	529	530	53
5:12	551	550	552	550	551	551	553	554	557	554	555	55
5:42	571	570	573	571	570	573	571	572	572	571	573	57
6:12	593	591	594	595	594	595	595	593	594	594	596	59
6:42	618	616	614	620	614	619	619	617	619	619	620	62
7:12	638	636	639	636	637	639	638	629	638	636	639	63
7:42	663	661	664	661	660	665	663	664	662	661	664	63
8:12	676	673	673	673	676	675	676	675	677	674	676	67
8:42	701	698	699	698	699	701	701	700	685	700	702	70
9:12	702	701	702	700	700	702	701	701	683	701	703	70
9:42	702	700	702	700	701	703	701	701	701	701	703	70
10:12	705	704	705	704	705	706	706	706	705	696	708	70
10:42	709	708	709	707	708	708	709	709	709	659	710	71
11:12	709	708	709	707	699	709	708	708	709	692	710	71
11:42	709	707	709	707	708	709	708	709	709	708	710	71
12:42	708	707	709	707	707	708	708	709	709	708	710	71
13:42	708	707	709	707	708	708	708	708	708	708	710	71
14:42	708	707	709	707	707	709	708	708	709	708	710	71
15:42	708	707	709	707	708	708	708	708	709	708	710	71
16:42	708	707	709	707	708	708	708	708	709	708	710	71
17:42	708	707	709	708	708	708	708	708	709	708	710	71
18:42	708	707	709	707	707	708	708	709	709	708	710	71
19:42	708	707	709	707	706	709	708	709	708	708	710	71
20:42	708	707	709	708	708	708	708	708	709	708	710	71
21:42	708	707	709	707	697	708	709	708	709	708	711	71
22:42	708	707	709	707	708	709	708	708	709	708	710	71
23:42	708	707	709	708	707	708	708	708	709	708	710	71
00:42	708	707	709	708	707	708	708	708	709	708	710	71
01:42	708	707	709	707	708	708	708	708	709	708	710	71

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.



D.L. RICCI CORP. TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-8

CUSTOMER CONTACT: _____

TECHNICIAN: _____

PROCEDURE/MATERIAL: _____

WORK ORDER#: _____

JOB LOCATION: _____

SYSTEM #: _____

RECORDER SERIAL #: AH 999E 070

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 2 B

TOTAL WELDS: _____

TOTAL TC'S: 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
02:42	708	707	709	708	708	708	708	708	709	708	709	710
03:42	708	707	709	708	708	708	708	708	709	708	710	710
4:42	708	707	709	708	707	709	708	708	709	708	710	710
5:42	708	707	709	707	707	709	708	708	709	708	710	710
6:42	708	707	709	707	708	708	708	708	709	708	710	710
7:42	708	707	709	707	715	708	708	708	709	708	710	710
8:42	705	702	702	699	699	705	705	705	701	700	703	703
9:12	686	679	678	674	675	679	677	677	676	675	678	677
9:42	661	653	653	650	651	657	651	652	651	650	653	652
10:12	636	627	628	626	626	636	628	629	627	627	629	627
10:42	611	602	603	601	602	611	604	605	603	602	604	602
11:12	583	580	591	585	581	597	592	596	588	584	581	588
12:12	524	517	510	497	501	521	502	510	514	506	502	502
13:12	473	469	475	466	462	470	459	466	474	470	463	466
14:12	423	414	415	398	399	401	401	406	408	411	402	402
15:12	384	379	393	385	381	379	375	387	388	388	382	382
16:12	350	349	353	350	351	351	350	352	353	351	352	352
17:12	344	341	348	346	344	344	343	347	349	348	345	346
18:12	317	310	317	303	305	300	300	311	311	313	305	302
19:12	299	297	302	299	299	299	299	301	301	300	300	301
20:12	280	279	282	280	281	282	280	283	282	281	282	282
21:12	266	260	269	261	260	256	263	264	265	265	261	259
22:12	248	243	251	248	243	244	241	244	244	245	244	243
23:12	230	224	232	222	220	217	212	222	223	225	221	216
00:12	213	208	212	199	200	202	200	203	205	207	201	201
01:26	200	199	202	199	200	202	201	201	201	201	202	201
2:26	239	237	240	239	240	239	239	248	241	241	242	241
3:26	282	281	287	285	285	289	286	285	288	287	289	288
4:26	320	318	325	323	322	320	323	319	325	321	321	321

30
imp/v
vessel

3
imp/v
vessel

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.



D.L. RICCI CORP.

TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-9

CUSTOMER CONTACT: _____

TECHNICIAN: _____

PROCEDURE/MATERIAL: _____

WORK ORDER#: _____

JOB LOCATION: _____

SYSTEM #: _____

RECORDER SERIAL #: AH 999E070

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 2 B

TOTAL WELDS: _____

TOTAL TC'S: 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
5:26	363	360	367	364	364	364	365	365	365	365	365	365
6:26	404	402	407	405	405	404	404	403	405	405	406	406
7:26	452	450	455	452	452	452	452	453	455	452	454	454
8:26	494	492	498	494	496	495	496	496	498	496	497	496
9:26	537	534	538	535	538	536	537	536	537	537	548	538
10:26	578	575	578	576	578	577	579	578	579	579	580	581
11:26	620	617	621	617	621	619	620	618	620	620	623	622
12:26	659	655	659	656	661	659	661	659	660	661	662	663
13:26	702	700	702	700	701	701	701	700	702	702	702	703
14:26	708	707	709	707	708	708	709	708	708	708	710	710
15:26	708	707	709	706	708	709	708	708	709	718	707	707
16:26	708	707	709	707	708	708	708	708	709	709	708	708
17:26	704	707	709	707	707	708	708	708	709	709	708	708
18:26	713	707	709	707	708	708	708	708	709	710	708	708
19:26	708	707	709	707	708	708	708	707	709	709	708	708
20:26	708	707	709	707	708	708	708	708	709	708	708	708
21:26	708	707	709	708	708	709	708	709	708	709	708	708
22:26	708	707	709	707	708	709	708	708	707	707	708	708
23:26	708	707	709	707	708	708	708	708	709	709	708	708
00:26	708	707	709	707	708	709	709	708	709	709	708	708
1:26	708	707	709	707	708	708	706	708	709	709	708	708
2:26	708	707	709	707	708	708	709	708	709	709	708	708
3:26	708	707	709	707	708	708	708	709	709	709	708	708
4:26	708	707	709	707	708	708	708	709	709	709	708	707
5:26	708	707	709	707	708	708	708	708	709	709	708	708
6:26	708	707	709	707	708	708	708	708	709	709	708	708
7:26	708	707	709	708	708	708	708	708	709	709	708	708
8:26	688	674	677	674	678	676	676	673	675	675	675	675
9:26	627	622	630	628	630	631	631	630	632	631	632	632

sub
1:45
55el

18 hrs

2:45
2:45

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.



D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: _____
 DATE: 2-10 CUSTOMER CONTACT: _____
 TECHNICIAN: _____ PROCEDURE/MATERIAL: _____
 WORK ORDER#: _____ JOB LOCATION: _____
 SYSTEM #: _____ RECORDER SERIAL #: _____
 I.S.O. LINE #: _____
 SPOOL #: _____
 FIELD WELD #: _____
 CHART #: 2 TOTAL WELDS: _____ TOTAL TC'S: 12

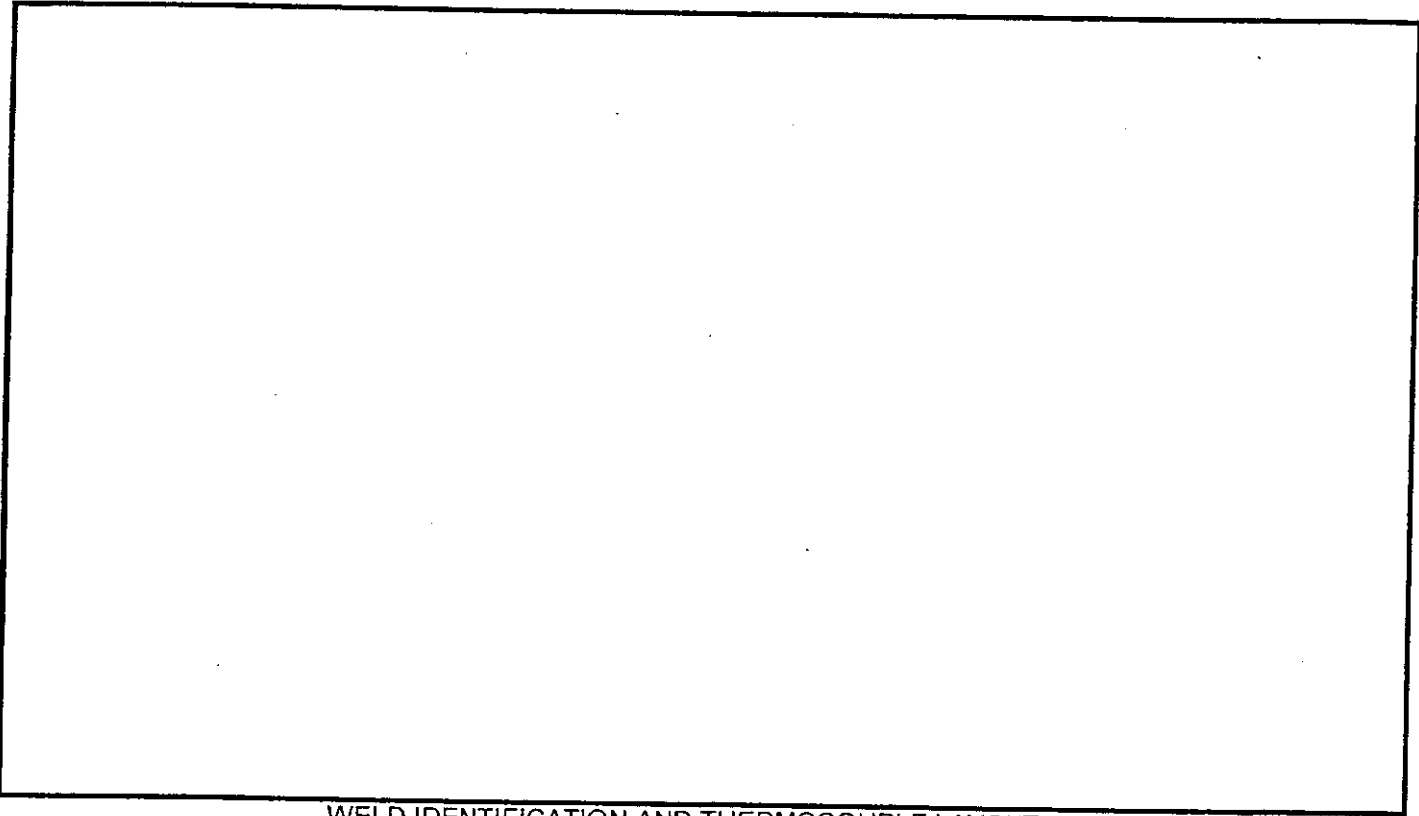
TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
10:26	579	586	595	588	583	581	581	587	588	588	585	581
11:26	499	497	512	497	500	501	501	500	500	505	502	501
12:26	460	455	477	467	466	462	455	470	471	465	465	459
13:26	400	398	416	497	403	403	401	406	404	411	402	402
14:26	382	379	396	390	388	386	384	392	393	392	389	388
15:26	339	335	353	335	339	330	325	345	344	348	339	323
16:26	302	297	312	289	298	287	290	304	305	310	299	292
17:26	270	266	277	253	263	252	251	271	271	277	265	252
18:26	243	240	247	221	233	223	221	242	243	248	235	220
19:26	221	218	221	197	208	193	186	216	218	223	210	200
20:26	201	199	199	177	188	163	151	190	197	202	188	182
20:33	199	196	197	175	185	160	148	187	195	199	186	180

* Time/Temperature Log shall be used to record temperatures above 800 Degrees F (or per applicable procedure) every hour during the heating and cooling cycles and every one-half hour during PWHT cycle.



D.L. RICCI CORP.
WELD AND THERMOCOUPLE IDENTIFICATION

DATE: 1-31-06 CUSTOMER CONTACT: Doug McCorkle
 TECHNICIAN: Eric, Herb, Brad, Joe, Seth, Kevin PROCEDURE/MATERIAL: Inconel / stainless steel
 WORK ORDER#: _____ JOB LOCATION: Major Tool shop
 SYSTEM #: _____ RECORDER S/N#: R-91, RC-088, RC-074, RC-079
 I.S.O. LINE #: _____ RC-070, RC-093, RC-037, RC-092, R-94, R-93, R-95
 SPOOL #: _____
 FIELD WELD #: _____
 CHART #: 11 Recorders TOTAL WELDS: _____ TOTAL TC'S: 101



WELD IDENTIFICATION AND THERMOCOUPLE LAYOUT
 THIS I.S.O. DRAWING IS COMPLETED BY THE PWHT TECHNICIAN

Herb [Signature] 2-11-06
 TECHNICIAN DATE



PWHT QUALITY CONTROL SHEET

CUSTOMER Major Tool W/O# _____

DATE: 2-11-06

1. Customer has given specific direction to D.L. Ricci, as to which welds need PWHT. Heat Treating Documentation packet has been given to the technician. The technician as reviewed the procedure.
Herb Spada
Technician
2. Drawings of each spool piece have been completed. Each drawing shows the spool piece number and describes each weld on the spool.
Herb Spada
Technician
3. Welds are wrapped and troubleshooting is complete. All zones are working properly. Technician has reviewed procedure (ramp rate, soak temperature, soak time).
Herb Spada
Technician
4. Welds are at soak temperature. Technician has reviewed chart (checking ramp rate up to soak).
Herb Spada
Technician
5. When soak is complete, technician has reviewed chart, checked soak time/temperature and reviewed ramp rate to completion.
Herb Spada
Technician
6. PWHT is complete. Technician has reviewed chart and everything is correct. (Do not unwrap welds until this stage is signed off)
Herb Spada
Technician
7. Unwrap welds. Take hardness test if required and record results.

Technician



D.L. RICCI CORP.
 5001 Moundview Drive
 Red Wing, Minnesota 55066
 Phone: 651/388-8661 Fax: 651/388-0002

CERTIFICATE OF CALIBRATION

MODEL:	AH3725-N00		SERIAL NO:	AH 999E070
THERMOCOUPLE TYPE:	K		RANGE:	0 - 2000 F
CALIBRATION DATE:	12/14/05		DUE DATE:	6/14/06

TEST EQUIPMENT USED:		THERMO-ELECTRIC E-2642		
MANUFACTURER:	Thermo - Electric	CALIBRATION DATE:	8/16/06	
MODEL NO:	E-2642	ACCURACY:	+/- 1 F	
SERIAL NO:	0008032			

AMBIENT TEMP: 74

HUMIDITY: 52%

ZONE: 1

INPUT	AS FOUND	AS LEFT	ACCURACY
200	199	200	+/-10 DEG F
400	401	400	+/-10 DEG F
600	600	600	+/-10 DEG F
800	806	800	+/-10 DEG F
1000	999	1000	+/-10 DEG F
1200	1200	1200	+/-10 DEG F
1400	1400	1400	+/-10 DEG F
1600	1600	1600	+/-10 DEG F
1800	1800	1800	+/-10 DEG F
2000	2000	2000	+/-10 DEG F

THIS INSTRUMENT HAS BEEN CALIBRATED WITHIN MANUFACTURERS SPECIFICATION.
 THIS CALIBRATION IS TRACEABLE TO THE N.I.S.T.
 WE GUARANTEE THAT THIS PRODUCT HAS PASSED THROUGH E.H.S. STANDARD
 TESTING AND SATISFIES ALL SPECIFICATIONS

CALIBRATED BY: Matt Wilson
 SIGNATURE: Matt Wilson

PREHEAT AND STRESS RELIEVING EQUIPMENT