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: Inconel/stainless steel
WORK ORDER#: 65678/1.0 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 TOTAL WELDS: ____ TOTAL TC'S: 101

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

HEAT CYCLE: 300° at 50°/per 120 min. at 300° held 21 hours
70 min. at 707° held 24 hours.
AMBIENT TO 707° F AT 50°/per 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 at 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 hold time was complete we ramp Down on the vessel 50° per 70 min
Till about 500° and then the parts to Fell out of soak and then we
* TO INCLUDE ALL INFORMATION RELEVANT TO PWHT CYCLE*

Neil Jacobs 2/11/06
TECHNICIAN DATE

CUSTOMER ACCEPTANCE*: _____ DATE: 11/28/2006
* SIGNATURE ACCEPTS ABOVE HEAT CYCLE PROCEDURE

K Drive: Job Sheet- Excel File

start to ramp the ports Down 50° per 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 step and we would hold each step till
we were within 10° Top to Bottom

D.L. RICCI CORP.
PWHT JOB ANALYSIS SHEET

CUSTOMER: _____
JOBSITE: _____
DATE: _____ **CUSTOMER CONTACT:** _____
TECHNICIAN: _____ **PROCEDURE/ MATERIAL:** _____
WORK ORDER#: _____ **JOB LOCATION:** _____
SYSTEM #: _____ **RECORDER S/N#:** AH039C056
I.S.O. LINE #: _____
SPOOL #: _____
FIELD WELD #: _____
CHART #: 11 **TOTAL WELDS:** ____ **TOTAL TC'S:** _____

WORK DESCRIPTION: _____

HEAT CYCLE:
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:
ZONE 7 WAS MOVED FROM CHART 9 BECAUSE OF MALFUNCTION ON CONTROLLER NOW ZONE 7 ON CHART 11

* TO INCLUDE ALL INFORMATION RELEVANT TO PWHT CYCLE*

_____
TECHNICIAN DATE

CUSTOMER ACCEPTANCE*: _____ DATE: _____
* SIGNATURE ACCEPTS ABOVE HEAT CYCLE PROCEDURE

K Drive: Job Sheet- Excel File

= PORT

D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: _____ CUSTOMER CONTACT: _____

TECHNICIAN: 2-6 PROCEDURE/ MATERIAL: _____

WORK ORDER#: _____ JOB LOCATION: _____

SYSTEM #: _____ RECORDER SERIAL #: AH039C056

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 11 TOTAL WELDS: _____ TOTAL TC'S: 7

TIME/TC	1	2	3	4	5	6	7	8	9
14:13	71	69	69	70	69	70	70		
14:43	125	125	125	125	125	122	154		
15:13	122	120	122	124	123	122	149		
15:43	121	120	122	123	122	123	142		
16:13	122	121	122	121	122	123	138		
16:43	121	121	122	122	122	123	156		
17:13	124	121	122	122	122	123	154		
17:43	122	124	122	122	122	123	169		
18:13	121	121	122	122	122	123	169	125	
18:43	122	121	122	121	122	123	170	121	
19:13	122	121	122	122	123	123	168	121	
19:43	129	129	129	129	129	130	176	128	
20:13	154	153	153	153	154	154	201	154	
20:43	170	164	170	170	169	171	222	168	
2113	171	170	170	170	170	170	219	170	
2:43	195	195	195	195	194	195	244	196	
22:13	220	219	220	220	220	219	268	221	
22:43	234	234	235	234	235	234	284	236	
23:13	260	257	259	257	259	259	308	260	584
23:43	270	269	270	270	269	269	318	269	570
00:13	270	269	270	269	269	269	334	268	484
00:43	270	269	270	270	270	270	357	268	459
1:13	270	269	270	270	270	270	378	269	436
1:43	270	269	270	270	271	271	404	269	420
2:13	270	269	270	269	271	270	419	269	419
2:43	269	269	270	269	269	270	443	270	443
3:13	269	268	269	269	270	270	468	269	467
3:43	269	269	270	269	270	270	486	269	485
4:13	269	269	270	269	270	269	511	269	512

Had to switch over from machine #7 zone 1 conductor Stuck wide open overshot to 580°F

* 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.

K Drive: Time Temp Log

=PORT

D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: _____

DATE: 2-7 CUSTOMER CONTACT: _____

TECHNICIAN: _____ PROCEDURE/ MATERIAL: _____

WORK ORDER#: _____ JOB LOCATION: _____

SYSTEM #: _____ RECORDER SERIAL #: AH039C05-6

I.S.O. LINE #: _____

SPOOL #: _____

FIELD WELD #: _____

CHART #: 11 TOTAL WELDS: _____ TOTAL TC'S: 9

START SOAK VESSEL 8:30AM

START SOAK

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
4:48	269	269	269	269	270	270	524	268	524			
5:13	269	269	270	269	269	270	552	269	549			
5:43	269	269	270	269	269	270	564	269	568	ADDED PORTS 9E 2		
6:13	270	269	270	269	271	269	589	268	575	17E E 12		
6:43	269	269	270	269	270	269	613	268	618	MOVED TC 38		
7:13	269	269	270	269	270	270	634	268	636	FROM M-7		
7:43	269	269	270	269	270	270	659	268	660	228		
8:13	269	269	270	269	270	270	672	269	673	252		
8:43	269	269	271	274	270	270	697	268	698	269		
9:13	269	269	272	269	270	270	698	268	698	268	263	2
9:43	269	269	275	269	270	270	698	269	698	269	269	2
10:13	269	269	277	270	270	270	702	269	703	282	281	2
10:43	282	281	290	282	283	282	705	281	706	300	298	3
11:13	300	300	301	299	299	301	705	301	706	298	299	3
11:43	299	299	299	300	300	299	705	299	706	298	300	29
12:13	299	298	300	300	300	299	705	299	706	298	299	29
12:43	299	299	299	300	300	300	705	299	707	298	300	30
13:13	305	299	300	305	300	300	705	299	706	298	299	29
13:43	73	298	300	305	300	300	705	298	706	298	300	29
14:13	291	299	299	305	300	300	706	299	706	298	299	29
14:43	299	299	299	305	300	320	706	299	706	298	299	30
15:13	299	299	299	305	300	302	705	299	706	298	299	30
15:43	304	301	302	305	301	275	705	298	705	211	297	29
16:13	307	301	301	307	301	299	705	298	706	299	299	29
16:43	83	299	300	307	300	304	705	299	706	299	299	29
17:13	353	296	300	307	300	304	705	299	706	299	299	29
17:43	287	296	300	307	300	304	706	299	706	299	298	30
18:13	304	298	301	307	300	308	706	298	706	298	298	30
18:43	308	298	301	306	301	307	705	298	706	299	298	29

* 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.

K Drive: Time Temp Log

=PORT

D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: _____
DATE: 2-8 CUSTOMER CONTACT: _____
TECHNICIAN: _____ PROCEDURE/ MATERIAL: _____
WORK ORDER#: _____ JOB LOCATION: _____
SYSTEM #: _____ RECORDER SERIAL #: A H039C056
I.S.O. LINE #: _____
SPOOL #: _____
FIELD WELD #: _____
CHART #: 11 TOTAL WELDS: _____ TOTAL TC'S: 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
19:13	308	299	300	306	300	308	706	299	706	299	298	29
19:43	310	298	301	306	300	309	705	300	706	299	299	299
20:13	308	299	300	306	300	308	706	300	706	299	298	29
21:42	308	299	301	306	300	308	705	300	707	299	299	299
20:43	307	299	300	306	301	308	706	301	706	299	298	29
22:42	308	299	301	306	301	308	706	300	706	299	298	29
23:42	306	299	301	306	308	308	705	299	706	299	298	30
00:42	306	299	301	306	301	308	706	299	706	299	298	29
1:42	308	299	301	308	302	308	706	300	706	299	299	29
2:42	307	299	301	307	302	308	705	300	706	299	299	30
3:42	307	299	301	307	301	308	705	300	706	299	299	29
4:42	307	299	301	307	301	308	706	300	706	299	298	29
5:42	307	299	301	307	300	308	706	299	706	299	298	29
6:42	307	298	302	307	300	308	705	300	706	299	298	29
7:42	307	298	310	307	301	308	705	300	706	299	298	30
8:42	307	299	305	307	301	309	698	298	697	298	299	30
9:12	307	298	306	307	300	309	673	300	672	299	300	29
9:42	307	299	305	307	300	308	649	300	649	299	299	29
10:12	307	299	305	307	301	308	624	299	625	299	300	30
10:42	307	299	306	307	301	308	600	299	604	299	299	29
11:12	307	297	306	307	300	308	586	300	581	299	300	29
12:12	307	298	305	307	300	308	498	300	497	299	299	29
13:12	308	299	305	309	300	308	449	300	451	299	299	29
14:12	307	299	305	307	301	304	398	300	397	298	299	30
15:12	289	282	285	285	279	282	370	277	376	276	277	27
16:12	249	250	250	249	249	248	348	248	352	248	248	24
17:12	225	234	230	223	210	213	337	208	340	210	209	21
18:12	198	217	209	197	174	183	298	173	302	174	176	17
19:12	177	204	193	177	151	163	295	149	296	148	155	14

END 8:30

* 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.

K Drive: Time Temp Log

=PORT

D.L. RICCI CORP.
TIME TEMPERATURE TABULATIONS

CUSTOMER: ______________________

DATE: ______________ CUSTOMER CONTACT: ______________

TECHNICIAN: 2-9 PROCEDURE/ MATERIAL: ______________

WORK ORDER#: ______________ JOB LOCATION: ______________

SYSTEM #: ______________ RECORDER SERIAL #: AH039C056

I.S.O. LINE #: ______________

SPOOL #: ______________

FIELD WELD #: ______________

CHART #: 11 TOTAL WELDS: ______ TOTAL TC'S: 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
2012	159	192	178	160	134	147	278	131	278	129	130	133
21:12	145	182	166	144	121	135	252	117	242	115	125	117
22:12	133	173	155	132	111	126	239	108	244	105	116	107
23:12	124	165	146	122	104	117	209	100	207	97	107	99
00:12	116	157	127	115	98	110	198	94	198	91	101	93
1:12	110	151	129	109	94	105	198	90	198	88	97	90
1:27	109	149	127	107	93	104	198	89	198	87	95	89
2:27	124	144	125	125	127	124	246	124	239	124	124	124
2:57	132	150	132	131	131	131	256	133	261	132	131	130
3:27	157	173	156	157	157	156	280	156	284	156	156	156
4:27	195	193	194	194	194	193	318	194	317	193	193	194
5:27	234	233	235	234	236	234	258	233	363	232	234	233
6:27	274	274	275	274	274	273	403	274	399	273	273	273
7:27	274	274	275	275	275	273	448	272	449	273	274	273
8:27	286	285	286	286	297	285	491	287	491	285	280	283
9:27	299	299	299	299	300	298	535	298	537	297	298	298
10:27	299	299	299	299	300	298	575	298	574	298	298	298
11:27	300	301	300	304	299	300	617	301	616	300	300	298
12:27	300	301	300	304	299	300	659	301	658	299	300	299
13:27	306	300	300	305	299	300	699	303	699	300	301	300
14:27	305	304	306	306	306	304	706	302	706	303	301	30
15:27	305	302	309	306	306	304	706	301	706	303	301	301
16:27	305	302	310	306	305	304	706	301	706	303	301	30
17:27	305	302	309	308	306	304	706	301	707	303	302	30
18:27	305	301	303	308	305	304	706	303	707	303	301	30
19:27	305	301	300	308	305	304	706	302	707	303	302	30
20:27	305	302	297	308	305	304	706	301	707	303	302	30
21:27	305	302	246	308	305	304	706	302	707	303	302	30
22:27	305	301	296	308	306	304	706	303	707	303	301	30

13:45 PM START SOAK

* 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.

= PORT

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 #: 11 TOTAL WELDS: _____ TOTAL TC'S: 12

TIME/TC	1	2	3	4	5	6	7	8	9	10	11	12
23:27	305	301	297	308	306	304	706	303	707	303	301	30
0027	305	302	297	308	307	304	707	303	707	303	301	301
127	305	302	296	308	305	304	706	302	707	303	301	301
227	305	302	297	708	306	304	706	307	711	303	301	302
327	305	302	297	308	306	304	706	303	707	303	301	301
427	305	302	297	308	306	304	706	302	707	303	301	30
527	315	301	296	708	305	304	706	302	707	303	301	301
6:27	305	301	297	308	305	304	706	303	707	303	301	301
7:27	305	301	297	308	306	304	706	301	707	303	301	301
8:27	305	301	301	308	305	304	674	302	674	303	301	301
9:27	305	301	301	308	305	304	627	302	626	303	301	301
10:27	305	301	301	308	306	304	585	301	578	303	301	301
11:27	292	292	290	289	286	305	499	281	497	281	280	281
12:27	254	270	264	249	249	248	469	248	447	248	248	24
13:27	235	242	242	232	223	222	398	222	397	222	221	22
14:27	208	221	223	205	200	198	375	197	383	197	198	198
15:27	186	205	205	183	166	170	315	165	311	165	169	167
16:27	168	192	189	166	145	149	284	144	285	142	149	14
17:27	153	180	175	152	130	133	243	128	240	125	134	12
18:27	140	169	162	136	118	120	217	116	209	113	121	114
19:27	132	164	155	127	113	115	194	110	195	107	116	10

2ND CYCLE 7:45 A.M. RAMP DOWN

* 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
TECHNICIAN: Eric, Herb, Brad, Joe, Seth, Kevin
WORK ORDER#:
SYSTEM #:

CUSTOMER CONTACT: Doug McCorkle
PROCEDURE/ MATERIAL: Inconel / Stainless Steel
JOB LOCATION: Major Tool shop
RECORDER S/N#: R-91, RC-088, RC-074, RC-079 RC-070, RC-093, RC-037, RC-092, R-94, R-93, R-95

I.S.O. LINE #:
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 Saunders 2-11-06
TECHNICIAN DATE

D.L.Ricci Corp.

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.

Technician

2. Drawings of each spool piece have been completed. Each drawing shows the spool piece number and describes each weld on the spool.

Technician

3. Welds are wrapped and troubleshooting is complete. All zones are working properly. Technician has reviewed procedure (ramp rate, soak temperature, soak time).

Technician

4. Welds are at soak temperature. Technician has reviewed chart (checking ramp rate up to soak).

Technician

5. When soak is complete, technician has reviewed chart, checked soak time/temperature and reviewed ramp rate to completion.

Technician

6. PWHT is complete. Technician has reviewed chart and everything is correct. (Do not unwrap welds until this stage is signed off)

Technician

7. Unwrap welds. Take hardness test if required and record results.

Technician

EHS
Electric Heating Systems, Inc.

109 North Gold Drive
Robbinsville, NJ 08691
Phone: 609.259.4116
Fax: 609.259.4119

CERTIFICATE OF CALIBRATION

CERT # 2005662

NAME

JOB #

MODEL : AH 3745-N00	SERIAL NUMBER: AH-039C056
THERMOCOUPLE TYPE : K	RANGE: 0 / 2000 degF
CALIBRATION DATE : 8/1/2005	DUE DATE : 8/1/2006

TEST EQUIPMENT USED:			
MANUFACTURER :	FLUKE	CALIBRATION DATE :	6/24/2005
MODEL No	714	ACCURACY :	+/-10 DEG F
SERIAL No	7216012		

AMBIENT TEMPERATURE: 72 **HUMIDITY: 69%**

INPUT		AS FOUND		AS LEFT		ACCURACY
200		200		200		+/-10 DEG F
800		800		800		+/-10 DEG F
1000		1000		1000		+/-10 DEG F
1200		1200		1200		+/-10 DEG F
1600		1600		1600		+/-10 DEG F
1800		1800		1800		+/-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:- PHIL ISAACSON

SIGNATURE :-

2nd Time

D.L. RICCI CORP.
PWHT JOB ANALYSIS SHEET

CUSTOMER: Major Tool
JOBSITE: Indianapolis Indiana
DATE: 2-9-06
CUSTOMER CONTACT: Dana 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 ramping up the vessel and ports. till we got the ports back up to 300° & vessel Back up To 707° and then held Ports at Temp for 21 hours & The vessel for 18 hours so the both had a total of 42 hours of soak

HEAT CYCLE: Ports From 200° to 300° at 50°/per 120 min. then Held 21 hours
vessel 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 [redacted] keep ports in soak for 3 extra hours so we would have 42 hours on both Ports 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 uptill we were and 200° Then we shut off machs. and let cool.
* TO INCLUDE ALL INFORMATION RELEVANT TO PWHT CYCLE*

Herb Jordan 2/10/06
TECHNICIAN DATE

CUSTOMER ACCEPTANCE*: _____ DATE: 9 Feb 2006
* SIGNATURE ACCEPTS ABOVE HEAT CYCLE PROCEDURE

K Drive: Job Sheet- Excel File

D.L. RICCI CORP.
WELD AND THERMOCOUPLE IDENTIFICATION

DATE: 2-9-06 CUSTOMER CONTACT: Doug McCorkle

TECHNICIAN: Eric, Herb, Bret, Joe, seth, kevin PROCEDURE/ MATERIAL: Inconel/stainless Steel

WORK ORDER#: _____ JOB LOCATION: _____

SYSTEM #: _____ RECORDER S/N#: R-91, Rc-088, Rc-074, Rc-079, Rc-070, Rc-093, Rc-037, Rc-092, R-94, R-93, R-95

I.S.O. LINE #: _____

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

_____

TECHNICIAN DATE

D.L.Ricci Corp.

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.

Herb Jacobs
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 Jacobs
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 Jacobs
Technician

4. Welds are at soak temperature. Technician has reviewed chart (checking ramp rate up to soak).

Herb Jacobs
Technician

5. When soak is complete, technician has reviewed chart, checked soak time/temperature and reviewed ramp rate to completion.

Herb Jacobs
Technician

6. PWHT is complete. Technician has reviewed chart and everything is correct. (Do not unwrap welds until this stage is signed off)

Herb Jacobs
Technician

7. Unwrap welds. Take hardness test if required and record results.

_____
Technician