Appendix G

QUALITY ASSURANCE DOCUMENTATION

Quality Assurance Statement

Omega Point Laboratories, Inc. is an independent, wholly owned company incorporated in the state of Texas, devoted to engineering, inspection, quality assurance and testing of building materials, products and assemblies. The company has developed and implemented a Quality Assurance Program designed to provide its clients with a planned procedure of order and document processing for inspection and testing services it provides to assure conformity to requirements, codes, standards and specifications. The Program is designed to meet the intent of ANSI 45.2 Quality Assurance Program Requirements for Nuclear Power Plants, and complies with the requirements of the ASME Code, SPPE, Military Standards and other less stringent programs. It is the Laboratory's intention to adhere strictly to this Program, to assure that the services offered to its clients remains of the highest quality and accuracy possible.

The overall responsibility of the supervision, operation and coordination of this Quality Assurance Program is that of the Quality Assurance Manager, a person not involved with the performance of the inspection or testing services, and who is under the full time employ of the Laboratory. This individual is responsible for implementing and enforcing all procedures presented in the Quality Assurance Manual and the Procedures Manual. All personnel involved with activities which fall under the scope of this Program are required to cooperate with the letter and intent of this Program.

All QA Surveillance documents remain on file at the Laboratory, and are available for inspection by authorized personnel in the performance of an on-site QA Audit. All materials, services and supplies utilized herein were obtained with appropriate QA Certifications of Compliance, and the inclusion of these in this report would not be practical nor useful to the reader.

OMEGA POINT LABORATORIES ®

ACCEPTABILITY DOCUMENTATION

PROJECT NO. 14790-123264

SANDIA NATIONAL LABORATORIES

The following signatures attest to the review and acceptance of each attribute (Hold Point) listed regarding the above-noted project:

I. TEST ARTICLE DECK

Omega Point Laboratories, Inc.	1/27/05 Date
SANDIA National Laboratories	1/27/05 Date

II. TEST ARTICLE RACEWAYS & JB

Omega Point Laboratories, Inc.	1/27/05 Date
SANDIA National Laboratories	1/27/05 Date

Omega Point Laboratories, Inc.
16015 Shady Falls Road
Elmendorf, Texas 78112-9784 USA
210-635-8100 / FAX: 210-635-8101 / 800-966-5253
www.opl.com moreinfo@opl.com

III. TEST SPECIMEN THERMOCOUPLE PLACEMENT

Omega Point Laboratories, Inc. — Date: 2/8/05

SANDIA National Laboratories — Date: 2/8/05

IV. COPPER WIRE THERMOCOUPLE PLACEMENT

Omega Point Laboratories, Inc. — Date: 2/8/05

SANDIA National Laboratories — Date: 2/8/05

V. PRE ERFBS INSTALLATION APPROVAL

Omega Point Laboratories, Inc. — Date: 2/8/05

SANDIA National Laboratories — Date: 2/8/05

VI. ERFBS INSTALLATION APPROVAL

Omega Point Laboratories, Inc. — Date: 3/25/05

SANDIA National Laboratories — Date: 3/25/05

OMEGA POINT LABORATORIES®

VII. COMPLETED PRE TEST ARTICLE INSPECTION

Omega Point Laboratories, Inc. — Date: 3/25/05

SANDIA National Laboratories — Date: 3/25/05

VIII. PRE-TEST DATA ACQUISITION VERIFICATION

Omega Point Laboratories, Inc. — Date: 3/25/05

SANDIA National Laboratories — Date: 3/25/05

IX. POST-TEST DATA ACQUISITION VERIFICATION

Omega Point Laboratories, Inc. — Date: ~~3/25/05~~ 4/11/05

SANDIA National Laboratories — Date: 4/20/2005

Test 2

EVENT LOG

Fire Resistance Test of Cable Trays
Protected by Hemyc ERFBS

PROJECT NUMBER:

14790-123264

SANDIA NATIONAL LABORATORIES

EVENT LOG

SANDIA NATIONAL LABORATORIES
Client # 14790

NOTE:
This Log is used to document the date and note the significant events during the completion of test project #123264 for SANDIA National Laboratories. The following is a brief description of this project:

Project No. 123264: **One Hour ASTM E1725 Fire Test of 12" and 36" Cable Trays, a Cable Drop and a Junction Box Protected by Hemyc 1-Hour Rated ERFBS.**

ITEM	DATE	INIT'L
Request for Quotation (RFQ) # 7253 is received by Omega Point Labs from Patricia Brown of Sandia Labs.	11/5/04	CH
Technical Proposal No. PO412 06-01 is issued to Sandia Labs by Deg Priest, President of Omega Point.	12/6	CH
Sandia Labs issues Purchase Order No. 389803 to Omega Point.	12/22	CH
Deg Priest accepts contract terms by signing and returning the P.O. signature page by fax on 12/22/04 and again on 12/27/04 for some minor changes to the PO.	12/27	CH
Deg Priest completes the initial project drawings for Sandia review.	12/30	CH
Project Hold Points are determined by Frank Wyant, Sandia Technical contact and Connie Humphrey, OPL QA Director.	1/4/05	CH
Veda Patton, QA Assistant orders the steel components for the project test decks.	1/4	CH
Connie Humphrey receives approval for the qualification method of the thermocouple supplier. (10CFR50 app. B)	1/5	CH
OPL QA/QC personnel receive the steel shipment and OPL technicians begin fabricating the steel decks for all three Sandia projects.	1/5	CH
Drwg Fig. 3, assembly 2 revision is issued.	1/6	CH
Deck fabrication continues.	1/6/05	CH

Test 2

EVENT LOG

SANDIA NATIONAL LABORATORIES
Client # 14790

NOTE:
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Project No. 123264: **One Hour ASTM E1725 Fire Test of 12" and 36" Cable Trays, a Cable Drop and a Junction Box Protected by Hemyc 1-Hour Rated ERFBS.**

ITEM	DATE	INIT'L
OPI QA/QC personnel verify the dimensions on Project #123264, referred to as Assembly 2 or Test 2, per construction drawing.	1/7/05	CH
Determination was made by Frank Wyant regarding the extent of the video monitoring during the construction process of the test articles.	1/7	CH
Deg Priest issues the Junction Box thermocouple drawings.	1/11	CH
OPI QA/QC personnel receive the documents for Shipment # 44855 enroute to Omega Point from Sandia Labs.	1/11	CH
OPI QA/QC Personnel ship 46 Quick Disconnect Thermocouples to Bruce Levin, Technical Contact at Sandia Labs for verification using Transmittal Letter # 1126.	1/11	CH
Construction ~~continues~~ completed on the test decks. Verification is made by QA.	1/12	CH
OPI QA/QC Personnel receive the hardware shipment # 44855 from Sandia Labs. All items received.	1/14	CH
OPI technicians begin CH 1/18/05 installation of the conduits and cable tray raceways together.	1/18	CH
Raceway fabrication continues	1/19	CH
Chuck Ghiard, Sandia Consultant arrives at OPI. Deg Priest meets with Chuck Ghiard to discuss project.	1/24	CH
Chuck Ghiard verifies test article measurements.	1/25	CH

Test 2

EVENT LOG

SANDIA NATIONAL LABORATORIES
Client # 14790

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Project No. 123264: **One Hour ASTM E1725 Fire Test of 12" and 36" Cable Trays, a Cable Drop and a Junction Box Protected by Hemyc 1-Hour Rated ERFBS.**

ITEM	DATE	INIT'L
Deg Priest issues Figure 2, Rev. 2 Drawing for Test 2 Raceway layout.	1/25/05	CH
J.B. ~~Conduits~~ and cable trays are removed from test decks and weighed by OPL technicians and re-installed. OPL QA/QC personnel re-verify the installation measurements when the raceways were installed to the test deck.	1/26	CH
Frank Wyant arrives at OPL and a group meeting is held involving all personnel.	1/27/05 1/26	CH
Cable trays are marked for thermocouple locations by OPL technicians.	1/28	CH
The unistrut frame for the Junction Box (J.B.) is weighed.	1/28	CH
The fiberglas wrapped thermocouples are installed on the cable trays by OPL technicians.	1/31	CH
TC's are verified by QA/QC personnel.	1/31	CH
The unistrut frame is installed to the test assembly. (Quick Disc. TC's arrive 2/2/05)	2/1	CH
Bare #8 copper wire is cut for the two air drops.	2/4	CH
TC's on the air drops are verified by OPL QA/QC personnel.	2/5	CH
Frank Wyant arrives to verify the TC's on the test article.	2/7	CH
~~Mist~~ 2/7/05 CH Airdrops are weighed and measured.	2/7 ~~2/8~~	CH
Frank Wyant verifies deck for project #123264 (Test 2)	2/23	CH
Frank Wyant departs OPL	2/24/05	CH

Test 2

EVENT LOG

SANDIA NATIONAL LABORATORIES
Client # 14790

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Project No. 123264: **One Hour ASTM E1725 Fire Test of 12" and 36" Cable Trays, a Cable Drop and a Junction Box Protected by Hemyc 1-Hour Rated ERFBS.**

ITEM	DATE	INIT'L
Sandia informed OPL that the cables trays were incorrect and the thermocouples attached to all four cable trays are removed. The four cable trays are removed from the test deck by OPL technicians.	3/1/05	CH
Sandia approves cable trays from OPL stock that were the approved type.	3/1	CH
The new cable trays from OPL are fabricated, weighed and installed into the test deck. Thermocouples were reinstalled on the new cable trays.	3/2	CH
OPL QA/QC reverifies the trays and the thermocouples are reverified (on 3/4.)	3/2	CH
Promatec crew arrives consisting of Mike Murphy, Michael Jordan, Jerry Thorton and Frank Haese. OPL installs the Junction Box on test deck 2.	3/3	CH
Mike Murphy and Jerry Thorton begin construction of the "stand-offs".	3/3	CH
Training on Hemyc installation was held by Michael Jordan for Mike Murphy, Jerry Thorton, Frank Haese and Clida Patton, OPL QA/QC assystant.	3/3	CH
Frank Wyant arrives from Sandia. Stand off construction and application to cable trays continues.	3/4	CH
	3/4/05	CH

Test 2

EVENT LOG

SANDIA NATIONAL LABORATORIES
Client # 14790

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Project No. 123264: **One Hour ASTM E1725 Fire Test of 12" and 36" Cable Trays, a Cable Drop and a Junction Box Protected by Hemyc 1-Hour Rated ERFBS.**

ITEM	DATE	INIT'L
Frank Wyant and Cleda Patton verify TC's on Test deck 2.	3/4/05	CH
Stand-off construction and/or application continues on cable trays and J.B.	3/5	CH
Promatec personnel depart OPL	3/5	CH
Michael Jordan and Frank Haese arrive. Bruce Levin arrives from Sandia.	3/5	CH
Frank Wyant and Bruce Levin decide to remove the standoffs from the junction box.	3/18	CH
Promatec installers begin applying the Hemyc insulation.	3/18	CH
Work continues on insulation.	3/18	CH
Willie Theis, Promatec installer, arrives and begins insulating.	3/20	CH
Frank Wyant arrives to inspect progress.	3/21	CH
Mike Murphy from Promatec arrives and Michael Jordan departs.	3/21	CH
Michael Jordan arrives and Mike Murphy departs OPL.	3/21	CH
Work continues with the Hemyc insulation.	3/22	CH
Promatec insulators depart OPL after finishing installing the Hemyc. Chuck Girard (Sandia contractor) arrives at OPL.	3/23	CH
Frank Wyant and Chuck Girard witness the video taping of the installation of the test assembly onto the test furnace. Deg Priest oversees this procedure.	3/24	CH
	3/24/05	CH

Test 2

EVENT LOG

SANDIA NATIONAL LABORATORIES
Client # 14790

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This Log is used to document the date and note the significant events during the completion of test project #123264 for SANDIA National Laboratories. The following is a brief description of this project:

Project No. 123264: **One Hour ASTM E1725 Fire Test of 12" and 36" Cable Trays, a Cable Drop and a Junction Box Protected by Hemyc 1-Hour Rated ERFBS.**

ITEM	DATE	INIT'L
David Lew, Mark Salley and Roy Woods arrive from the USNRC.	3/24	CH
Cleda Patton OPL QA/QC assistant verifies data acquisition TC's (335).	3/24	CH
Pretest data acquisition requirement has been satisfied with the post test calibration done by Mike Dey on 3/11/05 for Sandia Proj. 123263 (Test 1), approved by Frank Wyant.	3/24	CH
On site to witness the fire test of Sandia Project# 123264 base:	3/25	CH
Frank Wyant — Sandia		
Bruce Lerin — "		
Chuck Girard — Sandia Contractor		
Mark Salley — USNRC		
Roy Woods — "		
David Lew — "		
Alex Klein — "		
Randy Brown — Promatec Technologies		
Michael Jordan — " "		
Frank Haese — " "		
On site to perform the fire test are:	3/25	CH
Deg Pliest — Omega Point Labs		
Mike Dey — " " "		
Cleda Patton — " " "		
Connie Humphrey — " " "		
Oscar Estrada — " " "		
Laudencio Castanon — " " "		
Troy Bronsted — " " "		
A quality control check of the Hemyc wrap was done with ~~Roy Woods~~, ~~Mark Salley~~, Michael Jordan, Frank Wyant, Roy Woods and Cleda Patton. Cleda Patton videotaped the installation of two additional stainless steel bands.	CH 3/25/05	CH 3/25/05

Test 2

EVENT LOG

SANDIA NATIONAL LABORATORIES
Client # 14790

NOTE:
This Log is used to document the date and note the significant events during the completion of test project #123264 for SANDIA National Laboratories. The following is a brief description of this project:

Project No. 123264: **One Hour ASTM E1725 Fire Test of 12" and 36" Cable Trays, a Cable Drop and a Junction Box Protected by Hemyc 1-Hour Rated ERFBS.**

ITEM	DATE	INIT'L
The pre-test checklist is performed by Mike Dey, Mgr. Dept 02 and Dey Priest, President and Chief Technical Officer of OPL. The test acceptance is signed.	3/25/05	CH
The One-hour test of Project #123264 began at 9:10am. The temperature at the time the test started was 73°F with 89% Relative Humidity.	3/25	CH
The one hour test is completed at 10:10am and the data acquisition thermocouples are disconnected from the data acquisition equipment. The test article is moved by overhead crane to the hose stream area. A five minute hose stream test followed the fire test using a 1 1/2" fog nozzle with a 15 degree spray pattern at 75 psi from a distance of ten feet.	3/25	CH
The tear down and inspection of the test article was completed after the assembly cooled down. This was performed by OPL technicians and witnessed by client and USNRC personnel on site.	3/25	CH
Post test data acquisition equip. verification was performed by Mike Dey, OPL Dept. 02 Manager.	4/11/05	CH
-end-		

Omega Point Laboratories, Inc.
16015 Shady Falls Road
Elmendorf, Texas 78112
800-966-5253 FAX 210-635-8101

Certificate of Verification

Certification No.:	92147
Verification Date:	03/11/2005
Re-verification Date:	09/11/2005
Manufacturer:	Yokogawa
Model No.:	300 Channel DAU-
Serial No.:	48JF0082
Equipment Description:	300 Channel Data Acquisition System with YOKOGAWA Darwin Series
Calibration Sources:	Tegam T-207318 due: 05/03/2005

PERFORMANCE:

Temperature: (75°F) 1.3/-0.3	Temperature: (150°F) 1.2/-0.3	Temperature: (300°F) 1.3/-0.5	Temperature: (400°F) +1.2/-0.4	Temperature: (1000°F) 1.3/-0.1	Temperature: (2000°F) 1.7/-0.8

Measurement Uncertainty: ± 0.2%

Verification Performed by:

Mike Dey
Manager Fire Resistance

Verification Approved by:

Deg Priest
President/Chief Technical Officer

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: T-207318

Temperature Setting (°F): 75.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	75.4	0.4	101	75.2	0.2	201	74.8	-0.2
2	75.2	0.2	102	75.2	0.2	202	75.2	-0.2
3	75.2	0.2	103	75.2	0.2	203	75.4	0.2
4	75.2	0.2	104	75.0	0.0	204	75.4	0.4
5	75.2	0.2	105	75.0	0.0	205	75.2	0.4
6	75.2	0.2	106	75.0	0.0	206	75.4	0.2
7	75.2	0.2	107	75.4	0.4	207	75.4	0.4
8	75.4	0.4	108	75.0	0.0	208	75.4	0.4
9	75.4	0.4	109	75.4	0.4	209	75.4	0.4
10	75.7	0.7	110	75.7	0.7	210	75.2	0.4
11	75.2	0.2	111	75.2	0.2	211	75.4	0.2
12	75.2	0.2	112	75.4	0.4	212	75.4	0.4
13	75.2	0.2	113	75.7	0.7	213	75.2	0.4
14	75.2	0.2	114	75.7	0.7	214	75.2	0.2
15	75.2	0.2	115	75.7	0.7	215	75.2	0.2
16	75.2	0.2	116	75.7	0.7	216	75.2	0.2
17	75.2	0.2	117	75.7	0.7	217	75.4	0.2
18	75.2	0.2	118	75.7	0.7	218	75.2	0.4
19	75.4	0.4	119	75.7	0.7	219	75.4	0.2
20	75.7	0.7	120	75.9	0.9	220	75.6	0.4
21	75.2	0.2	121	75.6	0.6	221	74.7	0.6
22	75.2	0.2	122	75.6	0.6	222	74.8	-0.3
23	75.2	0.2	123	75.4	0.4	223	74.8	-0.2
24	75.2	0.2	124	75.6	0.6	224	74.8	-0.2
25	75.4	0.4	125	75.7	0.7	225	75.0	-0.2
26	75.4	0.4	126	75.6	0.6	226	75.2	0.0
27	75.6	0.6	127	75.7	0.7	227	75.2	0.2
28	75.6	0.6	128	75.7	0.7	228	75.2	0.2
29	75.7	0.7	129	75.9	0.9	229	75.4	0.2
30	75.9	0.9	130	76.3	1.3	230	75.7	0.4
31	75.6	0.6	131	75.2	0.2	231	75.2	0.7
32	75.6	0.6	132	75.2	0.2	232	75.2	0.2
33	75.6	0.6	133	75.2	0.2	233	75.2	0.2
34	75.6	0.6	134	75.2	0.2	234	75.4	0.2
35	75.4	0.4	135	75.4	0.4	235	75.4	0.4
36	75.6	0.6	136	75.2	0.2	236	75.4	0.4
37	75.7	0.7	137	75.2	0.2	237	75.4	0.4
38	75.7	0.7	138	75.4	0.4	238	75.6	0.4
39	75.7	0.7	139	75.6	0.6	239	75.7	0.6
40	75.9	0.9	140	75.7	0.7	240	75.7	0.7
41	75.0	0.0	141	75.2	0.2	241	75.6	0.7
42	75.0	0.0	142	75.0	0.0	242	75.6	0.6
43	75.2	0.2	143	75.2	0.2	243	75.4	0.6
44	75.2	0.2	144	75.2	0.2	244	75.6	0.4
45	75.2	0.2	145	75.2	0.2	245	75.6	0.6
46	75.2	0.2	146	75.2	0.2	246	75.6	0.6
47	75.4	0.4	147	75.4	0.4	247	75.7	0.6
48	75.6	0.6	148	75.6	0.6	248	75.9	0.7
49	75.2	0.2	149	75.6	0.6	249	75.7	0.9
50	75.7	0.7	150	75.7	0.7	250	76.1	0.7
51	74.8	-0.2	151	75.6	0.6	251	75.0	1.1
52	75.2	0.2	152	75.6	0.6	252	75.0	0.0
53	75.2	0.2	153	75.6	0.6	253	75.0	0.0
54	75.2	0.2	154	75.7	0.7	254	75.2	0.0

55	75.2	0.2	155	75.7	0.7	255	75.2	0.2
56	75.2	0.2	156	75.7	0.7	256	75.2	0.2
57	75.2	0.2	157	75.7	0.7	257	75.2	0.2
58	75.4	0.4	158	75.7	0.7	258	75.4	0.2
59	75.6	0.6	159	76.1	1.1	259	75.6	0.4
60	75.7	0.7	160	76.3	1.3	260	75.9	0.6
61	75.6	0.6	161	75.6	0.6	261	75.4	0.9
62	75.4	0.4	162	75.7	0.7	262	75.4	0.4
63	75.4	0.4	163	75.6	0.6	263	75.4	0.4
64	75.4	0.4	164	75.7	0.7	264	75.4	0.4
65	75.6	0.6	165	75.7	0.7	265	75.4	0.4
66	75.6	0.6	166	75.7	0.7	266	75.4	0.4
67	75.6	0.6	167	75.9	0.9	267	75.6	0.4
68	75.7	0.7	168	75.9	0.9	268	75.7	0.6
69	75.7	0.7	169	76.1	1.1	269	75.7	0.7
70	75.9	0.9	170	76.3	1.3	270	75.7	0.7
71	75.2	0.2	171	75.2	0.2	271	75.4	0.7
72	75.2	0.2	172	75.2	0.2	272	75.2	0.4
73	75.2	0.2	173	75.4	0.4	273	75.4	0.2
74	75.2	0.2	174	75.4	0.4	274	75.4	0.4
75	75.6	0.6	175	75.2	0.2	275	75.6	0.4
76	75.6	0.6	176	75.4	0.4	276	75.6	0.6
77	75.6	0.6	177	75.4	0.4	277	75.7	0.6
78	75.6	0.6	178	75.6	0.6	278	75.7	0.7
79	75.7	0.7	179	75.7	0.7	279	75.7	0.7
80	75.9	0.9	180	75.9	0.9	280	75.9	0.7
81	75.4	0.4	181	75.4	0.4	281	74.7	0.9
82	75.4	0.4	182	75.4	0.4	282	74.8	-0.3
83	75.6	0.6	183	75.4	0.4	283	75.0	-0.2
84	75.6	0.6	184	75.6	0.6	284	74.8	0.0
85	75.6	0.6	185	75.6	0.6	285	75.2	-0.2
86	75.6	0.6	186	75.6	0.6	286	75.2	0.2
87	75.6	0.6	187	75.7	0.7	287	75.2	0.2
88	75.7	0.7	188	75.7	0.7	288	75.2	0.2
89	75.7	0.7	189	75.7	0.7	289	75.4	0.2
90	75.9	0.9	190	76.1	1.1	290	75.7	0.4
91	75.4	0.4	191	75.0	0.0	291	74.8	0.7
92	75.4	0.4	192	75.0	0.0	292	75.0	-0.2
93	75.2	0.2	193	75.0	0.0	293	75.2	0.0
94	75.2	0.2	194	75.2	0.2	294	75.2	0.2
95	75.4	0.4	195	75.4	0.4	295	75.2	0.2
96	75.4	0.4	196	75.4	0.4	296	75.2	0.2
97	75.4	0.4	197	75.2	0.2	297	75.2	0.2
98	75.7	0.7	198	75.4	0.4	298	75.6	0.2
99	75.7	0.7	199	75.4	0.4	299	75.2	0.6
100	75.9	0.9	200	75.7	0.7	300	75.7	0.2

Range for 75°F Signal: **+1.3/-0.3**
Allowable range: ±1.8

Within specification for this temperature? Yes

Performed by: Mike Day MD

Mgr. Fire Resistance — 3/11/05
Title — Date

Approved by:

President — 3/11/05
Title — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: T-207318

Temperature Setting (°F): 150.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	150.3	0.3	101	150.1	0.1	201	150.1	0.1
2	150.3	0.3	102	150.3	0.3	202	150.1	0.1
3	150.1	0.1	103	150.3	0.3	203	150.1	0.1
4	150.1	0.1	104	150.3	0.3	204	150.1	0.1
5	150.3	0.3	105	150.3	0.3	205	150.1	0.1
6	150.3	0.3	106	150.4	0.4	206	150.3	0.3
7	150.3	0.3	107	150.6	0.6	207	150.3	0.3
8	150.3	0.3	108	150.6	0.6	208	150.3	0.3
9	150.4	0.4	109	150.8	0.8	209	150.3	0.3
10	150.8	0.8	110	151.0	1.0	210	150.8	0.8
11	150.3	0.3	111	150.3	0.3	211	149.9	-0.1
12	150.3	0.3	112	150.3	0.3	212	149.9	-0.1
13	150.1	0.1	113	150.3	0.3	213	149.9	-0.1
14	150.3	0.3	114	150.3	0.3	214	149.9	-0.1
15	150.1	0.1	115	150.3	0.3	215	149.9	-0.1
16	150.3	0.3	116	150.4	0.4	216	150.3	0.3
17	150.3	0.3	117	150.4	0.4	217	150.3	0.3
18	150.3	0.3	118	150.6	0.6	218	150.3	0.3
19	150.3	0.3	119	150.8	0.8	219	150.4	0.4
20	150.6	0.6	120	151.0	1.0	220	150.8	0.8
21	150.3	0.3	121	150.6	0.6	221	149.7	-0.3
22	150.1	0.1	122	150.4	0.4	222	149.9	-0.1
23	150.1	0.1	123	150.4	0.4	223	149.9	-0.1
24	150.3	0.3	124	150.4	0.4	224	149.9	-0.1
25	150.3	0.3	125	150.4	0.4	225	150.1	0.1
26	150.4	0.4	126	150.4	0.4	226	150.1	0.1
27	150.4	0.4	127	150.6	0.6	227	150.1	0.1
28	150.4	0.4	128	150.6	0.6	228	150.3	0.3
29	150.6	0.6	129	150.6	0.6	229	150.3	0.3
30	150.8	0.8	130	150.8	0.8	230	150.8	0.8
31	150.4	0.4	131	149.9	-0.1	231	150.1	0.1
32	150.4	0.4	132	149.9	-0.1	232	150.1	0.1
33	150.4	0.4	133	149.9	-0.1	233	150.3	0.3
34	150.4	0.4	134	150.1	0.1	234	150.3	0.3
35	150.4	0.4	135	150.1	0.1	235	150.3	0.3
36	150.6	0.6	136	150.1	0.1	236	150.3	0.3
37	150.6	0.6	137	150.3	0.3	237	150.3	0.3
38	150.8	0.8	138	150.3	0.3	238	150.3	0.3
39	150.8	0.8	139	150.3	0.3	239	150.6	0.6
40	151.2	1.2	140	150.6	0.6	240	150.8	0.8
41	150.3	0.3	141	149.9	-0.1	241	150.6	0.6
42	150.3	0.3	142	150.1	0.1	242	150.4	0.4
43	150.1	0.1	143	150.1	0.1	243	150.6	0.6
44	150.3	0.3	144	150.1	0.1	244	150.4	0.4
45	150.3	0.3	145	150.3	0.3	245	150.8	0.8
46	150.3	0.3	146	150.3	0.3	246	150.8	0.8
47	150.3	0.3	147	150.3	0.3	247	150.8	0.8
48	150.4	0.4	148	150.4	0.4	248	150.8	0.8
49	150.4	0.4	149	150.4	0.4	249	150.8	0.8
50	150.6	0.6	150	150.6	0.6	250	151.2	1.2
51	149.9	-0.1	151	150.4	0.4	251	150.4	0.4
52	149.9	-0.1	152	150.4	0.4	252	150.8	0.8
53	150.1	0.1	153	150.4	0.4	253	149.7	-0.3
54	150.1	0.1	154	150.3	0.3	254	149.9	-0.1

55	150.3	0.3	155	150.4	0.4	255	149.9	-0.1
56	150.3	0.3	156	150.4	0.4	256	149.9	-0.1
57	150.3	0.3	157	150.4	0.4	257	150.1	0.1
58	150.4	0.4	158	150.6	0.6	258	150.1	0.1
59	150.6	0.6	159	150.8	0.8	259	150.1	0.1
60	150.8	0.8	160	151.0	1.0	260	150.3	0.3
61	150.4	0.4	161	150.3	0.3	261	150.3	0.3
62	150.3	0.3	162	150.3	0.3	262	150.8	0.8
63	150.3	0.3	163	150.3	0.3	263	150.8	0.8
64	150.3	0.3	164	150.3	0.3	264	149.9	-0.1
65	150.3	0.3	165	150.4	0.4	265	150.1	0.1
66	150.4	0.4	166	150.4	0.4	266	150.1	0.1
67	150.4	0.4	167	150.6	0.6	267	150.1	0.1
68	150.6	0.6	168	150.6	0.6	268	150.3	0.3
69	150.8	0.8	169	150.8	0.8	269	150.3	0.3
70	151.0	1.0	170	151.0	1.0	270	150.8	0.8
71	150.3	0.3	171	149.9	-0.1	271	150.8	0.8
72	150.3	0.3	172	149.9	-0.1	272	150.1	0.1
73	150.3	0.3	173	150.1	0.1	273	150.1	0.1
74	150.3	0.3	174	150.1	0.1	274	150.1	0.1
75	150.3	0.3	175	150.3	0.3	275	150.4	0.4
76	150.4	0.4	176	150.3	0.3	276	150.4	0.4
77	150.4	0.4	177	150.3	0.3	277	150.4	0.4
78	150.4	0.4	178	150.4	0.4	278	150.4	0.4
79	150.6	0.6	179	150.6	0.6	279	150.8	0.8
80	150.8	0.8	180	150.8	0.8	280	151.0	1.0
81	150.3	0.3	181	150.3	0.3	281	149.7	-0.3
82	150.1	0.1	182	150.3	0.3	282	149.7	-0.3
83	150.3	0.3	183	150.3	0.3	283	149.9	-0.1
84	150.3	0.3	184	150.3	0.3	284	149.9	-0.1
85	150.3	0.3	185	150.3	0.3	285	150.1	0.1
86	150.3	0.3	186	150.4	0.4	286	150.1	0.1
87	150.3	0.3	187	150.4	0.4	287	150.1	0.1
88	150.4	0.4	188	150.4	0.4	288	150.1	0.1
89	150.4	0.4	189	150.6	0.6	289	150.3	0.3
90	150.8	0.8	190	151.0	1.0	290	150.6	0.6
91	150.3	0.3	191	150.1	0.1	291	149.7	-0.3
92	150.3	0.3	192	150.1	0.1	292	149.7	-0.3
93	150.3	0.3	193	150.3	0.3	293	149.9	-0.1
94	150.4	0.4	194	150.3	0.3	294	150.1	0.1
95	150.4	0.4	195	150.3	0.3	295	150.1	0.1
96	150.4	0.4	196	150.3	0.3	296	150.1	0.1
97	150.4	0.4	197	150.4	0.4	297	150.1	0.1
98	150.4	0.4	198	150.4	0.4	298	150.3	0.3
99	150.4	0.4	199	150.6	0.6	299	150.3	0.3
100	150.8	0.8	200	150.8	0.8	300	150.8	0.8

Range for 150°F Signal: **+1.2/-0.3**
Allowable range: ±1.8

Within specification for this temperature? Yes

Performed by: Mike Day MD

Mgr. Fire Resistance — 3/11/05
Title — Date

Approved by:

President — 3/11/05
Title — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: T-207318

Temperature Setting (°F): 300.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	300.2	0.2	101	299.8	-0.2	201	300.0	0.0
2	300.2	0.2	102	299.8	-0.2	202	300.0	0.0
3	300.0	0.0	103	300.2	0.2	203	300.0	0.0
4	300.2	0.2	104	300.2	0.2	204	300.2	0.2
5	300.2	0.2	105	300.2	0.2	205	300.2	0.2
6	300.2	0.2	106	300.2	0.2	206	300.2	0.2
7	300.2	0.2	107	300.2	0.2	207	300.4	0.4
8	300.4	0.4	108	300.4	0.4	208	300.4	0.4
9	300.6	0.6	109	300.4	0.4	209	300.6	0.6
10	300.7	0.7	110	300.7	0.7	210	300.7	0.7
11	300.2	0.2	111	300.0	0.0	211	299.8	-0.2
12	300.2	0.2	112	300.0	0.0	212	299.8	-0.2
13	300.2	0.2	113	300.2	0.2	213	300.0	0.0
14	300.2	0.2	114	300.2	0.2	214	300.0	0.0
15	300.2	0.2	115	300.2	0.2	215	300.0	0.0
16	300.2	0.2	116	300.2	0.2	216	300.2	0.2
17	300.2	0.2	117	300.4	0.4	217	300.2	0.2
18	300.2	0.2	118	300.4	0.4	218	300.2	0.2
19	300.4	0.4	119	300.6	0.6	219	300.2	0.2
20	300.6	0.6	120	300.7	0.7	220	300.6	0.6
21	300.2	0.2	121	300.4	0.4	221	299.5	-0.5
22	300.2	0.2	122	300.2	0.2	222	299.7	-0.3
23	300.2	0.2	123	300.2	0.2	223	299.7	-0.3
24	300.2	0.2	124	300.2	0.2	224	299.7	-0.3
25	300.2	0.2	125	300.4	0.4	225	300.0	0.0
26	300.4	0.4	126	300.4	0.4	226	300.2	0.2
27	300.6	0.6	127	300.6	0.6	227	300.2	0.2
28	300.2	0.2	128	300.7	0.7	228	300.2	0.2
29	300.2	0.2	129	300.7	0.7	229	300.4	0.4
30	300.2	0.2	130	300.9	0.9	230	300.7	0.7
31	300.2	0.2	131	300.0	0.0	231	300.0	0.0
32	300.6	0.6	132	299.8	-0.2	232	300.0	0.0
33	300.4	0.4	133	299.8	-0.2	233	299.8	-0.2
34	300.6	0.6	134	300.0	0.0	234	300.0	0.0
35	300.6	0.6	135	300.0	0.0	235	300.0	0.0
36	300.6	0.6	136	300.2	0.2	236	300.2	0.2
37	300.4	0.4	137	300.2	0.2	237	300.2	0.2
38	300.6	0.6	138	300.2	0.2	238	300.2	0.2
39	300.7	0.7	139	300.2	0.2	239	300.6	0.6
40	301.1	1.1	140	300.6	0.6	240	300.7	0.7
41	300.2	0.2	141	299.8	-0.2	241	300.2	0.2
42	300.2	0.2	142	299.8	-0.2	242	300.2	0.2
43	300.2	0.2	143	300.0	0.0	243	300.2	0.2
44	300.2	0.2	144	300.0	0.0	244	300.2	0.2
45	300.2	0.2	145	300.0	0.0	245	300.4	0.4
46	300.2	0.2	146	300.0	0.0	246	300.4	0.4
47	300.2	0.2	147	300.2	0.2	247	300.6	0.6
48	300.4	0.4	148	300.2	0.2	248	300.7	0.7
49	300.6	0.6	149	300.4	0.4	249	300.7	0.7
50	300.7	0.7	150	300.6	0.6	250	301.3	1.3
51	299.8	-0.2	151	300.4	0.4	251	300.2	0.2
52	299.8	-0.2	152	300.4	0.4	252	300.0	0.0
53	299.8	-0.2	153	300.4	0.4	253	300.2	0.2
54	300.0	0.0	154	300.4	0.4	254	300.2	0.2
55	300.0	0.0	155	300.6	0.6	255	300.2	0.2
56	300.2	0.2	156	300.4	0.4	256	300.2	0.2

57	300.2	0.2	157	300.6	0.6	257	300.2	0.2
58	300.2	0.2	158	300.7	0.7	258	300.2	0.2
59	300.4	0.4	159	300.7	0.7	259	300.4	0.4
60	300.7	0.7	160	301.1	1.1	260	300.7	0.7
61	300.2	0.2	161	300.4	0.4	261	300.0	0.0
62	300.2	0.2	162	300.4	0.4	262	300.2	0.2
63	300.2	0.2	163	300.4	0.4	263	300.2	0.2
64	300.2	0.2	164	300.4	0.4	264	300.2	0.2
65	300.4	0.4	165	300.4	0.4	265	300.2	0.2
66	300.4	0.4	166	300.6	0.6	266	300.2	0.2
67	300.6	0.6	167	300.6	0.6	267	300.4	0.4
68	300.6	0.6	168	300.7	0.7	268	300.6	0.6
69	300.7	0.7	169	300.7	0.7	269	300.7	0.7
70	300.7	0.7	170	301.3	1.3	270	301.1	1.1
71	300.2	0.2	171	300.0	0.0	271	300.2	0.2
72	300.2	0.2	172	300.0	0.0	272	300.0	0.0
73	300.2	0.2	173	300.2	0.2	273	300.2	0.2
74	300.2	0.2	174	300.2	0.2	274	300.2	0.2
75	300.4	0.4	175	300.2	0.2	275	300.2	0.2
76	300.4	0.4	176	300.2	0.2	276	300.2	0.2
77	300.4	0.4	177	300.2	0.2	277	300.4	0.4
78	300.4	0.4	178	300.2	0.2	278	300.4	0.4
79	300.7	0.7	179	300.4	0.4	279	300.4	0.4
80	300.9	0.9	180	300.7	0.7	280	300.7	0.7
81	300.2	0.2	181	300.4	0.4	281	299.7	-0.3
82	300.2	0.2	182	300.2	0.2	282	299.8	-0.2
83	300.4	0.4	183	300.2	0.2	283	299.7	-0.3
84	300.4	0.4	184	300.2	0.2	284	299.8	-0.2
85	300.4	0.4	185	300.4	0.4	285	300.0	0.0
86	300.4	0.4	186	300.4	0.4	286	300.2	0.2
87	300.6	0.6	187	300.6	0.6	287	300.2	0.2
88	300.6	0.6	188	300.6	0.6	288	300.2	0.2
89	300.7	0.7	189	300.7	0.7	289	300.4	0.4
90	300.9	0.9	190	301.1	1.1	290	300.7	0.7
91	300.2	0.2	191	300.2	0.2	291	299.7	-0.3
92	300.2	0.2	192	300.2	0.2	292	299.8	-0.2
93	300.2	0.2	193	300.2	0.2	293	300.0	0.0
94	300.2	0.2	194	300.2	0.2	294	300.0	0.0
95	300.2	0.2	195	300.2	0.2	295	300.0	0.0
96	300.2	0.2	196	300.2	0.2	296	300.2	0.2
97	300.4	0.4	197	300.4	0.4	297	300.2	0.2
98	300.6	0.6	198	300.4	0.4	298	300.4	0.4
99	300.4	0.4	199	300.6	0.6	299	300.4	0.4
100	300.7	0.7	200	300.7	0.7	300	300.7	0.7

Range for 300°F Signal: **+1.3/-0.5**

Allowable range ±1.9

Within specification for this temperature? Yes

Performed by: Mike Day MD

Mgr. Fire Resistance — 3/11/05

Title — Date

Approved by:

President — 3/11/05

Title — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: T-207318

Temperature Setting (°F): 400.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	400.3	0.3	101	400.1	0.1	201	400.3	0.3
2	400.3	0.3	102	400.3	0.3	202	400.3	0.3
3	400.1	0.1	103	400.3	0.3	203	400.3	0.3
4	400.1	0.1	104	400.3	0.3	204	400.3	0.3
5	400.1	0.1	105	400.3	0.3	205	400.3	0.3
6	400.3	0.3	106	400.3	0.3	206	400.5	0.5
7	400.3	0.3	107	400.3	0.3	207	400.6	0.6
8	400.3	0.3	108	400.3	0.3	208	400.8	0.8
9	400.3	0.3	109	400.5	0.5	209	400.8	0.8
10	400.6	0.6	110	400.6	0.6	210	400.8	0.8
11	400.1	0.1	111	400.1	0.1	211	399.9	-0.1
12	400.1	0.1	112	400.3	0.3	212	400.1	0.1
13	399.9	-0.1	113	400.3	0.3	213	400.1	0.1
14	400.1	0.1	114	400.3	0.3	214	400.1	0.1
15	400.1	0.1	115	400.5	0.5	215	400.1	0.1
16	400.1	0.1	116	400.6	0.6	216	400.3	0.3
17	400.1	0.1	117	400.6	0.6	217	400.3	0.3
18	400.3	0.3	118	400.8	0.8	218	400.3	0.3
19	400.3	0.3	119	400.8	0.8	219	400.3	0.3
20	400.5	0.5	120	400.8	0.8	220	400.6	0.6
21	400.1	0.1	121	400.5	0.5	221	399.7	-0.3
22	400.1	0.1	122	400.5	0.5	222	399.9	-0.1
23	400.3	0.3	123	400.3	0.3	223	400.1	0.1
24	400.3	0.3	124	400.3	0.3	224	400.1	0.1
25	400.5	0.5	125	400.3	0.3	225	400.1	0.1
26	400.1	0.1	126	400.3	0.3	226	400.1	0.1
27	400.1	0.1	127	400.5	0.5	227	400.3	0.3
28	400.3	0.3	128	400.6	0.6	228	400.3	0.3
29	400.3	0.3	129	400.8	0.8	229	400.5	0.5
30	400.3	0.3	130	401.0	1.0	230	400.6	0.6
31	400.5	0.5	131	399.9	-0.1	231	400.3	0.3
32	400.3	0.3	132	399.9	-0.1	232	400.1	0.1
33	400.3	0.3	133	399.9	-0.1	233	400.3	0.3
34	400.3	0.3	134	399.9	-0.1	234	400.3	0.3
35	400.3	0.3	135	399.9	-0.1	235	400.3	0.3
36	400.5	0.5	136	399.9	-0.1	236	400.3	0.3
37	400.5	0.5	137	399.9	-0.1	237	400.5	0.5
38	400.6	0.6	138	400.1	0.1	238	400.5	0.5
39	400.8	0.8	139	400.3	0.3	239	400.6	0.6
40	400.8	0.8	140	400.5	0.5	240	400.8	0.8
41	399.9	-0.1	141	399.7	-0.3	241	400.3	0.3
42	399.9	-0.1	142	399.7	-0.3	242	400.3	0.3
43	399.9	-0.1	143	399.9	-0.1	243	400.3	0.3
44	400.1	0.1	144	399.9	-0.1	244	400.3	0.3
45	400.1	0.1	145	399.9	-0.1	245	400.3	0.3
46	400.1	0.1	146	400.1	0.1	246	400.5	0.5
47	400.1	0.1	147	400.1	0.1	247	400.6	0.6
48	400.3	0.3	148	400.3	0.3	248	400.6	0.6
49	400.3	0.3	149	400.3	0.3	249	401.2	1.2
50	400.6	0.6	150	400.6	0.6	250	401.2	1.2
51	399.7	-0.3	151	400.5	0.5	251	400.1	0.1
52	399.9	-0.1	152	400.3	0.3	252	400.1	0.1
53	400.1	0.1	153	400.3	0.3	253	400.1	0.1
54	400.1	0.1	154	400.5	0.5	254	400.3	0.3

55	400.1	0.1	155	400.5	0.5	255	400.3	0.3
56	400.3	0.3	156	400.6	0.6	256	400.3	0.3
57	400.3	0.3	157	400.6	0.6	257	400.5	0.5
58	400.3	0.3	158	400.6	0.6	258	400.6	0.6
59	400.5	0.5	159	400.6	0.6	259	400.6	0.6
60	400.6	0.6	160	400.8	0.8	260	400.8	0.8
61	400.6	0.6	161	400.3	0.3	261	400.3	0.3
62	400.3	0.3	162	400.3	0.3	262	400.3	0.3
63	400.3	0.3	163	400.3	0.3	263	400.3	0.3
64	400.3	0.3	164	400.3	0.3	264	400.3	0.3
65	400.3	0.3	165	400.5	0.5	265	400.3	0.3
66	400.3	0.3	166	400.6	0.6	266	400.3	0.3
67	400.5	0.5	167	400.6	0.6	267	400.5	0.5
68	400.6	0.6	168	400.8	0.8	268	400.6	0.6
69	400.8	0.8	169	400.8	0.8	269	400.8	0.8
70	400.8	0.8	170	401.0	1.0	270	400.8	0.8
71	400.3	0.3	171	399.7	-0.3	271	400.3	0.3
72	400.3	0.3	172	399.9	-0.1	272	400.3	0.3
73	400.3	0.3	173	399.9	-0.1	273	400.3	0.3
74	400.5	0.5	174	400.1	0.1	274	400.3	0.3
75	400.3	0.3	175	400.3	0.3	275	400.5	0.5
76	400.3	0.3	176	400.3	0.3	276	400.5	0.5
77	400.5	0.5	177	400.3	0.3	277	400.5	0.5
78	400.6	0.6	178	400.3	0.3	278	400.6	0.6
79	400.6	0.6	179	400.6	0.6	279	400.6	0.6
80	401.0	1.0	180	400.8	0.8	280	400.8	0.8
81	400.3	0.3	181	400.5	0.5	281	399.6	-0.4
82	400.3	0.3	182	400.3	0.3	282	399.6	-0.4
83	400.5	0.5	183	400.3	0.3	283	399.7	-0.3
84	400.5	0.5	184	400.5	0.5	284	399.9	-0.1
85	400.5	0.5	185	400.5	0.5	285	399.9	-0.1
86	400.5	0.5	186	400.6	0.6	286	400.1	0.1
87	400.6	0.6	187	400.6	0.6	287	400.3	0.3
88	400.6	0.6	188	400.8	0.8	288	400.3	0.3
89	400.8	0.8	189	400.8	0.8	289	400.3	0.3
90	400.8	0.8	190	401.2	1.2	290	400.6	0.6
91	400.5	0.5	191	400.3	0.3	291	399.7	-0.3
92	400.3	0.3	192	400.3	0.3	292	399.7	-0.3
93	400.3	0.3	193	400.3	0.3	293	399.7	-0.3
94	400.3	0.3	194	400.3	0.3	294	399.9	-0.1
95	400.3	0.3	195	400.3	0.3	295	399.9	-0.1
96	400.5	0.5	196	400.3	0.3	296	400.1	0.1
97	400.5	0.5	197	400.5	0.5	297	400.3	0.3
98	400.8	0.8	198	400.6	0.6	298	400.3	0.3
99	400.8	0.8	199	400.6	0.6	299	400.3	0.3
100	401.0	1.0	200	400.8	0.8	300	400.6	0.6

Range for 400°F Signal: **+1.2/-0.4**

Allowable range: ±2.0

Within specification for this temperature? Yes

Performed by: Mike Dey

Mgr. Fire Resistance — Title

3/11/05 — Date

Approved by:

President — Title

3/11/05 — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: T-207318

Temperature Setting (°F): 1000.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	999.0	-1.0	101	1000.0	0.0	201	1000.4	0.4
2	999.0	-1.0	102	1000.0	0.0	202	1000.4	0.4
3	999.0	-1.0	103	1000.0	0.0	203	1000.4	0.4
4	999.5	-0.5	104	1000.2	0.2	204	1000.4	0.4
5	999.7	-0.3	105	1000.4	0.4	205	1000.4	0.4
6	999.7	-0.3	106	1000.4	0.4	206	1000.4	0.4
7	999.9	-0.1	107	1000.6	0.6	207	1000.6	0.6
8	1000.0	0.0	108	1000.6	0.6	208	1000.6	0.6
9	1000.2	0.2	109	1000.6	0.6	209	1000.8	0.8
10	1000.6	0.6	110	1000.9	0.9	210	1000.9	0.9
11	999.9	-0.1	111	1000.2	0.2	211	1000.0	0.0
12	999.7	-0.3	112	1000.4	0.4	212	1000.0	0.0
13	999.9	-0.1	113	1000.4	0.4	213	1000.0	0.0
14	999.9	-0.1	114	1000.4	0.4	214	1000.2	0.2
15	999.9	-0.1	115	1000.6	0.6	215	1000.2	0.2
16	999.7	-0.3	116	1000.6	0.6	216	1000.2	0.2
17	999.9	-0.1	117	1000.6	0.6	217	1000.2	0.2
18	999.9	-0.1	118	1000.8	0.8	218	1000.4	0.4
19	1000.0	0.0	119	1000.9	0.9	219	1000.6	0.6
20	1000.0	0.0	120	1000.9	0.9	220	1000.6	0.6
21	999.9	-0.1	121	1000.6	0.6	221	999.9	-0.1
22	999.7	-0.3	122	1000.4	0.4	222	1000.0	0.0
23	999.7	-0.3	123	1000.2	0.2	223	1000.0	0.0
24	999.9	-0.1	124	1000.4	0.4	224	1000.0	0.0
25	999.9	-0.1	125	1000.6	0.6	225	1000.0	0.0
26	999.7	-0.3	126	1000.6	0.6	226	1000.0	0.0
27	999.9	-0.1	127	1000.6	0.6	227	1000.0	0.0
28	999.9	-0.1	128	1000.6	0.6	228	1000.2	0.2
29	1000.0	0.0	129	1000.8	0.8	229	1000.4	0.4
30	1000.0	0.0	130	1000.9	0.9	230	1000.6	0.6
31	1000.0	0.0	131	1000.0	0.0	231	1000.0	0.0
32	1000.0	0.0	132	1000.0	0.0	232	1000.2	0.2
33	1000.2	0.2	133	1000.0	0.0	233	1000.4	0.4
34	1000.4	0.4	134	1000.0	0.0	234	1000.4	0.4
35	1000.4	0.4	135	1000.0	0.0	235	1000.6	0.6
36	1000.4	0.4	136	1000.0	0.0	236	1000.6	0.6
37	1000.6	0.6	137	1000.2	0.2	237	1000.6	0.6
38	1000.6	0.6	138	1000.4	0.4	238	1000.9	0.9
39	1000.6	0.6	139	1000.4	0.4	239	1000.4	0.4
40	1000.9	0.9	140	1000.6	0.6	240	1000.2	0.2
41	1000.0	0.0	141	1000.0	0.0	241	1000.2	0.2
42	999.9	-0.1	142	1000.0	0.0	242	1000.2	0.2
43	1000.0	0.0	143	1000.0	0.0	243	1000.2	0.2
44	1000.0	0.0	144	1000.0	0.0	244	1000.4	0.4
45	1000.0	0.0	145	1000.0	0.0	245	1000.4	0.4
46	1000.0	0.0	146	1000.0	0.0	246	1000.2	0.2
47	1000.0	0.0	147	1000.2	0.2	247	1000.2	0.2
48	1000.2	0.2	148	1000.6	0.6	248	1000.2	0.2
49	1000.6	0.6	149	1000.6	0.6	249	1000.8	0.8
50	1000.6	0.6	150	1000.6	0.6	250	1001.1	1.1
51	999.7	-0.3	151	1000.4	0.4	251	1000.2	0.2
52	999.9	-0.1	152	1000.4	0.4	252	1000.2	0.2
53	1000.0	0.0	153	1000.4	0.4	253	1000.4	0.4
54	1000.0	0.0	154	1000.2	0.2	254	1000.4	0.4
55	1000.0	0.0	155	1000.4	0.4	255	1000.4	0.4
56	1000.2	0.2	156	1000.4	0.4	256	1000.4	0.4

57	1000.2	0.2	157	1000.4	0.4	257	1000.4	0.4
58	1000.4	0.4	158	1000.6	0.6	258	1000.6	0.6
59	1000.4	0.4	159	1000.6	0.6	259	1000.6	0.6
60	1000.6	0.6	160	1000.9	0.9	260	1000.8	0.8
61	1000.6	0.6	161	1000.4	0.4	261	1000.0	0.0
62	1000.4	0.4	162	1000.4	0.4	262	1000.0	0.0
63	1000.4	0.4	163	1000.4	0.4	263	1000.2	0.2
64	1000.4	0.4	164	1000.6	0.6	264	1000.2	0.2
65	1000.4	0.4	165	1000.6	0.6	265	1000.4	0.4
66	1000.6	0.6	166	1000.6	0.6	266	1000.4	0.4
67	1000.6	0.6	167	1000.6	0.6	267	1000.6	0.6
68	1000.6	0.6	168	1000.6	0.6	268	1000.6	0.6
69	1000.9	0.9	169	1000.6	0.6	269	1000.6	0.6
70	1000.9	0.9	170	1000.9	0.9	270	1000.9	0.9
71	1000.6	0.6	171	999.9	-0.1	271	1000.0	0.0
72	1000.4	0.4	172	1000.0	0.0	272	1000.0	0.0
73	1000.6	0.6	173	1000.0	0.0	273	1000.0	0.0
74	1000.4	0.4	174	1000.2	0.2	274	1000.0	0.0
75	1000.8	0.8	175	1000.2	0.2	275	1000.0	0.0
76	1000.6	0.6	176	1000.4	0.4	276	1000.0	0.0
77	1000.8	0.8	177	1000.6	0.6	277	1000.2	0.2
78	1000.8	0.8	178	1000.6	0.6	278	1000.2	0.2
79	1000.9	0.9	179	1000.6	0.6	279	1000.6	0.6
80	1000.9	0.9	180	1000.9	0.9	280	1000.8	0.8
81	1000.4	0.4	181	1000.6	0.6	281	999.7	-0.3
82	1000.4	0.4	182	1000.6	0.6	282	999.7	-0.3
83	1000.4	0.4	183	1000.6	0.6	283	999.7	-0.3
84	1000.4	0.4	184	1000.6	0.6	284	999.9	-0.1
85	1000.6	0.6	185	1000.6	0.6	285	999.9	-0.1
86	1000.6	0.6	186	1000.8	0.8	286	999.9	-0.1
87	1000.6	0.6	187	1000.6	0.6	287	1000.0	0.0
88	1000.6	0.6	188	1000.8	0.8	288	1000.0	0.0
89	1000.9	0.9	189	1000.9	0.9	289	1000.0	0.0
90	1000.9	0.9	190	1001.3	1.3	290	1000.4	0.4
91	1000.4	0.4	191	1000.6	0.6	291	999.7	-0.3
92	1000.4	0.4	192	1000.4	0.4	292	999.7	-0.3
93	1000.6	0.6	193	1000.6	0.6	293	999.9	-0.1
94	1000.6	0.6	194	1000.6	0.6	294	1000.0	0.0
95	1000.6	0.6	195	1000.6	0.6	295	1000.0	0.0
96	1000.6	0.6	196	1000.6	0.6	296	1000.0	0.0
97	1000.6	0.6	197	1000.8	0.8	297	1000.0	0.0
98	1000.6	0.6	198	1000.9	0.9	298	1000.2	0.2
99	1000.6	0.6	199	1000.9	0.9	299	1000.0	0.0
100	1000.9	0.9	200	1001.1	1.1	300	1000.4	0.4

Range for 1000°F Signal: +1.3/-1

Allowable range: ±2.3

Within specification for this temperature? Yes

Performed by: Mike Day MI

Mgr. Fire Resistance — 3/11/05

Title — Date

Approved by:

President — 3/11/05

Title — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: T-207318

Temperature Setting (°F): 2000.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	1999.8	-0.2	101	2000.7	0.7	201	2000.7	0.7
2	1999.8	-0.2	102	2000.7	0.7	202	2000.7	0.7
3	1999.6	-0.4	103	2000.7	0.7	203	2000.7	0.7
4	1999.6	-0.4	104	2000.7	0.7	204	2000.7	0.7
5	1999.6	-0.4	105	2000.7	0.7	205	2000.8	0.8
6	1999.8	-0.2	106	2000.7	0.7	206	2001.0	1.0
7	1999.8	-0.2	107	2000.8	0.8	207	2001.0	1.0
8	1999.8	-0.2	108	2000.8	0.8	208	2001.0	1.0
9	1999.9	-0.1	109	2001.0	1.0	209	2001.4	1.4
10	2000.3	0.3	110	2001.0	1.0	210	2001.4	1.4
11	1999.6	-0.4	111	2000.7	0.7	211	2000.7	0.7
12	1999.6	-0.4	112	2000.7	0.7	212	2000.7	0.7
13	1999.4	-0.6	113	2000.7	0.7	213	2000.7	0.7
14	1999.8	-0.2	114	2000.8	0.8	214	2000.7	0.7
15	1999.8	-0.2	115	2000.8	0.8	215	2000.7	0.7
16	1999.8	-0.2	116	2001.0	1.0	216	2000.7	0.7
17	1999.8	-0.2	117	2001.0	1.0	217	2000.7	0.7
18	1999.8	-0.2	118	2001.2	1.2	218	2000.7	0.7
19	1999.8	-0.2	119	2001.4	1.4	219	2000.8	0.8
20	1999.9	-0.1	120	2001.6	1.6	220	2001.0	1.0
21	1999.4	-0.6	121	2000.7	0.7	221	2000.3	0.3
22	1999.4	-0.6	122	2000.7	0.7	222	2000.3	0.3
23	1999.4	-0.6	123	2000.5	0.5	223	2000.5	0.5
24	1999.6	-0.4	124	2000.7	0.7	224	2000.5	0.5
25	1999.8	-0.2	125	2000.7	0.7	225	2000.5	0.5
26	1999.8	-0.2	126	2000.7	0.7	226	2000.5	0.5
27	1999.8	-0.2	127	2000.8	0.8	227	2000.7	0.7
28	1999.9	-0.1	128	2001.0	1.0	228	2000.7	0.7
29	1999.4	-0.6	129	2001.0	1.0	229	2000.8	0.8
30	1999.4	-0.6	130	2001.4	1.4	230	2001.0	1.0
31	2000.5	0.5	131	2000.5	0.5	231	2000.7	0.7
32	2000.5	0.5	132	2000.3	0.3	232	2000.7	0.7
33	2000.5	0.5	133	2000.3	0.3	233	2000.8	0.8
34	2000.3	0.3	134	2000.3	0.3	234	2000.8	0.8
35	2000.5	0.5	135	2000.3	0.3	235	2000.8	0.8
36	2000.5	0.5	136	2000.3	0.3	236	2001.0	1.0
37	2000.7	0.7	137	2000.3	0.3	237	2001.0	1.0
38	2000.7	0.7	138	2000.5	0.5	238	2001.0	1.0
39	2000.7	0.7	139	2000.7	0.7	239	2001.0	1.0
40	2001.0	1.0	140	2000.8	0.8	240	2001.4	1.4
41	2000.1	0.1	141	2000.1	0.1	241	2000.7	0.7
42	2000.3	0.3	142	2000.1	0.1	242	2000.7	0.7
43	2000.1	0.1	143	2000.3	0.3	243	2000.3	0.3
44	2000.5	0.5	144	2000.5	0.5	244	2000.5	0.5
45	2000.5	0.5	145	2000.5	0.5	245	2000.7	0.7
46	2000.5	0.5	146	2000.5	0.5	246	2000.7	0.7
47	2000.5	0.5	147	2000.5	0.5	247	2000.7	0.7
48	2000.5	0.5	148	2000.7	0.7	248	2000.8	0.8
49	2000.5	0.5	149	2000.7	0.7	249	2001.0	1.0
50	2000.7	0.7	150	2001.0	1.0	250	2001.2	1.2
51	1999.9	-0.1	151	2000.5	0.5	251	2000.1	0.1
52	1999.9	-0.1	152	2000.5	0.5	252	1999.9	-0.1
53	1999.9	-0.1	153	2000.3	0.3	253	1999.9	-0.1
54	1999.9	-0.1	154	2000.5	0.5	254	2000.1	0.1
55	2000.1	0.1	155	2000.7	0.7	255	2000.1	0.1
56	2000.3	0.3	156	2000.7	0.7	256	2000.3	0.3

57	2000.5	0.5	157	2000.7	0.7	257	2000.3	0.3
58	2000.7	0.7	158	2000.7	0.7	258	2000.7	0.7
59	2000.7	0.7	159	2001.0	1.0	259	2000.7	0.7
60	2000.8	0.8	160	2001.2	1.2	260	2000.8	0.8
61	2000.8	0.8	161	2000.7	0.7	261	2000.1	0.1
62	2000.7	0.7	162	2000.7	0.7	262	2000.1	0.1
63	2000.7	0.7	163	2000.7	0.7	263	2000.1	0.1
64	2000.7	0.7	164	2000.7	0.7	264	2000.1	0.1
65	2000.7	0.7	165	2000.7	0.7	265	2000.1	0.1
66	2000.7	0.7	166	2000.7	0.7	266	2000.3	0.3
67	2000.8	0.8	167	2000.7	0.7	267	2000.3	0.3
68	2001.0	1.0	168	2000.8	0.8	268	2000.5	0.5
69	2001.0	1.0	169	2001.0	1.0	269	2000.7	0.7
70	2001.4	1.4	170	2001.2	1.2	270	2001.0	1.0
71	2000.7	0.7	171	2000.1	0.1	271	1999.9	-0.1
72	2000.8	0.8	172	2000.1	0.1	272	1999.9	-0.1
73	2000.8	0.8	173	2000.3	0.3	273	1999.9	-0.1
74	2001.0	1.0	174	2000.3	0.3	274	1999.9	-0.1
75	2000.8	0.8	175	2000.5	0.5	275	1999.9	-0.1
76	2001.0	1.0	176	2000.5	0.5	276	2000.1	0.1
77	2000.8	0.8	177	2000.5	0.5	277	1999.9	-0.1
78	2001.0	1.0	178	2000.7	0.7	278	2000.1	0.1
79	2001.0	1.0	179	2000.8	0.8	279	2000.3	0.3
80	2001.4	1.4	180	2001.0	1.0	280	2000.7	0.7
81	2000.7	0.7	181	2001.2	1.2	281	1999.2	-0.8
82	2000.7	0.7	182	2001.0	1.0	282	1999.2	-0.8
83	2000.8	0.8	183	2001.0	1.0	283	1999.4	-0.6
84	2000.8	0.8	184	2001.2	1.2	284	1999.4	-0.6
85	2000.8	0.8	185	2001.2	1.2	285	1999.6	-0.4
86	2001.0	1.0	186	2001.2	1.2	286	1999.6	-0.4
87	2001.0	1.0	187	2001.4	1.4	287	1999.6	-0.4
88	2000.8	0.8	188	2001.4	1.4	288	1999.6	-0.4
89	2001.0	1.0	189	2001.6	1.6	289	1999.9	-0.1
90	2001.2	1.2	190	2001.7	1.7	290	1999.9	-0.1
91	2000.7	0.7	191	2001.0	1.0	291	1999.2	-0.8
92	2000.7	0.7	192	2001.0	1.0	292	1999.2	-0.8
93	2000.7	0.7	193	2001.0	1.0	293	1999.2	-0.8
94	2000.7	0.7	194	2001.0	1.0	294	1999.4	-0.6
95	2000.7	0.7	195	2001.0	1.0	295	1999.6	-0.4
96	2000.7	0.7	196	2001.2	1.2	296	1999.6	-0.4
97	2000.8	0.8	197	2001.4	1.4	297	1999.8	-0.2
98	2001.0	1.0	198	2001.4	1.4	298	1999.9	-0.1
99	2001.0	1.0	199	2001.4	1.4	299	1999.9	-0.1
100	2001.4	1.4	200	2001.6	1.6	300	2000.3	0.3

Range for 2000°F Signal: **+1.7/-0.8**

Allowable range: ±2.8

Within specification for this temperature? Yes

Performed by: Mike Day MD

Mgr. Fire Resistance — 3/11/05

Title — Date

Approved by:

President — 3/11/05

Title — Date

Omega Point Laboratories, Inc.
16015 Shady Falls Road
Elmendorf, Texas 78112
800-966-5253 FAX 210-635-8101

Certificate of Verification

Certification No.: 92145

Verification Date: 03/11/2005

Reverification Date: 09/11/2005

Manufacturer: Yokogawa

Model No.: 100 Channel DAU

Serial No.: 99LE004

Equipment Description: 100 Channel Data Acquisition System with YOKOGAWA Darwin Series

Verification Sources: TEGAM Model 840-A, SN: T-207318. Calibration due 05/03/2005

PERFORMANCE:

Temperature: (75°F) +1.3/-0.2	Temperature: (150°F) +1.3/-0.1	Temperature: (300°F) +1.3/-0.3	Temperature: (400°F) +1/-0.3	Temperature: (1000°F) ++1.1/-0.3	Temperature: (2000°F) +1.2/-0.2

Verification Performed by:

Mike Dey
Manager of Fire Resistance

Verification Approved by:

Deg Priest
President/Chief Technical Officer

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: T-207318

Temperature Setting (°F): 75.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by: DP

Title: President

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	75.7	0.7	51	75.0	0.0
2	75.7	0.7	52	75.2	0.2
3	75.7	0.7	53	75.0	0.0
4	75.7	0.7	54	75.0	0.0
5	75.7	0.7	55	75.2	0.2
6	75.9	0.9	56	75.2	0.2
7	75.7	0.7	57	75.2	0.2
8	75.7	0.7	58	75.2	0.2
9	75.9	0.9	59	75.4	0.4
10	76.3	1.3	60	75.4	0.4
11	75.6	0.6	61	75.7	0.7
12	75.4	0.4	62	75.4	0.4
13	75.4	0.4	63	75.4	0.4
14	75.2	0.2	64	75.4	0.4
15	75.4	0.4	65	75.4	0.4
16	75.6	0.6	66	75.4	0.4
17	75.2	0.2	67	75.6	0.6
18	75.4	0.4	68	75.6	0.6
19	75.7	0.7	69	75.7	0.7
20	75.9	0.9	70	76.1	1.1
21	75.7	0.7	71	75.4	0.4
22	75.6	0.6	72	75.2	0.2
23	75.4	0.4	73	75.2	0.2
24	75.6	0.6	74	75.2	0.2
25	75.6	0.6	75	75.2	0.2
26	75.6	0.6	76	75.2	0.2
27	75.7	0.7	77	75.4	0.4
28	75.7	0.7	78	75.4	0.4
29	75.7	0.7	79	75.4	0.4
30	76.1	1.1	80	75.7	0.7
31	75.6	0.6	81	75.4	0.4
32	75.6	0.6	82	75.2	0.2
33	75.4	0.4	83	75.2	0.2
34	75.4	0.4	84	75.2	0.2
35	75.6	0.6	85	75.2	0.2
36	75.4	0.4	86	75.4	0.4
37	75.4	0.4	87	75.4	0.4
38	75.6	0.6	88	75.6	0.6
39	75.7	0.7	89	75.6	0.6
40	75.7	0.7	90	75.7	0.7
41	75.6	0.6	91	74.8	-0.2
42	75.4	0.4	92	75.0	0.0
43	75.2	0.2	93	74.8	-0.2
44	75.2	0.2	94	74.8	-0.2
45	75.4	0.4	95	75.2	0.2
46	75.4	0.4	96	75.0	0.0
47	75.4	0.4	97	75.2	0.2
48	75.6	0.6	98	75.2	0.2
49	75.7	0.7	99	75.2	0.2
50	75.7	0.7	100	75.2	0.2

Range of 75°F Readings: +1.3/-0.2

	Lower	Upper	
Allowable limits	73.2	76.8	(±1.8)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: T-207318

Temperature Setting (°F): 150.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by: D.P.

Title: President

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	151.0	1.0	51	150.1	0.1
2	150.8	0.8	52	149.9	-0.1
3	150.8	0.8	53	149.9	-0.1
4	150.8	0.8	54	150.1	0.1
5	150.8	0.8	55	150.1	0.1
6	150.8	0.8	56	150.1	0.1
7	150.8	0.8	57	150.1	0.1
8	151.0	1.0	58	150.3	0.3
9	151.0	1.0	59	150.3	0.3
10	151.3	1.3	60	150.4	0.4
11	150.6	0.6	61	150.6	0.6
12	150.3	0.3	62	150.3	0.3
13	150.3	0.3	63	150.3	0.3
14	150.3	0.3	64	150.3	0.3
15	150.3	0.3	65	150.3	0.3
16	150.3	0.3	66	150.4	0.4
17	150.4	0.4	67	150.6	0.6
18	150.4	0.4	68	150.4	0.4
19	150.6	0.6	69	150.6	0.6
20	150.8	0.8	70	150.8	0.8
21	150.6	0.6	71	150.3	0.3
22	150.4	0.4	72	149.9	-0.1
23	150.3	0.3	73	149.9	-0.1
24	150.4	0.4	74	150.1	0.1
25	150.4	0.4	75	150.1	0.1
26	150.4	0.4	76	150.1	0.1
27	150.6	0.6	77	150.3	0.3
28	150.6	0.6	78	150.3	0.3
29	150.8	0.8	79	150.3	0.3
30	151.0	1.0	80	150.6	0.6
31	150.8	0.8	81	150.3	0.3
32	150.4	0.4	82	150.3	0.3
33	150.3	0.3	83	150.3	0.3
34	150.4	0.4	84	150.3	0.3
35	150.4	0.4	85	150.3	0.3
36	150.3	0.3	86	150.3	0.3
37	150.3	0.3	87	150.4	0.4
38	150.4	0.4	88	150.4	0.4
39	150.6	0.6	89	150.6	0.6
40	150.8	0.8	90	150.8	0.8
41	150.6	0.6	91	150.1	0.1
42	150.3	0.3	92	149.9	-0.1
43	150.3	0.3	93	149.9	-0.1
44	150.4	0.4	94	150.1	0.1
45	150.4	0.4	95	150.3	0.3
46	150.4	0.4	96	150.1	0.1
47	150.6	0.6	97	150.3	0.3
48	150.6	0.6	98	150.3	0.3
49	150.6	0.6	99	150.3	0.3
50	151.0	1.0	100	150.6	0.6

Range of 150°F Readings: **+1.3/-0.1**

	Lower	Upper	
Allowable limits	148.2	151.8	(±1.8)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: T-207318

Temperature Setting (°F): 300.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by: JP

Title: President

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	300.7	0.7	51	299.8	-0.2
2	300.7	0.7	52	299.7	-0.3
3	300.7	0.7	53	299.8	-0.2
4	300.7	0.7	54	299.8	-0.2
5	300.7	0.7	55	299.8	-0.2
6	300.7	0.7	56	300.0	0.0
7	300.7	0.7	57	300.0	0.0
8	300.7	0.7	58	300.0	0.0
9	301.1	1.1	59	300.2	0.2
10	301.3	1.3	60	300.4	0.4
11	300.6	0.6	61	300.4	0.4
12	300.4	0.4	62	300.2	0.2
13	300.4	0.4	63	300.2	0.2
14	300.6	0.6	64	300.2	0.2
15	300.4	0.4	65	300.2	0.2
16	300.4	0.4	66	300.2	0.2
17	300.4	0.4	67	300.2	0.2
18	300.6	0.6	68	300.4	0.4
19	300.6	0.6	69	300.6	0.6
20	300.9	0.9	70	300.7	0.7
21	300.4	0.4	71	300.2	0.2
22	300.2	0.2	72	300.2	0.2
23	300.4	0.4	73	300.0	0.0
24	300.2	0.2	74	300.0	0.0
25	300.4	0.4	75	300.2	0.2
26	300.4	0.4	76	300.2	0.2
27	300.4	0.4	77	300.0	0.0
28	300.6	0.6	78	300.2	0.2
29	300.7	0.7	79	300.2	0.2
30	300.9	0.9	80	300.4	0.4
31	300.6	0.6	81	300.2	0.2
32	300.4	0.4	82	300.2	0.2
33	300.4	0.4	83	300.2	0.2
34	300.4	0.4	84	300.2	0.2
35	300.2	0.2	85	300.2	0.2
36	300.4	0.4	86	300.2	0.2
37	300.4	0.4	87	300.2	0.2
38	300.4	0.4	88	300.2	0.2
39	300.6	0.6	89	300.4	0.4
40	300.7	0.7	90	300.7	0.7
41	300.4	0.4	91	299.8	-0.2
42	300.2	0.2	92	299.8	-0.2
43	300.2	0.2	93	299.8	-0.2
44	300.4	0.4	94	299.8	-0.2
45	300.4	0.4	95	299.8	-0.2
46	300.4	0.4	96	300.0	0.0
47	300.6	0.6	97	300.0	0.0
48	300.4	0.4	98	300.0	0.0
49	300.6	0.6	99	300.2	0.2
50	300.7	0.7	100	300.4	0.4

Range of 300°F Readings: +1.3/-0.3

	Lower	Upper	
Allowable limits	298.1	301.9	(±1.9)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: T-207318

Temperature Setting (°F): 400.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by: TP

Title: President

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	400.8	0.8	51	399.7	-0.3
2	400.8	0.8	52	399.7	-0.3
3	400.6	0.6	53	399.7	-0.3
4	400.8	0.8	54	399.7	-0.3
5	400.8	0.8	55	399.9	-0.1
6	400.6	0.6	56	399.9	-0.1
7	400.8	0.8	57	399.9	-0.1
8	400.8	0.8	58	400.1	0.1
9	400.8	0.8	59	400.3	0.3
10	401.0	1.0	60	400.3	0.3
11	400.5	0.5	61	400.6	0.6
12	400.3	0.3	62	400.3	0.3
13	400.3	0.3	63	400.3	0.3
14	400.3	0.3	64	400.3	0.3
15	400.3	0.3	65	400.3	0.3
16	400.3	0.3	66	400.3	0.3
17	400.3	0.3	67	400.3	0.3
18	400.5	0.5	68	400.3	0.3
19	400.5	0.5	69	400.5	0.5
20	400.8	0.8	70	400.8	0.8
21	400.3	0.3	71	400.3	0.3
22	400.3	0.3	72	399.9	-0.1
23	400.1	0.1	73	399.9	-0.1
24	400.3	0.3	74	400.1	0.1
25	400.3	0.3	75	400.1	0.1
26	400.3	0.3	76	400.1	0.1
27	400.3	0.3	77	400.3	0.3
28	400.5	0.5	78	400.1	0.1
29	400.5	0.5	79	400.3	0.3
30	400.8	0.8	80	400.6	0.6
31	400.5	0.5	81	400.3	0.3
32	400.5	0.5	82	400.3	0.3
33	400.3	0.3	83	400.3	0.3
34	400.3	0.3	84	400.1	0.1
35	400.5	0.5	85	400.3	0.3
36	400.3	0.3	86	400.3	0.3
37	400.3	0.3	87	400.3	0.3
38	400.5	0.5	88	400.3	0.3
39	400.6	0.6	89	400.5	0.5
40	400.8	0.8	90	400.8	0.8
41	400.3	0.3	91	399.9	-0.1
42	400.3	0.3	92	399.9	-0.1
43	400.3	0.3	93	399.7	-0.3
44	400.3	0.3	94	399.9	-0.1
45	400.3	0.3	95	400.1	0.1
46	400.3	0.3	96	399.9	-0.1
47	400.3	0.3	97	400.1	0.1
48	400.5	0.5	98	400.3	0.3
49	400.6	0.6	99	400.3	0.3
50	400.6	0.6	100	400.3	0.3

Range of 400°F Readings: +1/-0.3

	Lower	Upper	
Allowable limits	398.0	402.0	(±2.0)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: T-207318

Temperature Setting (°F): 1000.0

Within specs? (Yes)/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by: DP

Title: President

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	1000.9	0.9	51	999.9	-0.1
2	1000.8	0.8	52	999.9	-0.1
3	1000.6	0.6	53	999.7	-0.3
4	1000.8	0.8	54	999.9	-0.1
5	1000.8	0.8	55	999.9	-0.1
6	1000.6	0.6	56	999.9	-0.1
7	1000.9	0.9	57	1000.0	0.0
8	1000.9	0.9	58	1000.0	0.0
9	1000.9	0.9	59	1000.0	0.0
10	1001.1	1.1	60	1000.2	0.2
11	1000.6	0.6	61	1000.6	0.6
12	1000.2	0.2	62	1000.2	0.2
13	1000.2	0.2	63	1000.2	0.2
14	1000.4	0.4	64	1000.2	0.2
15	1000.2	0.2	65	1000.0	0.0
16	1000.2	0.2	66	1000.2	0.2
17	1000.4	0.4	67	1000.4	0.4
18	1000.4	0.4	68	1000.4	0.4
19	1000.6	0.6	69	1000.6	0.6
20	1000.8	0.8	70	1000.8	0.8
21	1000.6	0.6	71	1000.0	0.0
22	1000.2	0.2	72	1000.0	0.0
23	1000.4	0.4	73	1000.0	0.0
24	1000.6	0.6	74	1000.0	0.0
25	1000.4	0.4	75	1000.0	0.0
26	1000.6	0.6	76	1000.0	0.0
27	1000.6	0.6	77	1000.0	0.0
28	1000.6	0.6	78	1000.0	0.0
29	1000.6	0.6	79	1000.2	0.2
30	1000.9	0.9	80	1000.6	0.6
31	1000.6	0.6	81	1000.0	0.0
32	1000.2	0.2	82	1000.0	0.0
33	1000.4	0.4	83	1000.0	0.0
34	1000.4	0.4	84	1000.0	0.0
35	1000.2	0.2	85	1000.0	0.0
36	1000.2	0.2	86	1000.0	0.0
37	1000.4	0.4	87	1000.2	0.2
38	1000.2	0.2	88	1000.2	0.2
39	1000.4	0.4	89	1000.2	0.2
40	1000.8	0.8	90	1000.6	0.6
41	1000.2	0.2	91	1000.0	0.0
42	1000.0	0.0	92	999.7	-0.3
43	1000.0	0.0	93	999.7	-0.3
44	1000.0	0.0	94	1000.0	0.0
45	1000.0	0.0	95	1000.0	0.0
46	1000.0	0.0	96	1000.0	0.0
47	1000.2	0.2	97	1000.0	0.0
48	1000.2	0.2	98	1000.0	0.0
49	1000.2	0.2	99	1000.2	0.2
50	1000.6	0.6	100	1000.4	0.4

Range of 2000°F Readings: +1.1/-0.3

	Lower	Upper	
Allowable limits	997.7	1002.3	(±2.3)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: T-207318

Temperature Setting (°F): 2000.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by: JP

Title: President

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	2000.8	0.8	51	1999.9	-0.1
2	2000.8	0.8	52	1999.9	-0.1
3	2000.8	0.8	53	1999.9	-0.1
4	2000.7	0.7	54	1999.9	-0.1
5	2000.8	0.8	55	1999.9	-0.1
6	2000.8	0.8	56	1999.9	-0.1
7	2000.7	0.7	57	1999.9	-0.1
8	2000.8	0.8	58	2000.1	0.1
9	2001.0	1.0	59	2000.1	0.1
10	2001.2	1.2	60	2000.3	0.3
11	2000.7	0.7	61	2000.7	0.7
12	2000.5	0.5	62	2000.3	0.3
13	2000.5	0.5	63	2000.3	0.3
14	2000.3	0.3	64	2000.3	0.3
15	2000.5	0.5	65	2000.3	0.3
16	2000.7	0.7	66	2000.3	0.3
17	2000.5	0.5	67	2000.3	0.3
18	2000.7	0.7	68	2000.5	0.5
19	2000.7	0.7	69	2000.5	0.5
20	2000.8	0.8	70	2001.0	1.0
21	2000.7	0.7	71	2000.7	0.7
22	2000.7	0.7	72	2000.5	0.5
23	2000.7	0.7	73	2000.3	0.3
24	2000.7	0.7	74	2000.5	0.5
25	2000.7	0.7	75	2000.5	0.5
26	2000.7	0.7	76	2000.5	0.5
27	2000.7	0.7	77	2000.5	0.5
28	2000.7	0.7	78	2000.7	0.7
29	2001.0	1.0	79	2000.7	0.7
30	2001.0	1.0	80	2000.8	0.8
31	2000.5	0.5	81	1999.9	-0.1
32	2000.3	0.3	82	1999.8	-0.2
33	2000.3	0.3	83	1999.8	-0.2
34	2000.3	0.3	84	1999.8	-0.2
35	2000.5	0.5	85	1999.9	-0.1
36	2000.5	0.5	86	1999.9	-0.1
37	2000.3	0.3	87	1999.9	-0.1
38	2000.3	0.3	88	1999.9	-0.1
39	2000.7	0.7	89	2000.1	0.1
40	2000.7	0.7	90	2000.3	0.3
41	2000.3	0.3	91	1999.9	-0.1
42	2000.1	0.1	92	1999.9	-0.1
43	2000.1	0.1	93	1999.9	-0.1
44	1999.9	-0.1	94	1999.9	-0.1
45	2000.1	0.1	95	1999.9	-0.1
46	2000.3	0.3	96	2000.1	0.1
47	2000.3	0.3	97	2000.1	0.1
48	2000.3	0.3	98	2000.3	0.3
49	2000.5	0.5	99	2000.5	0.5
50	2000.7	0.7	100	2000.7	0.7

Range of 2000°F Readings: +1.2/-0.2

	Lower	Upper	
Allowable limits	1997.2	2002.8	(±2.8)

Omega Point Laboratories, Inc.
16015 Shady Falls Road
Elmendorf, Texas 78112
800-966-5253 FAX 210-635-8101

Certificate of Verification

Certification No.:	92146
Verification Date:	03/11/2005
Reverification Date:	09/11/2005
Manufacturer:	Yokogawa
Model No.:	100 Channel DAU
Serial No.:	99LE006
Equipment Description:	100 Channel Data Acquisition System with YOKOGAWA Darwin Series
Calibration Sources:	TEGAM Model 840-A, SN: T-207318. Calibration due 05/03/2005.

PERFORMANCE:

Temperature: (75°F) +1.6/-0	Temperature: (150°F) +1.3/-0.3	Temperature: (300°F) +1.3/-0.3	Temperature: (400°F) +1.4/-0.3	Temperature: (1000°F) +1.3/-0.3	Temperature: (2000°F) +1.7/-0.6

Verification Performed by:

Mike Dey
Manager of Fire Resistance

Verification Approved by:

Deg Priest
President/Chief Technical Officer

OMEGA POINT LABORATORIES

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Calibrator Used: T-207318

Temperature Setting (°F): 75.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by: DP

Title:

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	76.5	1.5	51	75.2	0.2
2	76.3	1.3	52	75.6	0.6
3	76.6	1.6	53	75.6	0.6
4	75.9	0.9	54	75.0	0.0
5	75.7	0.7	55	75.0	0.0
6	75.7	0.7	56	75.0	0.0
7	75.7	0.7	57	75.0	0.0
8	75.7	0.7	58	75.0	0.0
9	75.9	0.9	59	75.0	0.0
10	76.3	1.3	60	75.2	0.2
11	75.7	0.7	61	75.7	0.7
12	76.3	1.3	62	75.9	0.9
13	76.5	1.5	63	75.9	0.9
14	75.7	0.7	64	75.6	0.6
15	75.7	0.7	65	75.6	0.6
16	75.6	0.6	66	75.6	0.6
17	75.6	0.6	67	75.6	0.6
18	75.6	0.6	68	75.6	0.6
19	75.7	0.7	69	75.7	0.7
20	75.9	0.9	70	75.9	0.9
21	75.9	0.9	71	75.7	0.7
22	75.7	0.7	72	76.3	1.3
23	76.1	1.1	73	76.1	1.1
24	75.7	0.7	74	75.4	0.4
25	75.4	0.4	75	75.6	0.6
26	75.4	0.4	76	75.4	0.4
27	75.6	0.6	77	75.6	0.6
28	75.6	0.6	78	75.6	0.6
29	75.7	0.7	79	75.4	0.4
30	75.7	0.7	80	75.7	0.7
31	75.7	0.7	81	75.2	0.2
32	76.3	1.3	82	75.6	0.6
33	76.3	1.3	83	75.6	0.6
34	75.6	0.6	84	75.2	0.2
35	75.4	0.4	85	75.2	0.2
36	75.4	0.4	86	75.2	0.2
37	75.4	0.4	87	75.2	0.2
38	75.4	0.4	88	75.2	0.2
39	75.6	0.6	89	75.2	0.2
40	75.7	0.7	90	75.6	0.6
41	75.9	0.9	91	75.4	0.4
42	76.5	1.5	92	75.7	0.7
43	76.5	1.5	93	75.7	0.7
44	75.7	0.7	94	75.4	0.4
45	75.7	0.7	95	75.7	0.7
46	75.7	0.7	96	75.6	0.6
47	75.7	0.7	97	75.7	0.7
48	75.6	0.6	98	75.7	0.7
49	75.7	0.7	99	75.7	0.7
50	76.1	1.1	100	75.7	0.7

Range of 75°F Readings: +1.6/0

	Lower	Upper	
Allowable limits	73.2	76.8	(±1.8)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Calibrator Used: T-207318

Temperature Setting (°F): 150.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by:

Title:

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	151.3	1.3	51	150.1	0.1
2	151.3	1.3	52	150.3	0.3
3	151.3	1.3	53	150.3	0.3
4	150.6	0.6	54	149.9	-0.1
5	150.6	0.6	55	149.9	-0.1
6	150.6	0.6	56	149.7	-0.3
7	150.6	0.6	57	149.7	-0.3
8	150.8	0.8	58	149.9	-0.1
9	150.8	0.8	59	149.9	-0.1
10	151.0	1.0	60	150.1	0.1
11	151.0	1.0	61	150.8	0.8
12	151.3	1.3	62	150.8	0.8
13	151.3	1.3	63	150.8	0.8
14	150.8	0.8	64	150.4	0.4
15	150.8	0.8	65	150.4	0.4
16	150.6	0.6	66	150.4	0.4
17	150.6	0.6	67	150.4	0.4
18	150.8	0.8	68	150.4	0.4
19	150.8	0.8	69	150.4	0.4
20	151.0	1.0	70	150.8	0.8
21	150.6	0.6	71	150.8	0.8
22	151.0	1.0	72	151.0	1.0
23	151.0	1.0	73	151.0	1.0
24	150.3	0.3	74	150.6	0.6
25	150.4	0.4	75	150.4	0.4
26	150.4	0.4	76	150.6	0.6
27	150.3	0.3	77	150.4	0.4
28	150.4	0.4	78	150.6	0.6
29	150.6	0.6	79	150.4	0.4
30	150.8	0.8	80	150.8	0.8
31	150.6	0.6	81	150.3	0.3
32	151.0	1.0	82	150.4	0.4
33	151.0	1.0	83	150.3	0.3
34	150.4	0.4	84	150.1	0.1
35	150.3	0.3	85	150.1	0.1
36	150.4	0.4	86	150.1	0.1
37	150.3	0.3	87	150.1	0.1
38	150.3	0.3	88	150.3	0.3
39	150.6	0.6	89	150.3	0.3
40	150.6	0.6	90	150.4	0.4
41	150.8	0.8	91	150.4	0.4
42	151.3	1.3	92	150.4	0.4
43	151.3	1.3	93	150.6	0.6
44	150.6	0.6	94	150.4	0.4
45	150.6	0.6	95	150.4	0.4
46	150.4	0.4	96	150.4	0.4
47	150.4	0.4	97	150.6	0.6
48	150.6	0.6	98	150.6	0.6
49	150.6	0.6	99	150.6	0.6
50	150.8	0.8	100	150.8	0.8

Range of 150°F Readings: +1.3/-0.3

	Lower	Upper	
Allowable limits	148.2	151.8	(±1.8)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Calibrator Used: T-207318

Temperature Setting (°F): 300.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by: DP

Title:

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	301.1	1.1	51	300.0	0.0
2	301.3	1.3	52	300.2	0.2
3	301.3	1.3	53	300.2	0.2
4	300.7	0.7	54	299.7	-0.3
5	300.2	0.2	55	299.7	-0.3
6	300.2	0.2	56	299.8	-0.2
7	300.6	0.6	57	299.7	-0.3
8	300.6	0.6	58	299.8	-0.2
9	300.6	0.6	59	300.0	0.0
10	300.9	0.9	60	300.0	0.0
11	300.7	0.7	61	300.6	0.6
12	301.1	1.1	62	300.7	0.7
13	301.3	1.3	63	300.7	0.7
14	300.6	0.6	64	300.4	0.4
15	300.4	0.4	65	300.2	0.2
16	300.4	0.4	66	300.4	0.4
17	300.2	0.2	67	300.2	0.2
18	300.4	0.4	68	300.6	0.6
19	300.4	0.4	69	300.6	0.6
20	300.7	0.7	70	300.7	0.7
21	300.4	0.4	71	300.6	0.6
22	300.9	0.9	72	301.1	1.1
23	300.7	0.7	73	300.9	0.9
24	300.2	0.2	74	300.2	0.2
25	300.2	0.2	75	300.4	0.4
26	300.2	0.2	76	300.2	0.2
27	300.2	0.2	77	300.2	0.2
28	300.2	0.2	78	300.4	0.4
29	300.2	0.2	79	300.4	0.4
30	300.6	0.6	80	300.6	0.6
31	300.7	0.7	81	300.0	0.0
32	300.9	0.9	82	300.2	0.2
33	300.9	0.9	83	300.2	0.2
34	300.4	0.4	84	300.0	0.0
35	300.2	0.2	85	300.0	0.0
36	300.2	0.2	86	299.8	-0.2
37	300.2	0.2	87	300.0	0.0
38	300.2	0.2	88	300.0	0.0
39	300.2	0.2	89	300.0	0.0
40	300.6	0.6	90	300.2	0.2
41	300.7	0.7	91	300.2	0.2
42	300.9	0.9	92	300.6	0.6
43	301.1	1.1	93	300.6	0.6
44	300.7	0.7	94	300.2	0.2
45	300.2	0.2	95	300.4	0.4
46	300.4	0.4	96	300.4	0.4
47	300.4	0.4	97	300.6	0.6
48	300.4	0.4	98	300.7	0.7
49	300.6	0.6	99	300.7	0.7
50	300.7	0.7	100	300.7	0.7

Range of 300°F Readings: +1.3/-0.3

	Lower	Upper	
Allowable limits	298.1	301.9	(±1.9)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Calibrator Used: T-207318

Temperature Setting (°F): 400.0

Within specs? Yes/No

Performed by: Mike Dey

Title: Mgr. Dept. 2

Approved by:

Title:

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	401.0	1.0	51	399.9	-0.1
2	401.4	1.4	52	400.3	0.3
3	401.4	1.4	53	400.3	0.3
4	400.6	0.6	54	399.7	-0.3
5	400.3	0.3	55	399.7	-0.3
6	400.5	0.5	56	399.7	-0.3
7	400.5	0.5	57	399.7	-0.3
8	400.5	0.5	58	399.7	-0.3
9	400.6	0.6	59	399.7	-0.3
10	400.8	0.8	60	399.9	-0.1
11	400.8	0.8	61	400.8	0.8
12	401.4	1.4	62	401.0	1.0
13	401.4	1.4	63	400.8	0.8
14	400.6	0.6	64	400.5	0.5
15	400.6	0.6	65	400.5	0.5
16	400.6	0.6	66	400.5	0.5
17	400.5	0.5	67	400.3	0.3
18	400.5	0.5	68	400.5	0.5
19	400.8	0.8	69	400.5	0.5
20	400.8	0.8	70	401.0	1.0
21	400.6	0.6	71	400.6	0.6
22	400.8	0.8	72	400.8	0.8
23	400.8	0.8	73	400.8	0.8
24	400.3	0.3	74	400.3	0.3
25	400.3	0.3	75	400.3	0.3
26	400.3	0.3	76	400.3	0.3
27	400.3	0.3	77	400.3	0.3
28	400.3	0.3	78	400.3	0.3
29	400.5	0.5	79	400.3	0.3
30	400.6	0.6	80	400.6	0.6
31	400.5	0.5	81	400.1	0.1
32	401.0	1.0	82	400.3	0.3
33	401.0	1.0	83	400.3	0.3
34	400.3	0.3	84	400.1	0.1
35	400.3	0.3	85	399.9	-0.1
36	400.3	0.3	86	400.1	0.1
37	400.3	0.3	87	399.9	-0.1
38	400.3	0.3	88	399.9	-0.1
39	400.3	0.3	89	400.3	0.3
40	400.5	0.5	90	400.3	0.3
41	400.5	0.5	91	400.3	0.3
42	401.2	1.2	92	400.5	0.5
43	401.4	1.4	93	400.5	0.5
44	400.5	0.5	94	400.3	0.3
45	400.5	0.5	95	400.5	0.5
46	400.5	0.5	96	400.5	0.5
47	400.3	0.3	97	400.5	0.5
48	400.3	0.3	98	400.6	0.6
49	400.5	0.5	99	400.6	0.6
50	400.8	0.8	100	400.5	0.5

Range of 400°F Readings: +1.4/-0.3

	Lower	Upper	
Allowable limits	398.0	402.0	(±2.0)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Calibrator Used: T-207318

Temperature Setting (°F): 1000.0

Within specs? Yes/No

Performed by: Mike Dey

Title: Mgr. Dept. 2

Approved by:

Title:

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	1000.9	0.9	51	1000.0	0.0
2	1000.9	0.9	52	1000.2	0.2
3	1000.9	0.9	53	1000.2	0.2
4	1000.4	0.4	54	1000.0	0.0
5	1000.4	0.4	55	999.7	-0.3
6	1000.2	0.2	56	999.7	-0.3
7	1000.2	0.2	57	999.7	-0.3
8	1000.4	0.4	58	999.9	-0.1
9	1000.4	0.4	59	999.7	-0.3
10	1000.6	0.6	60	1000.0	0.0
11	1000.6	0.6	61	1000.6	0.6
12	1000.9	0.9	62	1000.7	0.7
13	1000.8	0.8	63	1000.9	0.9
14	1000.4	0.4	64	1000.4	0.4
15	1000.2	0.2	65	1000.0	0.0
16	1000.2	0.2	66	1000.2	0.2
17	1000.4	0.4	67	1000.4	0.4
18	1000.4	0.4	68	1000.2	0.2
19	1000.4	0.4	69	1000.4	0.4
20	1000.6	0.6	70	1000.8	0.8
21	1000.8	0.8	71	1000.6	0.6
22	1001.3	1.3	72	1000.8	0.8
23	1001.1	1.1	73	1000.8	0.8
24	1000.6	0.6	74	1000.2	0.2
25	1000.6	0.6	75	1000.0	0.0
26	1000.6	0.6	76	1000.0	0.0
27	1000.6	0.6	77	1000.0	0.0
28	1000.6	0.6	78	1000.0	0.0
29	1000.8	0.8	79	1000.2	0.2
30	1000.9	0.9	80	1000.4	0.4
31	1000.6	0.6	81	999.9	-0.1
32	1000.8	0.8	82	1000.0	0.0
33	1000.6	0.6	83	1000.0	0.0
34	1000.2	0.2	84	999.7	-0.3
35	1000.2	0.2	85	999.9	-0.1
36	1000.0	0.0	86	999.7	-0.3
37	1000.0	0.0	87	999.7	-0.3
38	1000.2	0.2	88	999.9	-0.1
39	1000.2	0.2	89	999.9	-0.1
40	1000.4	0.4	90	1000.0	0.0
41	1000.6	0.6	91	1000.4	0.4
42	1000.9	0.9	92	1000.4	0.4
43	1000.9	0.9	93	1000.6	0.6
44	1000.2	0.2	94	1000.4	0.4
45	1000.2	0.2	95	1000.4	0.4
46	1000.0	0.0	96	1000.6	0.6
47	1000.2	0.2	97	1000.6	0.6
48	1000.2	0.2	98	1000.6	0.6
49	1000.0	0.0	99	1000.6	0.6
50	1000.6	0.6	100	1000.6	0.6

Range of 2000°F Readings: +1.3/-0.3

	Lower	Upper	
Allowable limits	997.7	1002.3	(±2.3)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Calibrator Used: T-207318

Temperature Setting (°F): 2000.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by: JP

Title:

Date: 3/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	2000.1	0.1	51	1999.9	-0.1
2	2000.3	0.3	52	2000.5	0.5
3	2000.3	0.3	53	2000.5	0.5
4	1999.8	-0.2	54	1999.9	-0.1
5	1999.4	-0.6	55	1999.9	-0.1
6	1999.6	-0.4	56	1999.9	-0.1
7	1999.6	-0.4	57	1999.9	-0.1
8	1999.6	-0.4	58	1999.9	-0.1
9	1999.9	-0.1	59	1999.9	-0.1
10	2000.1	0.1	60	2000.1	0.1
11	2000.7	0.7	61	2000.7	0.7
12	2001.0	1.0	62	2000.6	0.6
13	2001.0	1.0	63	2000.8	0.8
14	2000.3	0.3	64	2000.3	0.3
15	2000.3	0.3	65	2000.3	0.3
16	2000.3	0.3	66	2000.5	0.5
17	2000.3	0.3	67	2000.1	0.1
18	2000.3	0.3	68	2000.3	0.3
19	2000.5	0.5	69	2000.5	0.5
20	2000.7	0.7	70	2000.7	0.7
21	2001.6	1.6	71	2000.3	0.3
22	2001.7	1.7	72	2000.7	0.7
23	2001.7	1.7	73	2000.5	0.5
24	2001.2	1.2	74	1999.9	-0.1
25	2001.0	1.0	75	1999.9	-0.1
26	2001.2	1.2	76	1999.9	-0.1
27	2001.2	1.2	77	1999.9	-0.1
28	2001.2	1.2	78	1999.9	-0.1
29	2001.4	1.4	79	1999.9	-0.1
30	2001.7	1.7	80	2000.1	0.1
31	2000.3	0.3	81	1999.9	-0.1
32	2000.7	0.7	82	1999.9	-0.1
33	2000.8	0.8	83	2000.1	0.1
34	2000.1	0.1	84	1999.6	-0.4
35	1999.9	-0.1	85	1999.6	-0.4
36	1999.9	-0.1	86	1999.8	-0.2
37	1999.9	-0.1	87	1999.6	-0.4
38	1999.9	-0.1	88	1999.8	-0.2
39	2000.1	0.1	89	1999.9	-0.1
40	2000.5	0.5	90	2000.1	0.1
41	2000.5	0.5	91	2000.7	0.7
42	2000.7	0.7	92	2000.7	0.7
43	2001.0	1.0	93	2000.7	0.7
44	2000.3	0.3	94	2000.7	0.7
45	2000.1	0.1	95	2000.7	0.7
46	2000.3	0.3	96	2000.7	0.7
47	2000.1	0.1	97	2000.8	0.8
48	1999.9	-0.1	98	2001.0	1.0
49	2000.3	0.3	99	2000.8	0.8
50	2000.5	0.5	100	2001.0	1.0

Range of 2000°F Readings: +1.7/-0.6

	Lower	Upper	
Allowable limits	1997.2	2002.8	(±2.8)

Omega Point Laboratories, Inc.
16015 Shady Falls Road
Elmendorf, Texas 78112
800-966-5253 FAX 210-635-8101

Certificate of Verification

Certification No.:	92148
Verification Date:	04/11/2005
Re-verification Date:	10/11/2005
Manufacturer:	Yokogawa
Model No.:	300 Channel DAU-
Serial No.:	48JF0082
Equipment Description:	300 Channel Data Acquisition System with YOKOGAWA Darwin Series
Calibration Sources:	Tegam T-156701 due: 07/26/2005

PERFORMANCE:

Temperature: (75°F) 1.3/-0.3	Temperature: (150°F) 1.2/-0.6	Temperature: (300°F) 1.1/-0.5	Temperature: (400°F) +1.2/-0.4	Temperature: (1000°F) 1.3/-0.5	Temperature: (2000°F) 2.6/-1.5

Measurement Uncertainty: ± 0.2%

Verification Performed by:

Mike Dey
Manager Fire Resistance

Verification Approved by:

Deg Priest
President/Chief Technical Officer

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: SNT156701

Temperature Setting (°F): 75.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	75.4	0.4	101	75.0	0.0	201	75.0	0.0
2	75.2	0.2	102	75.0	0.0	202	75.0	0.0
3	75.2	0.2	103	75.2	0.2	203	75.0	0.0
4	75.4	0.4	104	75.2	0.2	204	75.0	0.0
5	75.4	0.4	105	75.2	0.2	205	75.2	0.2
6	75.6	0.6	106	75.2	0.2	206	75.2	0.2
7	75.6	0.6	107	75.2	0.2	207	75.4	0.4
8	75.6	0.6	108	75.4	0.4	208	75.6	0.6
9	75.7	0.7	109	75.6	0.6	209	75.7	0.7
10	75.9	0.9	110	75.7	0.7	210	75.9	0.9
11	75.2	0.2	111	74.8	-0.2	211	74.8	-0.2
12	75.2	0.2	112	74.8	-0.2	212	74.7	-0.3
13	75.2	0.2	113	74.8	-0.2	213	74.8	-0.2
14	75.2	0.2	114	75.2	0.2	214	74.8	-0.2
15	75.2	0.2	115	75.2	0.2	215	75.0	0.0
16	75.2	0.2	116	75.2	0.2	216	75.0	0.0
17	75.4	0.4	117	75.2	0.2	217	75.2	0.2
18	75.4	0.4	118	75.4	0.4	218	75.2	0.2
19	75.6	0.6	119	75.6	0.6	219	75.2	0.2
20	75.7	0.7	120	75.7	0.7	220	75.6	0.6
21	75.4	0.4	121	75.7	0.7	221	74.8	-0.2
22	75.4	0.4	122	75.4	0.4	222	74.7	-0.3
23	75.4	0.4	123	75.4	0.4	223	74.8	-0.2
24	75.2	0.2	124	75.4	0.4	224	75.0	0.0
25	75.6	0.6	125	75.4	0.4	225	75.0	0.0
26	75.7	0.7	126	75.4	0.4	226	75.0	0.0
27	75.7	0.7	127	75.6	0.6	227	75.0	0.0
28	75.7	0.7	128	75.6	0.6	228	75.2	0.2
29	75.7	0.7	129	75.7	0.7	229	75.2	0.2
30	75.9	0.9	130	75.9	0.9	230	75.6	0.6
31	75.4	0.4	131	74.8	-0.2	231	74.7	-0.3
32	75.2	0.2	132	74.8	-0.2	232	74.7	-0.3
33	75.4	0.4	133	74.7	-0.3	233	74.8	-0.2
34	75.2	0.2	134	74.8	-0.2	234	74.8	-0.2
35	75.4	0.4	135	75.0	0.0	235	75.0	0.0
36	75.4	0.4	136	75.0	0.0	236	75.0	0.0
37	75.4	0.4	137	75.0	0.0	237	75.2	0.2
38	75.4	0.4	138	75.2	0.2	238	75.2	0.2
39	75.7	0.7	139	75.2	0.2	239	75.4	0.4
40	75.9	0.9	140	75.7	0.7	240	75.6	0.6
41	75.2	0.2	141	75.0	0.0	241	75.4	0.4
42	75.2	0.2	142	74.8	-0.2	242	75.2	0.2
43	75.2	0.2	143	75.0	0.0	243	75.2	0.2
44	75.2	0.2	144	75.0	0.0	244	75.2	0.2
45	75.2	0.2	145	75.0	0.0	245	75.2	0.2
46	75.2	0.2	146	75.0	0.0	246	75.2	0.2
47	75.2	0.2	147	75.0	0.0	247	75.4	0.4
48	75.4	0.4	148	75.2	0.2	248	75.6	0.6
49	75.4	0.4	149	75.2	0.2	249	75.7	0.7
50	75.7	0.7	150	75.6	0.6	250	76.3	1.3
51	74.8	-0.2	151	75.2	0.2	251	75.0	0.0
52	75.0	0.0	152	75.2	0.2	252	75.0	0.0
53	75.0	0.0	153	75.2	0.2	253	74.8	-0.2
54	75.2	0.2	154	75.2	0.2	254	75.0	0.0

55	75.2	0.2	155	75.2	0.2	255	75.2	0.2	
56	75.2	0.2	156	75.2	0.2	256	75.2	0.2	
57	75.2	0.2	157	75.4	0.4	257	75.2	0.2	
58	75.4	0.4	158	75.4	0.4	258	75.2	0.2	
59	75.6	0.6	159	75.6	0.6	259	75.6	0.6	
60	75.7	0.7	160	75.7	0.7	260	75.7	0.7	
61	75.4	0.4	161	75.2	0.2	261	75.0	0.0	
62	75.2	0.2	162	75.2	0.2	262	75.0	0.0	
63	75.2	0.2	163	75.2	0.2	263	75.0	0.0	
64	75.2	0.2	164	75.2	0.2	264	75.2	0.2	
65	75.2	0.2	165	75.2	0.2	265	75.2	0.2	
66	75.2	0.2	166	75.2	0.2	266	75.2	0.2	
67	75.4	0.4	167	75.4	0.4	267	75.2	0.2	
68	75.4	0.4	168	75.4	0.4	268	75.4	0.4	
69	75.7	0.7	169	75.6	0.6	269	75.6	0.6	
70	75.9	0.9	170	75.7	0.7	270	75.7	0.7	
71	75.4	0.4	171	74.7	-0.3	271	75.2	0.2	
72	75.2	0.2	172	74.7	-0.3	272	75.2	0.2	
73	75.4	0.4	173	74.8	-0.2	273	75.2	0.2	
74	75.4	0.4	174	74.8	-0.2	274	75.2	0.2	
75	75.4	0.4	175	75.2	0.2	275	75.2	0.2	
76	75.4	0.4	176	75.2	0.2	276	75.4	0.4	
77	75.6	0.6	177	75.2	0.2	277	75.4	0.4	
78	75.6	0.6	178	75.4	0.4	278	75.6	0.6	
79	75.7	0.7	179	75.6	0.6	279	75.7	0.7	
80	75.7	0.7	180	75.7	0.7	280	76.1	1.1	
81	75.2	0.2	181	75.6	0.6	281	75.0	0.0	
82	75.2	0.2	182	75.2	0.2	282	75.0	0.0	
83	75.2	0.2	183	75.2	0.2	283	75.0	0.0	
84	75.2	0.2	184	75.2	0.2	284	75.0	0.0	
85	75.2	0.2	185	75.2	0.2	285	75.0	0.0	
86	75.2	0.2	186	75.2	0.2	286	75.0	0.0	
87	75.2	0.2	187	75.2	0.2	287	75.2	0.2	
88	75.4	0.4	188	75.2	0.2	288	75.2	0.2	
89	75.6	0.6	189	75.6	0.6	289	75.2	0.2	
90	75.7	0.7	190	75.9	0.9	290	75.6	0.6	
91	75.2	0.2	191	75.0	0.0	291	74.7	-0.3	
92	75.2	0.2	192	74.8	-0.2	292	74.7	-0.3	
93	75.2	0.2	193	74.8	-0.2	293	74.8	-0.2	
94	75.2	0.2	194	74.8	-0.2	294	74.8	-0.2	
95	75.2	0.2	195	75.0	0.0	295	75.0	0.0	
96	75.2	0.2	196	75.0	0.0	296	75.0	0.0	
97	75.4	0.4	197	75.2	0.2	297	75.2	0.2	
98	75.6	0.6	198	75.2	0.2	298	75.2	0.2	
99	75.4	0.4	199	75.2	0.2	299	75.4	0.4	
100	75.6	0.6	200	75.6	0.6	300	75.7	0.7	

Range for 75°F Signal: **+1.3/-0.3**

Allowable range: ±1.8

Within specification for this temperature? Yes

Performed by: Mike Day

Mgr. Fire Resistance — 4/11/05

Title — Date

Approved by:

President — 4/11/05

Title — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: SNT156701

Temperature Setting (°F): 150.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	150.6	0.6	101	150.1	0.1	201	150.1	0.1
2	150.3	0.3	102	150.1	0.1	202	150.1	0.1
3	150.3	0.3	103	150.3	0.3	203	150.1	0.1
4	150.3	0.3	104	150.3	0.3	204	150.3	0.3
5	150.4	0.4	105	150.3	0.3	205	150.3	0.3
6	150.4	0.4	106	150.3	0.3	206	150.3	0.3
7	150.6	0.6	107	150.3	0.3	207	150.3	0.3
8	150.6	0.6	108	150.3	0.3	208	150.4	0.4
9	150.8	0.8	109	150.4	0.4	209	150.6	0.6
10	151.0	1.0	110	150.8	0.8	210	150.8	0.8
11	150.1	0.1	111	150.1	0.1	211	149.5	-0.5
12	150.1	0.1	112	150.1	0.1	212	149.4	-0.6
13	150.1	0.1	113	150.1	0.1	213	149.5	-0.5
14	150.1	0.1	114	150.3	0.3	214	149.5	-0.5
15	150.1	0.1	115	150.3	0.3	215	149.5	-0.5
16	150.1	0.1	116	150.3	0.3	216	149.5	-0.5
17	150.1	0.1	117	150.3	0.3	217	149.7	-0.3
18	150.3	0.3	118	150.4	0.4	218	149.7	-0.3
19	150.3	0.3	119	150.6	0.6	219	149.9	-0.1
20	150.6	0.6	120	150.6	0.6	220	150.3	0.3
21	150.3	0.3	121	150.4	0.4	221	149.5	-0.5
22	150.3	0.3	122	150.3	0.3	222	149.7	-0.3
23	150.3	0.3	123	150.3	0.3	223	149.7	-0.3
24	150.3	0.3	124	150.3	0.3	224	149.7	-0.3
25	150.4	0.4	125	150.3	0.3	225	149.9	-0.1
26	150.6	0.6	126	150.3	0.3	226	150.1	0.1
27	150.6	0.6	127	150.3	0.3	227	150.1	0.1
28	150.8	0.8	128	150.3	0.3	228	150.3	0.3
29	150.8	0.8	129	150.6	0.6	229	150.3	0.3
30	151.0	1.0	130	150.8	0.8	230	150.4	0.4
31	150.4	0.4	131	149.7	-0.3	231	149.7	-0.3
32	150.3	0.3	132	149.7	-0.3	232	149.7	-0.3
33	150.3	0.3	133	149.7	-0.3	233	149.7	-0.3
34	150.3	0.3	134	149.7	-0.3	234	149.7	-0.3
35	150.3	0.3	135	149.7	-0.3	235	149.9	-0.1
36	150.3	0.3	136	149.7	-0.3	236	150.1	0.1
37	150.4	0.4	137	149.9	-0.1	237	150.1	0.1
38	150.4	0.4	138	150.1	0.1	238	150.3	0.3
39	150.6	0.6	139	150.3	0.3	239	150.3	0.3
40	150.8	0.8	140	150.3	0.3	240	150.6	0.6
41	149.9	-0.1	141	149.9	-0.1	241	150.3	0.3
42	149.9	-0.1	142	149.7	-0.3	242	150.3	0.3
43	150.1	0.1	143	149.9	-0.1	243	150.3	0.3
44	150.1	0.1	144	149.9	-0.1	244	150.3	0.3
45	150.3	0.3	145	149.9	-0.1	245	150.3	0.3
46	150.3	0.3	146	150.1	0.1	246	150.3	0.3
47	150.3	0.3	147	150.3	0.3	247	150.4	0.4
48	150.3	0.3	148	150.3	0.3	248	150.6	0.6
49	150.3	0.3	149	150.3	0.3	249	150.8	0.8
50	150.6	0.6	150	150.3	0.3	250	151.2	1.2
51	149.7	-0.3	151	150.3	0.3	251	150.1	0.1
52	149.7	-0.3	152	150.3	0.3	252	150.1	0.1
53	149.7	-0.3	153	150.1	0.1	253	149.9	-0.1
54	149.9	-0.1	154	150.1	0.1	254	150.1	0.1

55	150.1	0.1	155	150.3	0.3	255	150.1	0.1	
56	150.1	0.1	156	150.3	0.3	256	150.1	0.1	
57	150.1	0.1	157	150.3	0.3	257	150.3	0.3	
58	150.3	0.3	158	150.3	0.3	258	150.3	0.3	
59	150.3	0.3	159	150.4	0.4	259	150.3	0.3	
60	150.6	0.6	160	150.8	0.8	260	150.8	0.8	
61	150.3	0.3	161	150.3	0.3	261	150.1	0.1	
62	150.3	0.3	162	150.1	0.1	262	150.1	0.1	
63	150.3	0.3	163	150.3	0.3	263	150.1	0.1	
64	150.3	0.3	164	150.3	0.3	264	150.3	0.3	
65	150.3	0.3	165	150.3	0.3	265	150.1	0.1	
66	150.3	0.3	166	150.3	0.3	266	150.3	0.3	
67	150.3	0.3	167	150.3	0.3	267	150.3	0.3	
68	150.4	0.4	168	150.3	0.3	268	150.4	0.4	
69	150.6	0.6	169	150.4	0.4	269	150.4	0.4	
70	150.8	0.8	170	150.8	0.8	270	150.8	0.8	
71	150.3	0.3	171	149.7	-0.3	271	150.3	0.3	
72	150.3	0.3	172	149.7	-0.3	272	150.1	0.1	
73	150.3	0.3	173	149.9	-0.1	273	150.1	0.1	
74	150.3	0.3	174	149.9	-0.1	274	150.3	0.3	
75	150.1	0.1	175	149.9	-0.1	275	150.3	0.3	
76	150.1	0.1	176	149.9	-0.1	276	150.3	0.3	
77	150.3	0.3	177	149.9	-0.1	277	150.4	0.4	
78	150.3	0.3	178	150.1	0.1	278	150.4	0.4	
79	150.3	0.3	179	150.3	0.3	279	150.6	0.6	
80	150.8	0.8	180	150.4	0.4	280	151.0	1.0	
81	150.3	0.3	181	150.3	0.3	281	149.7	-0.3	
82	150.3	0.3	182	150.3	0.3	282	149.7	-0.3	
83	150.3	0.3	183	150.3	0.3	283	149.7	-0.3	
84	150.3	0.3	184	150.3	0.3	284	149.7	-0.3	
85	150.3	0.3	185	150.3	0.3	285	149.9	-0.1	
86	150.3	0.3	186	150.3	0.3	286	149.9	-0.1	
87	150.3	0.3	187	150.3	0.3	287	149.9	-0.1	
88	150.4	0.4	188	150.6	0.6	288	150.1	0.1	
89	150.4	0.4	189	150.6	0.6	289	150.3	0.3	
90	150.6	0.6	190	150.8	0.8	290	150.4	0.4	
91	150.1	0.1	191	149.9	-0.1	291	149.7	-0.3	
92	150.1	0.1	192	149.9	-0.1	292	149.7	-0.3	
93	150.1	0.1	193	149.9	-0.1	293	149.7	-0.3	
94	150.1	0.1	194	149.9	-0.1	294	149.7	-0.3	
95	150.3	0.3	195	150.1	0.1	295	149.9	-0.1	
96	150.3	0.3	196	150.3	0.3	296	149.9	-0.1	
97	150.3	0.3	197	150.3	0.3	297	150.3	0.3	
98	150.3	0.3	198	150.3	0.3	298	150.3	0.3	
99	150.3	0.3	199	150.3	0.3	299	150.3	0.3	
100	150.4	0.4	200	150.6	0.6	300	150.4	0.4	

Range for 150°F Signal: **+1.2/-0.6**

Allowable range: ±1.8

Within specification for this temperature? Yes

Performed by: Mike Day

Mgr. Fire Resistance — 4/11/05 — MD

Title — Date

Approved by:

President — 4/11/05

Title — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: SNT156701

Temperature Setting (°F): 300.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	300.4	0.4	101	299.8	-0.2	201	299.8	-0.2
2	300.2	0.2	102	299.8	-0.2	202	300.0	0.0
3	300.2	0.2	103	300.0	0.0	203	299.8	-0.2
4	300.2	0.2	104	300.0	0.0	204	300.0	0.0
5	300.2	0.2	105	300.0	0.0	205	300.0	0.0
6	300.2	0.2	106	300.2	0.2	206	300.2	0.2
7	300.2	0.2	107	300.2	0.2	207	300.2	0.2
8	300.4	0.4	108	300.2	0.2	208	300.2	0.2
9	300.6	0.6	109	300.4	0.4	209	300.6	0.6
10	300.7	0.7	110	300.6	0.6	210	300.7	0.7
11	300.0	0.0	111	299.8	-0.2	211	299.5	-0.5
12	299.8	-0.2	112	299.7	-0.3	212	299.5	-0.5
13	299.8	-0.2	113	299.8	-0.2	213	299.5	-0.5
14	300.0	0.0	114	299.8	-0.2	214	299.8	-0.2
15	300.0	0.0	115	300.0	0.0	215	299.8	-0.2
16	300.0	0.0	116	300.0	0.0	216	300.0	0.0
17	300.0	0.0	117	300.2	0.2	217	300.9	0.9
18	300.2	0.2	118	300.2	0.2	218	300.9	0.9
19	300.2	0.2	119	300.4	0.4	219	300.2	0.2
20	300.4	0.4	120	300.7	0.7	220	300.2	0.2
21	300.2	0.2	121	300.4	0.4	221	299.5	-0.5
22	300.2	0.2	122	300.2	0.2	222	299.5	-0.5
23	300.2	0.2	123	300.2	0.2	223	299.5	-0.5
24	300.2	0.2	124	300.2	0.2	224	299.5	-0.5
25	300.2	0.2	125	300.2	0.2	225	299.8	-0.2
26	300.4	0.4	126	300.2	0.2	226	299.8	-0.2
27	300.4	0.4	127	300.4	0.4	227	299.8	-0.2
28	300.6	0.6	128	300.4	0.4	228	300.0	0.0
29	300.6	0.6	129	300.6	0.6	229	300.2	0.2
30	300.9	0.9	130	300.7	0.7	230	300.4	0.4
31	300.4	0.4	131	299.8	-0.2	231	299.7	-0.3
32	300.4	0.4	132	299.7	-0.3	232	299.7	-0.3
33	300.2	0.2	133	299.7	-0.3	233	299.7	-0.3
34	300.4	0.4	134	299.7	-0.3	234	299.7	-0.3
35	300.4	0.4	135	299.7	-0.3	235	299.8	-0.2
36	300.4	0.4	136	299.7	-0.3	236	299.8	-0.2
37	300.6	0.6	137	299.8	-0.2	237	300.0	0.0
38	300.7	0.7	138	300.0	0.0	238	300.2	0.2
39	300.7	0.7	139	300.2	0.2	239	300.2	0.2
40	301.1	1.1	140	300.6	0.6	240	300.4	0.4
41	300.0	0.0	141	299.8	-0.2	241	300.2	0.2
42	300.0	0.0	142	299.7	-0.3	242	300.2	0.2
43	300.0	0.0	143	299.8	-0.2	243	300.2	0.2
44	299.8	-0.2	144	299.8	-0.2	244	300.2	0.2
45	300.0	0.0	145	299.8	-0.2	245	300.2	0.2
46	300.0	0.0	146	299.8	-0.2	246	300.2	0.2
47	300.0	0.0	147	300.0	0.0	247	300.6	0.6
48	300.2	0.2	148	300.0	0.0	248	300.6	0.6
49	300.2	0.2	149	300.2	0.2	249	300.6	0.6
50	300.4	0.4	150	300.4	0.4	250	300.9	0.9
51	299.8	-0.2	151	300.2	0.2	251	299.8	-0.2
52	300.0	0.0	152	300.0	0.0	252	299.8	-0.2
53	300.2	0.2	153	300.0	0.0	253	300.0	0.0
54	300.2	0.2	154	300.0	0.0	254	299.8	-0.2
55	300.2	0.2	155	300.0	0.0	255	300.0	0.0
56	300.2	0.2	156	300.2	0.2	256	300.0	0.0

57	300.4	0.4	157	300.2	0.2	257	300.2	0.2	
58	300.4	0.4	158	300.2	0.2	258	300.2	0.2	
59	300.4	0.4	159	300.4	0.4	259	300.4	0.4	
60	300.6	0.6	160	300.7	0.7	260	300.7	0.7	
61	300.2	0.2	161	300.2	0.2	261	299.7	-0.3	
62	300.2	0.2	162	300.2	0.2	262	299.8	-0.2	
63	300.0	0.0	163	300.2	0.2	263	299.8	-0.2	
64	300.2	0.2	164	300.2	0.2	264	299.8	-0.2	
65	300.2	0.2	165	300.2	0.2	265	299.8	-0.2	
66	300.2	0.2	166	300.2	0.2	266	300.0	0.0	
67	300.2	0.2	167	300.2	0.2	267	300.0	0.0	
68	300.2	0.2	168	300.2	0.2	268	300.2	0.2	
69	300.6	0.6	169	300.2	0.2	269	300.6	0.6	
70	300.7	0.7	170	300.7	0.7	270	300.7	0.7	
71	300.2	0.2	171	299.5	-0.5	271	300.0	0.0	
72	300.2	0.2	172	299.5	-0.5	272	300.0	0.0	
73	300.2	0.2	173	299.7	-0.3	273	300.0	0.0	
74	300.2	0.2	174	299.7	-0.3	274	300.2	0.2	
75	300.2	0.2	175	299.7	-0.3	275	300.2	0.2	
76	300.2	0.2	176	299.7	-0.3	276	300.2	0.2	
77	300.2	0.2	177	299.8	-0.2	277	300.2	0.2	
78	300.2	0.2	178	299.8	-0.2	278	300.2	0.2	
79	300.4	0.4	179	300.2	0.2	279	300.6	0.6	
80	300.6	0.6	180	300.4	0.4	280	300.7	0.7	
81	300.2	0.2	181	300.2	0.2	281	299.5	-0.5	
82	300.0	0.0	182	300.2	0.2	282	299.5	-0.5	
83	300.0	0.0	183	300.2	0.2	283	299.5	-0.5	
84	300.0	0.0	184	300.2	0.2	284	299.5	-0.5	
85	300.2	0.2	185	300.2	0.2	285	299.5	-0.5	
86	300.2	0.2	186	300.2	0.2	286	299.7	-0.3	
87	300.2	0.2	187	300.2	0.2	287	299.8	-0.2	
88	300.2	0.2	188	300.4	0.4	288	300.0	0.0	
89	300.6	0.6	189	300.6	0.6	289	300.2	0.2	
90	300.7	0.7	190	300.7	0.7	290	300.6	0.6	
91	300.0	0.0	191	299.8	-0.2	291	299.5	-0.5	
92	299.8	-0.2	192	299.8	-0.2	292	299.5	-0.5	
93	300.0	0.0	193	299.8	-0.2	293	299.5	-0.5	
94	299.8	-0.2	194	299.8	-0.2	294	299.7	-0.3	
95	300.0	0.0	195	299.8	-0.2	295	299.7	-0.3	
96	300.0	0.0	196	300.0	0.0	296	299.7	-0.3	
97	300.0	0.0	197	300.0	0.0	297	299.8	-0.2	
98	300.2	0.2	198	300.2	0.2	298	300.0	0.0	
99	300.4	0.4	199	300.2	0.2	299	300.2	0.2	
100	300.6	0.6	200	300.7	0.7	300	300.6	0.6	

Range for 300°F Signal: **+1.1/-0.5**

Allowable range ±1.9

Within specification for this temperature? Yes

Performed by: Mike Day

Mgr. Fire Resistance — 4/11/05 MD

Title — Date

Approved by:

President — 4/11/05

Title — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: SNT156701

Temperature Setting (°F): 400.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	400.3	0.3	101	400.1	0.1	201	400.1	0.1
2	400.3	0.3	102	399.9	-0.1	202	400.1	0.1
3	400.1	0.1	103	400.1	0.1	203	400.1	0.1
4	400.3	0.3	104	400.1	0.1	204	400.3	0.3
5	400.3	0.3	105	400.1	0.1	205	400.3	0.3
6	400.3	0.3	106	400.1	0.1	206	400.3	0.3
7	400.3	0.3	107	400.3	0.3	207	400.3	0.3
8	400.5	0.5	108	400.3	0.3	208	400.5	0.5
9	400.6	0.6	109	400.3	0.3	209	400.6	0.6
10	400.8	0.8	110	400.6	0.6	210	400.8	0.8
11	400.1	0.1	111	399.7	-0.3	211	399.7	-0.3
12	400.1	0.1	112	399.9	-0.1	212	399.7	-0.3
13	400.1	0.1	113	399.9	-0.1	213	399.7	-0.3
14	400.1	0.1	114	400.1	0.1	214	399.7	-0.3
15	400.1	0.1	115	400.1	0.1	215	399.7	-0.3
16	400.1	0.1	116	400.1	0.1	216	399.9	-0.1
17	400.3	0.3	117	400.3	0.3	217	400.1	0.1
18	400.3	0.3	118	400.3	0.3	218	400.1	0.1
19	400.5	0.5	119	400.3	0.3	219	400.3	0.3
20	400.6	0.6	120	400.6	0.6	220	400.5	0.5
21	400.3	0.3	121	400.5	0.5	221	399.6	-0.4
22	400.3	0.3	122	400.3	0.3	222	399.6	-0.4
23	400.3	0.3	123	400.3	0.3	223	399.6	-0.4
24	400.3	0.3	124	400.3	0.3	224	399.7	-0.3
25	400.3	0.3	125	400.3	0.3	225	399.9	-0.1
26	400.3	0.3	126	400.3	0.3	226	399.9	-0.1
27	400.3	0.3	127	400.3	0.3	227	400.3	0.3
28	400.3	0.3	128	400.5	0.5	228	400.1	0.1
29	400.6	0.6	129	400.6	0.6	229	400.3	0.3
30	400.8	0.8	130	400.8	0.8	230	400.6	0.6
31	400.3	0.3	131	399.9	-0.1	231	399.7	-0.3
32	400.3	0.3	132	399.9	-0.1	232	399.7	-0.3
33	400.3	0.3	133	399.7	-0.3	233	399.7	-0.3
34	400.3	0.3	134	399.9	-0.1	234	399.7	-0.3
35	400.3	0.3	135	399.9	-0.1	235	399.9	-0.1
36	400.3	0.3	136	399.9	-0.1	236	399.9	-0.1
37	400.3	0.3	137	399.9	-0.1	237	399.9	-0.1
38	400.5	0.5	138	400.1	0.1	238	400.1	0.1
39	400.5	0.5	139	400.3	0.3	239	400.3	0.3
40	400.8	0.8	140	400.5	0.5	240	400.5	0.5
41	399.9	-0.1	141	399.7	-0.3	241	400.3	0.3
42	399.9	-0.1	142	399.7	-0.3	242	400.3	0.3
43	399.9	-0.1	143	399.7	-0.3	243	400.3	0.3
44	399.9	-0.1	144	399.9	-0.1	244	400.3	0.3
45	400.1	0.1	145	399.9	-0.1	245	400.3	0.3
46	400.3	0.3	146	399.9	-0.1	246	400.5	0.5
47	400.3	0.3	147	400.1	0.1	247	400.5	0.5
48	400.3	0.3	148	400.3	0.3	248	400.8	0.8
49	400.3	0.3	149	400.1	0.1	249	400.8	0.8
50	400.6	0.6	150	400.3	0.3	250	401.2	1.2
51	399.7	-0.3	151	400.1	0.1	251	399.9	-0.1
52	399.9	-0.1	152	400.1	0.1	252	399.7	-0.3
53	400.1	0.1	153	400.3	0.3	253	399.9	-0.1
54	400.1	0.1	154	400.1	0.1	254	399.9	-0.1

55	400.1	0.1	155	400.3	0.3	255	400.1	0.1	
56	400.3	0.3	156	400.3	0.3	256	399.9	-0.1	
57	400.3	0.3	157	400.3	0.3	257	400.1	0.1	
58	400.3	0.3	158	400.5	0.5	258	400.3	0.3	
59	400.3	0.3	159	400.5	0.5	259	400.3	0.3	
60	400.6	0.6	160	400.8	0.8	260	400.5	0.5	
61	400.3	0.3	161	400.1	0.1	261	399.9	-0.1	
62	400.3	0.3	162	399.9	-0.1	262	399.9	-0.1	
63	400.3	0.3	163	399.9	-0.1	263	399.9	-0.1	
64	400.1	0.1	164	400.1	0.1	264	399.9	-0.1	
65	400.1	0.1	165	400.3	0.3	265	400.1	0.1	
66	400.3	0.3	166	400.3	0.3	266	400.1	0.1	
67	400.3	0.3	167	400.3	0.3	267	400.3	0.3	
68	400.5	0.5	168	400.5	0.5	268	400.3	0.3	
69	400.5	0.5	169	400.6	0.6	269	400.3	0.3	
70	401.0	1.0	170	400.8	0.8	270	400.6	0.6	
71	400.3	0.3	171	399.7	-0.3	271	399.9	-0.1	
72	400.3	0.3	172	399.7	-0.3	272	399.7	-0.3	
73	400.3	0.3	173	399.7	-0.3	273	399.9	-0.1	
74	400.3	0.3	174	399.7	-0.3	274	399.7	-0.3	
75	400.3	0.3	175	399.7	-0.3	275	400.3	0.3	
76	400.1	0.1	176	399.9	-0.1	276	400.3	0.3	
77	400.1	0.1	177	399.9	-0.1	277	400.3	0.3	
78	400.3	0.3	178	400.3	0.3	278	400.3	0.3	
79	400.5	0.5	179	400.3	0.3	279	400.5	0.5	
80	400.6	0.6	180	400.5	0.5	280	400.8	0.8	
81	400.3	0.3	181	400.5	0.5	281	399.6	-0.4	
82	400.3	0.3	182	400.3	0.3	282	399.6	-0.4	
83	400.1	0.1	183	400.3	0.3	283	399.7	-0.3	
84	400.1	0.1	184	400.3	0.3	284	399.7	-0.3	
85	400.3	0.3	185	400.3	0.3	285	399.7	-0.3	
86	400.3	0.3	186	400.5	0.5	286	399.7	-0.3	
87	400.3	0.3	187	400.5	0.5	287	399.9	-0.1	
88	400.3	0.3	188	400.5	0.5	288	400.1	0.1	
89	400.3	0.3	189	400.6	0.6	289	400.1	0.1	
90	400.6	0.6	190	401.2	1.2	290	400.5	0.5	
91	400.1	0.1	191	400.1	0.1	291	399.6	-0.4	
92	400.1	0.1	192	400.1	0.1	292	399.6	-0.4	
93	400.1	0.1	193	400.1	0.1	293	399.6	-0.4	
94	400.1	0.1	194	400.1	0.1	294	399.6	-0.4	
95	400.1	0.1	195	400.1	0.1	295	399.7	-0.3	
96	400.3	0.3	196	400.3	0.3	296	399.9	-0.1	
97	400.3	0.3	197	400.3	0.3	297	400.1	0.1	
98	400.3	0.3	198	400.3	0.3	298	400.1	0.1	
99	400.5	0.5	199	400.3	0.3	299	400.1	0.1	
100	400.6	0.6	200	400.5	0.5	300	400.3	0.3	

Range for 400°F Signal: **+1.2/-0.4**

Allowable range: ±2.0

Within specification for this temperature? Yes

Performed by: Mike Day

Mgr. Fire Resistance — Title

4/11/05 — Date

Approved by:

President — Title

4/11/05 — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: SNT156701

Temperature Setting (°F): 1000.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	1000.2	0.2	101	1000.2	0.2	201	1000.2	0.2
2	1000.0	0.0	102	1000.2	0.2	202	1000.2	0.2
3	1000.0	0.0	103	1000.2	0.2	203	1000.2	0.2
4	1000.0	0.0	104	1000.2	0.2	204	1000.4	0.4
5	1000.0	0.0	105	1000.2	0.2	205	1000.4	0.4
6	1000.0	0.0	106	1000.2	0.2	206	1000.6	0.6
7	1000.0	0.0	107	1000.4	0.4	207	1000.6	0.6
8	1000.2	0.2	108	1000.4	0.4	208	1000.8	0.8
9	1000.2	0.2	109	1000.6	0.6	209	1000.8	0.8
10	1000.6	0.6	110	1000.9	0.9	210	1001.1	1.1
11	999.9	-0.1	111	1000.0	0.0	211	1000.0	0.0
12	999.9	-0.1	112	1000.2	0.2	212	1000.0	0.0
13	999.9	-0.1	113	1000.2	0.2	213	999.9	-0.1
14	999.9	-0.1	114	1000.4	0.4	214	1000.0	0.0
15	1000.0	0.0	115	1000.6	0.6	215	1000.0	0.0
16	1000.0	0.0	116	1000.4	0.4	216	1000.0	0.0
17	1000.0	0.0	117	1000.6	0.6	217	1000.0	0.0
18	1000.0	0.0	118	1000.6	0.6	218	1000.0	0.0
19	1000.2	0.2	119	1000.6	0.6	219	1000.2	0.2
20	1000.4	0.4	120	1000.6	0.6	220	1000.6	0.6
21	1000.0	0.0	121	1000.2	0.2	221	999.9	-0.1
22	1000.0	0.0	122	1000.0	0.0	222	999.9	-0.1
23	1000.0	0.0	123	1000.0	0.0	223	1000.0	0.0
24	1000.0	0.0	124	1000.0	0.0	224	1000.0	0.0
25	1000.0	0.0	125	1000.0	0.0	225	1000.0	0.0
26	1000.2	0.2	126	1000.0	0.0	226	1000.0	0.0
27	1000.2	0.2	127	1000.0	0.0	227	1000.2	0.2
28	1000.2	0.2	128	1000.0	0.0	228	1000.2	0.2
29	1000.6	0.6	129	1000.6	0.6	229	1000.4	0.4
30	1000.6	0.6	130	1000.9	0.9	230	1000.6	0.6
31	1000.6	0.6	131	1000.0	0.0	231	1000.0	0.0
32	1000.6	0.6	132	999.9	-0.1	232	1000.0	0.0
33	1000.4	0.4	133	999.9	-0.1	233	1000.0	0.0
34	1000.4	0.4	134	1000.0	0.0	234	1000.0	0.0
35	1000.6	0.6	135	1000.0	0.0	235	1000.0	0.0
36	1000.6	0.6	136	999.9	-0.1	236	1000.0	0.0
37	1000.6	0.6	137	1000.0	0.0	237	1000.2	0.2
38	1000.6	0.6	138	1000.0	0.0	238	1000.2	0.2
39	1000.6	0.6	139	1000.0	0.0	239	1000.2	0.2
40	1000.8	0.8	140	1000.2	0.2	240	1000.6	0.6
41	1000.0	0.0	141	999.9	-0.1	241	1000.2	0.2
42	1000.0	0.0	142	999.9	-0.1	242	1000.0	0.0
43	1000.0	0.0	143	1000.0	0.0	243	1000.0	0.0
44	1000.0	0.0	144	1000.0	0.0	244	1000.0	0.0
45	1000.2	0.2	145	1000.0	0.0	245	1000.0	0.0
46	1000.2	0.2	146	1000.0	0.0	246	1000.0	0.0
47	1000.4	0.4	147	1000.2	0.2	247	1000.4	0.4
48	1000.2	0.2	148	1000.2	0.2	248	1000.6	0.6
49	1000.2	0.2	149	1000.0	0.0	249	1000.8	0.8
50	1000.4	0.4	150	1000.2	0.2	250	1000.9	0.9
51	999.9	-0.1	151	1000.0	0.0	251	1000.0	0.0
52	999.9	-0.1	152	1000.0	0.0	252	1000.0	0.0
53	1000.0	0.0	153	1000.0	0.0	253	1000.0	0.0
54	1000.0	0.0	154	1000.0	0.0	254	1000.0	0.0
55	1000.0	0.0	155	1000.0	0.0	255	1000.0	0.0
56	1000.0	0.0	156	1000.0	0.0	256	1000.0	0.0

57	1000.0	0.0	157	1000.2	0.2	257	1000.2	0.2
58	1000.0	0.0	158	1000.4	0.4	258	1000.2	0.2
59	1000.0	0.0	159	1000.6	0.6	259	1000.4	0.4
60	1000.6	0.6	160	1000.9	0.9	260	1000.8	0.8
61	1000.0	0.0	161	1000.2	0.2	261	1000.0	0.0
62	1000.0	0.0	162	1000.0	0.0	262	1000.0	0.0
63	1000.0	0.0	163	1000.2	0.2	263	1000.0	0.0
64	1000.0	0.0	164	1000.2	0.2	264	1000.0	0.0
65	1000.2	0.2	165	1000.2	0.2	265	1000.0	0.0
66	1000.2	0.2	166	1000.2	0.2	266	1000.0	0.0
67	1000.4	0.4	167	1000.4	0.4	267	1000.0	0.0
68	1000.4	0.4	168	1000.4	0.4	268	1000.2	0.2
69	1000.6	0.6	169	1000.6	0.6	269	1000.4	0.4
70	1000.8	0.8	170	1000.8	0.8	270	1000.8	0.8
71	1000.0	0.0	171	999.7	-0.3	271	1000.0	0.0
72	1000.0	0.0	172	999.7	-0.3	272	999.9	-0.1
73	1000.0	0.0	173	999.7	-0.3	273	1000.0	0.0
74	1000.0	0.0	174	999.9	-0.1	274	1000.0	0.0
75	1000.4	0.4	175	999.9	-0.1	275	1000.0	0.0
76	1000.6	0.6	176	999.9	-0.1	276	1000.2	0.2
77	1000.6	0.6	177	1000.0	0.0	277	1000.2	0.2
78	1000.6	0.6	178	1000.0	0.0	278	1000.2	0.2
79	1000.8	0.8	179	1000.2	0.2	279	1000.4	0.4
80	1000.9	0.9	180	1000.4	0.4	280	1000.6	0.6
81	1000.4	0.4	181	1000.6	0.6	281	999.5	-0.5
82	1000.2	0.2	182	1000.6	0.6	282	999.5	-0.5
83	1000.2	0.2	183	1000.6	0.6	283	999.7	-0.3
84	1000.2	0.2	184	1000.6	0.6	284	999.5	-0.5
85	1000.4	0.4	185	1000.6	0.6	285	999.7	-0.3
86	1000.2	0.2	186	1000.6	0.6	286	999.7	-0.3
87	1000.4	0.4	187	1000.8	0.8	287	999.9	-0.1
88	1000.4	0.4	188	1000.8	0.8	288	999.9	-0.1
89	1000.6	0.6	189	1000.9	0.9	289	1000.0	0.0
90	1000.9	0.9	190	1001.3	1.3	290	1000.4	0.4
91	1000.4	0.4	191	1000.2	0.2	291	999.5	-0.5
92	1000.2	0.2	192	1000.0	0.0	292	999.5	-0.5
93	1000.4	0.4	193	1000.2	0.2	293	999.7	-0.3
94	1000.4	0.4	194	1000.2	0.2	294	999.7	-0.3
95	1000.4	0.4	195	1000.4	0.4	295	999.7	-0.3
96	1000.6	0.6	196	1000.4	0.4	296	999.7	-0.3
97	1000.6	0.6	197	1000.6	0.6	297	999.9	-0.1
98	1000.6	0.6	198	1000.6	0.6	298	1000.0	0.0
99	1000.6	0.6	199	1000.6	0.6	299	1000.0	0.0
100	1000.6	0.6	200	1000.9	0.9	300	1000.2	0.2

Range for 1000°F Signal: **+1.3/-0.5**

Allowable range: ±2.3

Within specification for this temperature? Yes

Performed by: Mike Day

Mgr. Fire Resistance — 4/11/05

Title — Date

Approved by:

President — 4/11/05

Title — Date

Channel Verification for Yokogawa 300 Channel

Serial No.: 48JF0082

Calibrator Used: SNT156701

Temperature Setting (°F): 2000.0

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	2000.1	0.1	101	1998.5	-1.5	201	2001.0	1.0
2	1999.9	-0.1	102	2002.1	2.1	202	2001.0	1.0
3	1999.9	-0.1	103	1998.5	-1.5	203	2001.0	1.0
4	1999.9	-0.1	104	1999.9	-0.1	204	2001.0	1.0
5	1999.9	-0.1	105	2000.3	0.3	205	2001.0	1.0
6	2000.1	0.1	106	2000.5	0.5	206	2001.0	1.0
7	2000.1	0.1	107	2000.7	0.7	207	2001.0	1.0
8	2000.1	0.1	108	2000.7	0.7	208	2001.0	1.0
9	2000.1	0.1	109	2000.8	0.8	209	2001.4	1.4
10	2000.7	0.7	110	2001.0	1.0	210	2001.7	1.7
11	1999.6	-0.4	111	2000.5	0.5	211	2000.3	0.3
12	1999.6	-0.4	112	2000.5	0.5	212	2000.3	0.3
13	1999.6	-0.4	113	2000.5	0.5	213	2000.3	0.3
14	1999.6	-0.4	114	2000.7	0.7	214	2000.5	0.5
15	1999.8	-0.2	115	2000.7	0.7	215	2000.5	0.5
16	1999.8	-0.2	116	2000.7	0.7	216	2000.7	0.7
17	1999.8	-0.2	117	2000.7	0.7	217	2000.7	0.7
18	1999.9	-0.1	118	2000.7	0.7	218	2000.7	0.7
19	1999.9	-0.1	119	2000.8	0.8	219	2001.0	1.0
20	2000.3	0.3	120	2001.0	1.0	220	2001.0	1.0
21	1999.9	-0.1	121	2000.7	0.7	221	2000.3	0.3
22	1999.8	-0.2	122	2000.3	0.3	222	2000.3	0.3
23	1999.9	-0.1	123	2000.3	0.3	223	2000.5	0.5
24	1999.9	-0.1	124	2000.5	0.5	224	2000.5	0.5
25	1999.6	-0.4	125	2000.8	0.8	225	2000.5	0.5
26	1999.8	-0.2	126	1999.9	-0.1	226	2000.5	0.5
27	1999.8	-0.2	127	2000.7	0.7	227	2000.7	0.7
28	1999.9	-0.1	128	2000.3	0.3	228	2000.7	0.7
29	1999.9	-0.1	129	2001.7	1.7	229	2000.8	0.8
30	2000.3	0.3	130	1999.6	-0.4	230	2001.0	1.0
31	2000.5	0.5	131	2001.0	1.0	231	2000.5	0.5
32	2000.5	0.5	132	2001.0	1.0	232	2000.5	0.5
33	2000.7	0.7	133	1999.4	-0.6	233	2000.3	0.3
34	2000.7	0.7	134	1999.9	-0.1	234	2000.5	0.5
35	2000.7	0.7	135	1999.9	-0.1	235	2000.5	0.5
36	2000.7	0.7	136	1999.9	-0.1	236	2000.5	0.5
37	2000.7	0.7	137	1999.9	-0.1	237	2000.7	0.7
38	2000.7	0.7	138	2000.1	0.1	238	2000.7	0.7
39	2000.7	0.7	139	2001.7	1.7	239	2000.8	0.8
40	2001.0	1.0	140	2000.7	0.7	240	2001.0	1.0
41	2000.1	0.1	141	1999.9	-0.1	241	2000.1	0.1
42	2000.1	0.1	142	1999.9	-0.1	242	1999.9	-0.1
43	2000.1	0.1	143	1999.9	-0.1	243	1999.9	-0.1
44	2000.1	0.1	144	1999.9	-0.1	244	1999.9	-0.1
45	2000.3	0.3	145	1999.9	-0.1	245	2000.1	0.1
46	2000.1	0.1	146	1999.9	-0.1	246	2000.3	0.3
47	2000.1	0.1	147	2002.6	2.6	247	2000.5	0.5
48	2000.5	0.5	148	2000.3	0.3	248	2000.7	0.7
49	2000.7	0.7	149	1999.9	-0.1	249	2001.0	1.0
50	2000.8	0.8	150	2000.5	0.5	250	2001.2	1.2
51	1999.8	-0.2	151	2000.3	0.3	251	1999.9	-0.1
52	1999.9	-0.1	152	2000.3	0.3	252	1999.9	-0.1
53	1999.9	-0.1	153	2000.1	0.1	253	1999.9	-0.1
54	1999.9	-0.1	154	2000.1	0.1	254	1999.9	-0.1
55	1999.9	-0.1	155	2000.1	0.1	255	2000.3	0.3
56	1999.9	-0.1	156	2000.3	0.3	256	2000.3	0.3

57	1999.9	-0.1	157	2000.5	0.5	257	2000.3	0.3
58	2000.1	0.1	158	2000.3	0.3	258	2000.3	0.3
59	2000.3	0.3	159	2000.7	0.7	259	2000.5	0.5
60	2000.5	0.5	160	2000.8	0.8	260	2000.7	0.7
61	2000.7	0.7	161	2000.3	0.3	261	1999.9	-0.1
62	2000.7	0.7	162	2000.3	0.3	262	1999.9	-0.1
63	2000.7	0.7	163	2000.3	0.3	263	1999.9	-0.1
64	2000.7	0.7	164	2000.5	0.5	264	2000.1	0.1
65	2000.7	0.7	165	2000.5	0.5	265	2000.1	0.1
66	2000.8	0.8	166	2000.5	0.5	266	2000.3	0.3
67	2000.8	0.8	167	2000.5	0.5	267	2000.3	0.3
68	2001.0	1.0	168	2000.5	0.5	268	2000.5	0.5
69	2001.0	1.0	169	2000.7	0.7	269	2000.7	0.7
70	2001.2	1.2	170	2000.8	0.8	270	2001.0	1.0
71	2000.7	0.7	171	1999.6	-0.4	271	1999.8	-0.2
72	2000.7	0.7	172	1999.8	-0.2	272	1999.9	-0.1
73	2000.7	0.7	173	1999.9	-0.1	273	1999.9	-0.1
74	2000.7	0.7	174	1999.9	-0.1	274	1999.9	-0.1
75	2000.5	0.5	175	1999.9	-0.1	275	1999.9	-0.1
76	2000.3	0.3	176	1999.8	-0.2	276	1999.9	-0.1
77	2000.5	0.5	177	1999.9	-0.1	277	1999.9	-0.1
78	2000.5	0.5	178	1999.9	-0.1	278	1999.9	-0.1
79	2000.7	0.7	179	2000.1	0.1	279	2000.1	0.1
80	2000.8	0.8	180	2000.5	0.5	280	2000.5	0.5
81	2000.3	0.3	181	2001.0	1.0	281	1999.2	-0.8
82	2000.3	0.3	182	2001.0	1.0	282	1999.2	-0.8
83	2000.5	0.5	183	2001.0	1.0	283	1999.4	-0.6
84	2000.5	0.5	184	2001.0	1.0	284	1999.4	-0.6
85	2000.5	0.5	185	2001.0	1.0	285	1999.6	-0.4
86	2000.5	0.5	186	2001.2	1.2	286	1999.8	-0.2
87	2000.7	0.7	187	2001.2	1.2	287	1999.8	-0.2
88	2000.5	0.5	188	2001.4	1.4	288	1999.8	-0.2
89	2000.7	0.7	189	2001.6	1.6	289	1999.9	-0.1
90	2000.8	0.8	190	2001.9	1.9	290	2000.1	0.1
91	2000.7	0.7	191	2000.8	0.8	291	1999.2	-0.8
92	2000.5	0.5	192	2000.7	0.7	292	1999.2	-0.8
93	2000.7	0.7	193	2000.7	0.7	293	1999.2	-0.8
94	2000.7	0.7	194	2000.7	0.7	294	1999.2	-0.8
95	2000.7	0.7	195	2000.7	0.7	295	1999.4	-0.6
96	2000.7	0.7	196	2000.8	0.8	296	1999.6	-0.4
97	2000.7	0.7	197	2000.8	0.8	297	1999.8	-0.2
98	2000.7	0.7	198	2001.0	1.0	298	1999.9	-0.1
99	2001.0	1.0	199	2001.0	1.0	299	1999.9	-0.1
100	2001.2	1.2	200	2001.4	1.4	300	2000.1	0.1

Range for 2000°F Signal: **+2.6/-1.5**

Allowable range: ±2.8

Within specification for this temperature? Yes

Performed by: Mike Day

Mgr. Fire Resistance — Title

4/11/05 — Date

Approved by:

President — Title

4/11/05 — Date

Omega Point Laboratories, Inc.
16015 Shady Falls Road
Elmendorf, Texas 78112
800-966-5253 FAX 210-635-8101

Certificate of Verification

Certification No.: 92150

Verification Date: 04/11/2005

Reverification Date: 010/11/2005

Manufacturer: Yokogawa

Model No.: 100 Channel DAU

Serial No.: 99LE004

Equipment Description: 100 Channel Data Acquisition System with YOKOGAWA Darwin Series

Verification Sources: TEGAM Model 840-A, SN: T-156701
Calibration due 07/26/2005

PERFORMANCE:

Temperature: (75°F) +0.9/-0.2	Temperature: (150°F) +1/-0.1	Temperature: (300°F) +0.9/-0	Temperature: (400°F) +0.8/-0.1	Temperature: (1000°F) +0.8/-0.1	Temperature: (2000°F) +0.8/-0.1

Verification Performed by:

Mike Dey
Manager of Fire Resistance

Verification Approved by:

Deg Priest
President/Chief Technical Officer

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: SNT156701

Temperature Setting (°F): 75.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by:

Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	75.7	0.7			
2	75.6	0.6			
3	75.4	0.4			
4	75.6	0.6			
5	75.7	0.7			
6	75.4	0.4			
7	75.6	0.6			
8	75.7	0.7			
9	75.7	0.7			
10	75.9	0.9			
11	75.2	0.2			
12	75.2	0.2			
13	75.2	0.2			
14	75.2	0.2			
15	75.2	0.2			
16	75.2	0.2			
17	75.2	0.2			
18	75.2	0.2			
19	75.2	0.2			
20	75.6	0.6			

Range of 75°F Readings: **+0.9/0.2**

	Lower	Upper	
Allowable limits	73.2	76.8	(±1.8)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: SNT156701

Temperature Setting (°F): 150.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by:

Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	150.8	0.8			
2	150.4	0.4			
3	150.3	0.3			
4	150.4	0.4			
5	150.4	0.4			
6	150.4	0.4			
7	150.4	0.4			
8	150.6	0.6			
9	150.6	0.6			
10	151.0	1.0			
11	150.3	0.3			
12	150.1	0.1			
13	149.9	-0.1			
14	150.1	0.1			
15	150.1	0.1			
16	150.1	0.1			
17	150.1	0.1			
18	150.1	0.1			
19	150.3	0.3			
20	150.6	0.6			

Range of 150°F Readings: +1/-0.1

	Lower	Upper	
Allowable limits	148.2	151.8	(±1.8)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: SNT156701

Temperature Setting (°F): 300.0

Within specs? Yes/No

Performed by: Mike Dey

Title: Mgr. Dept. 2

Approved by:

Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	300.7	0.7			
2	300.6	0.6			
3	300.6	0.6			
4	300.6	0.6			
5	300.6	0.6			
6	300.6	0.6			
7	300.7	0.7			
8	300.6	0.6			
9	300.7	0.7			
10	300.9	0.9			
11	300.2	0.2			
12	300.0	0.0			
13	300.0	0.0			
14	300.0	0.0			
15	300.0	0.0			
16	300.0	0.0			
17	300.2	0.2			
18	300.0	0.0			
19	300.2	0.2			
20	300.7	0.7			

Range of 300°F Readings: +0.9/0

	Lower	Upper	
Allowable limits	298.1	301.9	(±1.9)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: SNT156701

Temperature Setting (°F): 400.0

Within specs? (Yes)/No

Performed by: Mike Dey MD
Title: Mgr. Dept. 2

Approved by:
Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	400.8	0.8			
2	400.6	0.6			
3	400.5	0.5			
4	400.5	0.5			
5	400.6	0.6			
6	400.6	0.6			
7	400.5	0.5			
8	400.6	0.6			
9	400.8	0.8			
10	400.8	0.8			
11	400.3	0.3			
12	400.1	0.1			
13	400.1	0.1			
14	399.9	-0.1			
15	400.1	0.1			
16	400.1	0.1			
17	399.9	-0.1			
18	400.1	0.1			
19	400.3	0.3			
20	400.5	0.5			

Range of 400°F Readings: **+0.8/-0.1**

	Lower	Upper	
Allowable limits	398.0	402.0	(±2.0)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: SNT156701

Temperature Setting (°F): 1000.0

Within specs? Yes/No

Performed by: Mike Dey MD

Title: Mgr. Dept. 2

Approved by:

Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	1000.6	0.6			
2	1000.2	0.2			
3	1000.0	0.0			
4	1000.2	0.2			
5	1000.0	0.0			
6	1000.2	0.2			
7	1000.2	0.2			
8	1000.4	0.4			
9	1000.4	0.4			
10	1000.8	0.8			
11	1000.2	0.2			
12	1000.0	0.0			
13	999.9	-0.1			
14	1000.0	0.0			
15	1000.0	0.0			
16	1000.0	0.0			
17	1000.0	0.0			
18	1000.0	0.0			
19	1000.0	0.0			
20	1000.6	0.6			

Range of 2000°F Readings: **+0.8/-0.1**

	Lower	Upper	
Allowable limits	997.7	1002.3	(±2.3)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-004

Calibrator Used: SNT156701

Temperature Setting (°F): 2000.0

Within specs? Yes/No

Performed by: Mike Dey

Title: Mgr. Dept. 2

Approved by:

Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	2000.3	0.3			
2	2000.3	0.3			
3	2000.1	0.1			
4	2000.1	0.1			
5	2000.3	0.3			
6	2000.3	0.3			
7	2000.1	0.1			
8	2000.3	0.3			
9	2000.3	0.3			
10	2000.7	0.7			
11	2000.5	0.5			
12	2000.3	0.3			
13	2000.5	0.5			
14	2000.3	0.3			
15	2000.3	0.3			
16	2000.5	0.5			
17	2000.3	0.3			
18	2000.5	0.5			
19	2000.7	0.7			
20	2000.8	0.8			

Range of 2000°F Readings: **+0.8/0.1**

	Lower	Upper	
Allowable limits	1997.2	2002.8	(±2.8)

Omega Point Laboratories, Inc.
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Certificate of Verification

Certification No.: 92151

Verification Date: 04/11/2005

Reverification Date: 10/11/2005

Manufacturer: Yokogawa

Model No.: 100 Channel DAU

Serial No.: 99LE006

Equipment Description: 100 Channel Data Acquisition System with YOKOGAWA Darwin Series

Calibration Sources: TEGAM Model 840-A, SN: T-207318. Calibration due 05/03/2005.

PERFORMANCE:

Temperature: (75°F) +1.8/-0.3	Temperature: (150°F) +1.7/-0.5	Temperature: (300°F) +1.8/-0.5	Temperature: (400°F) +1.9/-0.6	Temperature: (1000°F) +2/-0.5	Temperature: (2000°F) +2.8/-0.8

Verification Performed by:

Mike Dey
Manager of Fire Resistance

Verification Approved by:

Deg Priest
President/Chief Technical Officer

OMEGA POINT LABORATORIES

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Within specs? Yes/No

Calibrator Used: T-207318

Performed by: Mike Dey

Title: Mgr. Dept. 2

Temperature Setting (°F): 75.0

Approved by:

Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	75.7	0.7	51	74.8	-0.2
2	75.7	0.7	52	75.2	0.2
3	76.1	1.1	53	75.2	0.2
4	76.3	1.3	54	74.7	-0.3
5	75.9	0.9	55	74.7	-0.3
6	75.9	0.9	56	74.7	-0.3
7	76.1	1.1	57	74.7	-0.3
8	76.1	1.1	58	74.7	-0.3
9	76.1	1.1	59	74.7	-0.3
10	76.5	1.5	60	74.8	-0.2
11	76.3	1.3	61	75.9	0.9
12	76.8	1.8	62	76.3	1.3
13	76.6	1.6	63	76.3	1.3
14	75.9	0.9	64	75.7	0.7
15	75.7	0.7	65	75.7	0.7
16	75.7	0.7	66	75.7	0.7
17	75.7	0.7	67	75.9	0.9
18	75.7	0.7	68	75.9	0.9
19	75.7	0.7	69	75.9	0.9
20	76.3	1.3	70	76.5	1.5
21	75.9	0.9	71	75.7	0.7
22	76.3	1.3	72	76.3	1.3
23	76.3	1.3	73	76.3	1.3
24	75.7	0.7	74	75.7	0.7
25	75.6	0.6	75	75.7	0.7
26	75.7	0.7	76	75.7	0.7
27	75.7	0.7	77	75.7	0.7
28	75.7	0.7	78	75.7	0.7
29	75.9	0.9	79	75.9	0.9
30	76.3	1.3	80	76.3	1.3
31	75.7	0.7	81	74.8	-0.2
32	76.5	1.5	82	75.2	0.2
33	76.3	1.3	83	75.4	0.4
34	75.7	0.7	84	75.0	0.0
35	75.6	0.6	85	74.8	-0.2
36	75.6	0.6	86	75.0	0.0
37	75.6	0.6	87	75.2	0.2
38	75.7	0.7	88	75.2	0.2
39	75.7	0.7	89	75.4	0.4
40	75.9	0.9	90	75.7	0.7
41	76.1	1.1	91	74.8	-0.2
42	76.8	1.8	92	75.2	0.2
43	76.8	1.8	93	75.2	0.2
44	75.7	0.7	94	75.0	0.0
45	75.7	0.7	95	75.2	0.2
46	75.7	0.7	96	76.8	1.8
47	75.7	0.7	97	76.8	1.8
48	75.7	0.7	98	76.8	1.8
49	75.7	0.7	99	76.8	1.8
50	76.1	1.1	100	76.8	1.8

Range of 75°F Readings: **+1.8/-0.3**

	Lower	Upper	
Allowable limits	73.2	76.8	(±1.8)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Within specs? Yes/No

Calibrator Used: T-207318

Performed by: Mike Dey
Title: Mgr. Dept. 2

Temperature Setting (°F): 150.0

Approved by:
Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	151.5	1.5	51	149.7	-0.3
2	151.5	1.5	52	150.1	0.1
3	151.2	1.2	53	150.3	0.3
4	151.0	1.0	54	149.7	-0.3
5	150.8	0.8	55	149.5	-0.5
6	150.8	0.8	56	149.5	-0.5
7	150.8	0.8	57	149.7	-0.3
8	150.8	0.8	58	149.7	-0.3
9	151.0	1.0	59	149.7	-0.3
10	151.3	1.3	60	149.9	-0.1
11	151.2	1.2	61	150.8	0.8
12	151.5	1.5	62	151.0	1.0
13	151.5	1.5	63	151.2	1.2
14	150.8	0.8	64	150.8	0.8
15	150.8	0.8	65	150.4	0.4
16	150.6	0.6	66	150.6	0.6
17	150.8	0.8	67	150.8	0.8
18	150.6	0.6	68	150.8	0.8
19	150.8	0.8	69	150.8	0.8
20	151.2	1.2	70	151.3	1.3
21	150.8	0.8	71	150.8	0.8
22	151.3	1.3	72	151.0	1.0
23	151.3	1.3	73	151.2	1.2
24	150.8	0.8	74	150.6	0.6
25	150.6	0.6	75	150.4	0.4
26	150.8	0.8	76	150.6	0.6
27	150.8	0.8	77	150.8	0.8
28	150.8	0.8	78	150.8	0.8
29	150.8	0.8	79	150.8	0.8
30	151.2	1.2	80	151.2	1.2
31	150.8	0.8	81	149.7	-0.3
32	151.3	1.3	82	150.3	0.3
33	151.3	1.3	83	150.3	0.3
34	150.6	0.6	84	149.9	-0.1
35	150.4	0.4	85	149.9	-0.1
36	150.4	0.4	86	149.9	-0.1
37	150.6	0.6	87	150.1	0.1
38	150.6	0.6	88	150.3	0.3
39	150.6	0.6	89	150.3	0.3
40	150.8	0.8	90	150.4	0.4
41	151.0	1.0	91	149.7	-0.3
42	151.7	1.7	92	150.1	0.1
43	151.7	1.7	93	150.3	0.3
44	150.8	0.8	94	149.9	-0.1
45	150.8	0.8	95	150.1	0.1
46	150.8	0.8	96	151.7	1.7
47	150.6	0.6	97	151.7	1.7
48	150.8	0.8	98	151.7	1.7
49	150.8	0.8	99	151.6	1.6
50	151.0	1.0	100	151.7	1.7

Range of 150°F Readings: **+1.7/-0.5**

	Lower	Upper	
Allowable limits	148.2	151.8	(±1.8)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Within specs? Yes/No

Calibrator Used: T-207318

Performed by: Mike Dey
Title: Mgr. Dept. 2

Temperature Setting (°F): 300.0

Approved by:
Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	301.6	1.6	51	299.5	-0.5
2	301.8	1.8	52	300.0	0.0
3	301.8	1.8	53	300.0	0.0
4	300.7	0.7	54	299.5	-0.5
5	300.7	0.7	55	299.5	-0.5
6	300.7	0.7	56	299.5	-0.5
7	300.7	0.7	57	299.5	-0.5
8	300.7	0.7	58	299.5	-0.5
9	300.9	0.9	59	299.5	-0.5
10	301.1	1.1	60	299.5	-0.5
11	301.1	1.1	61	300.7	0.7
12	301.6	1.6	62	300.9	0.9
13	301.5	1.5	63	301.1	1.1
14	300.7	0.7	64	300.7	0.7
15	300.7	0.7	65	300.6	0.6
16	300.7	0.7	66	300.6	0.6
17	300.7	0.7	67	300.7	0.7
18	300.7	0.7	68	300.7	0.7
19	300.9	0.9	69	300.7	0.7
20	301.1	1.1	70	301.3	1.3
21	300.9	0.9	71	300.6	0.6
22	301.3	1.3	72	300.9	0.9
23	301.3	1.3	73	301.1	1.1
24	300.7	0.7	74	300.6	0.6
25	300.4	0.4	75	300.2	0.2
26	300.6	0.6	76	300.4	0.4
27	300.7	0.7	77	300.6	0.6
28	300.7	0.7	78	300.6	0.6
29	300.7	0.7	79	300.6	0.6
30	301.3	1.3	80	301.1	1.1
31	300.9	0.9	81	299.7	-0.3
32	301.5	1.5	82	299.8	-0.2
33	301.3	1.3	83	300.0	0.0
34	300.7	0.7	84	299.7	-0.3
35	300.4	0.4	85	299.7	-0.3
36	300.6	0.6	86	299.7	-0.3
37	300.6	0.6	87	299.7	-0.3
38	300.6	0.6	88	299.8	-0.2
39	300.7	0.7	89	300.0	0.0
40	300.9	0.9	90	300.4	0.4
41	300.7	0.7	91	299.5	-0.5
42	301.5	1.5	92	300.0	0.0
43	301.5	1.5	93	300.2	0.2
44	300.6	0.6	94	299.7	-0.3
45	300.4	0.4	95	300.0	0.0
46	300.4	0.4	96	301.6	1.6
47	300.4	0.4	97	301.8	1.8
48	300.4	0.4	98	301.8	1.8
49	300.4	0.4	99	301.8	1.8
50	300.7	0.7	100	301.8	1.8

Range of 300°F Readings: +1.8/-0.5

	Lower	Upper	
Allowable limits	298.1	301.9	(±1.9)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Within specs? Yes/No

Calibrator Used: T-207318

Performed by: Mike Dey

Title: Mgr. Dept. 2

Temperature Setting (°F): 400.0

Approved by:

Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	401.7	1.7	51	399.6	-0.4
2	401.9	1.9	52	400.1	0.1
3	401.9	1.9	53	400.3	0.3
4	401.0	1.0	54	399.6	-0.4
5	400.8	0.8	55	399.6	-0.4
6	400.8	0.8	56	399.6	-0.4
7	400.8	0.8	57	399.4	-0.6
8	400.8	0.8	58	399.6	-0.4
9	401.0	1.0	59	399.6	-0.4
10	401.4	1.4	60	399.6	-0.4
11	401.2	1.2	61	400.8	0.8
12	401.5	1.5	62	401.0	1.0
13	401.5	1.5	63	401.2	1.2
14	400.8	0.8	64	400.6	0.6
15	400.8	0.8	65	400.6	0.6
16	400.6	0.6	66	400.8	0.8
17	400.8	0.8	67	400.8	0.8
18	400.8	0.8	68	400.8	0.8
19	400.8	0.8	69	400.8	0.8
20	401.4	1.4	70	401.4	1.4
21	401.0	1.0	71	400.5	0.5
22	401.4	1.4	72	400.8	0.8
23	401.2	1.2	73	400.8	0.8
24	400.8	0.8	74	400.3	0.3
25	400.8	0.8	75	400.3	0.3
26	400.8	0.8	76	400.3	0.3
27	400.8	0.8	77	400.3	0.3
28	400.8	0.8	78	400.6	0.6
29	400.8	0.8	79	400.6	0.6
30	401.2	1.2	80	401.0	1.0
31	400.8	0.8	81	399.6	-0.4
32	401.4	1.4	82	400.1	0.1
33	401.4	1.4	83	400.1	0.1
34	400.6	0.6	84	399.6	-0.4
35	400.3	0.3	85	399.6	-0.4
36	400.3	0.3	86	399.9	-0.1
37	400.5	0.5	87	399.9	-0.1
38	400.5	0.5	88	400.1	0.1
39	400.5	0.5	89	400.1	0.1
40	400.8	0.8	90	400.3	0.3
41	400.8	0.8	91	399.6	-0.4
42	401.5	1.5	92	400.3	0.3
43	401.7	1.7	93	400.3	0.3
44	400.6	0.6	94	399.9	-0.1
45	400.5	0.5	95	400.3	0.3
46	400.5	0.5	96	400.3	0.3
47	400.5	0.5	97	401.7	1.7
48	400.5	0.5	98	401.7	1.7
49	400.6	0.6	99	401.7	1.7
50	400.8	0.8	100	401.7	1.7

Range of 400°F Readings: **+1.9/-0.6**

	Lower	Upper	
Allowable limits	398.0	402.0	(±2.0)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Within specs? Yes/No

Calibrator Used: T-207318

Performed by: Mike Dey
Title: Mgr. Dept. 2

Temperature Setting (°F): 1000.0

Approved by:
Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	1001.1	1.1	51	999.7	-0.3
2	1001.5	1.5	52	1000.0	0.0
3	1001.5	1.5	53	1000.0	0.0
4	1000.6	0.6	54	999.7	-0.3
5	1000.6	0.6	55	999.7	-0.3
6	1000.6	0.6	56	999.5	-0.5
7	1000.6	0.6	57	999.7	-0.3
8	1000.6	0.6	58	999.7	-0.3
9	1000.6	0.6	59	999.5	-0.5
10	1000.9	0.9	60	999.7	-0.3
11	1000.9	0.9	61	1000.8	0.8
12	1001.5	1.5	62	1000.9	0.9
13	1001.5	1.5	63	1000.9	0.9
14	1000.8	0.8	64	1000.6	0.6
15	1000.8	0.8	65	1000.6	0.6
16	1000.6	0.6	66	1000.6	0.6
17	1000.6	0.6	67	1000.6	0.6
18	1000.8	0.8	68	1000.8	0.8
19	1000.8	0.8	69	1000.9	0.9
20	1000.9	0.9	70	1000.9	0.9
21	1001.3	1.3	71	1000.4	0.4
22	1001.5	1.5	72	1000.6	0.6
23	1001.5	1.5	73	1000.6	0.6
24	1000.9	0.9	74	1000.0	0.0
25	1000.8	0.8	75	1000.0	0.0
26	1000.9	0.9	76	1000.0	0.0
27	1000.9	0.9	77	1000.2	0.2
28	1000.9	0.9	78	1000.2	0.2
29	1000.9	0.9	79	1000.2	0.2
30	1001.5	1.5	80	1000.8	0.8
31	1000.6	0.6	81	999.7	-0.3
32	1001.1	1.1	82	1000.0	0.0
33	1001.1	1.1	83	1000.0	0.0
34	1000.4	0.4	84	999.7	-0.3
35	1000.2	0.2	85	999.7	-0.3
36	1000.2	0.2	86	999.7	-0.3
37	1000.2	0.2	87	999.9	-0.1
38	1000.4	0.4	88	1000.0	0.0
39	1000.6	0.6	89	1000.0	0.0
40	1000.6	0.6	90	1000.4	0.4
41	1000.6	0.6	91	999.9	-0.1
42	1001.3	1.3	92	1000.0	0.0
43	1001.5	1.5	93	1000.0	0.0
44	1000.4	0.4	94	1000.0	0.0
45	1000.2	0.2	95	1000.0	0.0
46	1000.4	0.4	96	1000.0	0.0
47	1000.2	0.2	97	1001.8	1.8
48	1000.2	0.2	98	1001.8	1.8
49	1000.6	0.6	99	1001.8	1.8
50	1000.6	0.6	100	1002.0	2.0

Range of 2000°F Readings: **+2/-0.5**

	Lower	Upper	
Allowable limits	997.7	1002.3	(±2.3)

Channel Verification for Yokogawa 100 Channel

Serial No.: 99-LE-006

Calibrator Used: T-207318

Temperature Setting (°F): 2000.0

Within specs? Yes/No

Performed by: Mike Dey

Title: Mgr. Dept. 2

Approved by:

Title: President

Date: 4/11/05

Channel No.	Reading (°F)	+/-	Channel No.	Reading (°F)	+/-
1	2000.7	0.7	51	1999.6	-0.4
2	2001.0	1.0	52	1999.9	-0.1
3	2001.0	1.0	53	2000.1	0.1
4	2000.1	0.1	54	1999.6	-0.4
5	2000.1	0.1	55	1999.4	-0.6
6	1999.9	-0.1	56	1999.4	-0.6
7	1999.9	-0.1	57	1999.4	-0.6
8	2000.3	0.3	58	1999.4	-0.6
9	2000.3	0.3	59	1999.4	-0.6
10	2000.3	0.3	60	1999.9	-0.1
11	2000.8	0.8	61	2000.7	0.7
12	2001.2	1.2	62	2000.7	0.7
13	2001.2	1.2	63	2000.8	0.8
14	2000.5	0.5	64	2000.3	0.3
15	2000.5	0.5	65	2000.3	0.3
16	2000.5	0.5	66	2000.3	0.3
17	2000.3	0.3	67	2000.7	0.7
18	2000.5	0.5	68	2000.7	0.7
19	2000.5	0.5	69	2000.7	0.7
20	2000.7	0.7	70	2001.0	1.0
21	2001.7	1.7	71	1999.9	-0.1
22	2002.5	2.5	72	2000.5	0.5
23	2002.3	2.3	73	2000.5	0.5
24	2001.6	1.6	74	1999.8	-0.2
25	2001.6	1.6	75	1999.9	-0.1
26	2001.6	1.6	76	1999.9	-0.1
27	2001.4	1.4	77	1999.8	-0.2
28	2001.7	1.7	78	1999.9	-0.1
29	2001.7	1.7	79	2000.1	0.1
30	2001.9	1.9	80	2000.5	0.5
31	2000.7	0.7	81	1999.2	-0.8
32	2001.0	1.0	82	1999.9	-0.1
33	2001.0	1.0	83	1999.9	-0.1
34	2000.5	0.5	84	1999.4	-0.6
35	2000.3	0.3	85	1999.4	-0.6
36	2000.3	0.3	86	1999.6	-0.4
37	2000.3	0.3	87	1999.6	-0.4
38	2000.3	0.3	88	1999.8	-0.2
39	2000.7	0.7	89	1999.9	-0.1
40	2000.7	0.7	90	2000.3	0.3
41	2000.5	0.5	91	1999.6	-0.4
42	2001.0	1.0	92	1999.9	-0.1
43	2001.0	1.0	93	2000.3	0.3
44	2000.1	0.1	94	1999.9	-0.1
45	1999.9	-0.1	95	1999.9	-0.1
46	1999.9	-0.1	96	2002.8	2.8
47	1999.9	-0.1	97	2001.7	1.7
48	1999.9	-0.1	98	2001.9	1.9
49	1999.9	-0.1	99	2002.3	2.3
50	2000.5	0.5	100	2002.3	2.3

Range of 2000°F Readings: **+2.8/-0.8**

	Lower	Upper	
Allowable limits	1997.2	2002.8	(±2.8)

Q/A RECEIVING REPORT

CLIENT/PROJECT NAME Omega Point Labs
CLIENT/PROJECT NUMBER OPL Equipment
RECEIVED FROM SSC Lab Div.
PROJECT LOCATION Omega Point Labs

REPORT NUMBER 2435 - OPL
DATE RECEIVED 5-5-04
DATE INSPECTED 5-6-04
INSPECTED BY: [signature]

ITEM DESCRIPTION	P.O. NO.	QUANTITY Order	QUANTITY Rec'd	QUANTITY B.O.	I.D. NO.	CONID MATL Y/N	CERT. REC'D Y/N	SAFETY RELATED Y/N	CONTAINER INTEGRITY	ACCEPTANCE Accept	ACCEPTANCE Hold	ACCEPTANCE Reject	REMARKS
200g Weight	14357Q	1	1	Q	23137	Y	Y	N	GOOD	X			
200g Weight	14357Q	1	1	Q	23138	Y	Y	N	GOOD	X			
0-100psi Pressure gage	14357Q	1	1	Q	99LE001	Y	Y	N	GOOD	X			
0-100psi Pressure gage	14357Q	1	1	Q	98LE001	Y	Y	N	GOOD	X			
5" dial indicator	14357Q	1	1	Q	013021466	Y	Y	N	GOOD	X			
0-1000lb. Load Cell	14357Q	1	1	Q	343765	Y	Y	N	GOOD	X			
6" digital caliper	14357Q	1	1	Q	60246504	Y	Y	N	GOOD	X			
digital Multimeter	14357Q	1	1	Q	5700109	Y	Y	N	GOOD	X			

Dial indicator 5". SN: 013232851 was beyond repair - see memo.

09-016-11/02

16015 SHADY FALLS RD.
ELMENDORF, TEXAS 78112
PH. (210) 635-8100
FAX (210) 635-8101

PURCHASE ORDER

14357Q

Date: 04/19/2004
Page: 1 of 1

Order From: SSC Lab Division
7715 Distribution Dr.
Little Rock
AR 72209
501-562-2900/888-278-9292

Deliver to: Omega Point Laboratories, Inc
16015 Shady Falls Road
Elmendorf
TX 78112
(210) 635-8100

Vendor No:

Your Item Number / Item Description	Our Reference	Qty Ordered	Units	Unit Cost	Extension
0-100psi Pressure Gage SN:99LE001	001	1.00	Each	$45.00	$45.00
0-100psi Pressure Gage SN: 98LE001	002	1.00	Each	$75.00	$75.00
Dial Indicator SN: 013021466	003	1.00	Each	$20.00	$20.00
Dial Indicator SN: 013232851 **Calibration&Repair**	004	1.00	Each	$120.00	$120.00
Load Cell 1k pound SN: 343765 **Calibration & Repair**	005	1.00	Each	$175.00	$175.00
Digital Multimeter SN: 5700109 **Calibration & Repair**	006	1.00	Each	$100.00	$100.00
Digital Caliper SN:6Q-2465-04	007	1.00	Each	$70.00	$70.00
200g Weight—SN: 23137	008	1.00	Each	$10.00	$10.00
200g Weight—SN: 23138	009	1.00	Each	$10.00	$10.00

CALIBRATION CERT. REQUIREMENTS
1. Statement of NIST traceability
2. NIST test or I.D. number
3. As Found
4. As Left Values
5. Uncertainties of calibration measurements
6. Calibration data
7. Calibration certificates must show accreditation to ISO/IEC 17025

"See Special Instructions Regarding Purchasing Specifications for Quality Assurance Requirements."
QA Approval [signature]
Date 4-19-04

Please Quote Purchase Order Number on all correspondence.

Special Instructions: Please include Certificate of Conformance to attached Specification Sheet and Calibration Data traceable to NIST.

Subtotal:	$620.00
Freight:	0.00
Tax Amount:	0.00
Total Value:	$620.00

0806

VENDOR PURCHASING SPECIFICATION AND QUALITY ASSURANCE REQUIREMENTS

Vendor: SSC Lab Division
Purchase Order No. 14357 Q

Any of the following Quality Assurance requirements shall be incorporated as conditions to this procurement when corresponding box is marked. Failure to comply with any requirement specified may result in rejection and/or return of shipment at seller's expense.

1.0 QUALITY PROGRAM

[X] Seller shall furnish all items on this Purchase Order in accordance with Quality Program approved by Buyer.

2.0 Quality Verification

When additional quality verification activities are required as a condition to this procurement, invoices will not be paid until satisfactory completion of such activities.

[X] Receiving Inspection- Buyer shall inspect items upon receipt to verify compliance with purchase order requirements. Rejected items shall be returned at seller's expense.

[ ] Independent Laboratory Tests- Samples of materials furnished shall be tested independently for conformance to specification requirements prior to final acceptance. Rejected materials shall be returned at seller's expense.

[X] Document Review- Final acceptance shall be based on satisfactory review or required certifications and other supporting documents.

3.0 CERTIFICATIONS

When certifications are required as a condition to this procurement, the seller shall furnish one reproducible copy either with or prior to each shipment. Shipments will not be accepted and invoices will not be paid until certifications are in buyer's possession.

[ ] Certificate of Compliance/Conformance Required – Certification that materials and /or services comply with purchase order requirements. Certification shall reference purchase order number and traceability numbers (when applicable).

[ ] Certified Test Report Required – Certification that material complies with applicable material specification (s) and the purchase order. Include actual results of required tests.

[X] Certificate of Calibration Required - Certification shall be traceable to National Bureau of Standards. (NIST, Nat'l Inst. of Science & Technology).

4.0 AUDITS/RIGHT OF ACCESS

[X] The buyer reserves the right to audit your facility to verify compliance with purchase order, code and specification requirements with (10) days notice,

[X] Shipments shall only originate form facilities approved by the buyer.

[ ] Buyer reserves the right to inspect any or all work included in this order at seller's facility with as early notice as practicable.

5.0 IDENTIFICATION

[ ] Seller shall identify each item with a unique traceability number by physical marking or tagging. Traceability numbers shall be traceable to certifications and packing lists.

[X] Seller shall identify each container with a unique identification number. The identification number shall be traceable to certifications and packing lists.

6.0 10CFR,PART 21

[ ] The material, equipment and/or services to be furnished under this purchase order are involved in the testing of basic components of a Nuclear Regulatory Commission (NRC) licensed facility. Accordingly, the seller is subject to the provisions of 10 CFR, Part 21 (Reporting of Defects and Noncompliance)

7.0 PACKING/SHIPPING

[X] All materials shall be packaged in air tight, moisture free containers and shall be free from all foreign substance such as dirt, oil, grease or other deleterious material.

[ ] All materials and equipment shall be suitable crated, boxed or otherwise prepared for shipment to prevent damage during handling and shipping. Wherever practical, equipment shall be palletized for ease of unloading and storage at destination. Each container shall be clearly marked with buyer's purchase order number.

QUALITY ASSURANCE APPROVAL _____ DATE 4/19/04

SSC LAB DIVISION
a Division of System Scale Corporation
Employee Owned
"Quality You Can Measure"

CERTIFICATE NO: 36283-0003

ACCREDITED
Cert. #1754.01
Calibration Laboratory
ISO / IEC / 17025

CERTIFICATE OF CALIBRATION

SSC LAB DIVISION certifies that this instrument conforms to original manufacturers specifications or to tolerances indicated below and has been calibrated using standards with accuracies traceable to a National Measurement Institute, or to accepted values of natural physical constants, or have been derived by ratio techniques. This certificate complies with ISO / IEC 17025 & ANSI Z540. Unless otherwise stated, the M & T E for which this certificate is issued, based on interpretation of data, was found to meet the required specification. Reported uncertainty represents expanded uncertainty at approximately 95% confidence level, coverage factor of k=2.

Customer:	OMEGA POINT LAB.	Date Received:	4/21/04
Location:	16015 SHADY FALLS RD. ELMENDORF TX 78112	Date of Issue/Calibration:	04/22/2004
		Next Calibration Due:	04/22/2005
P.O. #:	14357Q	Metrologist:	Sean Rainey

Manufacturer:	McDANIEL CONTROLS INC.	Model:	316SS
Nomenclature:	GAGE- PRESSURE	Serial Number:	99LE001
Range:	0-100 PSI	Equipment ID:	99LE001

Calibration Data Temp 68°F Humidity 38%

Calibration Accuracy: ± 2.5% FULL SCALE

Note: if the AS LEFT column is blank, no adjustments were required.

Note: Many factors may cause out of calibration condition prior to due date.The Calibration interval has been specified by the Customer. Current procedures and methods utilized by SSC Lab Division are approved by the Customer.

APPLIED	AS FOUND	AS LEFT	UNCERTAINTY	PROCEDURE #
25 LBS	25.78	25.78	2.9	NA17-20MP-06
50 LBS	51.24	51.24	2.9	
75 LBS	76.38	76.38	2.9	
100 LBS	101.72	101.72	2.9	

STANDARDS(S) USED

Identification Number	Description	Calibration Date	Expiration Date	Traceability Number
SSC30LD029	CALIBRATOR- PRESSURE	7/30/2003	7/30/2004	33426-0044
SSC30LD048	TRANSDUCER- PRESSURE	8/11/2003	8/11/2004	1000154760

Calibration Certificate Acceptance
Item 0-100 psi Pressure Gage
SN 99LE001

	Q/A	Eng.
NIST Traceability Adequate		
As Found/As Left Values		
Calibration Data Sufficient		
Tolerance Range Adequate		
Date of Review:	5-6-04	5/6/04

OPL QA/QC Dept. Eng. Dept. Mgr.

Comments

Gary McCourt
Chief Metrology Engineer

This certificate may not be reproduced, except in full, without the written consent of SSC Lab Division.

Q/A RECEIVING REPORT

CLIENT/PROJECT NAME Omega Point Labs
CLIENT/PROJECT NUMBER OPL Equipment
RECEIVED FROM PMC
PROJECT LOCATION Omega Point Labs

REPORT NUMBER 2676 - OPL
DATE RECEIVED 10-25-04
DATE INSPECTED 10-25-04
INSPECTED BY: [signature]

ITEM DESCRIPTION	P.O. NO.	QUANTITY Order	QUANTITY Rec'd	QUANTITY B.O.	I.D. NO.	CON'tD MATL Y/N	CERT REC'D Y/N	SAFETY RELATED Y/N	CONTAINER INTEGRITY	ACCEPTANCE Accept	ACCEPTANCE Hold	ACCEPTANCE Reject	REMARKS
Fiberglass TC Wire	14561Q	15K'	12K'	Ø	KK-FB/FB-24 Fiberglass	Y	Y	N	Good	X			Received 3K' on 9/27/04. RQ#2470 This shipment Spool# 00565655, 00565656, 00565657 and 00565658 and 00565660. P.O. Complete.

09-016-11/02

OMEGA POINT LABORATORIES
16015 SHADY FALLS RD.
ELMENDORF, TEXAS 78112
PH. (210) 635-8100
FAX (210) 635-8101

PURCHASE ORDER

14561Q

Date: 09/16/2004
Page: 1 of 1

Order From: PMC
680 Hayward Street
Manchester
NH 03103
603-622-3500

Deliver to: Omega Point Laboratories, Inc
16015 Shady Falls Road
Elmendorf
TX 78112
(210) 635-8100

Vendor No: 0024

Your Item Number / Item Description	Our Reference	Qty Ordered	Units	Unit Cost	Extension
Fiberglass TC Wire KK-FB/FB-24	001	15,000	Feet	$218.00	$3270.00
Calibration Services	002	1.00	Each	$207.00	$207.00

Received 3,140 feet 9-27-04

"See Special Instructions Regarding Purchasing Specifications for Quality Assurance Requirements."
QA Approval
Date 9-16-04

Please Quote Purchase Order Number on all correspondence.

Special Instructions: Please include Certificate of Conformance to attached Specification Sheet and Calibration Data traceable to NIST.

Subtotal:	$3477.00
Freight:	0.00
Tax Amount:	0.00
Total Value:	$3477.00

080625/1

OMEGA POINT LABORATORIES
MATERIAL PURCHASING SPECIFICATIONS

SPECIFICATION NUMBER: MS-14561Q-OPL

VENDOR: PMC Corporation

ITEM NO.	VENDOR PRODUCT NUMBER	PRODUCT DESCRIPTION
	KK-TA/TA-24	Teflon Coated Thermocouple Wire
1.	KK-FB/FB-24	Fiberglas Braided Thermocouple Wire
	KK-TE/TE-24	FEP Insulated Thermocouple Wire

Material as defined above shall be provided in accordance with the Critical Characteristics as listed below:

TEST	DESCRIPTION	SPECIFICATION RANGES MIN. - MAX.
ASTM E220-96	Std. Test Method for Calibration of Thermocouples by Comparison (Chromel/Alumel wire alloy)	Temp. Range +32°F to +545°F Special Limits of Error ± 2% °F Temp. Range +545°F to +2300°F Special Limits of Error ± .4%
ASTM E220-96	Std. Test Method for Calibration of Thermocouples by Comparison (Copper/Constantan wire alloy)	Temp. Range -85°F to +270°F Special Limits of Error ±.9%°F Temp. Range +270°F to +660°F Special Limits of Error ±.4%

QUALITY ASSURANCE REQUIREMENTS

1.0 QUALITY PROGRAM

Seller shall furnish this item in accordance with Quality Program approved by Omega Point Laboratories. Material specified herein is to be produced and tested in accordance with vendor quality standards, methods, guidelines and manufacturing instructions as defined in that Quality Program.

2.0 QUALITY VERIFICATION

Receiving Inspection - Buyer shall inspect items upon receipt to verify compliance with purchase order requirements. Rejected items shall be returned at seller's expense.

Document Review - Final acceptance shall be based on satisfactory review of required certifications and/or supporting documents.

3.0 CERTIFICATIONS

3.1 Certification that supplied materials comply with this material specification and listing Critical Characteristics shall be provided. This certificates shall reference Omega Point Labs purchase order number and specification number for all material furnished under this specification. This Certification shall be signed by the appropriate vendor representative.

3.2 The material furnished under this specification shall be a product that complies with the following:

3.2.1 Has been tested and passed all tests specified herein.

3.2.2 Manufacturing methods for this material have not changed. Vendor will advise Omega Point in writing of any changes in the manufacturing prior to material manufacture.

3.2.3 Raw materials used in the manufacture of this material meet Vendor specifications.

4.0 AUDITS/RIGHTS OF ACCESS

Omega Point Labs reserves the right to audit your facility to verify compliance with the purchase order and specification requirements with a minimum ten (10) day notice.

5.0 IDENTIFICATION

Seller shall identify each item with a unique traceability number by physical marking or tagging. These identification numbers shall be traceable to certifications and packing lists.

6.0 PACKING/SHIPPING

All materials shall be packaged in air tight, moisture free containers and shall be free of foreign substances such as dirt, oil, grease or other deleterious materials.

All materials shall be suitably crated, boxed or otherwise prepared for shipment to prevent damage during handling and shipping.

QUALITY ASSURANCE APPROVAL:

Title QA Assistant

Date 9-16-04

AVL Verification

Class: A

PMC A DIVISION OF ROCKBESTOS-SURPRENANT CABLE CORPORATION
680 HAYWARD STREET, MANCHESTER, NH 03103 (603) 622-3500
SPECIALIZING IN WIRE & CABLE FOR THE SENSOR INDUSTRY FAX (800) 639-5701

CERTIFICATE OF CALIBRATION

SPOOL # 00565655

TO: OMEGA POINT LABS, INC.
16015 SHADY FALLS ROAD
ELMENDORF,TX 78112
USA

Date: 10/16/04
Cust PO#: 14561Q
JOB # PSO067407-3

CALIBRATION RESULTS ARE TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) AND MEET SPECIAL LIMITS DEVIATION TOLERANCES AS DEFINED IN ISA MC96.1 (FORMERLY ANSI) AND ASTM E 230-03. MS-14561Q-OPL.

TEST RESULTS FOR: PMC P/N: KK-FB/FB-24 Total Footage: 1520'

Test Temperature (°F)	Inside End	Outside End
200°	-1.3	-0.8
400°	-1.2	-1.7
600°	-2.0	-1.2
800°	-2.0	-1.5
1000°	+0.9	+1.4

Calibration Certificate Acceptance
Item Fiberglass TC Wire
SN 00565655
NIST Traceability Adequate QA Eng.
As Found / As left Values QA Eng.
Calibration Date Sufficient QA Eng.
Tolerance Range Adequate QA Eng.
Date of Review QA 10-25-04 Eng. 10-26-04
OPL QA/QC Dept. Eng./Dept. Mgr.

REPORTED RESULTS ARE DEVIATIONS FROM TEST TEMPERATURES. FOR CORRECTION FACTORS REVERSE THE SIGNS.

THE MATERIAL REFERENCED ABOVE HAS BEEN CALIBRATED UTILIZING TECHNIQUES CONSISTENT WITH THE GUIDELINES SET FORTH IN ANSI Z540-1 AND ASTM E-220-02. THIS IS TO CERTIFY THE MATERIAL FURNISHED ON THIS SHIPMENT ARE IN CONFORMANCE WITH THE REQUIREMENTS, SPECIFICATIONS, AND DRAWINGS OF THE ABOVE REFERENCED CUSTOMER PURCHASE ORDER. INSPECTION AND TEST RECORDS ARE ON FILE AND AVAILABLE FOR CUSTOMER REVIEW.

SECONDARY STANDARD THERMOCOUPLE: TYPE K
REEL # POS LEG: 00534834
REEL # NEG LEG: 00534833
CALIBRATION DATE: 3/17/00

NIST #: 263094C&A
263094B&D
(SINGLE USE THERMOCOUPLE FROM CALIBRATED REEL)

EDC 100RC SERIAL # 15075
NIST # 811/267966-03
DUE : 12/17/2005

DIGITAL VOLT METER
MODEL: KAYE INSTRUMENTS: X1525S
SERIAL # 306172
CALIBRATION DUE DATE: 01/30/2005

ICE POINT THERMOCOUPLE REFERENCE
MODEL, KAYE INSTRUMENTS: K-170-SP
SERIAL #: 306179
CALIBRATION DUE DATE: 01/30/2005

TYPE T STANDARD
REEL # 25926 & 26369
NIST # 258779B

Janice Robbins 10-16-04
QUALITY ASSURANCE TECHNICIAN DATE

PMC A DIVISION OF ROCKBESTOS-SURPRENANT CABLE CORPORATION
680 HAYWARD STREET, MANCHESTER, NH 03103 (603) 622-3500
SPECIALIZING IN WIRE & CABLE FOR THE SENSOR INDUSTRY FAX (800) 639-5701

CERTIFICATE OF CALIBRATION

SPOOL # 00565656

TO: OMEGA POINT LABS, INC.
16015 SHADY FALLS ROAD
ELMENDORF,TX 78112
USA

Date: 10/16/04
Cust PO#: 14561Q
JOB # PSO067407-3

CALIBRATION RESULTS ARE TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) AND MEET SPECIAL LIMITS DEVIATION TOLERANCES AS DEFINED IN ISA MC96.1 (FORMERLY ANSI) AND ASTM E 230-03. MS-14561Q-OPL.

TEST RESULTS FOR: PMC P/N: KK-FB/FB-24 Total Footage: 1555'

Test Temperature (°F)	Inside End	Outside End
200°	-1.4	-0.9
400°	-1.2	-1.7
600°	-2.0	-1.7
800°	-2.0	-1.6
1000°	+0.9	+1.8

Calibration Certificate Acceptance
Item Fiberglass TC Wire
SN 00565656
NIST Traceability Adequate QA Eng.
As Found / As left Values QA Eng.
Calibration Date Sufficient QA Eng.
Tolerance Range Adequate QA Eng.
Date of Review QA 10-25-04 Eng. 10/26/04
QPL QA/QC Dept. Eng./Dept. Mgr.

REPORTED RESULTS ARE DEVIATIONS FROM TEST TEMPERATURES. FOR CORRECTION FACTORS REVERSE THE SIGNS.

THE MATERIAL REFERENCED ABOVE HAS BEEN CALIBRATED UTILIZING TECHNIQUES CONSISTENT WITH THE GUIDELINES SET FORTH IN ANSI Z540-1 AND ASTM E-220-02. THIS IS TO CERTIFY THE MATERIAL FURNISHED ON THIS SHIPMENT ARE IN CONFORMANCE WITH THE REQUIREMENTS, SPECIFICATIONS, AND DRAWINGS OF THE ABOVE REFERENCED CUSTOMER PURCHASE ORDER. INSPECTION AND TEST RECORDS ARE ON FILE AND AVAILABLE FOR CUSTOMER REVIEW.

SECONDARY STANDARD THERMOCOUPLE: TYPE K
REEL # POS LEG: 00534834
REEL # NEG LEG: 00534833
CALIBRATION DATE: 3/17/00

NIST #: 263094C&A
263094B&D
(SINGLE USE THERMOCOUPLE FROM CALIBRATED REEL)

EDC 100RC SERIAL # 15075
NIST # 811/267966-03
DUE : 12/17/2005

DIGITAL VOLT METER
MODEL: KAYE INSTRUMENTS: X1525S
SERIAL # 306172
CALIBRATION DUE DATE: 01/30/2005

ICE POINT THERMOCOUPLE REFERENCE
MODEL, KAYE INSTRUMENTS: K-170-SP
SERIAL #: 306179
CALIBRATION DUE DATE: 01/30/2005

TYPE T STANDARD
REEL # 25926 & 26369
NIST # 258779B

10-16-04
QUALITY ASSURANCE TECHNICIAN DATE

PMC A DIVISION OF ROCKBESTOS-SURPRENANT CABLE CORPORATION
680 HAYWARD STREET, MANCHESTER, NH 03103 (603) 622-3500
SPECIALIZING IN WIRE & CABLE FOR THE SENSOR INDUSTRY FAX (800) 639-5701

CERTIFICATE OF CALIBRATION

SPOOL # 00565657

TO: OMEGA POINT LABS, INC.
16015 SHADY FALLS ROAD
ELMENDORF,TX 78112
USA

Date: 10/16/04
Cust PO#: 14561Q
JOB # PSO067407-3

CALIBRATION RESULTS ARE TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) AND MEET SPECIAL LIMITS DEVIATION TOLERANCES AS DEFINED IN ISA MC96.1 (FORMERLY ANSI) AND ASTM E 230-03. MS-14561Q-OPL.

TEST RESULTS FOR: PMC P/N: KK-FB/FB-24 Total Footage: 1315'

Test Temperature (°F)	Inside End	Outside End
200°	-1.1	-0.3
400°	-1.0	-1.9
600°	-2.3	-1.3
800°	-2.3	-1.9
1000°	+0.5	+1.1

Calibration Certificate Acceptance
Item Fiberglass TC Wire
SN 00565657
NIST Traceability Adequate QA Eng.
As Found / As left Values QA Eng.
Calibration Date Sufficient QA Eng.
Tolerance Range Adequate QA Eng.
Date of Review QA 10-25-04 Eng. 10/26/04
OPL QA/QC Dept. Eng./Dept. Mgr.

REPORTED RESULTS ARE DEVIATIONS FROM TEST TEMPERATURES. FOR CORRECTION FACTORS REVERSE THE SIGNS.

THE MATERIAL REFERENCED ABOVE HAS BEEN CALIBRATED UTILIZING TECHNIQUES CONSISTENT WITH THE GUIDELINES SET FORTH IN ANSI Z540-1 AND ASTM E-220-02. THIS IS TO CERTIFY THE MATERIAL FURNISHED ON THIS SHIPMENT ARE IN CONFORMANCE WITH THE REQUIREMENTS, SPECIFICATIONS, AND DRAWINGS OF THE ABOVE REFERENCED CUSTOMER PURCHASE ORDER. INSPECTION AND TEST RECORDS ARE ON FILE AND AVAILABLE FOR CUSTOMER REVIEW.

SECONDARY STANDARD THERMOCOUPLE: TYPE K
REEL # POS LEG: 00534834
REEL # NEG LEG: 00534833
CALIBRATION DATE: 3/17/00

NIST #: 263094C&A
263094B&D
(SINGLE USE THERMOCOUPLE FROM CALIBRATED REEL)

EDC 100RC SERIAL # 15075
NIST # 811/267966-03
DUE : 12/17/2005

DIGITAL VOLT METER
MODEL: KAYE INSTRUMENTS: X1525S
SERIAL # 306172
CALIBRATION DUE DATE: 01/30/2005

ICE POINT THERMOCOUPLE REFERENCE
MODEL, KAYE INSTRUMENTS: K-170-SP
SERIAL #: 306179
CALIBRATION DUE DATE: 01/30/2005

TYPE T STANDARD
REEL # 25926 & 26369
NIST # 258779B

Janice LeBoeuf 10-16-04
QUALITY ASSURANCE TECHNICIAN DATE

PMC A DIVISION OF ROCKBESTOS-SURPRENANT CABLE CORPORATION
680 HAYWARD STREET, MANCHESTER, NH 03103 (603) 622-3500
SPECIALIZING IN WIRE & CABLE FOR THE SENSOR INDUSTRY FAX (800) 639-5701

CERTIFICATE OF CALIBRATION

SPOOL # 00565658

TO: OMEGA POINT LABS, INC.
16015 SHADY FALLS ROAD
ELMENDORF,TX 78112
USA

Date: 10/16/04
Cust PO#: 14561Q
JOB # PSO067407-3

CALIBRATION RESULTS ARE TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) AND MEET SPECIAL LIMITS DEVIATION TOLERANCES AS DEFINED IN ISA MC96.1 (FORMERLY ANSI) AND ASTM E 230-03. MS-14561Q-OPL.

TEST RESULTS FOR: PMC P/N: KK-FB/FB-24 Total Footage: 3685'

Test Temperature (°F)	Inside End	Outside End
200°	-1.5	-0.6
400°	-1.9	-0.8
600°	-2.0	-1.4
800°	-1.9	-0.8
1000°	+0.1	+1.2

Calibration Certificate Acceptance
Item Fiberglass TC Wire
SN 00565658
NIST Traceability Adequate QA Eng.
As Found / As left Values QA Eng.
Calibration Date Sufficient QA Eng.
Tolerance Range Adequate QA Eng.
Date of Review QA 10-25-04 Eng. 10/26/04
OPL QA/QC Dept. Eng./Dept. Mgr.

REPORTED RESULTS ARE DEVIATIONS FROM TEST TEMPERATURES. FOR CORRECTION FACTORS REVERSE THE SIGNS.

THE MATERIAL REFERENCED ABOVE HAS BEEN CALIBRATED UTILIZING TECHNIQUES CONSISTENT WITH THE GUIDELINES SET FORTH IN ANSI Z540-1 AND ASTM E-220-02. THIS IS TO CERTIFY THE MATERIAL FURNISHED ON THIS SHIPMENT ARE IN CONFORMANCE WITH THE REQUIREMENTS, SPECIFICATIONS, AND DRAWINGS OF THE ABOVE REFERENCED CUSTOMER PURCHASE ORDER. INSPECTION AND TEST RECORDS ARE ON FILE AND AVAILABLE FOR CUSTOMER REVIEW.

SECONDARY STANDARD THERMOCOUPLE: TYPE K
REEL # POS LEG: 00534834
REEL # NEG LEG: 00534833
CALIBRATION DATE: 3/17/00

NIST #: 263094C&A
263094B&D
(SINGLE USE THERMOCOUPLE FROM CALIBRATED REEL)

DIGITAL VOLT METER
MODEL: KAYE INSTRUMENTS: X1525S
SERIAL # 306172
CALIBRATION DUE DATE: 01/30/2005

EDC 100RC SERIAL # 15075
NIST # 811/267966-03
DUE : 12/17/2005

ICE POINT THERMOCOUPLE REFERENCE
MODEL, KAYE INSTRUMENTS: K-170-SP
SERIAL #: 306179
CALIBRATION DUE DATE: 01/30/2005

TYPE T STANDARD
REEL # 25926 & 26369
NIST # 258779B

Janice Robbins 10-16-04
QUALITY ASSURANCE TECHNICIAN DATE

PMC A DIVISION OF ROCKBESTOS-SURPRENANT CABLE CORPORATION
680 HAYWARD STREET, MANCHESTER, NH 03103 (603) 622-3500
SPECIALIZING IN WIRE & CABLE FOR THE SENSOR INDUSTRY FAX (800) 639-5701

CERTIFICATE OF CALIBRATION

SPOOL # 00565660

TO: OMEGA POINT LABS, INC.
16015 SHADY FALLS ROAD
ELMENDORF,TX 78112
USA

Date: 10/16/04
Cust PO#: 14561Q
JOB # PSO067407-3

CALIBRATION RESULTS ARE TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) AND MEET SPECIAL LIMITS DEVIATION TOLERANCES AS DEFINED IN ISA MC96.1 (FORMERLY ANSI) AND ASTM E 230-03. MS-14561Q-OPL.

TEST RESULTS FOR: PMC P/N: KK-FB/FB-24 Total Footage: 4400'

Test Temperature (°F)	Inside End	Outside End
200°	-1.2	-0.4
400°	-1.5	-1.0
600°	-2.1	-1.7
800°	-2.1	-1.0
1000°	+0.5	+1.6

Calibration Certificate Acceptance
Item Fiberglass TC Wire
SN 00565660
NIST Traceability Adequate QA [illegible] Eng. [illegible]
As Found / As left Values QA [illegible] Eng. [illegible]
Calibration Date Sufficient QA [illegible] Eng. [illegible]
Tolerance Range Adequate QA [illegible] Eng. [illegible]
Date of Review QA 10-25-04 Eng. 10/26/04
OPL QA/QC Dept. Eng./Dept. Mgt.

REPORTED RESULTS ARE DEVIATIONS FROM TEST TEMPERATURES. FOR CORRECTION FACTORS REVERSE THE SIGNS.

THE MATERIAL REFERENCED ABOVE HAS BEEN CALIBRATED UTILIZING TECHNIQUES CONSISTENT WITH THE GUIDELINES SET FORTH IN ANSI Z540-1 AND ASTM E-220-02. THIS IS TO CERTIFY THE MATERIAL FURNISHED ON THIS SHIPMENT ARE IN CONFORMANCE WITH THE REQUIREMENTS, SPECIFICATIONS, AND DRAWINGS OF THE ABOVE REFERENCED CUSTOMER PURCHASE ORDER. INSPECTION AND TEST RECORDS ARE ON FILE AND AVAILABLE FOR CUSTOMER REVIEW.

SECONDARY STANDARD THERMOCOUPLE: TYPE K
REEL # POS LEG: 00534834
REEL # NEG LEG: 00534833
CALIBRATION DATE: 3/17/00

NIST #: 263094C&A
263094B&D
(SINGLE USE THERMOCOUPLE FROM CALIBRATED REEL)

EDC 100RC SERIAL # 15075
NIST # 811/267966-03
DUE : 12/17/2005

DIGITAL VOLT METER
MODEL: KAYE INSTRUMENTS: X1525S
SERIAL # 306172
CALIBRATION DUE DATE: 01/30/2005

ICE POINT THERMOCOUPLE REFERENCE
MODEL, KAYE INSTRUMENTS: K-170-SP
SERIAL #: 306179
CALIBRATION DUE DATE: 01/30/2005

TYPE T STANDARD
REEL # 25926 & 26369
NIST # 258779B

[signature] 10-16-04
QUALITY ASSURANCE TECHNICIAN DATE

PMC Division of RSCC
680 Hayward Street
Manchester, NH 03103
Tel : (603) 622-3500 Fax : (603) 622-7023

SPECIALIZING IN WIRE & CABLE FOR THE SENSOR INDUSTRY

DELIVERY NOTE

DELIVERY TO

OMEGA POINT LABS
16015 SHADY FALLS ROAD
ELMENDORF, TX 78112
USA

Attention: CLEDA

SHIPMENT :	OUR ORDER :	DATE :	CUSTOMER PO :	CONTACT :
0000146332	PSO067407	Oct 18 2004	14561Q	CLEDA
ACCOUNT :	**FOB :**	**SHIP VIA :**	**TRACKER# :**	**PAGE :**
OMEG01	Manchester,NH	UPS GROUND		1

LINE	ITEM	UOM	QTY	QTY SHIPPED	QTY B/O
003	KK-FB/FB-24 Spool #: 00565655 00565656 00565657 00565658 00565660	MFT	12,000	12,475	0
004	CALIBRATION CHARGE Spool #:	EACH	1	1	0

Q/A RECEIVING REPORT

CLIENT/PROJECT NAME Sandia National Labs
CLIENT/PROJECT NUMBER 14790-123263-264+265
RECEIVED FROM Texas Specialty Steel
PROJECT LOCATION Omega Point Labs

REPORT NUMBER 2689 - 14790
DATE RECEIVED 1-5-05
DATE INSPECTED 1-5-05
INSPECTED BY:

ITEM DESCRIPTION	P.O. NO.	QUANTITY Order	QUANTITY Rec'd	QUANTITY B.O.	I.D. NO.	CON'tD MATL Y/N	CERT REC'D Y/N	SAFETY RELATED Y/N	CONTAINER INTEGRITY	ACCEPTANCE Accept	ACCEPTANCE Hold	ACCEPTANCE Reject	REMARKS
C channel	14674Q	30	30	Q	C4x5.4	Y	Y	N	GOOD	X			
4X5.4													
C channel	14674Q	10	10	Q	C5X6.7	Y	X	N	GOOD	X			
4X6.7													
Hot Rolled Steel	14674Q	12	12	Q	10GA X 72.0000"	Y	Y	N	GOOD	X			
10ga X (Sheets)													
144"													

09-016-11/02

OMEGA POINT LABORATORIES
16015 SHADY FALLS RD.
ELMENDORF, TEXAS 78112
PH. (210) 635-8100
FAX (210) 635-8101

PURCHASE ORDER
14674Q

Date: 01/04/2005
Page: 1 of 1

Order From: Texas Specialty Steel
12270 Hwy. 181 S
San Antonio
TX 78223
210-633-0047

Deliver to: Omega Point Laboratories, Inc
16015 Shady Falls Road
Elmendorf
TX 78112
(210) 635-8100

Vendor No:

Your Item Number / Item Description	Our Reference	Qty Ordered	Units	Unit Cost	Extension
C Channel C4x5.4x20'	001	10	Each	$44.55	$445.50
C Channel C5x6.7x20'	002	30	Each	$55.28	$1,658.40
10 ga.72" x 144" HR Sheets	003	12	Each	$243.00	$2,916.00

"See Special Instructions Regarding Purchasing Specifications for Quality Assurance Requirements."
QA Approval
Date 1-4-05

Please Quote Purchase Order Number on all correspondence.
Please certify that the items supplied conform to applicable standards and specifications.

Subtotal:	$5,019.90
Freight:	0.00
Tax Amount:	338.84
Total Value:	$5,358.74

080625/11-89

TEXAS SPECIALTY STEEL

12270 Hwy 181 So.
San Antonio, Texas 78223
(210) 633-0047
Fax 633-2344

SALES ORDER 5960

Omega Point Lab

DELIVER TO: Sam

Cleta

DATE ORDERED	PO #	DATE SHIPPED	SHIPPED VIA	F.O.B.	SALESMAN
1-4-05	14674 Q		05		TS. 15

QUANTITY		DESCRIPTION	WEIGHT	PRICE	TOTAL
30		4x5# Chan 20'	108# ea	44.55 ea	1336.50
10		5x6# Chan 20'	134# ea	55.28 ea	552.80
12		10ga 6 x 12 HR Sheets	405# ea	243.00 ea	2916.00
					4805.3
				TAX	324.36
		MTR required			5129.66
		$25.00 Service Charge For Returned Checks			
		☒ TAXABLE ☐ NON-TAXABLE			

BAYOU STEEL CORPORATION
RIVER ROAD P.O. BOX 5000
LA PLACE, LOUISIANA 70069-1156
Telephone (985) 652-4900

MATERIAL CERTIFICATION REPORT

TESTED IN ACCORDANCE WITH ASTM A6

INVOICE NO.
PRODUCT CHANNELS
HEAT NO. 28136 48 Pcs
Length 20'0"

DATE 11/30/04
Cust O-3300 -0184
GRADE A36 -01
SIZE C 4 X 5.4

PO:0663288 03 24
Prod Id:0126441

CHEMICAL ANALYSIS	
C	.11
Mn	.78
P	.014
S	.02
Si	.21
Cu	.31
Ni	.17
Cr	.17
Mo	.056
Cb	.000
V	.000
B	
Al	
Sn	
N	
Ti	

CI	
CE	

MECHANICAL PROPERTIES	TEST 1 IMPERIAL	TEST 1 METRIC	TEST 2 IMPERIAL	TEST 2 METRIC	TEST 3 IMPERIAL	TEST 3 METRIC
YIELD STRENGTH	46,363 PSI	320 MPa	45,448 PSI	313 MPa	PSI	MPa
TENSILE STRENGTH	66,399 PSI	458 MPa	66,645 PSI	460 MPa	PSI	MPa
ELONGATION	33.0 %	33.0 %	31.0 %	31.0 %	%	%
GUAGE LENGTH	8 in	203 mm	8 in	203 mm	in	mm
BEND TEST DIAMETER	d	d	d	d	d	d
BEND TEST RESULTS						
SPECIMEN AREA	sq in	sq mm	sq in	sq mm	sq in	sq mm
REDUCTION OF AREA	%	%	%	%	%	%
IMPACT STRENGTH	ft·lbs	J	ft·lbs	J	ft·lbs	J

IMPACT STRENGTH	IMPERIAL	METRIC
AVERAGE	ft·lbs	J
TEST TEMP	F	C
ORIENTATION		

INTERNAL CLEANLINESS	
SEVERITY	
FREQUENCY	
RATING	

GRAIN SIZE HARDNESS	
GRAIN PRACTICE REDUCTION RATIO	

Customer Grade & Specs: ASME SA36 A709 GRADE 36
"NO WELD REPAIR"

I HEREBY CERTIFY THAT THE MATERIAL TEST RESULTS PRESENTED HERE ARE FROM THE REPORTED HEAT AND ARE CORRECT. ALL TESTS WERE PERFORMED IN ACCORDANCE TO THE SPECIFICATIONS REPORTED ABOVE. ALL STEEL IS ELECTRIC FURNACE MELTED, MANUFACTURED, PROCESSED, AND TESTED IN THE U.S.A WITH SATISFACTORY RESULTS, AND IS FREE OF MERCURY CONTAMINATION IN THE PROCESS.

NOTARIZED UPON REQUEST:
SWORN TO AND SUBSCRIBED BEFORE ME IN AND FOR ST. JOHN PARISH ON THIS _____ DAY OF _____, 20____

Jeanne M. Buffington, # 60493, Notary Public

SIGNED Timothy R. White
TIMOTHY R. WHITE, QUALITY ASSURANCE MANAGER

DIRECT ANY QUESTIONS OR NECESSARY CLARIFICATIONS CONCERNING THIS REPORT TO THE SALES DEPARTMENT.
1-800-535-7692 (USA)

BAYOU STEEL CORPORATION
RIVER ROAD P.O. BOX 5000
LA PLACE, LOUISIANA 70069-1156
Telephone (985) 652-4900

MATERIAL CERTIFICATION REPORT

TESTED IN ACCORDANCE WITH ASTM A6

INVOICE NO.
PRODUCT CHANNELS
HEAT NO. 23960 36 Pcs
Length 20'0"

DATE 06/01/04
Cust O-3300 -0184
GRADE A36 -01
SIZE C 5 X 6.7

PO:0661120 03 24
Prod Id:0127721

CHEMICAL ANALYSIS	
C	.12
Mn	.96
P	.018
S	.04
Si	.26
Cu	.41
Ni	.17
Cr	.19
Mo	.056
Cb	.000
V	.018
B	
Al	
Sn	
N	
Ti	

Cl	
CE	

MECHANICAL PROPERTIES	TEST 1 IMPERIAL	TEST 1 METRIC	TEST 2 IMPERIAL	TEST 2 METRIC	TEST 3 IMPERIAL	TEST 3 METRIC
YIELD STRENGTH	52,522 PSI	362 MPa	53,298 PSI	367 MPa	PSI	MPa
TENSILE STRENGTH	74,321 PSI	512 MPa	75,257 PSI	519 MPa	PSI	MPa
ELONGATION	31.0 %	31.0 %	26.0 %	26.0 %	%	%
GUAGE LENGTH	8 in	203 mm	8 in	203 mm	in	mm
BEND TEST DIAMETER	d	d	d	d	d	d
BEND TEST RESULTS						
SPECIMEN AREA	sq in	sq mm	sq in	sq mm	sq in	sq mm
REDUCTION OF AREA	%	%	%	%	%	%
IMPACT STRENGTH	ft·lbs	J	ft·lbs	J	ft·lbs	J

IMPACT STRENGTH	IMPERIAL	METRIC
AVERAGE	ft·lbs	J
TEST TEMP	F	C
ORIENTATION		

INTERNAL CLEANLINESS	
SEVERITY	
FREQUENCY	
RATING	

GRAIN SIZE HARDNESS	
GRAIN PRACTICE REDUCTION RATIO	

Customer Grade & Specs: ASME SA36 A709 GRADE 36
"NO WELD REPAIR"

I HEREBY CERTIFY THAT THE MATERIAL TEST RESULTS PRESENTED HERE ARE FROM THE REPORTED HEAT AND ARE CORRECT. ALL TESTS WERE PERFORMED IN ACCORDANCE TO THE SPECIFICATIONS REPORTED ABOVE. ALL STEEL IS ELECTRIC FURNACE MELTED, MANUFACTURED, PROCESSED, AND TESTED IN THE U.S.A WITH SATISFACTORY RESULTS, AND IS FREE OF MERCURY CONTAMINATION IN THE PROCESS.

NOTARIZED UPON REQUEST:
SWORN TO AND SUBSCRIBED BEFORE ME IN AND FOR ST. JOHN PARISH ON THIS _____ DAY OF _____, 20____

Jeanne M. Buffington, # 60493, Notary Public

SIGNED Timothy R. White
TIMOTHY R. WHITE, QUALITY ASSURANCE MANAGER

DIRECT ANY QUESTIONS OR NECESSARY CLARIFICATIONS CONCERNING THIS REPORT TO THE SALES DEPARTMENT.
1-800-535-7692 (USA)

Tel: 205-599-8000 Fax: 205 599-8131

CERTIFICATE of ANALYSIS and TESTS

Cert. No: HO 99160
13Oct04

Part No 863826/0617501
HR COIL ASTMA1011 COMM STL
10 GA. X 72.0000"

Pcs	Wgt
26	10,530

Heat Number	Tag No	Pcs	Wgt
61984C	445062		0

MILL=<US STEEL>/VESSL=<MP951019>/CNTRY=<USA>/REV=<04-03>

Heat Number
61984C

*** Chemical Analysis ***
C=0.0500 Mn=0.3400 P=0.0110 S=0.0080 Si=0.0050 Cu=0.0500
Al=0.0540

THIS IS TO CERTIFY THAT THE PRODUCT DESCRIBED HEREIN WAS SAMPLED AND TESTED IN ACCORDANCE WITH THE SPECIFICATION, TO OUR KNOWLEDGE, AND FULFILLS REQUIREMENTS IN SUCH RESPECT.

2042702-20

BAYOU STEEL CORPORATION
RIVER ROAD P.O. BOX 5000
LA PLACE, LOUISIANA 70069-1156
Telephone (985) 652-4900

MATERIAL CERTIFICATION REPORT

20PC- 14674Q

TESTED IN ACCORDANCE WITH ASTM A6

INVOICE NO.
PRODUCT CHANNELS
HEAT NO. 23I49 36 Pcs
Length 40'0"

DATE 03/25/04
Cust O-3300 -0184
GRADE A36 -01
SIZE C 5 X 6.7

PO:0660119 03 24
Prod Id:0128041

CHEMICAL ANALYSIS	
C	.14
Mn	.88
P	.015
S	.04
Si	.25
Cu	.24
Ni	.13
Cr	.14
Mo	.025
Cb	.000
V	.000
B	
Al	
Sn	
N	
Ti	

CI	
CE	

MECHANICAL PROPERTIES	TEST 1 IMPERIAL	TEST 1 METRIC	TEST 2 IMPERIAL	TEST 2 METRIC	TEST 3 IMPERIAL	TEST 3 METRIC
YIELD STRENGTH	48,344 PSI	333 MPa	47,994 PSI	331 MPa	PSI	MPa
TENSILE STRENGTH	70,206 PSI	484 MPa	69,642 PSI	480 MPa	PSI	MPa
ELONGATION	36.0 %	36.0 %	36.0 %	36.0 %	%	%
GUAGE LENGTH	8 in	203 mm	8 in	203 mm	in	mm
BEND TEST DIAMETER	d	d	d	d	d	d
BEND TEST RESULTS						
SPECIMEN AREA	sq in	sq mm	sq in	sq mm	sq in	sq mm
REDUCTION OF AREA	%	%	%	%	%	%
IMPACT STRENGTH	ft·lbs	J	ft·lbs	J	ft·lbs	J

IMPACT STRENGTH	IMPERIAL	METRIC
AVERAGE	ft·lbs	J
TEST TEMP	F	C
ORIENTATION		

INTERNAL CLEANLINESS	
SEVERITY	
FREQUENCY	
RATING	

GRAIN SIZE HARDNESS	
GRAIN PRACTICE REDUCTION RATIO	

Customer Grade & Specs: ASME SA36 A709 GRADE 36
"NO WELD REPAIR"

I HEREBY CERTIFY THAT THE MATERIAL TEST RESULTS PRESENTED HERE ARE FROM THE REPORTED HEAT AND ARE CORRECT. ALL TESTS WERE PERFORMED IN ACCORDANCE TO THE SPECIFICATIONS REPORTED ABOVE. ALL STEEL IS ELECTRIC FURNACE MELTED, MANUFACTURED, PROCESSED, AND TESTED IN THE U.S.A WITH SATISFACTORY RESULTS, AND IS FREE OF MERCURY CONTAMINATION IN THE PROCESS.

NOTARIZED UPON REQUEST:
SWORN TO AND SUBSCRIBED BEFORE ME IN AND FOR ST. JOHN PARISH ON THIS _____ DAY OF _____, 20____

Jeanne M. Bulfington, # 60493, Notary Public

SIGNED Timothy R. White
TIMOTHY R. WHITE, QUALITY ASSURANCE MANAGER

DIRECT ANY QUESTIONS OR NECESSARY CLARIFICATIONS CONCERNING THIS REPORT TO THE SALES DEPARTMENT.

1-800-535-7692 (USA)

TEXAS SPECIALTY 2106332344 01/01/2000 01:47
PAGE.01 2106332344 JAN 10 '05 13:05

Q/A RECEIVING REPORT

CLIENT/PROJECT NAME Sandia Nat'l Labs
CLIENT/PROJECT NUMBER 14790-123263.64+65
RECEIVED FROM Sandia Nat'l Labs
PROJECT LOCATION Omega Point Labs

REPORT NUMBER 2700 - 14790
DATE RECEIVED 3-4-05
DATE INSPECTED 3-4-05
INSPECTED BY: [illegible]

ITEM DESCRIPTION	P.O. NO.	QUANTITY Order	QUANTITY Rec'd	QUANTITY B.O.	I.D. NO.	CON'tD MATL Y/N	CERT REC'D Y/N	SAFETY RELATED Y/N	CONTAINER INTEGRITY	ACCEPTANCE Accept	ACCEPTANCE Hold	ACCEPTANCE Reject	REMARKS
cabletrays 12"	NA	Q	3	Q	248P09-12-144STR	Y	N	N	Good	X			Receiving Only
cabletrays 36"	NA	Q	3	Q	248P09-36-144-STR	Y	N	N	Good	X			
90° - 12"	NA	Q	2	Q	4P-12-90V124 VRT 1/S	Y	N	N	Good	X			
90° - 36"	NA	Q	2	Q	4P-36-90V124 VRT 1/S	Y	N	N	Good	X			
Splice Plates	NA	Q	8 3-4-05	Q	11954A	Y	N	N	Good	X			
Splice Plates	NA	Q	12	Q	113A1D	Y	N	N	Good	X			

09-016-11/02

FM 136

PACKING LIST

SHIPPING ORDER NO. 80770500001

COOPER B-Line
509 West Monroe Street
Highland, Illinois 62249-0326, U.S.A.
618-654-2184

PAGE 1

024012438

SOLD TO:
BORDER STATES ELECTRIC
PO BOX 2767

FARGO ND 581082767

000072721

SHIP TO:
OMEGA POINT LABS
16015 SHADY FALLS ROAD

ELMENDORF TX 78112

ATTN: RECEIVING

SHIP FROM	SHIP DATE	SHIP VIA	BILL OF LADING	WEIGHT	FREIGHT TERMS
RENO	3/02/05	PRECISION AIR C	01256739	501.00	CHARGE

CST PO: 5500414947

PHONE: 7012935833

* *
CONTACT IS DEG PRIEST 210 635 8100
CAN SHIP EARLY 3/2 PER KATHY C. SHIP PRECISION AIR
PER STEVE AT KH 1-800-842-7472 ACCT #613. INSURE
FOR VALUE OF MATL $1516.00. ASK PRECISION TO
CONFIRM WITH HOPE AT BORDER 505-344-1313.
* *

ORDERED	DUE	SHIPPED	BACKORDER	UNIT	LINE	DESCRIPTION
3	3	3		PC	1	248P09-12-144 ST SC ✓ 78101162149
3	3	3		PC	2	248P09-36-144 ST SC ✓ 78101162454
2	2	2		PC	3	4P-12-90VI24 VRT I/S ✓ 78101162189
2	2	2		PC	4	4P-36-90VI24 VRT I/S ✓ 78101162491
10	10	10		PR	5	9ZN-8004 SPLICE PLT ✓ 78101126314

ANY SHORTAGE OR DAMAGE MUST BE REPORTED TO CUSTOMER SERVICE
AT 618.654.2184 WITHIN TEN (10) DAYS FROM DATE OF SHIPMENT.

THIS MEMORANDUM is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

RECEIVED, subject to the classifications and tariffs in effect on the date of the receipt by the carrier of the property described in the Original Bill of Lading, the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western and Illinois Freight Classifications in effect on the date hereof, if this is a rail or a rail-water shipment or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

4

B/L NO. 0136-6739

SHIPPER'S NO. 807705 00 001

Page 441

AT RENO FROM **COOPER B-Line** 3/02/05 NAME OF CARRIER

Consigned To: OMEGA POINT LABS
16015 SHADY FALLS ROAD

(Mail or street address of consignee – For purposes of notification only.)
PO# 5500414947
MARK: RECEIVING

Dest'n: ELMENDORF TX 78112

Route

Del'ng Carr. PRECISION AIR C

Car or Vehicle Initials No.

NUMBER OF PACKAGES	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS		*WEIGHT (SUBJECT TO CORRECTION)	CLASS OR RATE
	Bundles of _____ Pcs. Single Pcs. Carton _____ Pcs.	Channels, NOI Iron or Steel Item No. 104850		
1	Crates Skids Cartons	Braces, Brackets NOI, Iron or Steel 3/16" Thick or Thicker Item No. 104600	25#	50
	Bundle of _____ Pcs. Single Pcs. {Bundles of _____ Pcs. Curved Fitting Single Pcs. Curved Fitting}	Cable Racks; Trays Troughs or Cable Way Aluminum Straight Section and Curved Fittings. Item No. 61220 - Sub 2		
2 4	Bundles of _____ Pcs. Single Pcs. {Bundles of _____ Pcs. Curved Fittings Single Pcs. Curved Fitting}	Cable Racks, Trays Troughs or Cable Way Steel 16 Gauge or Thicker Straight Sections and Curved Fittings Item No. 61220 - Sub 1	476#	60
	Crates Skids Cartons	Clips, Fasteners or Mounts, Steel, 94230		
	7 TOTAL PCS.- 601# DELIVERY DATE 03/04 CONTACT IS DEC PRIEST 310-635-0100 $1516.00 INSURANCE ********** SEND FREIGHT BILL WITH B/L TO: BILL ACCT# 613 X X X XX 00001 **********			

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

COOPER B-Line

(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

THIRD PARTY

Received $ to

apply in prepayment of the charges on the property described hereon.

Agent or Cashier.

Per

(The signature here acknowledges only the amount prepaid.)

Charges Advanced:
$

Collect On Delivery $ and Remit to

Street City State

C.O.D. CHARGES TO BE PAID BY
Shipper ☐ Consignee ☐

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
NOTE–Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

The Fibre Boxes used for this shipment conform to the specifications set forth in the box maker's certificate thereon, and all other requirements of Consolidated Freight Classification.

per Shattuck.Tom

COOPER B-Line Shipper, Per

Agent, Per

Permanent postoffice address of shipper, **P.O. Box 326, Highland, Illinois 62249**

Form 103 Rev. 05/01

PACKING LIST COPY

Airgroup - DFW
PO Box 3627
Bellevue, WA 98009-3627
Tel: 817-481-0970 Fax: 817-488-6583
www.airgroup.com

HAWB # : 129000584
Origin : DFW
Destination
Pick Up Date : 03/03/2005
Deliv Date : BY 03/04/2005
COD :
Charges : Third Party
Shipment # :

Domestic HAWB

Shipper	Consignee	Billing Party
AA C/O QLS 3801 PINNACLE POINT COCKRELL, TX 75211 **Attn:** **Tel:** **Ref #**	AA C/O LSG SKY CHEFS 18950 COLONEL FISCHER DR. HOUSTON, TX 77032 **Attn:** CECELIA **Tel:** 281-443-8560 **Ref #**	WORLDWIDE FLIGHT E BUSINESS 1925 W JOHN CARPENTER FRWY STE 450 IRVING, TX 75063 **Attn:** **Tel:** **Ref #**

Pick Up Ready	Between	Closing	Deliver By	Between	Closing
03/03/2005	-		03/04/2005	-	

TSA	U

Special Instructions

Pieces	Actual Weight	Corrected Weight	Description	Length	Width	Height
1	266.00 LB			48.00	40.00	19.00

SHIPMENT TOTALS

1	266.00 LB			188.04 LB

Charge	Description	Qty	Rate	Amount

TOTAL CHARGES $0.00

Total Declared Value

Shipper Signature			Pick-Up Driver Signature			Consignee Signature		
Date	Time	Pcs	Date	Time	Pcs	Date	Time	Pcs
Exceptions (Shipment received in good order unless noted)			Exceptions (Shipment received in good order unless noted)			Exceptions (Shipment received in good order unless noted)		

Q/A RECEIVING REPORT

CLIENT/PROJECT NAME Sandia National Labs
CLIENT/PROJECT NUMBER 14790-123263-264+265
RECEIVED FROM Sandia Nat'l Labs
PROJECT LOCATION Omega Point Labs

REPORT NUMBER 2691 - 14790
DATE RECEIVED 1-14-05
DATE INSPECTED 1-14-05
INSPECTED BY: [illegible]

ITEM DESCRIPTION	P.O. NO.	QUANTITY Order	QUANTITY Rec'd	QUANTITY B.O.	I.D. NO.	CON'tD MATL Y/N	CERT REC'D Y/N	SAFETY RELATED Y/N	CONTAINER INTEGRITY	ACCEPTANCE Accept	ACCEPTANCE Hold	ACCEPTANCE Reject	REMARKS
12" wide cable tray	NA	Ø	4	Ø	09-1D79-0012-12	Y		N	Good	X			Receiving Only
12" inside curve cable tray	NA	Ø	3	Ø	09-1D79-9124-12								
36" inside curve cable tray	NA	Ø	3	Ø	09-1D79-9124-36								
Unistrut super strut	NA	Ø	13	Ø	A-1200-AS								
2" square steel tube	NA	Ø	2	Ø									
Box of hardware - cable tray	NA	Ø	1	Ø	NA								
36" cable tray	NA	Ø	4	Ø	09-1D79-0012-36								
Bare #8 Copper	NA	Ø	36	Ø	#33500 NAED 050-4000J	✓		✓	✓	✓			

09-016-11/02

Page 443

Page 2 of 2

Q/A RECEIVING REPORT

CLIENT/PROJECT NAME Sandia National Labs
CLIENT/PROJECT NUMBER 14790 - 123263-264 & 265
RECEIVED FROM Sandia Nat'l Labs
PROJECT LOCATION Omega Point Labs

REPORT NUMBER 2691 - 14790
DATE RECEIVED 1-14-05
DATE INSPECTED 1-14-05
INSPECTED BY: [illegible]

ITEM DESCRIPTION	P.O. NO.	QUANTITY Order	QUANTITY Rec'd	QUANTITY B.O.	I.D. NO.	CON'tD MATL Y/N	CERT REC'D Y/N	SAFETY RELATED Y/N	CONTAINER INTEGRITY	ACCEPTANCE Accept	ACCEPTANCE Hold	ACCEPTANCE Reject	REMARKS
1" galv. conduit	NA	Ø	12	Ø	3WA8 1" 1"X10P6RC	Y		N	GOOD	X			Receiving only
1" conduit bodies	NA	Ø	5	Ø	APA LB77 1" FM7								
1" conduit gaskets	NA	Ø	5	Ø	NA								
1" steel covers	NA	Ø	5	Ø	1" APP FM7 370								
2.5" galv. conduit	NA	Ø	12	Ø	3WA0 2½" E-104582S	Y							
2.5" conduit bodies	NA	Ø	5	Ø	APP LB77 2-½" FM7								
2.5" conduit gaskets	NA	Ø	5	Ø	NA								
2.5" steel covers	NA	Ø	5	Ø	Form 7 o/z Gedney 870 2½"-3"								
4" galv. conduit	NA	Ø	12	Ø	3WA0 4" E-104582S								
4" conduit bodies	NA	Ø	5	Ø	APP 4" LB 107								
4" conduit gaskets	NA	Ø	5	Ø	NA								
4" steel covers	NA	Ø	5	Ø	APP 970 3½"-4" FM7								
18"X24"X8" junction boxes	NA	Ø	4	Ø	~~00035185987~~ 1-14-05 ASE22X18X8NK								
90°-1" conduit elbow	NA	Ø	5	Ø	E-32152-H 1-90-STD RAD								
90°-2.5" conduit elbow	NA	Ø	5	Ø	2X½X 90 Deg								
90°-4" conduit elbow	NA	Ø	5	Ø	E-32152-H 3WA8 4" 90 DEG	Y		N	GOOD	X			

09-016-11/02

RR#2691 Cleda Rec. 1-12-05 Fri shippment is due

Sandia National Laboratories
For the U.S. Department of Energy
1515 Eubank SE
Albuquerque, NM, 87123

SHIPPER 44885

Commercial Invoice

Status: Approved

Ship to:

Omega Point Laboratories
16015 Shady Falls Road

Elmendorf TX 78112
United States

RMA# or RGA#	
Deliver to:	Deg Priest
Phone:	(210) 635-8100
Building:	Room:
Mail Stop:	
Company:	Omega Point Laboratories
Department:	
Address Type:	Unclassified
Date Due at Destination:	1/16/2005
Production Related:	No

Origination Site:	SA
Form filled out by:	WYANT,FRANCIS J.
Phone:	5058445682
Date Prepared:	2005-1-10 FRANK
Requester:	WYANT,FRANCIS J.
Phone:	5058445682
Org. #:	06861

For Shipment Processing Use

Date Shipped:	
Carrier:	None Selected
Mode:	None Selected
Bill of Lading No.:	
Total # of Pkgs:	0
Total Weight:	0.0 lbs
Total Cubic Dim:	0.0
Advance Notification	**Contacted** Yes No
Name and Phone:	
741 Number:	
ATS:	
TID Numbers:	
RCT Initial/Dates	

Reason/Authority: To be Consumed in Testing / Incorporate into End Product
Return Date: NONE
Authority Number:
Freight Charge Payment: Sandia Pays
Project: 73766
Task: 01.08
Carrier: NONE
Account:

If shipping controlled property to a new Sandia location
Destination Bldg: **Room:**

If shipping to international destination:
Import duties and taxes will be paid by my project/task: I
Export Authorization:

No freight charge reason: NONE
Is material being shipped from the Shipping Department building or the 6000 Igloo? No
Shipment Comments: Shipping container located at the TEAMS (old TOSI Site). Contact Chuck Girard (cell: 459-8181) for pick
Transportation Pickup Requested: Yes
Questions about pickup call Dispatcher 844-1448 non-hazardous materials, 844-2556 hazardous materials.

Shipper's Export Declaration prepared:

Landstar Inway
805-8828
or
646-0412

Total Shipment Quantity and Value:	1	$6,000.00

LINE ITEM LIST FOR SHIPPER NUMBER 44885

Line Item #	Description/Comments For temporary transfer of items to international destinations, include item Manufacturer's Name, Category Domestic or Foreign, and Serial Number.	Classification Category/ level	Qty	Unit	Unit Value	T
1	Description: One shipping container containing the following items: 120 ft 1-in galvanized conduit, 5 1-in conduit bodies, 5 1-in conduit gaskets, 5 1-in steel covers; 120 ft 2.5-in galvanized conduit, 5 2.5-in conduit bodies, 5 2.5-in conduit gaskets, 5 2.5-in steel covers; 120 ft 4-in galvanized conduit, 5 4-in conduit bodies, 5 4-in conduit gaskets, 5 4-in steel covers; 4 18 x 24 x 8 junction boxes; 5 90-degree 1-in conduit elbows; 5 90-degree 2.5-in conduit elbows; 5 90-degree 4-in conduit elbows; 48-ft of 12-in wide cable trays; 48-ft of 36-in wide cable trays; 3 12-in inside curves; 3 36-in inside curves; 130 ft of Unistrut; 20 ft of 2-in square steel tube; Box of hardware for cable trays Comments: These items will be used in a series of destructive tests and will not be returned to Sandia following use.	Unclassified	1	EACH	$6,000.00	$(

PACKAGES

				Dimensions					
Quantity	Type	Contents	Weight		L	W	H	D	Cubic Fe
No Packages Found									

Combination to Lock on Shipping Container:

Turn right 3 times. Stop at 6
Turn left past 6 Stop at 8
Turn right to 26

Sandia National Laboratories
For the U.S. Department of Energy
1515 Eubank SE
Albuquerque, NM, 87123

SHIPPER **45687**

Commercial Invoice

Status: Waiting for Approval

Ship to:

Omega Point Laboratories, Inc
16015 Shady Falls Road

Elmendorf TX 78112-9784
United States

RMA# or RGA#	
Deliver to:	Deggary N. Priest
Phone:	210-635-8100
Building:	Room:
Mail Stop:	
Company:	Omega Point Laboratories
Department:	
Address Type:	Unclassified
Date Due at Destination:	2/27/2005
Production Related:	No

Origination Site:	SA
Form filled out by:	WALLACE,SAMUEL T.
Phone:	5058440225
Date Prepared:	2005-1-27
Requester:	WALLACE,SAMUEL T.
Phone:	5058440225
Org. #:	06113

For Shipment Processing Use

Date Shipped:	
Carrier:	None Selected
Mode:	None Selected
Bill of Lading No.:	
Total # of Pkgs:	0
Total Weight:	0.0 lbs
Total Cubic Dim:	0.0
Advance Notification	**Contacted** Yes No
Name and Phone:	
741 Number:	
ATS:	
TID Numbers:	
RCT Initial/Dates	

Reason/Authority: Analysis / Evaluation / Testing
Return Date: NONE
Authority Number:
Freight Charge Payment: Sandia Pays
Project: 73766
Task: 01.03
Carrier: NONE
Account:

If shipping controlled property to a new Sandia location
Destination Bldg: **Room:**

If shipping to international destination:
Import duties and taxes will be paid by my project/task:
Export Authorization:

No freight charge reason: NONE
Is material being shipped from the Shipping Department building or the 6000 Igloo? Yes
Shipment Comments: my repack items, if needed
Transportation Pickup Requested: Yes
Questions about pickup call Dispatcher 844-1448 non-hazardous materials, 844-2556 hazardous materials.

Shipper's Export Declaration prepared:

Total Shipment Quantity and Value:	46	$9,200.00

LINE ITEM LIST FOR SHIPPER NUMBER 45687						
Line Item #	Description/Comments For temporary transfer of items to international destinations, include item Manufacturer's Name, Category Domestic or Foreign, and Serial Number.	Classification Category/level	Qty	Unit	Unit Value	Total $
1	Description: Thermocouples Comments:	Unclassified	46	EACH	$200.00	$9,200.00

PACKAGES									
				Dimensions					
Quantity	Type	Contents	Weight		L	W	H	D	Cubic Feet
No Packages Found									

Sandia National Laboratories

Operated for the U.S. Department of Energy by
Sandia Corporation

Albuquerque, New Mexico 87185-0706

Tel (505) 844-2464, FAX (505) 844-0240
Internet: bllevin@sandia.gov

January 27, 2005

Deggary N. Priest, President
Omega Point Laboratories, Inc.
16015 Shady Falls Road
Elmendorf, TX 78112-9784
(210) 635-8100

Re: Quick Disconnect Thermocouples

Dear Deg,

Please find the forty-six thermocouples enclosed for installation and insulation thermal testing of the junction boxes. The Primary Standards Laboratory at SNL verified calibration of each of the thermocouples and have provided a certificate of uncertainty over a range of 70°F to 1000°F for each thermocouple. Please find enclosed copies of these certificates along with calibration stickers. Each sticker can be attached to its associated thermocouple near the connector end following the test to minimize interference during assembly and testing.

Yours truly,

Bruce

Bruce L. Levin

BLL/bll
Copy: file

PRIMARY STANDARDS LABORATORY

Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51536
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	1
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

TC Type	Range	Uncertainty
K	70 °F to 1000 °F	± (4 °F or 0.75% of reading) (whichever is greater)

NOTES: The tolerance statement applies only to the thermocouple, and does not include any instrument used by the owner to measure it.
The results relate only to the items tested or calibrated.

Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

Copy to: Submitting organization
Department 02541 file

Date received: 01/14/05
Dates tested: 01/18/05

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Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51537
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	2
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Approved by: L.J. Azevedo, 02541
Manager

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CERTIFICATE

File No. 51538
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	3
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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CERTIFICATE

File No. 51539
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	4
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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CERTIFICATE

File No. 51540
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	5
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Manager

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CERTIFICATE

File No. 51541
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	6
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51542
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	7
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

Copy to: Submitting organization
Department 02541 file

Date received: 01/14/05
Dates tested: 01/18/05

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CERTIFICATE

File No. 51543
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	8
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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Department 02541 file

Date received: 01/14/05
Dates tested: 01/18/05

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Q/A RECEIVING REPORT

CLIENT/PROJECT NAME Sandia Natl Lab/OPL
CLIENT/PROJECT NUMBER 14790-123263, 64465
RECEIVED FROM Sandia Natl Labs
PROJECT LOCATION Omega Point Labs

REPORT NUMBER 2695 . 14790/OPL
DATE RECEIVED ~~2-3~~ 2-1-05
DATE INSPECTED 2-1-05
INSPECTED BY:

ITEM DESCRIPTION	P.O . NO.	QUANTITY Order	QUANTITY Rec'd	QUANTITY B.O.	I.D. NO.	CON'tD MATL Y/N	CERT REC'D Y/N	SAFETY RELATED Y/N	CONTAINER INTEGRITY	ACCEPTANCE Accept	ACCEPTANCE Hold	ACCEPTANCE Reject	REMARKS
quick Disconnect Thermocouples	NA	46	46	0	KQIN-116-144-ungrounded SN: 1 through 46	Y	Y	N	Good	X			TC's sent to Sandia for calibration using Transmittal #1126 dated 1/11/05

Page 458

09-016-11/02

PRIMARY STANDARDS LABORATORY

Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51544
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	9
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

Copy to: Submitting organization
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Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51545
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	10
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

Copy to: Submitting organization
Department 02541 file

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Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51546
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	11
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

Copy to: Submitting organization
Department 02541 file

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CERTIFICATE

File No. 51547
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	12
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51548
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	13
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51549
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	14
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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A. Sanchez

Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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Department 02541 file

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Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51550
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	15
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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PRIMARY STANDARDS LABORATORY

Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51551
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	16
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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K	70 °F to 1000 °F	± (4 °F or 0.75% of reading) (whichever is greater)

NOTES: The tolerance statement applies only to the thermocouple, and does not include any instrument used by the owner to measure it.
The results relate only to the items tested or calibrated.

Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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Date received: 01/14/05
Dates tested: 01/18/05

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CERTIFICATE

File No. 51552
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	17
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51553
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	18
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51554
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	19
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51555
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	20
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 18, 2005
Expires:	January 18, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51556
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	21
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51557
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	22
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51558
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	23
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51559
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	24
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51560
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	25
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51561
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THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	26
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51562
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	27
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

COPY

The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51563
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	28
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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CERTIFICATE

File No. 51564
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	29
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

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File No. 51565
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	30
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

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File No. 51566
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	31
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51567
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	32
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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CERTIFICATE

File No. 51568
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	33
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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The results relate only to the items tested or calibrated.

Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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Date received: 01/14/05
Dates tested: 01/26/05

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PRIMARY STANDARDS LABORATORY

Sandia National Laboratories, Albuquerque, New Mexico 87185-0665

CERTIFICATE

File No. 51569
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	34
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Approved by: L.J. Azevedo, 02541
Manager

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CERTIFICATE

File No. 51570
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	35
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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Approved by: L.J. Azevedo, 02541
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CERTIFICATE

File No. 51571
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	36
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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CERTIFICATE

File No. 51572
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	37
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51573
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	38
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51574
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	39
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51575
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	40
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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File No. 51576
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	41
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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Metrologist: A. Sanchez, 02541

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File No. 51577
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	42
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
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File No. 51578
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	43
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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The thermocouple was calibrated over the temperature range of 71 °F to 1000 °F by comparison with a Standard Platinum Resistance Thermometer (SPRT). The thermocouple was calibrated in the 9122 Dry Well, with an immersion of 6 inches. The probe mV output was measured with an 8508A Fluke Multimeter. Both the SPRT and the Multimeter have calibrations that are traceable to the National Institute of Standards and Technology (NIST) or to intrinsic standards. The thermocouple type, temperature range calibrated over and the uncertainty of a confidence level of k=2 is as follows:

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Metrologist: A. Sanchez, 02541

Approved by: L.J. Azevedo, 02541
Manager

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CERTIFICATE

File No. 51579
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	44
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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CERTIFICATE

File No. 51580
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	45
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
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CERTIFICATE

File No. 51581
LIMITED

THERMOCOUPLE	TYPE K - STD
Model No.	KQIN-116-144
Serial No.	46
Procedure No.	CP – TC (07/22/98)
Lab Conditions:	Temperature: 23 °C ± 2 °C Humidity: 40% ± 10%
Submitted by:	Organization 06113 SNL / NM
Certified:	January 26, 2005
Expires:	January 26, 2006

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MEASUREMENTS STANDARDS PROGRAM
SANDIA NATIONAL LABORATORIES
Albuquerque, New Mexico

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1. The values of the units (either base or derived) maintained and disseminated by the National Institute of Standards and Technology (United States of America) or, in special cases and where appropriate, to the National Standards Laboratory of another nation;
2. The accepted value(s) of fundamental physical phenomena (intrinsic standards);
3. Ratio(s) or other non-maintained standards established by either a self-calibration and/or a direct calibration technique;
4. Standards maintained and disseminated by the MSP in special cases and where warranted;
5. Values and uncertainties arising from participation in a National Measurement System.

Because of inherent complexity in the calibration process and the uncertainty contribution by both standards and calibrating instruments, traceability always requires evaluation of a "traceability tree." A "traceability tree" analysis can be assembled for a specific calibration and valid for a particular and specific point in time. The "traceability tree" will include copies of relevant certificates and reports, excerpted as appropriate for brevity. However, the cost of preparation of the "traceability tree" will be charged to the requester.

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Note 3: The as received condition of the standard, set of standards, or measurement equipment described herein was as expected, unless otherwise noted in the body of the certificate or report.

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