FIRE BARRIER TEST PROGRAM

Test #3 – M.T. (3-Hour) Direct Attachment

Test Article Assembly Checklist

Reference Basis: "Plan for Hemyc (1-Hour) and M.T. (3-Hour) Electrical Raceway Fire Barrier Systems Performance Testing," Revision J, December 21, 2004. (Referred to as "the test plan" in this document.)

A. Pre-Instrumentation Test Specimen Assemblies Check

(1) 1-inch conduit No.1 3E (empty)

Action	Initials	Date
Verify that the conduit assembly conforms to arrangement and dimensions as shown in Figure A1 of the test plan. Ensure the weight of the empty conduit assembly is determined and recorded. Note any discrepancies and associated resolution actions below.	CHD	1/26/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

(2) 1-inch conduit No.2 3F (Bare #8)

Action	Initials	Date
Verify that the conduit assembly conforms to arrangement and dimensions as shown in Figure A1 of the test plan. Ensure the weight of the empty conduit assembly is determined and recorded. Note any discrepancies and associated resolution actions below.	CHD Filled: FJW	1/26/05 Empty weight 2/9/05*
Discrepancies Noted: Empty 1/26/05 Filled wt —		
Resolution Actions to be Completed Prior to Approval:		

*Based on msg from C. Patton, OPL, 2/9/05.

Test #3 – M.T. Wrap Test Article Assembly Checklist

(3) 2_ -inch conduit No.1 3c (empty)

Action	Initials	Date
Verify that the conduit assembly conforms to arrangement and dimensions as shown in Figure A2 of the test plan. Ensure the weight of the empty conduit assembly is determined and recorded. Note any discrepancies and associated resolution actions below.	cfb	1/26/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

(4) 2_ -inch conduit No.2 3D (Bare #8)

Action	Initials	Date
Verify that the conduit assembly conforms to arrangement and dimensions as shown in Figure A2 of the test plan. Ensure the weight of the empty conduit assembly is determined and recorded. Note any discrepancies and associated resolution actions below.	cfb Filled: FJW	1/26/05 2/9/05*
Discrepancies Noted: Empty wt. 1/26/05 fill wt.		
Resolution Actions to be Completed Prior to Approval:		

Empty weight

* Based on msg from C. Patton, DPL, 2/9/05

(5) 4-inch conduit No.1 3A (empty)

Action	Initials	Date
Verify that the conduit assembly conforms to arrangement and dimensions as shown in Figure A3 of the test plan. Ensure the weight of the empty conduit assembly is determined and recorded. Note any discrepancies and associated resolution actions below.	CJD.	1/26/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

(6) 4-inch conduit No.2 3B (Bare #8)

Action	Initials	Date
Verify that the conduit assembly conforms to arrangement and dimensions as shown in Figure A3 of the test plan. Ensure the weight of the empty conduit assembly is determined and recorded. Note any discrepancies and associated resolution actions below.	CXD Filled: FJW	1/26/05 Empty weight 2/9/05*
Discrepancies Noted: Empty weight 1/26/05		
Resolution Actions to be Completed Prior to Approval:		

* Based on msg from C. Patton, OPL, 2/9/05.

(7) Junction Box 3I (JB only) JB with Supports

Action	Initials	Date
Verify that the junction box and its support assembly conform to arrangement and dimensions as shown in Figure A6 of the test plan. Ensure the weight of the empty junction box is determined and recorded. Note any discrepancies and associated resolution actions below.	CLG	4/22/05 JB only
Discrepancies Noted: JB only 1/22/05		
Resolution Actions to be Completed Prior to Approval:		

(8) 2"x2" Tube Steel Support Structure 3H

Action	Initials	Date
Verify that the tube steel support structure assembly conforms to arrangement and dimensions as shown in Figure A7 of the test plan. Ensure the weight of the support assembly is determined and recorded. Note any discrepancies and associated resolution actions below.	T-JW	2/8/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

3J Cable drop

(9) Unistrut Support Structure 3G

Action	Initials	Date
Verify that the Unistrut support structure assembly conforms to arrangement and dimensions as shown in Figure A8 of the test plan. Ensure the weight of the support assembly is determined and recorded. Note any discrepancies and associated resolution actions below.	FJW	2/8/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

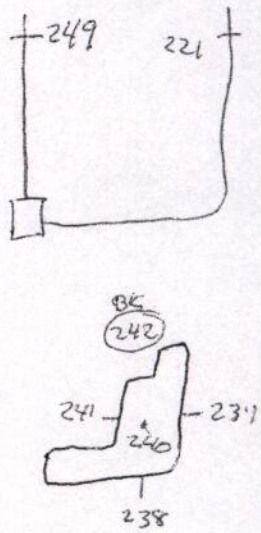
(10) Photographs of Assembled Test Specimens

Action	Initials	Date
Verify that color or digital photographs have been taken of each assemble test specimen. Note any discrepancies and associated resolution actions below.	FJW	2/8/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

B. Thermocouple Installation of Test Specimen Assemblies Check

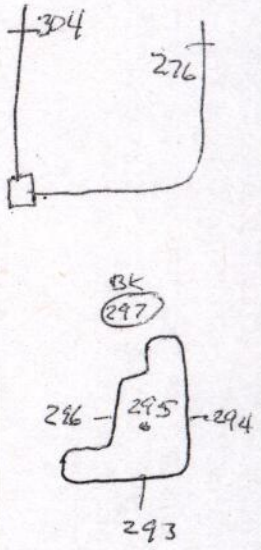
(1) 1-inch conduit No.1 3E

Action	Initials	Date
Verify that the thermocouple locations on the conduit assembly conform to the general arrangement and spacing as depicted in Figure A10 of the test plan. Ensure each thermocouple is securely fastened to the outer side or bottom surface of the conduit assembly. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.	FJW	2/7/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		



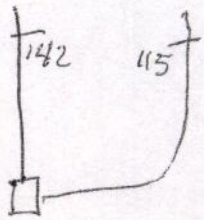
(2) 1-inch conduit No.2 3F

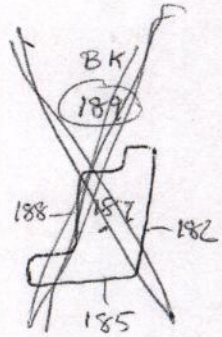
Action	Initials	Date
Verify that the thermocouple locations on the conduit assembly conform to the general arrangement and spacing as depicted in Figure A10 of the test plan. Ensure each thermocouple is securely fastened to the outer side or bottom surface of the conduit assembly. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.	FJW	2/7/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

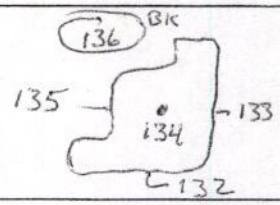


(3) 2_ -inch conduit No.1 ~~2C~~ 3C

Action	Initials	Date
Verify that the thermocouple locations on the conduit assembly conform to the general arrangement and spacing as depicted in Figure A11 of the test plan. Ensure each thermocouple is securely fastened to the outer side or bottom surface of the conduit assembly. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.	FJW	2/7/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

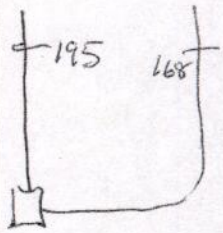


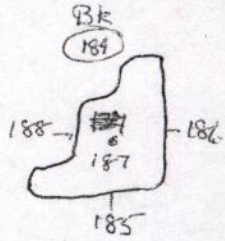




(4) 2_ -inch conduit No.2 ~~2D~~ 3D

Action	Initials	Date
Verify that the thermocouple locations on the conduit assembly conform to the general arrangement and spacing as depicted in Figure A11 of the test plan. Ensure each thermocouple is securely fastened to the outer side or bottom surface of the conduit assembly. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.	FJW	2/7/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

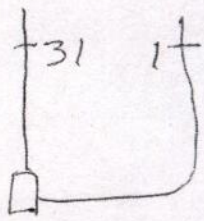


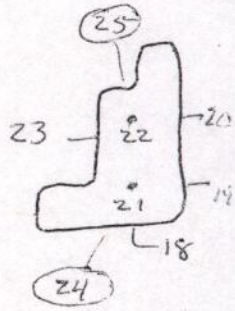


Test #3 – M.T. Wrap Test Article Assembly Checklist

(5) 4-inch conduit No.1 3A

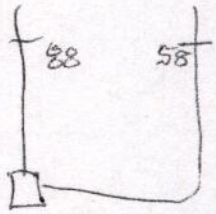
Action	Initials	Date
Verify that the thermocouple locations on the conduit assembly conform to the general arrangement and spacing as depicted in Figure A12 of the test plan. Ensure each thermocouple is securely fastened to the outer side or bottom surface of the conduit assembly. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.	FJW	2/7/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

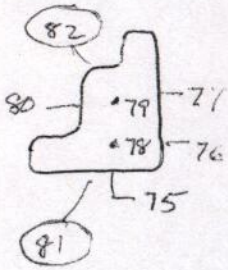




(6) 4-inch conduit No.2 3B

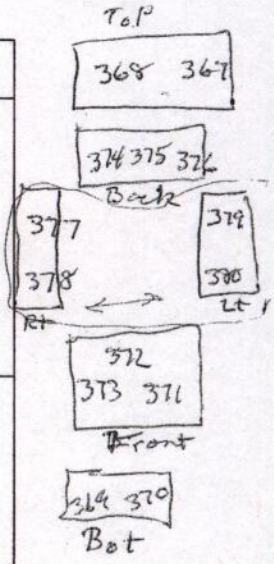
Action	Initials	Date
Verify that the thermocouple locations on the conduit assembly conform to the general arrangement and spacing as depicted in Figure A12 of the test plan. Ensure each thermocouple is securely fastened to the outer side or bottom surface of the conduit assembly. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.	FJW	2/7/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		





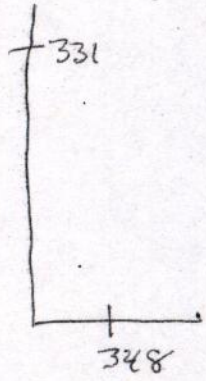
(7) Junction Box 3I

Action	Initials	Date
Verify that the thermocouple locations on the junction box conform to the general arrangement and spacing as depicted in Figure A15 of the test plan. Ensure each thermocouple is securely fastened to the outer surfaces of the junction box. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.	FJW	2/7/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		



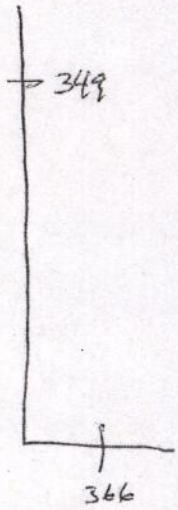
(8) 2"x2" Tube Steel Support Structure 3H

Action	Initials	Date
Verify that the thermocouple locations on the tube steel support structure conform to the general arrangement and spacing as depicted in Figure A16 of the test plan. Ensure each thermocouple is securely fastened to the outer surface. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.	FJW	2/7/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		



(9) Unistrut Support Structure 3G

Action	Initials	Date
Verify that the thermocouple locations on the Unistrut support structure conform to the general arrangement and spacing as depicted in Figure A17 of the test plan. Ensure each thermocouple is securely fastened to the outer surface. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.	FJW	2/7/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		



(10) Photographs of Instrumented Test Specimens

Action	Initials	Date
Verify that color or digital photographs have been taken of each instrumented test specimen. Ensure photographs include spacing reference scales. Note any discrepancies and associated resolution actions below.	FJW	2/8/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

C. Thermocouple Installation on Bare Copper Wire Checks

Action	Initials	Date	
Verify that the thermocouple locations on each of the seven bare copper wires conform to the 6-inch spacing intervals, beginning and ending approximately 3-inches above the test deck and throughout the length of wire located below the deck plane, as required in the test plan. Ensure each thermocouple is securely fastened to the bare copper wire. Ensure the location of each thermocouple is recorded and identified with a unique tag number. Note any discrepancies and associated resolution actions below.			
(1) Bare Copper Wire to be installed in empty 1-inch Conduit 3E	FJW	2/8/05	250-27
(2) Bare Copper Wire to be installed with wire bundle in full 1-inch Conduit 3F	FJW	2/8/05	305-330
(3) Bare Copper Wire to be installed in empty 2_-inch Conduit 3C	FJW	2/8/05	143-167
(4) Bare Copper Wire to be installed with wire bundle in full 2_-inch Conduit 3D	FJW	2/8/05	196-22
(5) Bare Copper Wire to be installed in empty 4-inch Conduit 3A	FJW	2/8/05	32-57 -
(6) Bare Copper Wire to be installed with wire bundle in full 4-inch Conduit 3B	FJW	2/8/05	89-114
(7) Bare Copper Wire to be installed with Cable Drop bundle 3J	FJW	2/8/05	381-397
Discrepancies Noted:			
Resolution Actions to be Completed Prior to Approval:			

D. Bare Copper Wire Bundle Installation Checks

Action	Initials	Date
Verify that the four bare copper wire bundles contain the number of wires as specified in Table 2 of the test plan. Ensure each bundle contains one instrumented wire. Ensure the weight of each bundle is determined and recorded. Ensure the location of each bundle is symmetric within the confines of the conduit. Ensure that each condulet cover is replaced (with gasket) and securely fastened in place. Note any discrepancies and associated resolution actions below.		
(1) Copper wire bundle to be installed in full 1-inch Conduit [21 wires] 3F	FJW	2/9/05*
(2) Copper wire bundle to be installed in full 2_-inch Conduit [114 wires] 3D	FJW	2/9/05*
(3) Copper wire bundle to be installed in full 4-inch Conduit [303 wires] 3B	FJW	2/9/05*
(3) Copper wire bundle to form the Cable Drop [7 wires] 3J	FJW	2/8/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

381-395

* Based on msg from Cleda Patton, OPL, 2/9/05.

E. Test Specimen Installation Checks

Action	Initials	Date
Verify that each of the ten test specimens are securely mounted and attached to the test deck and that each test specimen is located and oriented to conform to the raceway layouts as indicated in OPL Figures 1 and 2. Ensure all thermocouple lead wires are run up through to the top of the test deck. Ensure that color or digital photographs have been taken of the complete test article assembly. Note any discrepancies and associated resolution actions below.	FJW	2/8/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

The undersigned certifies that the test article assembly has been completed in accordance with the provisions and requirements of the test plan except as noted and that the test specimens are ready for installation of the ERFBS.

Francis Wyant	Francis Wyant	2/9/05
Printed Name	Signature	Date

Comments:

FIRE BARRIER TEST PROGRAM

Test #3 – M.T. (3-Hour) Direct Attachment

Test Article ERFBS Checklist

References:

1. "Plan for Hemyc (1-Hour) and M.T. (3-Hour) Electrical Raceway Fire Barrier Systems Performance Testing," Revision L, March 31, 2005. (Referred to as "the test plan" in this document.)

2. Promatec Procedure IP-001, "Installation of Three Hour Fire Protective Wrap System," Issue D, 6/17/86.

3. Promatec Procedure IP-002, "Fabrication Procedure for Three Hour Fire M.T. Barrier Components," Issue A, 4/18/86.

General Description of the M.T. Fire Barrier System:

The M.T. (3-Hour) Fire Protective System consists of multiple wraps applied to the test articles.

- An inner blanket composed of 1-inch thick alumina silica fiber enveloped in fiberglass cloth. Multiple shiplap joints (offsets) are employed in both the longitudinal and circumferential directions.
- A 0.002-inch thick stainless steel foil barrier is used to completely enclose the inner blanket assembly.
- The outer blanket assembly is composed of two separate parts: a tube assembly containing a powdered ingredient enclosed in a fiberglass fabric and an over wrap of 1½-inch thick alumina silica fiber enveloped in a fire resistant fabric such as Refrasil. Shiplap joints are also employed during the installation of the outer blankets and held in place using lacing hooks and tie wire.

Note that only the conduits, cable drop and junction box test specimens will be wrapped in the M.T. fire barriers as described above. The support structures will be protected with an inner wrap of 2-inch thick Kaowool, held in place with tape, and an outer wrap of 2-inch thick Kaowool enveloped in Refrasil fabric secured using lacing hooks and tie wire.

TEFLON TC used in test 3

A. Inner Blanket Installation Checks

(1) 3A: Empty 4-inch conduit

Action	Initials	Date
- Total number of pads for test specimen 3A = 7 - Thickness of each pad at least 1-inch. OK - Check outer covers for tears or openings. OK - Check all shiplap joints are tight (<½ inch gaps, etc.). - Check inner blanket secured in place by duct tape completely around the blanket with tape-to-tape adhesion. Note any problems and associated resolution actions below.	CLB CLB CLB CLB CLB	4/11/05 4/11/05 4/11/05 4/13/05 4/14/05
Problems Noted: 13 TC Horizontal 3 TC Vertical 3A7 Short Ship Laps (2") inner pads complete 4/14/05 CLB		
Resolution Actions to be Completed Prior to Approval: Replace with New Fabricated Pad (6" Shiplaps)		

(2) 3B: Loaded 4-inch conduit

Action	Initials	Date
- Total number of pads for test specimen 3B = 7 - Thickness of each pad at least 1-inch. - Check outer covers for tears or openings. - Check all shiplap joints are tight (<½ inch gaps, etc.). - Check inner blanket secured in place by duct tape completely around the blanket with tape-to-tape adhesion. Note any problems and associated resolution actions below.	CLB CLB CLB CLB CLB	4/11/05 4/11/05 4/11/05 4/11/05 4/11/05
Problems Noted: TC 61 Vertical (Corner) TC 84 Vertical CB TC 71 Horizontal		
Resolution Actions to be Completed Prior to Approval:		

(3) 3C: Empty 2½ -inch conduit

Action	Initials	Date
- Total number of pads for test specimen 3C = 5 - Thickness of each pad at least 1-inch. ok - Check outer covers for tears or openings. Ok - Check all shiplap joints are tight (<½ inch gaps, etc.). - Check inner blanket secured in place by duct tape completely around the blanket with tape-to-tape adhesion. Note any problems and associated resolution actions below.	CJL CJL CJL CJL CJL	4/11/05 4/11/05 4/11/05 4/11/05 4/14/05
Problems Noted: TC 127 Horizontal TC 139 Vertical (LB) TC 180 vertical (curve) 3C Pad for LB SMALL (4"), All inner pads complete 4/14/05 CLG		
Resolution Actions to be Completed Prior to Approval: Fabricate New Pads for LB & Pad 3C2		

(4) 3D: Loaded 2½ -inch conduit

Action	Initials	Date
- Total number of pads for test specimen 3D = 5 - Thickness of each pad at least 1-inch. ok - Check outer covers for tears or openings. ok - Check all shiplap joints are tight (<½ inch gaps, etc.). ok - Check inner blanket secured in place by duct tape completely around the blanket with tape-to-tape adhesion. Note any problems and associated resolution actions below.	CJL CJL CJL CJL CJL	4/18/05 4/18/05 4/11/05 4/11/05 4/14/05
Problems Noted: TC 180 Horizontal 2" TOWARD 181 TC 171 Vertical 3D Pad for LB SMALL (4) all inner pads completed 4/14/05 CLG		
Resolution Actions to be Completed Prior to Approval: Fabricate New pad for LB & PAd 3D1		

(5) 3E: Empty 1-inch conduit

Action	Initials	Date
- Total number of pads for test specimen 3E = 5 - Thickness of each pad at least 1-inch. ok - Check outer covers for tears or openings. ok - Check all shiplap joints are tight (<½ inch gaps, etc.). ok - Check inner blanket secured in place by duct tape completely around the blanket with tape-to-tape adhesion. Note any problems and associated resolution actions below.	CAL CAL CAL CAL LLC	4/11/05 4/11/05 4/11/05 4/11/05 4/14/05
Problems Noted: TC 246 Vertical (LB) PADS TO Horizontal Radius 4/11/05 TC 233 Horizontal TC 225 Vertical (curve) INNER PADS Complete 4/14/05		
Resolution Actions to be Completed Prior to Approval:		

(6) 3F: Loaded 1-inch conduit

Action	Initials	Date
- Total number of pads for test specimen 3F = 5 - Thickness of each pad at least 1-inch. ok - Check outer covers for tears or openings. ok - Check all shiplap joints are tight (<½ inch gaps, etc.). ok - Check inner blanket secured in place by duct tape completely around the blanket with tape-to-tape adhesion. ok Note any problems and associated resolution actions below.	CAL CAL CAL CAL CAL	4/11/05 4/11/05 4/11/05 4/11/05 4/11/05
Problems Noted: TC 301 Vertical TC 288 Horizontal		
Resolution Actions to be Completed Prior to Approval:		

(7) 3G: Unistrut Support Structure

Action	Initials	Date
- Check thickness of inner wrap is at least 2-inches. - Check all joints are tight (<½ inch gaps, etc.). OK - Check inner wrap secured in place by duct tape completely around the blanket with tape-to-tape adhesion. Note any problems and associated resolution actions below.	CLC CJb CJb	4/11/05 4/11/05 4/11/05
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

(8) 3H: 2"x2" Tube Steel Support Structure

Action	Initials	Date
- Thickness of each pad at least 2-inches. - Check all joints are tight (<½ inch gaps, etc.). - Check inner wrap secured in place by duct tape completely around the blanket with tape-to-tape adhesion. Note any problems and associated resolution actions below.	CLC CJb CJb	4/11/05 4/11/05 4/11/05
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

(9) 3I: Junction Box

Action	Initials	Date
- Total number of pads for test specimen 3I = 3 - Thickness of each pad at least 1-inch. OK - Check outer covers for tears or openings. OK - Check all shiplap joints are tight (<½ inch gaps, etc.). OK - Check inner blanket secured in place by duct tape completely around the blanket with tape-to-tape adhesion. Note any problems and associated resolution actions below.	CJL CLL CLL CJL CJL	4/12/05 4/12/05 4/12/05 4/12/05 4/12/05
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

(10) 3J: Cable Drop Assembly

Action	Initials	Date
- Total number of pads for test specimen 3J = 2 - 3" Vertical Pads bottom 3 mitered inner 3 mitered 2nd inner - Thickness of each pad ~~at least 1-inch~~. ~~3 inches~~ per above - Check outer covers for tears or openings. - Check all shiplap joints are tight (<½ inch gaps, etc.). - Check inner blanket secured in place by duct tape completely around the blanket with tape-to-tape adhesion. Note any problems and associated resolution actions below.	} 1½" each	4/19/05
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

B. Foil Barrier Installation Checks

(1) 3A: Empty 4-inch conduit

Action	Initials	Date
- Check that foil completely envelops inner blanket - Ensure that foil edges and ends overlap by 2- to 6-inches. - Check that foil is secured in place by duct tape completely around the blanket with tape-to-tape adhesion. - Check that any gaps are closed using tape. Note any problems and associated resolution actions below.	CLG CLG CLL CLG	4/12/05 4/14/05 4/14/05 4/14/05
Problems Noted: Foil to radius 4/12/05 (Horizontal) Foil complete 4/14/05 CLG		
Resolution Actions to be Completed Prior to Approval:		

(2) 3B: Loaded 4-inch conduit

Action	Initials	Date
- Check that foil completely envelops inner blanket - Ensure that foil edges and ends overlap by 2- to 6-inches. - Check that foil is secured in place by duct tape completely around the blanket with tape-to-tape adhesion. - Check that any gaps are closed using tape. Note any problems and associated resolution actions below.	CLB CLB CLB CLB	4/12/05 4/12/05 4/12/05 4/12/05
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

(3) 3C: Empty 2½ -inch conduit

Action	Initials	Date
- Check that foil completely envelops inner blanket - Ensure that foil edges and ends overlap by 2- to 6-inches. - Check that foil is secured in place by duct tape completely around the blanket with tape-to-tape adhesion. - Check that any gaps are closed using tape. Note any problems and associated resolution actions below.	CLG CLG CLG CLG	4/13/05 4/13/05 4/13/05 4/13/05
Problems Noted: Foil to radius Horizontal (4/13/05) Foil Completed 4/14/05 CLG		
Resolution Actions to be Completed Prior to Approval:		

(4) 3D: Loaded 2½ -inch conduit

Action	Initials	Date
- Check that foil completely envelops inner blanket - Ensure that foil edges and ends overlap by 2- to 6-inches. ok - Check that foil is secured in place by duct tape completely around the blanket with tape-to-tape adhesion. - Check that any gaps are closed using tape. Note any problems and associated resolution actions below.	CLG CLG CLG CLG	4/12/05 4/12/05 4/12/05 4/14/05
Problems Noted: Foil Horizontal to CB 4/12/05 Foil all Completed 4/14/05 CLG		
Resolution Actions to be Completed Prior to Approval:		

(5) 3E: Empty 1-inch conduit

Action	Initials	Date
- Check that foil completely envelops inner blanket - Ensure that foil edges and ends overlap by 2- to 6-inches. - Check that foil is secured in place by duct tape completely around the blanket with tape-to-tape adhesion. - Check that any gaps are closed using tape. Note any problems and associated resolution actions below.	CLC CXb CLC CLC	4/12/05 4/12/05 4/14/05 4/14/05
Problems Noted: Foil to radius 4/12/05, ~~Hydrates Pads To Horizontal Radius 4/12/05~~ Foil Complete 4/14/05		
Resolution Actions to be Completed Prior to Approval:		

(6) 3F: Loaded 1-inch conduit

Action	Initials	Date
- Check that foil completely envelops inner blanket - Ensure that foil edges and ends overlap by 2- to 6-inches. - Check that foil is secured in place by duct tape completely around the blanket with tape-to-tape adhesion. - Check that any gaps are closed using tape. Note any problems and associated resolution actions below.	CXb CXb CXb CXb	4/12/05 4/12/05 4/12/05 4/12/05
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

(7) 3G: Unistrut Support Structure

Action	Initials	Date
Note, no foil barrier is needed.		
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

(8) 3H: 2"x2" Tube Steel Support Structure

Action	Initials	Date
Note, no foil barrier is needed.		
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

(9) 3I: Junction Box

Action	Initials	Date
- Check that foil completely envelops inner blanket - Ensure that foil edges and ends overlap by 2- to 6-inches. - Check that foil is secured in place by duct tape completely around the blanket with tape-to-tape adhesion. - Check that any gaps are closed using tape. Note any problems and associated resolution actions below.	CJL CJL CJL CJL	4/12/05 4/12/05 4/12/05 4/12/05
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

(10) 3J: Cable Drop Assembly

Action	Initials	Date
- Check that foil completely envelops inner blanket - Ensure that foil edges and ends overlap by 2- to 6-inches. - Check that foil is secured in place by duct tape completely around the blanket with tape-to-tape adhesion. - Check that any gaps are closed using tape. Note any problems and associated resolution actions below.	~~CJL~~ ~~CJL~~ ~~CJL~~ ~~CJL~~	4/19/05 4/19/05 4/19/05 4/19/05
Problems Noted:		
Resolution Actions to be Completed Prior to Approval:		

C. Outer Blanket Installation Checks

(1) 3A: Empty 4-inch conduit

Action	Initials	Date
Monitor outer blanket installation on the raceway and perform the following checks: - Ensure tube assembly blanket wraps contain powdered ingredient. OK - Check that all ~~shiplap~~ joints are tight (~~<½ inch gaps, etc.~~). ~~Seal to Seal~~ AH to AH - Verify that over wrap pads are at least 1½ inch thick. - Check outer covers for tears or openings. - Check all ~~shiplap~~ joints are tight (<½ inch gaps, etc.) and are offset from tube assembly joints by at least 6-inches. - Check over wrap blanket is secured in place by lacing hooks and tie wire. - Check for obvious gaps & distortions of the completed blanket wraps. - Verify that the wrap extends up each vertical leg by 6 – 12 inches above the top of the test deck. Note any discrepancies and associated resolution actions below.	CLG CLG ~~BLG~~ ~~BLG~~ ~~BLG~~ ~~BLG~~ ~~BLG~~ ~~BLG~~	4/12/05 4/14/05 ~~4/18/05~~ ~~4/18/05~~ ~~4/18/05~~ ~~4/18/05~~ ~~4/18/05~~ ~~4/18/05~~
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval:		

(2) 3B: Loaded 4-inch conduit

Action	Initials	Date
Monitor outer blanket installation on the raceway and perform the following checks: - Ensure tube assembly blanket wraps contain powdered ingredient. OK - Check that all ~~shiplap~~ joints are tight (~~<½ inch gaps, etc.~~). AH to AH - Verify that over wrap pads are at least 1½ inch thick. - Check outer covers for tears or openings. - Check all ~~shiplap~~ joints are tight (<½ inch gaps, etc.) and are offset from tube assembly joints by at least 6-inches. - Check over wrap blanket is secured in place by lacing hooks and tie wire. - Check for obvious gaps & distortions of the completed blanket wraps. - Verify that the wrap extends up each vertical leg by 6 – 12 inches above the top of the test deck. Note any discrepancies and associated resolution actions below.	CLG CLG ~~BLG~~ ~~BLG~~ ~~BLG~~ ~~BLG~~ ~~BLG~~ ~~BLG~~	4/12/05 4/12/05 ~~4/18/05~~ ~~4/18/05~~ ~~4/18/05~~ ~~4/18/05~~ ~~4/18/06~~ ~~4/18/05~~
Discrepancies Noted: Closest Joint near LB Horizontal lap 5 7/8" (OK) Cover Pad needs to be installed over small hole adjacent to 90° Elbows.		
Resolution Actions to be Completed Prior to Approval: Stitch in Cover Pad — Patch Stitched in Place (OK)		

(3) 3C: Empty 2½ -inch conduit

Action	Initials	Date
Monitor outer blanket installation on the raceway and perform the following checks: - Ensure tube assembly blanket wraps contain powdered ingredient. OK - Check that all ~~shiplap~~ joints are tight (<~~½ inch gaps~~, etc.). AH to AH - Verify that over wrap pads are at least 1½ inch thick. - Check outer covers for tears or openings. - Check all ~~shiplap~~ joints are tight (<½ inch gaps, etc.) and are offset from tube assembly joints by at least 6-inches. - Check over wrap blanket is secured in place by lacing hooks and tie wire. - Check for obvious gaps & distortions of the completed blanket wraps. - Verify that the wrap extends up each vertical leg by 6 – 12 inches above the top of the test deck. Note any discrepancies and associated resolution actions below.	CLG CLG ~~BLL~~ ~~BLL~~ BLL ~~CLG~~ ~~CLG~~ *	4/13/05 4/14/05 ~~4/18/05~~ ~~4/18/05~~ 4/18/05 ~~4/18/05~~ ~~4/18/05~~ 4/18/05
Discrepancies Noted: Vertical to horizontal proceeding LB with Alumina Trihydrate Pad 4/13/05 Trihydrate Pads complete 4/14/05 CLG		
Resolution Actions to be Completed Prior to Approval: 3 minor tears require stitching of pads — Tears Stitched (OK) * Outer Wrap Extends 4 ± 5" above test deck penetration 6–12" waived w/addition of ceiling insulation by OPL.		

(4) 3D: Loaded 2½ -inch conduit

Action	Initials	Date
Monitor outer blanket installation on the raceway and perform the following checks: take assembly blankets contain powder - Check that all ~~shiplap~~ joints are tight (<~~½ inch gaps~~, etc.). ~~OK~~ AH to AH - Verify that over wrap pads are at least 1½ inch thick. OK - Check outer covers for tears or openings. OK - Check all ~~shiplap~~ joints are tight (<½ inch gaps, etc.) and are offset from tube assembly joints by at least 6-inches. OK - Check over wrap blanket is secured in place by lacing hooks and tie wire. - Check for obvious gaps & distortions of the completed blanket wraps. - Verify that the wrap extends up each vertical leg by 6 – 12 inches above the top of the test deck. Note any discrepancies and associated resolution actions below.	CLG CLG CLG CLG CLG CLG CLG CLG	4/13/05 4/14/05 4/15/05 4/15/05 4/15/05 4/15/05 4/15/05 4/15/05
Discrepancies Noted: Vertical to horizontal proceeding LB with Alumina Trihydrate pads 4/13/05, Trihydrate Pads complete 4/14/05 CLG		
Resolution Actions to be Completed Prior to Approval:		

(5) 3E: Empty 1-inch conduit

Action	Initials	Date
Monitor outer blanket installation on the raceway and perform the following checks: - Ensure tube assembly blanket wraps contain powdered ingredient. OK - Check that all ~~shiplap~~ joints are tight (~~<½ inch gaps, etc.~~). AH to AH - Verify that over wrap pads are at least 1½ inch thick. OK - Check outer covers for tears or openings. OK - Check all ~~shiplap~~ joints are tight (<½ inch gaps, etc.) and are offset from tube assembly joints by at least 6-inches. OK - Check over wrap blanket is secured in place by lacing hooks and tie wire. OK - Check for obvious gaps & distortions of the completed blanket wraps. OK - Verify that the wrap extends up each vertical leg by 6 – 12 inches above the top of the test deck. OK Note any discrepancies and associated resolution actions below.	CLG CLL CLG CLG CLG CLG CLG CLG	4/12/05 4/14/05 4/15/05
Discrepancies Noted: Hydrate Pad Horizontal to Radius 4/12/05 Hydrate Pads COMPLETE 4/14/05		
Resolution Actions to be Completed Prior to Approval:		

(6) 3F: Loaded 1-inch conduit

Action	Initials	Date
Monitor outer blanket installation on the raceway and perform the following checks: - Ensure tube assembly blanket wraps contain powdered ingredient. OK - Check that all ~~shiplap~~ joints are tight (~~<½ inch gaps, etc.~~). AH to AH - Verify that over wrap pads are at least 1½ inch thick. - Check outer covers for tears or openings. - Check all ~~shiplap~~ joints are tight (<½ inch gaps, etc.) and are offset from tube assembly joints by at least 6-inches. - Check over wrap blanket is secured in place by lacing hooks and tie wire. - Check for obvious gaps & distortions of the completed blanket wraps. - Verify that the wrap extends up each vertical leg by 6 – 12 inches above the top of the test deck. Note any discrepancies and associated resolution actions below.	CLG CLL ~~CLL~~ ~~CLL~~ ~~CLL~~ ~~CLL~~ ~~CLL~~ ~~CLL~~ *	4/12/05 4/12/05 4/18/05 4/18/05 4/18/05 4/18/05 4/18/05 4/18/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval: * Outer Wrap Extends 3 & 4" above test deck penetration, 6-12" waived w/addition of ceiling insulation by OPL.		

(7) 3G: Unistrut Support Structure

Action	Initials	Date
Monitor outer blanket installation on the support structure and perform the following checks: - Ensure outer wraps completely enclose the support without gaps or visible openings. per dwg. - Check over wrap blanket is secured in place by lacing hooks and tie wire. - Check for obvious gaps & distortions of the completed blanket wraps. - Verify that the wrap extends up vertical leg by 6 – 12 inches above the top of the test deck. Note any discrepancies and associated resolution actions below.	~~xxx~~ ~~xxx~~ ~~xxx~~ ~~xxx~~ *	4/18/05 4/18/05 4/18/05 4/18/05
Discrepancies Noted:		
Resolution Actions to be Completed Prior to Approval: Outer Wrap extends 4" above test penetration. Waived w/ addition of ceiling insulation by OPL.		

(8) 3H: 2"x2" Tube Steel Support Structure

Action	Initials	Date
Monitor outer blanket installation on the support structure and perform the following checks: - Ensure outer wraps completely enclose the support without gaps or visible openings. per dwg. - Check over wrap blanket is secured in place by lacing hooks and tie wire. - Check for obvious gaps & distortions of the completed blanket wraps. - Verify that the wrap extends up vertical leg by 6 – 12 inches above the top of the test deck. Note any discrepancies and associated resolution actions below.	~~xxx~~ ~~xxx~~ ~~xxx~~ ~~xxx~~	4/18/05 4/18/05 4/18/05 4/18/05
Discrepancies Noted: Abrasion Tear needs repair on bottom half of 90° Elbow		
Resolution Actions to be Completed Prior to Approval: Saw Patch over abrasion tear. Patch Stitched in place over tear (ok)		

(9) 3I: Junction Box

Action	Initials	Date
Monitor outer blanket installation on the raceway and perform the following checks: - Ensure tube assembly blanket wraps contain powdered ingredient. ok - Check that all ~~shiplap~~ joints are tight (<~~½ inch gaps, etc.~~). ~~A H to A H~~ - Verify that over wrap pads are at least 1½ inch thick. - Check outer covers for tears or openings. - Check all ~~shiplap~~ joints are tight (<½ inch gaps, etc.) and are offset from tube assembly joints by at least 6-inches. - Check over wrap blanket is secured in place by lacing hooks and tie wire. - Check for obvious gaps & distortions of the completed blanket wraps. Note any discrepancies and associated resolution actions below.	CLG CLG ~~CLG~~ ~~CLG~~ ~~CLG~~ ~~CLG~~ ~~CLG~~	4/13/05 4/13/05 ~~4/18/05~~ ~~4/18/05~~ ~~4/18/05~~ ~~4/18/05~~ ~~4/18/05~~
Discrepancies Noted: One Abrasion Tear needs repair		
Resolution Actions to be Completed Prior to Approval: Sew or Patch-&-Sew tear. Tear Stitched in Place (OK)		

(10) 3J: Cable Drop Assembly

Action	Initials	Date
Monitor outer blanket installation on the raceway and perform the following checks: - Ensure tube assembly blanket wraps contain powdered ingredient. - Check that all ~~shiplap~~ joints are tight (<~~½ inch gaps, etc.~~). ~~A H to A H~~ - Verify that over wrap pads are at least 1½ inch thick. - Check outer covers for tears or openings. - Check all shiplap joints are tight (<½ inch gaps, etc.) and are offset from tube assembly joints by at least 6-inches. * - Check over wrap blanket is secured in place by lacing hooks and tie wire. - Check for obvious gaps & distortions of the completed blanket wraps. - Verify that the wrap extends up each vertical leg by 6 – 12 inches above the top of the test deck. Note any discrepancies and associated resolution actions below.	~~CLG~~ ~~CLG~~ ~~CLG~~ ~~CLG~~ ~~CLG~~ ~~CLG~~ ~~CLG~~ ~~CLG~~	~~4/19/05~~ ~~4/19/05~~ ~~4/19/05~~ ~~4/19/05~~ ~~4/19/05~~ ~~4/19/05~~ ~~4/19/05~~ ~~4/19/05~~
Discrepancies Noted: Small tear hole on vertical leg.		
Resolution Actions to be Completed Prior to Approval: * Due to nature of miter joints, these joints are not necessarily offset by 6-inches. Requirement is waived for offset Sew patch over hole. Patch sewed in place. (OK		

Frank 295-8193

D. Test Assembly Completion Checks

Action	Initials	Date
Complete the following checks of the test assembly: - Verify that the underside of the test deck is insulated. - Ensure that no gaps or openings exist between the vertical sections of each test specimen and the test deck. - Ensure that all raceway openings are plugged above the test deck. - Ensure that color or digital photographs have been taken of the complete test assembly. Note any discrepancies and associated resolution actions below.	~~BLL~~ ~~BLL~~ ~~BLL~~ ~~BLL~~	4/21/2005 4/21/2005 4/25/2005 4/25/2005
Discrepancies Noted: Some insulation stuffing need on top of the deck penetrations Final top of deck & inside furnace photos needed		
Resolution Actions to be Completed Prior to Approval: Stuff penetrations — Penetrations Stuffed (Ok) Take final photographs of deck top. & inside furnace		

All Thermocouple connections made and connection numbers verified. ~~BLL~~ 4/21/2005

The undersigned certifies that the test article assembly has been completed in accordance with the provisions and requirements of the test plan except as noted and that the test specimens are ready for installation in the test furnace.

Bruce L. Levin	~~Bruce L. Levin~~	4/25/2005
Printed Name	Signature	Date

Comments:

Cleda Patton
QA/QC - OPL
4-25-05