INL/MIS-20-60313-Revision-0

TEV-4031 MFC MEDE Furnace Cabinet SCCR Identification

June 2020

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Idaho National Laboratory

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MFC MEDE Furnace Cabinet SCCR Identification

1. Effective Date	06/08/20	**Professional Engineer's Stamp** *Not required per Sec 4.1, par. f of* LWP-10010
2. Does this TEV involve a Safety SSC?	No	
3. Safety SSC Determination Document ID	NA	
4. SSC ID	NA	
5. Project No.	33293	
6. Engineering Job (EJ) No.	2972	
7. Building	Engineering Development & Welding Laboratory (EDL)	
8. Site Area	MFC	

9. Objective / Purpose

The purpose of this document is to show the Short Circuit Current Rating (SCCR) of furnace control cabinet MF-CP-001 and identify required information to be placed on the electrical plaque.

10. If revision, please state the reason and list sections and/or page being affected.

NA

11. Conclusion / Recommendations

The SCCR of control panel MF-CP-001 is 10kA. The overall panel SCCR is derived from the lowest SCCR of the individual components listed in Appendix A in accordance with SB4.4 of UL508A.

The cabinet plaque shall read:

Idaho National Lab
MF-CP-001
Voltage: 120/208 Vac, 3 phase, 60 Hz
FLA: 68.7 amps
SCCR: 10kA
NEMA 1
Drawing 816801

CONTENTS

APPENDIXES

PROJECT ROLES AND RESPONSIBILITIES

Project Role	Name	Organization	Pages Covered (if applicable)
Performer	Paul J Petersen	FACILITY DESIGN & PROJECT ENG (J211)	See eCR 678916
Checker[a]	Thomas Hipp	DESIGN ENGINEERING & DRAFTING (U720)	-----
Independent Reviewer[b]	John Whipple	FACILITY DESIGN & PROJECT ENG (J211)	-----
CUI Reviewer[c]	NA	-----	-----
Manager[d]	Ken Marsden	PYROCHEM & MOLTEN SALT SYS (C420)	-----
Requestor[e]	Brian Preussner	PYROCHEM & MOLTEN SALT SYS (C420)	-----
Nuclear Safety[f]	NA	-----	-----
Document Owner	Brian Preussner	PYROCHEM & MOLTEN SALT SYS (C420)	-----

Responsibilities:

a. Confirmation of completeness, mathematical accuracy, and correctness of data and appropriateness of assumptions.
b. Concurrence of method or approach. See definition, LWP-10106.
c. Concurrence with the document's markings in accordance with LWP-11202.
d. Concurrence of procedure compliance. Concurrence with method/approach and conclusion.
e. Authorizes the commencement of work of the engineering deliverable. See Appendix A.
f. Concurrence with the document's assumptions and input information. See definition of Acceptance, LWP-10200.

NOTE: *Delete or mark "N/A" for project roles not engaged. Include ALL personnel and their roles listed above in the eCR system. The list of the roles above is not all inclusive. If needed, the list can be extended or reduced.*

SCOPE AND BRIEF DESCRIPTION

The control panel MF-CP-001 is designed to be a mobile unit, but is primarily to be used in MFC-787 to control the MEDE furnace inside of the pyro chemistry glove box. The required power to MF-CP-001 (208/120VAC, three phase, 69 Full Load Amps), is provided by a pin and sleeve plug, and distributed within the control panel by way of power distribution blocks and fuse blocks to various control equipment.

The purpose of this document is to evaluate cabinet MF-CP-001 to find its SCCR as required by NEC 409.22(B), and identify the information to be placed in the electrical sign required by NEC 409.110(4). The method used to determine the SCCR is UL 508A, Supplement SB.

Acronyms:

SCCR – Short Circuit Current Rating

MFC – Materials Fuel Complex

kA – Thousand Amps

FLA – Full Load Amps

NEMA – National Electrical Manufacturer Association

ADDITIONAL INFORMATION

Power device ratings: See table and one line diagram in Appendix A

See Dwg. 816801 for device layout

ASSUMPTIONS

N/A

Appendix A

Engineering Inputs

MFG	Part #	Description	SCCR
Allen-Bradley	1492-J2	Terminal Block	10kA
Allen-Bradley	100-C43DJ10	Contactor, 24VDC, 43 amp	100kA
Allen-Bradley	100-C23DJ10	Contactor, 24VDC, 23 amp	100kA
Allen-Bradley	1492-MCAA115	15 amp, Branch Breaker	10kA
Bussmann	FNQ-15, 10, 5, 2	Fuses Various Amperages	10kA
Bussmann	FWX-30A14F	30 amp High Speed Fuse	120kA
Bussmann	FWX-15A14F	15 amp High Speed Fuse	120kA
Bussmann	JKS 80	80 amp, class J, fuse	200kA
Bussmann	JM60100-3MW14	Fuse Holder	200kA
Bussmann	CH142D	Fuse Holder	50kA
Bussmann	CH141D	Fuse Holder	50kA
Bussmann	CHM1DIU	Fuse Holder	50kA
Bussmann	PDB-210	Power Distribution Block	10kA
Watlow	DC22-20F0-H000	Temperature Controller w/ fuse	200kA
Watlow	DC10-24F0-H000	Temperature Controller	200kA
Solo	SDN5-24-100P	120 Watt, 24VDC Power Supply	Class 2

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