

<u>Ownership matrix</u>	RPP-27195
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TABLE OF CONTENTS

1.0 PURPOSE AND SCOPE 2

2.0 IMPLEMENTATION 2

3.0 RESPONSIBILITIES..... 2

4.0 PROCEDURE 2

 4.1 General Requirements..... 2

 4.2 Acceptability of Electrical Conductors and Equipment..... 3

 4.3 Procurement of Electrical Conductors or Equipment 4

 4.4 WRPS Field Evaluation 6

 4.5 Document Submittals..... 7

5.0 DEFINITIONS 8

6.0 RECORDS 10

7.0 SOURCES..... 10

 7.1 Requirements 10

 7.2 References..... 10

TABLE OF FIGURES

Figure 1. Flowchart for the Procurement of Electrical Conductors or Equipment. 11

Figure 2. Sample WRPS Evaluated Product Label..... 12

TABLE OF ATTACHMENTS

ATTACHMENT A – AHJ CRITERIA FOR “LEGACY”/“NEW” EQUIPMENT EVALUATIONS 13

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	TFC-ESHQ-S_SAF-C-09, REV D-1	ESHQ 2 of 13 September 14, 2020
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1.0 PURPOSE AND SCOPE

This procedure provides the process for the Nationally Recognized Testing Laboratory (NRTL) approval process to provide assurance that electrical conductors and equipment are safe to use in the Washington River Protection Solution, LLC (WRPS) controlled areas. This procedure provides steps to assure electrical equipment is safe to operate by WRPS employees, and that new equipment is purchased and maintained in accordance with the national and state NRTL requirements.

The NRTL requirement involves two important concepts: 1) Product Safety, and 2) the mechanism by which it assured, or the use of NRTL to assure adherence to applicable standards through authorized testing organizations. The Hanford Site uses NRTL and resultant labeling as the available mechanism by which an electrical conductors or equipment is received at the Hanford Site.

2.0 IMPLEMENTATION

This procedure is effective on the date shown in the header.

3.0 RESPONSIBILITIES

Responsibilities are contained within Section 4.0.

4.0 PROCEDURE

4.1 General Requirements

1. The National Electrical Code (NEC) requires that new and existing electrical conductors or equipment installed or used within WRPS facilities be acceptable to the WRPS Authority Having Jurisdiction (AHJ). (7.1.1, 7.1.2, 7.1.3)

It is the responsibility of the project or facility that is responsible for procurement, installation, and/or use of electrical conductors or equipment to perform the research necessary to determine whether NRTL listed and labeled products are available.

2. When an electrical conductor or equipment is suspected of being unsafe, personnel shall notify the Controlling Organization of its condition. Additional actions should be considered by placing the electrical conductor or equipment in a safe state with the permission of the Controlling Organization.
3. For WRPS electrical conductors or equipment to be acceptable to the WRPS AHJ, it must have one of the following:
 - A valid certification from an NRTL.
 - Be certified by a qualified Field Evaluation Body (FEB).
 - Be approved by a WRPS Field Evaluation Team (FET).
 - Qualify as an exception.

For some electrical equipment, it is impractical to label due to construction. In this case, it is permissible to consider it NRTL when it is accompanied with a letter of certification. Notify the WRPS AHJ for acceptance.

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	TFC-ESHQ-S_SAF-C-09, REV D-1 3 of 13 September 14, 2020	ESHQ
---	--	--	-------------

4. Evidence of acceptability is a valid label applied to the electrical conductors or equipment, unless it qualifies as an exception.
5. The following exceptions are to be determined and identified prior to procurement and documented on the Material Request (MR) form in the comments block provided.

Exception 1 (EX1): Electrical conductors or equipment that is not available with a NRTL certification and has a limited energy source that is less than 50V is considered informally accepted by the WRPS AHJ.

Exception 2 (EX2): Electrical conductors or equipment that is not available with a NRTL certification and connected to the load side of a Class 2 or Class 3 power supply is considered informally accepted by the WRPS AHJ.

Exception 3 (EX3): Electrical conductors or equipment that is not available with a NRTL certification and that are considered replacement parts for maintenance or repair of a previously approved electrical conductor or equipment is considered informally accepted by the WRPS AHJ.

6. Individual equipment components or subassemblies of a product that are part of an NRTL-certified assembly are not required to be individually labeled as NRTL. These items are considered as replacement parts for repair of the assembly. Include in the comments block provided the statement “These items are replacement parts for _____.”
7. The WRPS AHJ may accept electrical conductors and/or equipment that has been previously approved at Hanford by a qualified FEB.
8. Electrical conductors and equipment previously installed may continue to remain in service, unless a documented inspection indicates that it is unsafe.

4.2 Acceptability of Electrical Conductors and Equipment

1. NRTL-certified electrical conductors and/or equipment purchased or acquired after 2003 must have evidence of an approved NRTL that is acceptable to the Occupational Safety and Health Administration (OSHA) and/or the Washington Administrative Code (WAC), unless it qualifies as one of the exceptions listed in Section 4.1 step 4, or is considered a repair part in Section 4.1 step 5.
 - a. Labeling of equipment by an NRTL (e.g., Underwriters Laboratories, FM Approvals [FM]) is evidence that the complete equipment item has been tested by the NRTL under consensus standards and found to be free from reasonably foreseeable risk of fire, electric shock, and related hazards.
 - b. Electrical equipment certified by a NRTL, accompanied with documentation of certification, but not labeled with a NRTL mark may be informally accepted by the WRPS AHJ and may be labeled if practical.
2. Non-NRTL-certified electrical conductors and/or equipment that requires an NRTL should have an NRTL inspection completed by a qualifying FEB prior to being shipped to WRPS.

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	TFC-ESHQ-S_SAF-C-09, REV D-1	ESHQ 4 of 13 September 14, 2020
---	--	-------------------------------------	--

- a. The FEB shall attach a label indicating that the electrical equipment has passed its certification.
 - b. The FEB shall submit to WRPS a report indicating the consensus standards use and the results of the inspection.
 - c. A copy of the report shall be submitted to the WRPS AHJ for review and acceptance.
3. Non-NRTL-certified electrical conductors and/or equipment that needs to be NRTL and that has been shipped without an NRTL certification must be certified prior to installation by a qualifying FEB.
- a. The FEB shall attach a label indicating that the electrical equipment has passed its certification.
 - b. The FEB shall submit to WRPS a report indicating the consensus standards used and the results of the inspection.
 - c. A copy of the report shall be submitted to the WRPS AHJ for review and acceptance.
4. Non-NRTL-certified electrical conductors and/or equipment that does not have an NRTL category shall have WRPS field evaluation (FE) conducted by WRPS FET.
- a. The WRPS FET shall submit to the WRPS AHJ a request to conduct an FE.
 - b. The WRPS AHJ shall review the request and determine whether to proceed with the FE.
 - c. If approved, the WRPS FET shall conduct the FE and submit to the WRPS AHJ a report indicating the consensus standards use and the results of the inspection.
 - d. The WRPS AHJ shall review the results and determine if the electrical equipment is free from any reasonably foreseeable risk of fire, electric shock, and related hazards.
 - e. If approved, the WRPS AHJ shall ensure that a label is attached indicating that the electrical equipment has passed its evaluation.

4.3 Procurement of Electrical Conductors or Equipment

A depiction of the process outlined in this section is shown in Figure 1.

- Employee
1. Identify the need to procure electrical conductors or equipment.
 - a. If there is not an Underwriters Laboratory (UL) category, continue to step 6.
 - b. If there is a UL category, continue to step 2.

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	TFC-ESHQ-S_SAF-C-09, REV D-1	ESHQ 5 of 13 September 14, 2020
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2. Identify manufacturer(s) or supplier(s) that have NRTL listed and labeled products that meet the need.
 - a. If there are manufacturer(s) or supplier(s) that can supply NRTL listed and labeled equipment, continue to step 7.
 - b. If there are no manufacturer(s) or supplier(s) that can supply NRTL listed and labeled equipment, go to step 3.
3. Determine if there are other manufacturer(s) or item(s) that can meet the requirements, and provide NRTL listing /labeling of the item(s).
 - a. If there are manufacturer(s) or supplier(s) that can supply NRTL listed and labeled equipment, continue to step 7.
 - b. If there are no manufacturer(s) or supplier(s) that can supply NRTL listed and labeled equipment, go to step 4.

NOTE 1: The Washington State Labor and Industries website maintains a list of qualified FEBs and American National Standards Institute (ANSI) safety standards for which they are qualified to perform field evaluations.

NOTE 2: The UL online certifications directory or UL hardcopy product directories may be used to verify a UL listing or classification, or listed product and conditions or restrictions of use.

4. Determine if there is a qualified FEB that can inspect the item(s) at the manufacturer's or supplier's facility prior to shipping.
 - a. If there is an ANSI safety standard and a qualified FEB, add the requirement to the MR form to perform a field evaluation as part of the procurement, and proceed to step 7.
 - b. If there is not an FEB that is able to conduct an FE at the manufacturer or supplier facility, go to step 5.
5. Determine if there is a qualified FEB that can inspect the item(s) prior to receipt.
 - a. If there is an ANSI safety standard and qualified FEB, add the requirement to the MR form to perform a valid evaluation as part of the procurement and proceed to step 7.
 - b. If there is not an FEB that is able to perform an FE, go to step 6.
6. Determine if a WRPS FET can inspect the item(s).
 - a. Submit a request to the WRPS AHJ for an FET to conduct an FE.

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	TFC-ESHQ-S_SAF-C-09, REV D-1	ESHQ 6 of 13 September 14, 2020
---	--	-------------------------------------	--

- b. If the WRPS AHJ determines that the WRPS FE may be performed, proceed to step 7.
- c. Return to step 1.

NOTE: Many electrical conductors and equipment items such as conduit, wire, cable, and fittings are specified by size and type. As such, these items may not include a manufacturer and part number, but instead a description or specification (e.g., 14/3 type THHN/THWN cable, 1 ½ in PVC coated RMC).

7. Order the part in accordance with TFC-BSM-CP_CPR-C-06.
 - a. For Quality Level 0 items, include in the special instructions in the comments block.
 - b. For Quality Level 1, 2, and 3, add Quality Clause B65, unless using an exception (as applicable requiring receipt inspection).
 - c. If utilizing an exception, indicate the exception number in the comments with a short explanation as why the exception applies.

4.4 WRPS Field Evaluation

1. The project or facility that is responsible for procurement should submit a request to the WRPS AHJ for an FE (see Section 4.5, number 3).
2. When the request is approved, assemble the FET. As a minimum, the FET should include the following qualified members:
 - Discipline-specific engineer
 - Craft-specific fieldwork supervisor
 - Senior craftsmen.

It is the responsibility of the project or facility that is responsible for procurement, installation, and/or use of electrical conductors or equipment to collect the documents necessary for the evaluation and supply the FET with the required information to conduct an FE.

3. The WRPS AHJ may provide additional testing to ensure the item is compliant with safety standards. Additional tests shall be noted on the Hanford Site Non-NRTL Labeled Electrical Equipment AHJ Approval Form (A-6005-705).
4. The FET shall conduct an FE using the Hanford Site Non-NRTL Labeled Electrical Equipment Evaluation Form (A-6005-706) and the Hanford Site Non-NRTL Labeled Electrical Equipment AHJ Approval Form (A-6005-705).
5. The FET shall submit the completed documents to the WRPS AHJ for review and acceptance (see Section 4.5, number 4).

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	TFC-ESHQ-S_SAF-C-09, REV D-1	ESHQ 7 of 13 September 14, 2020
---	--	-------------------------------------	--

6. If approved, the WRPS AHJ shall attach the Field Evaluated Product Evaluation Label (BL-6004-154, see Figure 2) on electrical equipment and complete the Hanford Site Non-NRTL Labeled Electrical Equipment AHJ Approval Form (A-6005-705).
7. A copy of the label shall accompany the electrical conductor or equipment and a copy shall be kept with the WRPS AHJ.

4.5 Document Submittals

The project or facility that is responsible for procurement, installation, and/or use of electrical conductors or equipment shall perform the research necessary and to submit the required documentation to the WRPS AHJ for approval when required. The following describes the minimum required documentation that should be submitted:

1. NRTL-certified electrical conductors and/or equipment submission:

None.
2. FEB-certified submission:
 - Report date
 - Project number or identifier
 - Identity of the person preparing the report
 - Identification of the company performing the evaluation
 - Description of the equipment that was evaluated, including the equipment identification and nameplate
 - Location of the site of the evaluation
 - Identity of the evaluators
 - Report detailing the results of the evaluation and the standards used
 - Details of the corrective action taken to resolve the discrepancies and nonconformities
 - Statement of conformity made from the results of the evaluation.
3. FET request for FE:
 - Submission date
 - Project number or identifier
 - Identity of the person preparing the submission

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	ESHQ TFC-ESHQ-S_SAF-C-09, REV D-1 8 of 13 September 14, 2020
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- Description of the equipment that is to be evaluated, including the equipment identification and nameplate
 - Location of the evaluation
 - Identity of the FET
 - Submission detailing the standards to be used.
4. FET-certified submission:
- Report date
 - Project number or identifier
 - Identity of the person preparing the report
 - Identification of the company performing the evaluation
 - Description of the equipment that was evaluated, including the equipment identification and nameplate
 - Location of the site of the evaluation
 - Identity of the evaluators
 - Report detailing the results of the evaluation and the standards used
 - Details of the corrective action taken to resolve the discrepancies and nonconformities
 - Statement of conformity made from the results of the evaluation
 - Completed inspection form (A-6005-706)
 - Attachments (e.g., request for field evaluation, spec sheet, product manual).

5.0 DEFINITIONS

Class 2 Circuit. A control circuit supplied from a source having limited voltage (30 Vrms or less) and current capacity, such as from the secondary of a Class 2 transformer, and rated for use with Class 2 remote-control or signaling circuits.

Electrical Authority Having Jurisdiction (AHJ). An individual that is responsible for enforcing the requirements of a code or standard, and for approving electrical equipment, materials, installations, and procedures.

Electrical equipment. A general term including material, fittings, devices, appliances, luminaries (fixtures), apparatus, and the like used as part of, or in connection with, an electrical installation.

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	ESHQ TFC-ESHQ-S_SAF-C-09, REV D-1 9 of 13 September 14, 2020
---	--	---

Field evaluation (FE). The process to determine conformance with requirements for one of a kind, limited production, used, modified, products that are unable to procure as NRTL certified.

Field Evaluation Team (FET). A team, that is assigned to performs field evaluations of electrical or other equipment. The team should comprise of qualified members comprising of discipline specific Engineer, Fieldwork Supervisor, and Senior Craftsmen.

Field Evaluation Body (FEB). An organization or part of an organization that performs field evaluations recognized by OSHA and/or WAC of electrical or other equipment and is an independent third party.

Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the WRPS AHJ and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Legacy electrical conductors and equipment. Electrical conductors and equipment that were purchased and/or installed prior to 2004. Attachment A contains specific criteria for legacy equipment.

Limited energy source. Typically limited to the installation of signaling and power limited circuits and related equipment. This specialty is restricted to low-voltage circuits. This specialty includes the installation of telecommunications, HVAC/refrigeration low-voltage wiring, fire protection signaling systems, intrusion alarms, energy management and control systems, industrial and automation control systems, lighting control systems, commercial and residential amplified sound, public address systems, and such similar low-energy circuits and equipment in all occupancies and locations.

Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the WRPS AHJ and concerned with evaluation or products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that the equipment, material, or services either meets appropriate designated standards or has been tested and found suitable for a specified purpose.

Nationally Recognized Testing Laboratory (NRTL). An organization that is recognized by OSHA and/or Washington State that tests for safety, and lists or labels or approves equipment or materials.

Occupation Safety and Health Administration (OSHA). A branch of the U.S. Department of Labor established 1970 to assure safe and healthful working conditions for working men and women.

Replacement part. An interchangeable part of an assembly that is used to repair or replace a failed part. It is usually identified by the manufacturer and meets the specification of the part to be replaced.

Utilization equipment. Equipment that utilizes electric energy for electronic, electromechanical, chemical, heating, lighting, or similar purposes.

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	TFC-ESHQ-S_SAF-C-09, REV D-1	ESHQ 10 of 13 September 14, 2020
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6.0 RECORDS

The following records are generated during the performance of this procedure:

- Hanford Site Non-NRTL Labeled Electrical Equipment AHJ Approval Form (A-6005-705)
- Hanford Site Non-NRTL Labeled Electrical Equipment Evaluation Form (A-6005-706).

Forms prepared by vendors are submitted through TFC-BSM-IRM_DC-C-07. If the forms are not processed by a vendor, the form will be scanned and sent to ^WRPS Scanning for record retention in IDMS.

The record custodian identified in the Company Level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.

7.0 SOURCES

7.1 Requirements

- 7.1.1 29 CFR 1910 Subpart S, U. S. Department of Labor Regulations, "Occupational Safety and Health Standards, Electrical, 1910.303, "General Requirements."
- 7.1.2 29 CFR 1926 Subpart K, U.S. Department of Labor Regulations, "Occupational Safety and Health Standards, Electrical, 1926.403, "General Requirements."
- 7.1.3 NFPA 70, "National Electric Code."

7.2 References

- 7.2.1 DOE-0359, "Hanford Site Electrical Safety Program."
- 7.2.2 NFPA 790, "Standard for Competency of Third-Party Field Evaluation Bodies."
- 7.2.3 NFPA 791, "Recommended Practice and Procedures for Unlabeled Electrical Equipment Evaluation."
- 7.2.4 TFC-BSM-CP_CPR-C-06, "Procurement of Materials."
- 7.2.5 TFC-BSM-IRM_DC-C-02, "Records Management."

Figure 1. Flowchart for the Procurement of Electrical Conductors or Equipment.

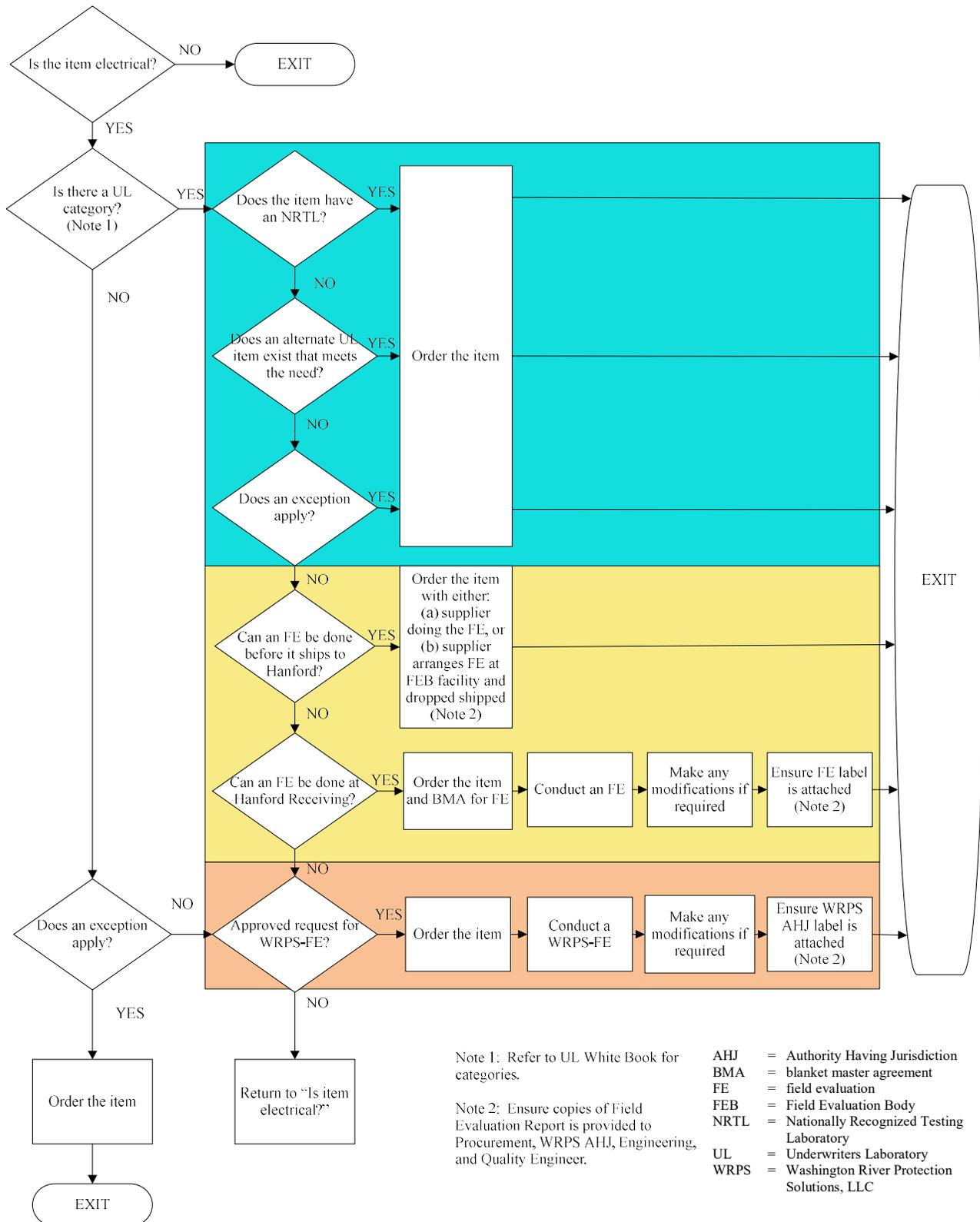


Figure 2. Sample WRPS Evaluated Product Label.

FIELD EVALUATED PRODUCT	
AHJ Report No _____	
Manufacturer _____	
Serial No _____	
Evaluated by (Print/sign) _____	Date _____
BL-6004-154	

NRTL Requirements for Electrical Equipment	Manual Document Page Issue Date	TFC-ESHQ-S_SAF-C-09, REV D-1	ESHQ 13 of 13 September 14, 2020
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ATTACHMENT A – AHJ CRITERIA FOR “LEGACY”/“NEW” EQUIPMENT EVALUATIONS

Background

The U.S. Department of Energy, Office of River Protection, and the Tank Operations Contractor activities must separately address issues associated with “legacy” equipment. Legacy equipment is equipment that was constructed or procured without specific defined standards in place.

Position

Whereas the design and construction specifications of the applicable standards are acknowledged to have safety value, the AHJ recognizes that not all non-NRTL equipment completely conforms to the standards, particularly older “legacy” equipment. Nevertheless, it is possible to make a determination that such equipment is acceptable for use under specified conditions in the workplace. Equipment is not automatically rejected if it does not comply with all parts of a given standard. Instead, the AHJ will use the standards and the checklist as guidance to determine the safety and acceptability of an electrical assembly.

For “legacy” equipment, the criteria for equipment rejection must be based on the technical assessment of the AHJ that the design or construction of the subject equipment presents a reasonable possibility of fire, shock, or other hazard to the user or other personnel.

For “new” equipment, the criteria for equipment rejection must be based on both the technical assessment of the AHJ that the design or construction of the subject equipment presents a reasonable possibility of fire, shock, or other hazard to the user or other personnel, and/or the subject equipment fails to be in conformance with currently applicable standards.

Case: Wiring Color Code

Wiring color codes are important for safe maintenance, modification, or repair processes of electrical equipment. The wiring color code, by itself, is not a safety factor in the safe operation of electrical equipment. In the case of “legacy” equipment, it may be appropriate for the AHJ to accept equipment that is not wired in exact conformance with an established color code. Any variations such as this are required to be documented in the checklist and field report. Note that the AHJ has a great deal of flexibility here. If, for example, the AHJ finds the as-built color coding might be misinterpreted and create a hazard to an operator or technician, the AHJ may require a warning label to this effect as a condition of approval. The AHJ also has the option of failing the assembly if he/she does not feel that the hazard can be effectively mitigated.