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Sent: Sunday, March 13, 2016 7:47 PM
To: Frumkin, Daniel
Subject: [External_Sender] FW: FAQ 14-0073 revision 2
Attachments: FAQ-14-0073-Acceptable-Uses-of-Fuel-Fired-Equipment-rev 2.doc

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Dan – see attached.

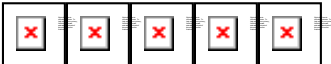
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FAQ Number 14-0073 FAQ Revision 2DRAFT

FAQ Title Acceptable Uses of Fuel Fired Equipment

Plant: Palisades Date: ~~August 18, 2014~~ March 9, 2016
Contact: Tom Swiecicki Phone: (269) 764-2343
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Distribution: *(NEI Internal Use)*

805 TF FPWG RATF RIRWG BWROG PWROG

Purpose of FAQ:

FAQ provides clarification on the acceptable use of fuel fired equipment relative to NRC NFPA 805 RAI's, NFPA 805 Section 3.3.1.3.4, and compliance with GDC 3.

Is this Interpretation of guidance? Yes / No

Proposed new guidance not in NEI 04-02? Yes / No

Details:

NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):

NRC NFPA 805 RAI's at several transitioning plants have challenged the use of fuel fired equipment in general whereas NFPA 805 Section 3.3.1.3.4 specifically prohibits fuel fired heaters only. There has also been reference to fuel fired equipment as not meeting GDC 3 whereas FAQ 07-0032 previously clarified that satisfying 10 CFR 50.48(c) will satisfy 10 CFR 50.48(a) and GDC 3.

If satisfying 10 CFR 50.48(c) by meeting NFPA 805 satisfies GDC 3 and NFPA 805 does not prohibit the use of fuel fire equipment other than fuel fired heaters, then the use of fuel fired equipment other than fuel fired heaters should not violate GDC 3. There is a lack of clarity in interpreting the guidance documents and associated approved FAQ's related to the use of fuel fired equipment and hence a difference of interpretation in implementing the regulatory requirements related to this type of equipment.

Circumstances requiring guidance interpretation or new guidance:

Clarification on the interpretation of the regulatory guidance documents, including approved FAQ's, related to the use of fuel fired equipment is needed. The lack of clarity in interpreting the regulatory guidance documents has led to uncertainty in satisfying the

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requirements as part of the NFPA 805 approval process and will continue to be an issue as part of future fire protection inspections.

NFPA 805 Section 3.3.1.3.4 specifically prohibits fuel fired heaters but does not mention other fuel fired equipment. The NRC NFPA [805](#) RAI's have gone beyond the prohibition of fuel fired heaters and made the issue more generic to fuel fired equipment [which goes beyond the requirements of NFPA 805](#). ~~This appears to go beyond the intent of NFPA 805 and licensees are struggling with how to interpret the regulatory guidance documents, including approved FAQ's, as currently written.~~ For example: there are crane bays that periodically contain fuel fired vehicles, there are plants that have permanently installed fuel fired backup equipment which is part of the approved plant design, there are fuel fired man-lifts periodically utilized, etc. The features mentioned above are a few examples of fuel fired equipment relied upon to support safe reliable nuclear plant operation and are examples that meet the ~~literal~~[NFPA 805](#) requirements but do not meet the more generic interpretation prohibiting "fuel fired equipment".

Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:

None

Potentially relevant existing FAQ numbers: FAQ 07-0032, Clarification of 10 CFR 50.48(c), 50.48(a), and GDC 3

Response Section:

Proposed resolution of FAQ and the basis for the proposal:

NFPA 805 Section 3.3.1.3.4 already specifically prohibits the use of fuel fired heaters. FAQ 07-0032 was previously approved as clarification that satisfying 10 CFR 50.48(c) will satisfy 10 CFR 50.48(a) and GDC 3. The existing approved regulatory guidance documents do not prohibit the use of all fuel fired equipment.

[NFPA 805-2001, Section 3.3.1.3.2, states "Smoking and other possible sources of ignition shall be restricted to properly designated and supervised safe areas of the plant."](#)

[Section 3.3.1.3.2 is addressed within License Amendment Request Attachment A - NEI 04-02 Table B-1 Transition of Fundamental FP Program & Design Elements which is reviewed and approved. The approved fire protection program includes the compliance basis described within Table B-1 and the fire protection program controls identified in the compliance basis are generically applied. Typically licensees refer to procedures that control activities such as hot work, ignition sources, welding, burning, grinding, and](#)

smoking as the compliance basis to satisfy this requirement. A search of industry non-pilot NFPA 805 Requests for Additional Information (RAIs) did not identify any RAIs associated with Section 3.3.1.3.2. Therefore this is not considered a point of confusion requiring clarification in the FAQ.

NFPA 805-2001, Section 3.3, Prevention, states “A fire prevention program with the goal of preventing a fire from starting shall be established, documented, and implemented as part of the fire protection program. The two basic components of the fire prevention program shall consist of both of the following:

- (1) Prevention of fires and fire spread by controls on operational activities
- (2) Design controls that restrict the use of combustible materials

The design control requirements listed in the remainder of this section shall be provided as described.”

Section 3.3 is addressed within License Amendment Request Attachment A - NEI 04-02 Table B-1 Transition of Fundamental FP Program & Design Elements which is reviewed and approved. The approved fire protection program includes the compliance basis described within Table B-1 and the fire protection program controls identified in the compliance basis are generically applied. Typically licensees refer to procedures that control hot work, combustibles materials, and impacts to the fire protection program. A search of industry non-pilot NFPA 805 Requests for Additional Information (RAIs) did not identify any RAIs associated with Section 3.3. Therefore this is not considered a point of confusion requiring clarification in the FAQ.

NFPA 805-2001, Section 1.5.1, Nuclear Safety Performance Criteria, states “Fire protection features shall be capable of providing reasonable assurance that, in the event of a fire, the plant is not placed in an unrecoverable condition. To demonstrate this, the following performance criteria shall be met.” The performance criteria are: Reactivity Control, Inventory and Pressure Control, Decay Heat Removal, Vital Auxiliaries, and Process Monitoring.

NFPA 805-2001, Section 1.5.1 provides the Nuclear Safety Performance Criteria and as stated in Section 4.1, Methodology, “Chapter 4 shall establish the methodology to determine the fire protection systems and features required to achieve the performance criteria outlined in Section 1.5. The methodology shall be permitted to be either deterministic or performance-based. Deterministic requirements shall be “deemed to satisfy” the performance criteria and require no further engineering analysis. Once a determination has been made that a fire protection system or feature is required to achieve the performance criteria of Section 1.5, its design and qualification shall meet the applicable requirement of Chapter 3.”

Relative to NFPA 805 Section 2.4.3 and how fuel fire equipment is addressed in the fire probabilistic risk assessment (Fire PRA). Similar to the methods described in 2.4.1.4 (a) and (b) the Fire PRA performed for Section 2.4.3 evaluates the potential insitu and transient ignition sources considering worst case locations that would result in the challenging fires from a plant risk perspective. The fire protection administrative controls required by Sections 3.3.1.2 and 3.3.1.3 address these transient ignition sources. Fuel fired equipment that is installed plant equipment would have required explicit consideration in the Fire PRA as a fixed ignition source.

The staff's questions and observations include the statement "but following an emergency unknowns regarding human performance may be difficult to quantify". It is during the emergency situations when plant personnel would need to respond to the unknown that flexibility is needed and the shift manager maintains the authority to implement 10CFR50.54X to accomplish required actions. In some cases the use of fuel fired equipment may be the only reasonable alternative remaining or it may be an easier more efficient approach to implement with reasonable assurance of success to simplify the emergency response rather than introducing complexity. Fuel fired equipment is designed to contain fuel and although there may be some likelihood of this causing a fire, an additional failure must take place for a fire to occur. As this fire is not directly caused by the initiating fire event, it would be considered a concurrent independent fire. Concurrent independent fires are not postulated for other ignition sources in the Fire PRA given that the likelihood is substantially small. As noted in NUREG/CR-6850 on page 11-12, "[T]he analysis is limited to considering a single fire occurring at any given time. The analysis does not consider the possibility of multiple, concurrent fires." There are also several references in NFPA 805-2001 that discuss the "single fire" requirement such as Sections 4.2.1 and D.3.4.(a)(1). Additionally, Federal Register Notice 69 FR 33550, June 16, 2004, Voluntary Fire Protection Requirements for Light Water Reactors; Adoption of NFPA 805 as a Risk-Informed, Performance-Based Alternative, also refers to one success path being maintained free of fire damage from a "single fire".

The FAQ was generically written and not intended to be plant specific. Adding specifics for all plants would be excessively cumbersome. Instead, a few examples have been mentioned with reference to the approved guidance contained within NFPA 805-2001, and FAQ 07-0032 which provide the basis for the fire protection programs documented in the approved Safety Evaluations.

Installed plant equipment would have been evaluated in the NFPA 805 analysis for deterministic fire protection aspects and the Fire PRA to account for both the combustible load and potential ignition source. Temporary equipment (e.g. lifts or trucks in the plant area) would fall under the controls of the approved fire protection program as documented in the approved Safety Evaluations.

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Proposed resolution is to follow the previously approved and accepted regulatory guidance documents allowing plants to utilize the most appropriate prudent approach to plant operation within the constraints of those guidance documents. This includes control of combustibles, hot work, and ignition sources which are intended to provide a level of defense to prevent fires and the impact of a fire and not prohibit the use of all ~~combustibles~~ fuel fire equipment.

If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:

None

Modify Appendix K to add the following clarification:

K.X NFPA 805 Section 3.3.1.3.4 (FAQ 14-0073)

Specific clarification for NFPA 805 section 3.3.1.3.4, from FAQ 14-0073:
As specified in Section 3.3.1.3.4, portable fuel fired heaters shall not be permitted in plant areas containing equipment important to nuclear safety or where there is a potential for radiological releases resulting from a fire. Section 3.3.1.3.4 is limited to portable fuel fired heaters and it does not prohibit the use of other fuel fired equipment because it is controlled by the guidance of Sections 3.3.1.2 and 3.3.1.3.

There have been NFPA 805 Requests for Additional Information (RAIs) that questioned the use of fuel fired equipment. FAQ 14-0073 was written to clarify that Section 3.3.1.3.4 is specific to fuel fired heaters.