

NEI LREWG Industry Significant Comments on NRC's Draft SLR GALL/SRP

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SLR-GALL XI.E1: Accessible Non-EQ Cable and Connections Insulation

**It appears that Visual Inspection Attribute is the same
method used during 1st PEO**

**It appears that the Condition Monitoring portion of the
AMP is a new Attribute for SLR**

Specifically, condition monitoring using non-visual testing methods on a
sample population of cables that were found in adverse local environments
(ALE) during the 1st and 2nd PEO

SLR-GALL XI.E1: Accessible Non-EQ Cable and Connections Insulation

NEI Comments

Specify an acceptable sample size as modelled in the Electrical Connections AMP (E6) – 20% up to 25 cables
(aids in the staff's review efficiency)

Consider taking credit for existing surveillance activities for cable conditioning (modelled on the E2 and E6 AMPs)

Element 3 – no mention of the AMP's "testing portion" parameters is made in this element

Element 6 – use of the word "free" is an unachievable acceptance criterion

- There will always be some level of indication of aging effects on the cable or connection insulation surface.

SLR-GALL XI.E2: Non-EQ Cable and Connections Insulation Used in Instrumentation

It appears that the Condition Monitoring portion of the AMP is the same method used during 1st PEO

It appears that Visual Inspection Attribute is a new Attribute for SLR

Program Description – The identification of ALEs could be done in conjunction with the E1 AMP activity.

NEI Comments

- ▶ Recommend avoid duplicating the detailed ALE discussion in multiple AMPs
- ▶ Unnecessary challenge to keep the ALE discussions aligned in future SLR GALL revision

SLR-GALL XI.E3A: Inaccessible Non-EQ Medium Voltage Cables

It appears that the Condition Monitoring attributes of the AMP is the same method used during 1st PEO

NEI Comments

- ▶ Little known operating experience that merits performing a one-time test on submarine cables
- ▶ The focus of these AMPs are to manage cable insulation deterioration due to significant moisture. The discussion of the general definition of an ALE in AMPs E3A, E3B and E3C is out of place and confusing.
- ▶ Event driven inspections – Clarify “..thawing of ice and snow..” to “..*rapid* thawing of ice and snow..”

SLR-GALL XI.E3B: Inaccessible Non-EQ I&C Cables

Little known significant operating experience that warrants performing preventive actions or condition monitoring activities on submerged I&C cables

- ▶ EPRI Report 1021629 “Aging Management Program Development Guidance for Instrument and Control Cable Systems for Nuclear Power Plants” provides some specific discussion regarding known I&C cable material susceptible to water degradation (page 4-6).
- ▶ Element 10 – discussion on GL 2007-01 does not apply to this AMP

SLR-GALL XI.E3C: Inaccessible Non-EQ LV Power Cables

Little known significant operating experience that warrants performing preventive actions or condition monitoring activities on submerged low voltage power cables

- ▶ Preventive actions and condition monitoring activities on submerged low voltage power cables below a 400 volt service level are new attributes for SLR
- ▶ Table 3.0-1 and Table XI-01 mentions sample method; the GALL AMP report does not discuss using sample method when large numbers of low voltage power cables are in the scope of the program

SLR-GALL XI.E4 Metal Enclosed Bus

It appears that the Condition Monitoring attributes of the AMP is the same method used during 1st PEO

NEI Comments

- ▶ Bolted Connection Inspections should remain on a sample basis – the MEB AMPs have been effective using a sample method
- ▶ Include “using thermography” when describing the alternative visual inspection method
- ▶ The cable bus duct discussion seems out of place; the AMR line items point to a plant specific program
- ▶ Element 6 – use of the word “free” is an unachievable acceptance criteria
- ▶ Element 7 – Corrective actions *may* include, but not limited....

SLR-GALL XI.E5: Fuse Holders

It appears that the Condition Monitoring attributes of the AMP is the same method used during 1st PEO

NEI Comments

- ▶ Table 3.0-1 and Table XI-01 states that the Fuse Holder AMP scope include fuse holders in active equipment
- ▶ The commodity description in the AMR table is correct
 - Fuse holders (not part of active equipment)
- ▶ Strengthen the alignment with the XI.E1 AMP Report
- ▶ Element 7 – discussion should be edited to tailor it to the scope of this program

SLR-GALL XI.E6: Non-EQ Electrical Connections

Industry Response to July 28, 2015, NRC Public Meeting on Electrical Cable Aging Management Programs for Subsequent License Renewal

- ▶ Little industry operating experience that is symptomatic of needing a periodic AMP
 - Federal Register Notice for LR-ISG-2007-02:
 - “Most of the operating experiences related to failed connections are due to human errors or maintenance practices. The operating experience cannot support a periodic inspection as currently recommended in GALL AMP XI.E6.”
- ▶ Still true today

SLR-GALL XI.E7: High Voltage Insulators

New GALL AMP for SLR

- ▶ New Aging effect – loss of material due to mechanical wear or corrosion
- ▶ Assumes that every licensee has to age manage High Voltage Insulators

NEI Comments

- ▶ Program description – “Adverse localized environment” discussion is not appropriate here in context of how it is defined in the other AMPs
- ▶ Element 1 – AMP scope is for high voltage insulators (HVI) credited for recovery of offsite power
- ▶ Element 2 – Inspections don’t prevent the build of HVI contamination.
- ▶ Element 3 – twice per year is prescriptive; frequency should be based on plant operating experience
- ▶ Element 6 – use of the word “free” is an unachievable acceptance criteria; role of thermography

SLR-GALL X.E1: Environmental Qualification

It appears that Visual Inspection Attribute is a new attribute for SLR

- ▶ The proposed 10-year visual inspection component aligns with the XI.E1 AMP Report

NEI Comments

- ▶ Clarify that this SLR AMP X.E1 Report is limited to passive components only
 - The intent of X.E1 is to manage cable insulation material
 - Define EQ electrical equipment to mean cable and connection insulation material (See SLR SRP Section 2.5.3)
 - Avoids conflicts with Regulatory Guide 1.89 and 10CFR50.49 attributes for active equipment
- ▶ Clarify that opening boxes is only in ALEs
- ▶ EQ programs do not consider humidity under normal conditions

Editorial Comments– Overall

- ▶ The following statement from the SLR GALL XI.E1 Report Element 6 is very well written; consider its use in the other electrical AMPs
 - An unacceptable indication is defined as a noted condition or situation, if left unmanaged, could potentially lead to a loss of the intended function.
- ▶ UFSAR supplement tables should only be in one document. There are inconsistencies between the SLR GALL and SLR SRP statements.
 - SRP Page 3.0-12 and GALL page XI 01-6; 2nd to last paragraph are different
- ▶ There are inconsistencies between the UFSAR supplement statements and the SLR GALL AMP Reports
- ▶ Element 7, 8, 9, and 10 statements should be consistent between most of the electrical AMPs
- ▶ Element 10 – check references to current revisions:
 - (i.e. IEEE 1205-2000 is now IEEE 1205-2014)
- ▶ Element 10 – check references to applicability:
 - NUREG/CR-5643 has no high voltage insulator discussion

Editorial Comments– Overall

- ▶ Recommend removing the year from 10 CFR references.
- ▶ Accession number ML15013A087 used to reference the international standards is not correct. ML15013A087 is an NEI letter to the NRC dated 2/15/15. Remove the reference or cite the correct accession number. Accession number ML15013A087 used to reference the international standards is not correct.
- ▶ References (Pages X.E1-8 and X.E1-9): Delete international cable related references. International Cable-related references are not applicable to the US-related SLR activities (Vienna, IAEA, Japan, France). Delete these new additions from the GALL reference list.
- ▶ The EQ program background information provided in E1, E2 and E3 includes moisture. Moisture is not a component of the existing EQ program.
- ▶ Term “in the scope of SLR” versus “in the scope of LR”