

St. Lucie SLRA: Breakout Questions
 SLRA Section AMP B.2.3.21: Selective Leaching
 TRP: 33

Note: Breakout Questions are provided to the applicant and will be incorporated into the publicly-available audit report.

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| Technical Reviewer | Allik | 1/5/2022 |
| Technical Branch Chief | Bloom | Concurrence Date |
| Breakout Session | Date/Time | To be filled in by PM |

| Applicant Staff | NRC staff |
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| <i>To be filled out by PM during breakout</i> | |
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| Question Number | SLRA Section | SLRA Page | Background / Issue (As applicable/needed) | Discussion Question / Request | Outcome of Discussion |
|-----------------|--------------|-----------|--|--|-----------------------|
| 1 | B.2.3.21 | B-180 | SLRA Section B.2.3.21 states “[t]his review identified that a failure of fire protection piping serving the north warehouse had occurred. The failed piping was analyzed and wall loss due to selective leaching was determined not to be a significant contributor to the pipe failure. The cause of the failure was determined to be mechanical stress.” | The staff requests additional discussion on the subject operating experience (OE). For example: <ol style="list-style-type: none"> 1. Have any other failures of fire protection piping occurred? 2. Clarification on the source of “mechanical stress.” | |
| 2 | B.2.3.21 | B-177 | SLRA Section B.2.3.21 states “[e]ach of the one-time and periodic inspections for the various material and environment populations at each Unit comprises a 3 percent sample or a maximum of 10 components.” NUREG-2222, “Disposition of Public Comments on the Draft Subsequent License | Based on recent industry OE, the staff seeks clarification with respect to using the reduced sample size (i.e., 3 percent with a maximum of 10 components) for gray cast iron components exposed to soil. | |

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| | | | <p>Renewal Guidance Documents NUREG–2191 and NUREG–2192,” provides the basis for reducing the extent of inspections for selective leaching during the subsequent period of extended operation (i.e., 3 percent with a maximum of 10 components per GALL-SLR Report guidance) when compared to the extent of inspections for selective leaching during the initial period of extended operation (i.e., 20 percent with a maximum of 25 components per GALL Report, Revision 2 guidance). Part of the basis for reducing the extent of inspections is that industry OE has not identified instances of loss of material due to selective leaching which had resulted in a loss of intended function for the component.</p> <p>The NRC issued Information Notice (IN) 2020-04, “Operating Experience Regarding Failure of Buried Fire Protection Main Yard Piping,” to inform the industry of OE involving the loss of function of buried gray cast iron fire water main yard piping due to multiple factors, including graphitic corrosion (i.e., selective leaching), overpressurization, low-cycle fatigue, and surface loads. As noted in the IN, a contributing cause to the failures of buried gray cast iron piping at Surry Power Station (SPS) was the external reduction in wall thickness at several locations due to graphitic corrosion.</p> | | |
| 3 | B.2.3.21 | B-180 | <p>SLRA Section B.2.3.21 states “[a] review of plant OE was performed, however, since the PSL Selective Leaching AMP is a new program for SLR, the amount of internal OE is not as extensive as other existing AMPs.”</p> <p>During its review related to a previous SLRA applicant, the staff reviewed a document which noted the following: (a) multiple cast</p> | <p>The staff request a discussion with respect to the OE search for the Selective Leaching program (e.g., keywords used with respect to this degradation mechanism, discussion on the OE noted by the staff from a previous SLRA applicant).</p> | |

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| | | | iron breaks due to graphitic corrosion had occurred at St. Lucie; and (b) approximately 4,000 ft of cast iron piping was replaced at St. Lucie. | | |
| 4 | 19.2.2.21 | A1-27 A2-27 | UFSAR Section 19.2.2.21, "Selective Leaching," states "[w]here the sample size is not based on the percentage of the population and the inspections will be conducted periodically (not one-time inspections), a reduction in the total number of inspections is acceptable as follows. Eight visual and mechanical inspections (reduced from 10 visual and mechanical inspections) and two destructive examinations will be conducted..." | NEESL0008-REPT-079 (program basis document for the Selective Leaching program) addresses how aqueous environments (e.g., raw water) are similar between both units, but does not address how the soil environment is consistent between both units. The staff requests a clarifying discussion on how the soil environment is consistent between both units. | |
| 5 | N/A | N/A | NEESL0008-REPT-079 Section 4.1 ("scope of program" program element) states "[c]omponents that are internally coated may be excluded from the scope of this program in each 10-year inspection interval." In addition, Section 4.4 of the subject document states "[d]ependent on plant-specific OE and implementation of preventive actions, the exclusions for external surfaces coatings of buried components may no longer apply..." | The staff request a clarifying discussion with respect to whether buried components are being excluded from the Selective Leaching program based on the condition of external coatings and/or cathodic protection efficacy. Section 4.4 of NEESL0008-REPT-079 indicates that this may be the case; however, Section 4.1 of NEESL0008-REPT-079 only address excluding components based on internal coatings. | |