COOPER
NUCLEAR STATION
NEBRASKA PUBLIC POWER DISTRICT

Pre-Submittal Meeting: Containment Inservice Inspection (CISI) Relief Request

June 1, 2023

Agenda

- Introductions
- Purpose
- Background
- ASME Code Requirements
- Basis and Alternative
- Drywell Configuration
- Submittal Timeline

Purpose

- Discuss the need for relief from and alternative to Containment Inservice Inspection (CISI) ASME code requirements for Drywell shell flange to head assembly bolted connection examination

Background

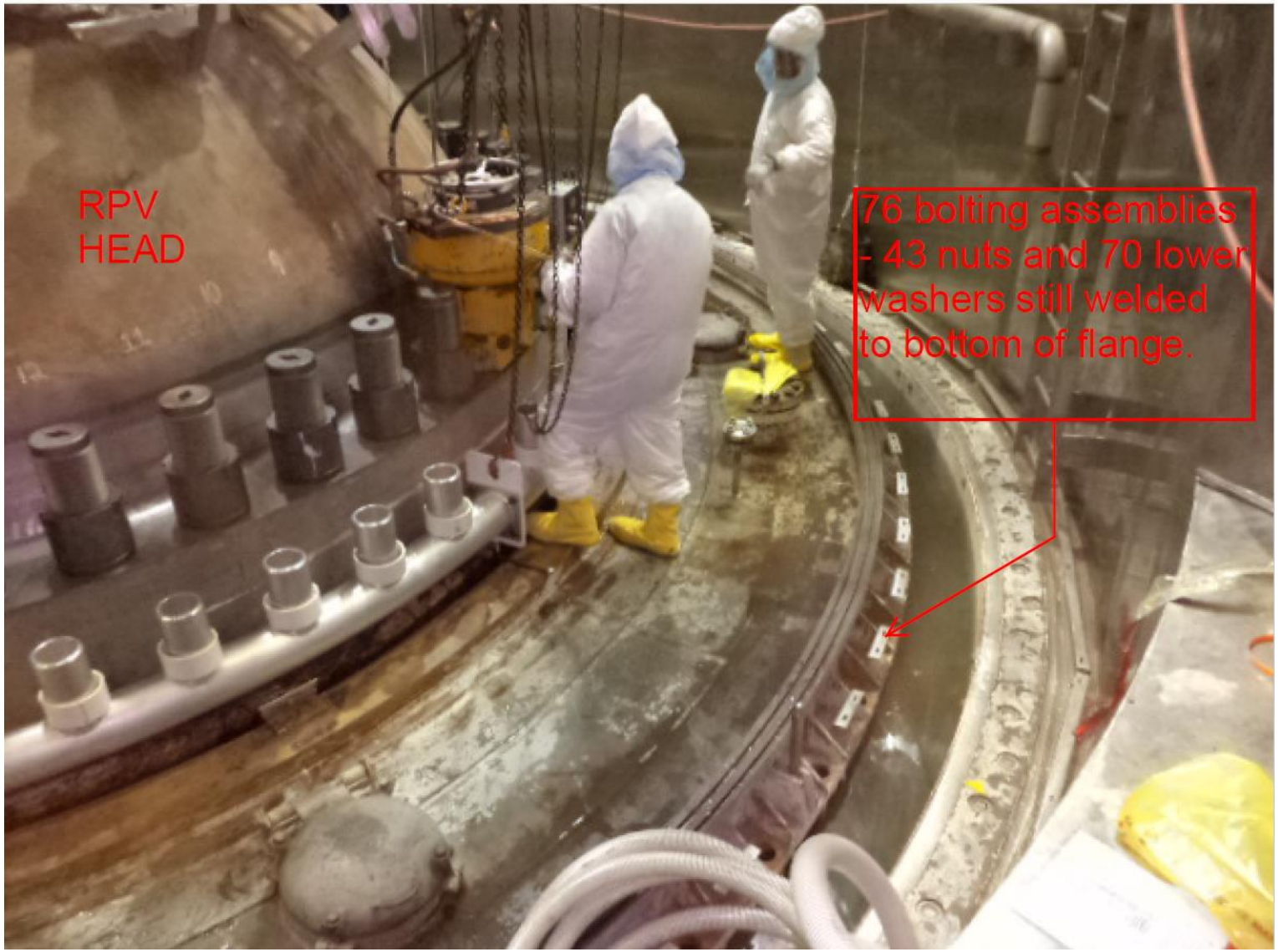
- CNS Containment Inservice Inspection (ISI) Program is in accordance with the 2007 Edition/2008 Addenda of ASME Section XI, Category E-G, Item E8.10
- The CNS drywell shell flange to head assembly configuration contains 76 bolting assemblies comprised of a 2 1/4” diameter bolt, upper spherical washer, lower spherical washer, and nut
- The lower spherical washers and nuts were tack welded to the bottom side of lower drywell flange during original construction
- 70 lower spherical washers and 43 nuts are still welded to lower side of drywell shell flange limiting ability to obtain 100% VT-1 exam coverage

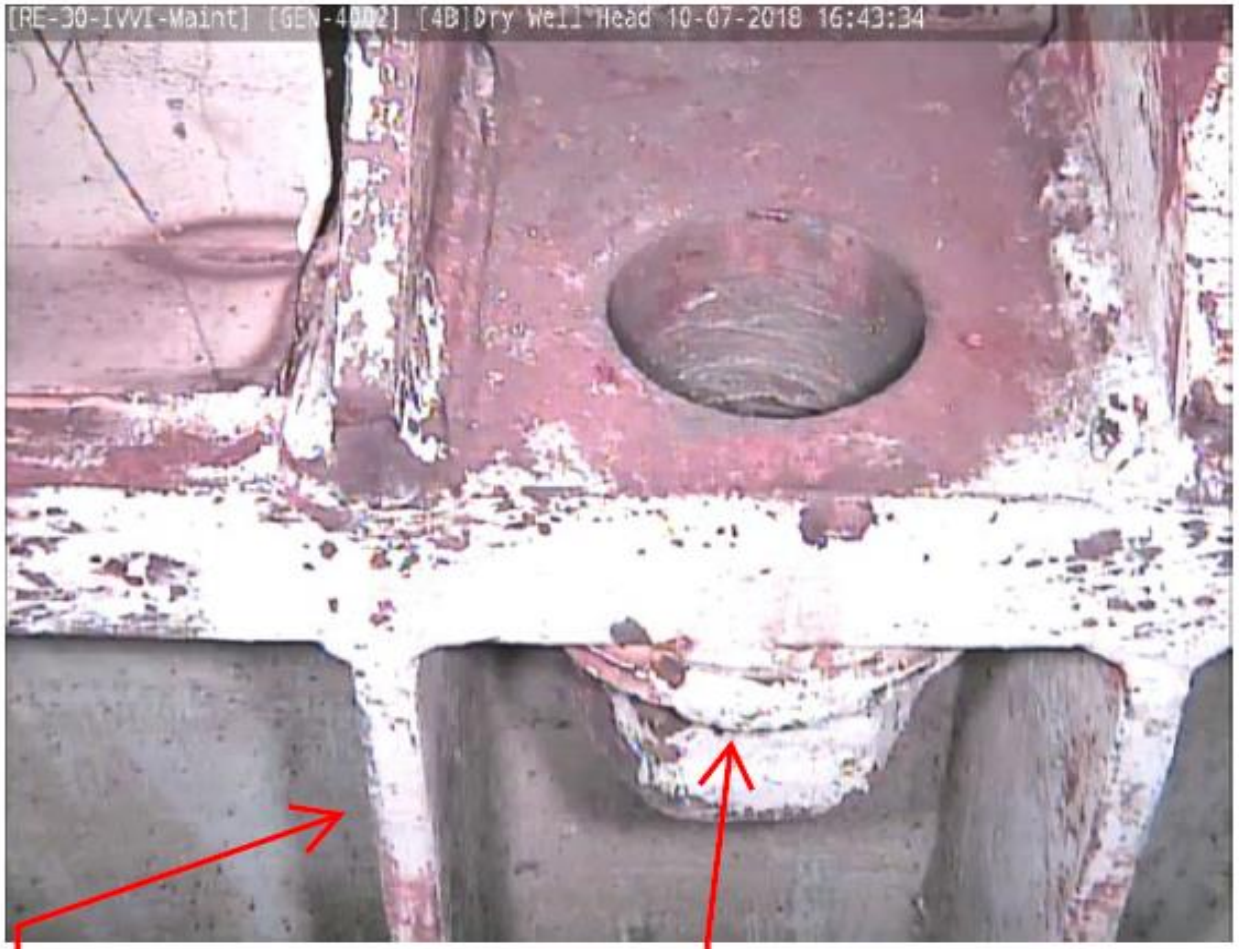
ASME Section XI, 2007 Edition 2008 Addenda Code Requirements

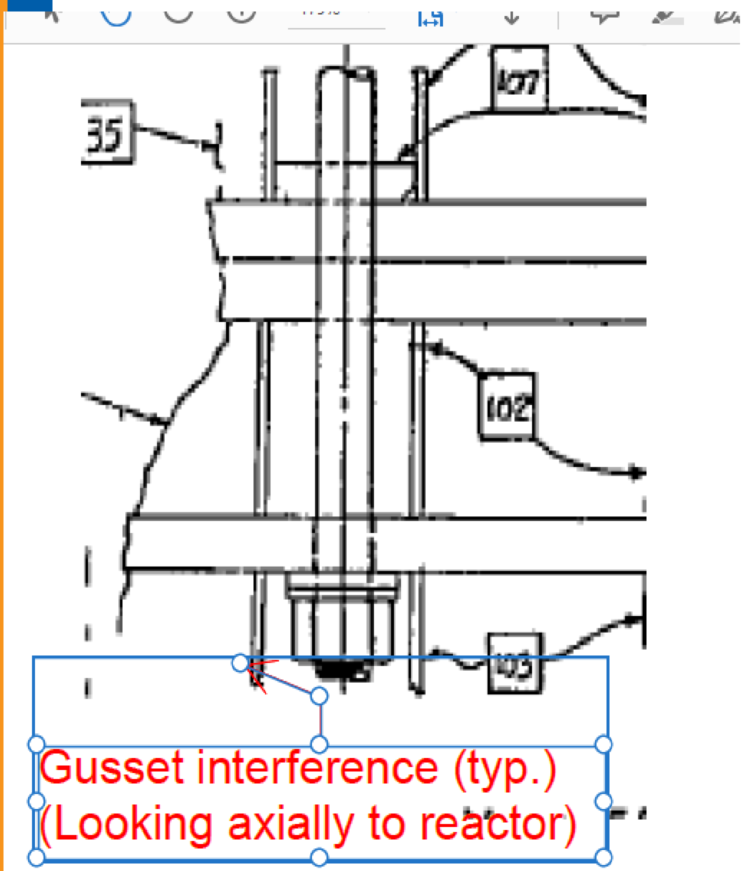
- Paragraph IWE-2313 (b), VT-1 Visual Examinations – in accordance with IWE-2500 and Table IWE-2500- 1, Examination Category E-G, to assess the condition of containment pressure retaining bolting.
- Table IWE-2500-1 requires VT-1 of 100% of containment bolting when disassembled once in the interval
  - Notes 1 and 2 state the following:
    1. Examination shall include bolts, studs, nuts, bushings, washers, and threads in base material and flange ligaments between fastener holes.
    2. Examination may be performed with the connection assembled and bolting in place under tension, provided the connection is not disassembled during the interval. If the bolted connection is disassembled for any reason during the interval, the examination shall be performed with the connection disassembled.

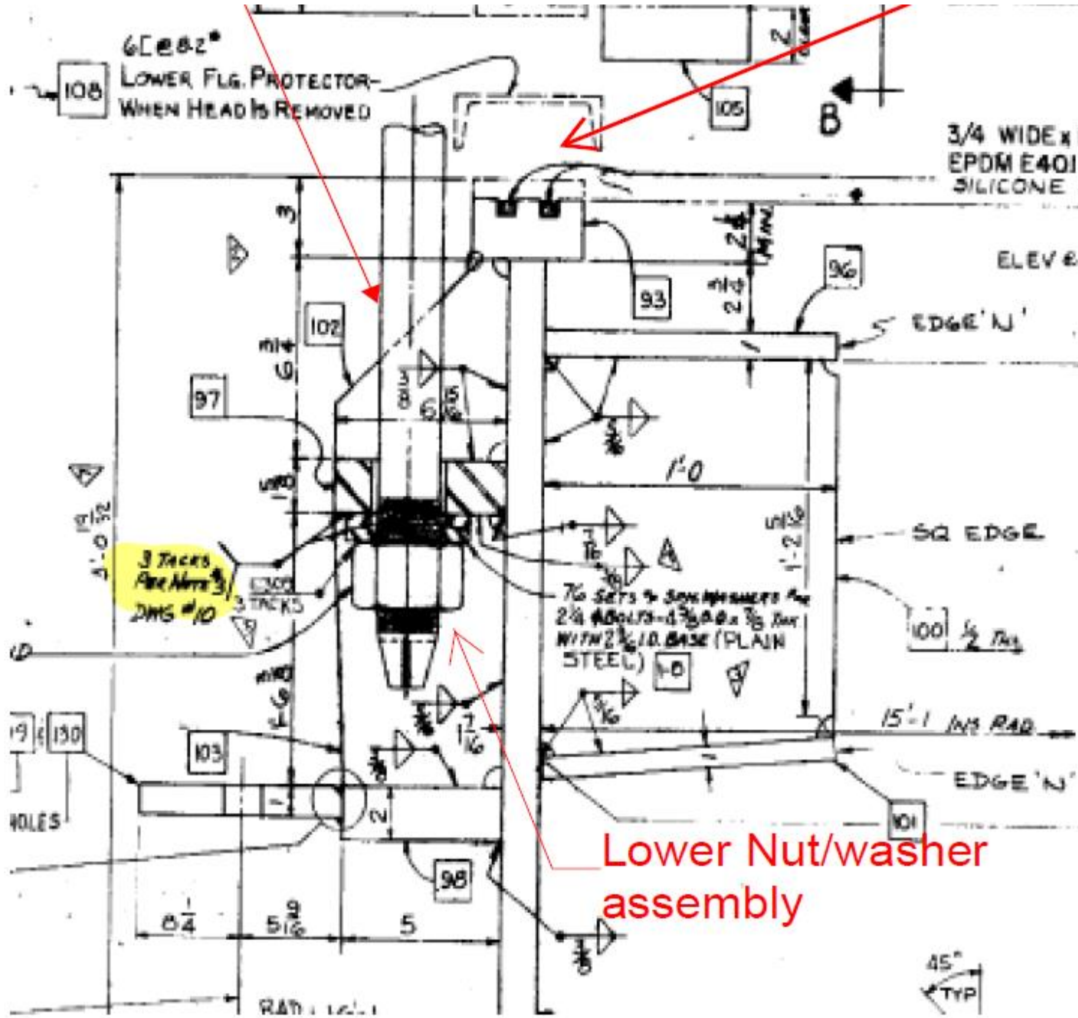
Basis and Alternative

- During Refueling Outage 32 (RE32) in the fall of 2022, CNS performed direct VT-1 examinations of “disassembled” bolting:
  - 76 bolts, 76 upper washers, 33 nuts and 6 lower washers were examined SAT
  - Coverage estimated at 63% based on number of components examined compared to total (not based on surface area)
- Lower nuts and washers achieved a “best effort” remote visual exam “in place” with assistance of In-Vessel Visual Inspection (IVVI) team after refueling cavity was flooded to minimize dose
- Purpose of relief request is to request NRC acceptance of the limited examination performed in RE32 based on 10CFR50.55a(g)(5)(iii) – Inservice inspection impracticality
  - Hydrolazing lower nuts/washers in 2024 (RE33) would yield minimal increase in examination coverage. Dose estimated at 3.5 REM would not support ALARA principles


RPV
HEAD
76 bolting assemblies - 43 nuts and 70 lower washers still welded to bottom of flange.


[RE-30-IVVI-Maint] [GEN-4002] [4B]Dry Well Head 10-07-2018 16:43:34
Gussets
Washer/nut assembly


35
107
102
103
Gusset interference (typ.)
(Looking axially to reactor)


108
LOWER FLG. PROTECTOR-
WHEN HEAD IS REMOVED
105
B
3/4 WIDE x 1/
EPDM E401 F
SILICONE R
93
96
ELEV
EDGE 'N'
102
97
1'-0
SQ EDGE
3 TACKS
100
101
103
130
98
15'-1 IN RAD
EDGE 'N'
HOLES
5
45°
TYP
Lower Nut/washer
assembly


COFFING

Submittal Timeline

- Submit to NRC June 2023
- Estimated 1-yr NRC review time

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Questions

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