Prairie Island 2R24 Outage*

NRC Phone Call

and

NRC Discussion Points**

November 27, 2006

*The attached information has not been validated. In many cases, it is preliminary information from ongoing activities. To our knowledge, it is the best information available as of 9 AM on the date prior to this report and may be changed following further review and analysis.

** 2R24 NRC Discussion Points used as template for this presentation.

Participants

- Ben Stephens (SG Program Engineer)
- Richard Pearson (LR Engineering Supervisor)
- Scott Redner (ET Level III QDA)
- Jeff Kivi (Licensing)
- Mike Heller (SG Project Supervisor)
- Kari DenHerder (SG Engineer)
- Scott McCall (Engineering Programs Manager)
- Steve Skoyen (Engineering Inspection & Materials Supervisor)
- Jim Begley (Areva CMOA analyst)

Official C-3 Notification

- On 11/24 PI Steam Generator Inspection results reached C-3 in accordance with the plant Technical Specification 5.5.8.
  - More than 1% of the inspected tubes defective

Current Status of 2R24 SG Inspection (As of 0900 on November 26, 2006)

Category	21 SG	22 SG
ET Acquisition (% completed)	98.4	99.3
ET Analysis (% completed)	98.3	96.8
# of Pluggable Tubes	16	4
# of Re-Roll Candidates	402	137
# of In Situ Candidates	0	0

Q1: Discuss any trends in the amount of primary-to-secondary leakage observed during the recently completed cycle.

- 21 Steam Generator maximum steady state leakage by tritium was less than detectable to < 1 gallon per day over the last cycle

- 22 Steam Generator maximum steady state leakage by tritium was less than to <1 gallon per day over the last cycle

Q2: Discuss whether any secondary side pressure tests were performed during the outage and the associated results.

- Due to very low primary to secondary leakage, no pressure tests were done to look for tube leakage

Q3: Discuss any exceptions taken to the industry guidelines.

- No exceptions were or will be taken from industry guidelines.

Q4: For each SG, provide a description of the inspections performed including the areas examined and the probes used (e.g., dents/dings, sleeves, expansion-transition, U-bends with a rotating probe), the scope of the inspection (e.g., 100 percent of the dents/dings greater than 5 volts and a 20% sample between 2 and 5 volts), and the expansion criteria.

- Prairie island 2R24 steam generator inspection plan is attached on the following sheet.

Inspection Plan

SCOPE	PROBE TYPE	S/G 21	S/G 22
Full Length ❶	Bobbin	100%	100%
Rows 1 through 4 U-Bends	MRPC	100%	100%
Rows 5 through 8 U-Bends ❷	MRPC	33%	33%
Hot Leg Tubesheet	MRPC	100%	100%
Hot Leg Roll Plugs ❷	MRPC	25%	25%
Cold Leg Tubesheet ❷	MRPC	20%	20%
Supplemental ❸	MRPC	100%	100%
Post In Situ Pressure Test	MRPC	100%	100%
Plug Visual	N/A	100%	100%
Baseline New Re-Rolls	MRPC	100%	100%

❶ Except the bend portion of row 1 through 4 u-bends.

❷ Expansion plan defined in plant procedure 2H25.1.

❸ Supplemental MRPC testing is based on current results: Inspect all ADR, CUD, DEP, DNI, DNT @ TSP ≥ 2.0V, DNT ≥ 5.0V, DRI, DSI, DTI, INR @ TSP ≥ 1.5V, MBM, NQI, PLP (bound MRPC PLP's), PSI and Cold Leg Thinning ≥ 40% or < 40% and ≥ 1.5V.

Note: Cold Leg Tubesheet MRPC Examinations are conducted every other outage.

Q5: For each area examined (e.g., tube supports, dents/dings, sleeves, etc), provide a summary of the number of indications identified to-date of each degradation mode (e.g., number of circumferential primary water stress corrosion cracking indications at the expansion transition). For the most significant indications in each area, provide an estimate of the severity of the indication (e.g., provide the voltage, depth, and length of the indication). In particular, address whether tube integrity (structural and accident induced leakage integrity) was maintained during the previous operating cycle. In addition, discuss whether any location exhibited a degradation mode that had not previously been observed at this location at this unit (e.g., observed circumferential primary water stress corrosion cracking at the expansion transition for the first time at this unit).

Analysis Status

Analysis Status (percent completed) as of 0900 on November 26, 2006:	SG 21		SG 22	
	Hot	Cold	Hot	Cold
Bobbin	100	99.9	100	100
U-Bend MRPC	99.4	N/A	99.2	N/A
Tubesheet Crevice MRPC	99.8	90.6	97.9	88.0
Hot Leg Roll Plug MRPC	100	N/A	96.7	N/A
Supplemental MRPC	88.9	87.0	86.4	33.3
Post In Situ MRPC	0	0	0	0
Plug Visual	100	100	100	100
Baseline New Re-Rolls	0	0	0	0

SG 21 Analysis Results to Date

Degradation Mode and Location (Indications)	#	Volt	Depth	Length	New Mech.
Volumetric Wear at New Anti-Vibration Bars (AVB)	15	1.95	37	N/A	N
Volumetric Wear at Old AVB's (free span)	52	2.60	41	N/A	N
Volumetric Wear at PLP's	0	N/A	N/A	N/A	N
Volumetric Thinning at Cold Leg Tube Support Plates	90	3.32	48	N/A	N
Volumetric Thinning at Cold Leg Top of Tubesheet	0	N/A	N/A	N/A	N
Volumetric Thinning at Hot Leg Tube Support Plates	0	N/A	N/A	N/A	N
Volumetric Thinning at Hot Leg Top of Tubesheet	0	N/A	N/A	N/A	N
Axial ODSCC at Hot Leg Sludge Pile	0	N/A	N/A	N/A	N
Axial ODSCC at Hot Leg Crevice	8	0.90	N/A	0.10	N
Axial ODSCC at Hot Leg Tube Support Plates	0	N/A	N/A	N/A	N
Axial PWSCC at Hot Leg Roll Expansions	508	3.14	N/A	0.67	N
Circ. PWSCC at Hot Leg Roll Expansions/Tube Ends	2	2.33	N/A	N/A	N
Circ. ODSCC at a Re-Roll Expansion	1	0.23	N/A	0.22	Y
Axial PWSCC at U-bends	0	N/A	N/A	N/A	N
Circ. PWSCC at U-bends	0	N/A	N/A	N/A	N
ODSCC/PWSCC at Dents	0	N/A	N/A	N/A	N
ODSCC/PWSCC at Plugs	0	N/A	N/A	N/A	N

Structural and accident induced leakage integrity was maintained during the previous cycle

SG 22 Analysis Results to Date

Degradation Mode and Location (Indications)	#	Volt	Depth	Length	New Mech.
Volumetric Wear at New Anti-Vibration Bars (AVB)	33	2.11	35	N/A	N
Volumetric Wear at Old AVB's (free span)	28	2.61	39	N/A	N
Volumetric Wear at PLP's	0	N/A	N/A	N/A	N
Volumetric Thinning at Cold Leg Tube Support Plates	132	3.74	39	N/A	N
Volumetric Thinning at Cold Leg Top of Tubesheet	0	N/A	N/A	N/A	N
Volumetric Thinning at Hot Leg Tube Support Plates	0	N/A	N/A	N/A	N
Volumetric Thinning at Hot Leg Top of Tubesheet	0	N/A	N/A	N/A	N
Axial ODSCC at Hot Leg Sludge Pile	1	0.10	N/A	0.09	N
Axial ODSCC at Hot Leg Crevice	5	0.49	N/A	0.09	N
Axial ODSCC at Hot Leg Tube Support Plates	0	N/A	N/A	N/A	N
Axial PWSCC at Hot Leg Roll Expansions	178	3.79	N/A	0.83	N
Circ. PWSCC at Hot Leg Roll Expansions/Tube End	1	2.37	N/A	N/A	N
Axial PWSCC at U-bends	0	N/A	N/A	N/A	N
Circ. PWSCC at U-bends	0	N/A	N/A	N/A	N
ODSCC/PWSCC at Dents	0	N/A	N/A	N/A	N
ODSCC/PWSCC at Plugs	0	N/A	N/A	N/A	N

Structural and accident induced leakage integrity was maintained during the previous cycle

Q6: Describe repair/plugging plans.

Predicted Repairs

SCOPE	S/G 21	S/G 22
In Situ Pressure Test	5	5
AR1 – 6" Re-Roll	229	154
AR2 – 8" Re-Roll	50	28
ARE – Elevated Re-Roll	14	3
Hot Leg Roll Plugs	10	15
Cold Leg Roll Plugs	10	15

Required Repairs

SCOPE	S/G 21	S/G 22
In Situ Pressure Test	0	0
AR1 – 6" Re-Roll	303	116
AR2 – 8" Re-Roll	87	18
ARE – Elevated Re-Roll	12	3
Hot Leg Roll Plugs	16	4
Cold Leg Roll Plugs	16	4

Q7: Describe in-situ pressure test and tube pull plans and results (as applicable and if available).

- We have no plans to pull tubes for unit 2, as part of a licensed repair program.
  - Status – No tube pull needed.
- We are planning on performing up to 10 in situ tests based on inspection results.
  - Status – No in situ needed.

Q8: Provide the schedule for steam generator-related activities during the remainder of the current outage.

- ET examinations are scheduled to be completed later today.
- In-situ testing is not required at this time.
- Repairs are scheduled to be completed on Dec. 1.
- Manway installation is scheduled to be completed on Dec. 2.

Q9: Discuss the following regarding loose parts:

1) what inspections are performed to detect loose parts

2) a description of any loose parts detected and their location within the SG

3) if the loose parts were removed from the SG

4) indications of tube damage associated with the loose parts

5) the source or nature of the loose parts if known

1. A) All bobbin data is evaluated for possible loose parts (PLP) and PLP wear using manual analysis by primary.

   B) Secondary uses Computer Data Screening (CDS) with a PLP specific sort from TSH + 0.3" to 07H + 2.00" and from TSC + 0.3" to 07C + 2.00" and various wear detection sorts from TSH – 1.0" to TSC – 1.0".

   C) Resolution tertiary review is conducted on all bobbin coil periphery tubes, two tubes deep for PLP's.

   D) All MRPC data is evaluated for PLP's.

   E) All bobbin PLP indications are tested with MRPC.

   F) All MRPC PLP indications are bounded radially by one tube at the same elevation.

   G) Any PLP that cannot be resolved with ECT are inspected from the secondary side for resolution.

   H) Top of Tubesheet Remote Visual Inspection: Peripheral & In-bundle.

2. New MRPC PLP Indications:

SG	HL Top of TSH	CL Top of TSH
21	11	2
22	3	6

3. A) SG 21 secondary side FOSAR will be done this week.
   B) SG 22 secondary side FOSAR follows sludge lancing this week.
4. There is no wear associated with any of the PLP indications.
5. Based on FOSAR experience and historical lookups, the PLP indications are most likely sludge rocks. Visual confirmation will be conducted with the FOSAR inspection.

Q10: Discuss the results of any secondary side inspections.

- FOSAR results previously discussed.
- SP 2534 Steam Generator Internals Inspection for 22 SG
  - SG Steam Drum Inspection revealed no abnormal conditions at:
    - Tube Bundle Wrapper
    - Feedwater Ring/Thermal Sleeve
    - Moisture Separation Equipment
- Top of Tubesheet Region planned after sludge lancing

Q11: Discuss any unexpected or unusual results.

- No unexpected or unusual conditions detected during 2R24.