

Area of
lack of coverage.

Funnel

CEOM No2

13:35:12 10/09/02

ST. LUCIE UNIT 1

NOZZLE 2 QUAD B

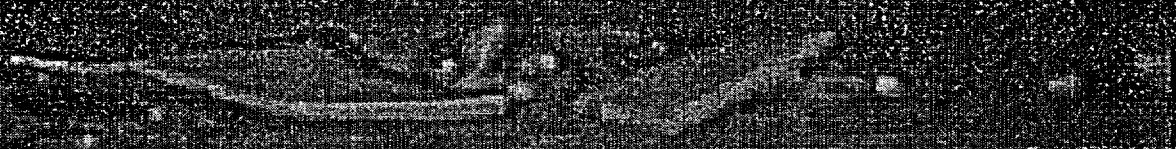


16

16:33:59 10/07/02

ST. LUCIE UNIT 1

NOZZLE 54 QUAD D



116



St Lucie Unit 1-18
RVHP Inspection Results
and Issues
October 12, 2002



St. Lucie Unit 1 RVHP Exam Results

- **SL1-18 Exam Scope**

- Committed to 100% bare metal visual of the 78 RVHPs
- Committed to UT all of the 78 RVHPs

- **Results**

- **No flaw indication to date**
- **Large volume of material has been UT inspected**
- **VT results are being addressed by our CR process**
 - **No evidence of leakage or wastage**



St. Lucie Unit 1 RVHP Exam Results

- **Bare Metal Visual-Results**

- All 78 penetrations reached in all 4 quadrants
 - No wastage or evidence of boric acid leakage from penetrations noted
 - Resolving VT debris issues with Video & UT results issue in CR process
 - Using Matrix of UT and VT Data (spreadsheet sent)
 - Still attempting to facilitate cleaning/debris removal in some locations
 - Samples 2 locations 47 and 59 (swiped with a cotton glove)
 - Samples characterized as paint, tested positive for boron but activation product ratio was very old (very normal)



St. Lucie Unit 1 RVHP Exam Results

• UT Examination - Results

- No flaw indications to date in areas evaluated.
- Completed scans on 67 of 69 CEDMs, 3 of 8 ICIs and the Vent
 - Expect to conclude by Sunday
- FPL identified the scan issue of UT liftoff in our Thursday call.
- In the area that a safety significant Circ crack could be present
 - 100% coverage in nozzle material above weld in all but 2 CEDMs
 - 336° and 290° respectively (#2 & 38)
 - 100% coverage in nozzle material adjacent to weld root in all but 6 CEDMs
 - In the 6 the coverage range from 275° and 336°
- We have a bounding deterministic evaluation to address a 180° circ crack at the weld root plane



St. Lucie Unit 1 RVHP Exam Issues

- **UT Examination Issues**

- Two CEDM location with bent guide sleeves precluded collection of data
- FPL was not able to make a determination of RVHP integrity
 - The guide sleeves will be removed and a rotating scan performed
- Leak Path UT results
 - Verification of no leak path obtained in 24 locations (4 ICIs).
 - Will investigate for future inspections at FPL units
 - Likely the result of a smaller interference contact than other unit



St. Lucie Unit 1 RVHP Exam Issues

- **UT Examination Issues**

- Nozzle 2 approach
 - Missing 24° of UT data
 - We have a bounding deterministic evaluation to address a 180° circ crack at the weld root plane
 - No evidence of wastage or leakage.
 - Viewed 360° around the area.
 - 1 quadrant obstructed by insulation - making an attempt to clear
- Due to the excellent results with the rest of the RVHPs we conclude this penetration is not cracked or leaking and has reasonable certainty to have margin against ejection.
- If insulation can not be cleared FPL is complete with this penetration.



St. Lucie Unit 1 RVHP Exam Conclusions

- **Remaining Examination Plans/Conclusions**

- Area of complete coverage at/above weld addresses the safety significant circ flow
- Leakage/wastage is addressed by the VT as well as the UT exam
- Results are very good - no indications (93% complete)
- Complete remaining 2 CEDM and 5 ICI RVHPs by Sunday
- Will initiate system restoration this weekend
- Document areas of lack of coverage per Bulletin 2002-02 response.



St Lucie Unit 1-18
RVHP Inspection Results
and Issues
October 10, 2002

1

Attachment, 2



St. Lucie Unit 1 RVHP Exam Results

- **SL1-18 Exam Scope**

- Committed to 100% bare metal visual of the 78 RVHPs
 - noted physical limitations
- Committed to UT all of the 78 RVHPs
 - with physical limitations-1st of a kind

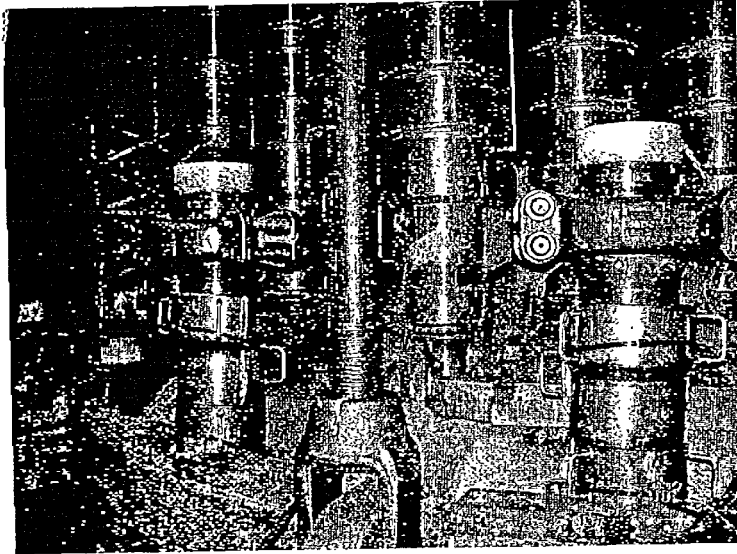
- **Bare Metal Visual-Results**

- All 78 penetrations reached in all 4 quadrants
 - No wastage or evidence of boric acid leakage
 - Difficult exam due to the close fitting insulation and asbestos collars
 - Some debris noted- asbestos - not relevant, not significant compared to the EPRI Visual Guidelines report.
 - Will clean/remove debris from representative sample



St. Lucie Unit 1 RVHP Exam Results

- Bare Metal Visual-Results





St. Lucie Unit 1 RVHP Exam Results

- **UT Examination - Results**

- No indications to date in areas evaluated.
- Completed scans on 54 CEDMs and the Vent
 - Expect to conclude by Sunday
- First CE designed plant with guide sleeves/funnels to be inspected
 - This geometry has never been inspected before
- Obtaining ~100% coverage in nozzle material adjacent to weld root & above
 - 360 degrees for all but 1 RVHP (336 degrees for 1)



St. Lucie Unit 1 RVHP Exam Issues

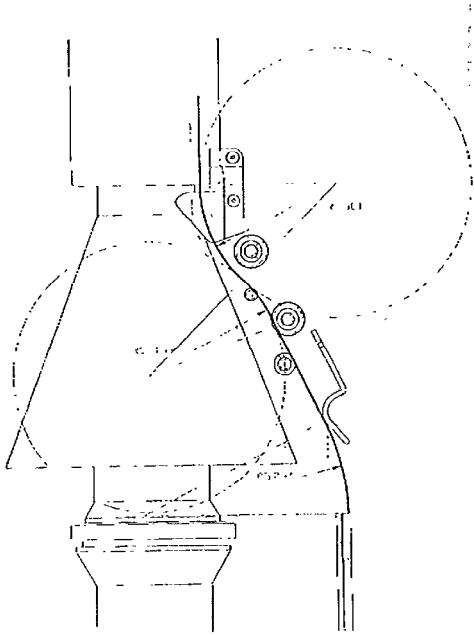
- **UT Examination Issues**

- Experiencing lift off in material below weld root adjacent to the weld
- Missing data is typically less than 180 degrees
 - only 7 are >180 degrees of the 30 analyzed so far
- Bent guide sleeve/interference may preclude obtaining 360 degree UT scan
 - Potentially 2 CEDMs identified

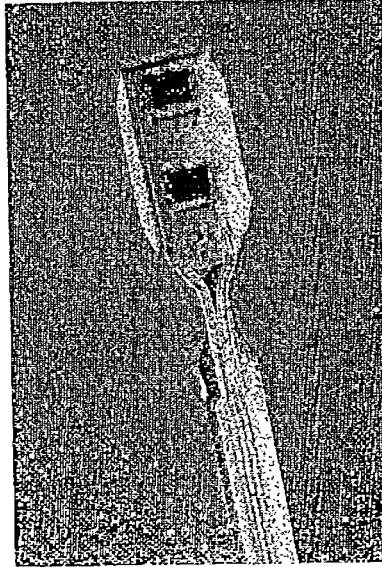


St. Lucie Unit 1 RVHP Exam Issues

Blade
probe
path



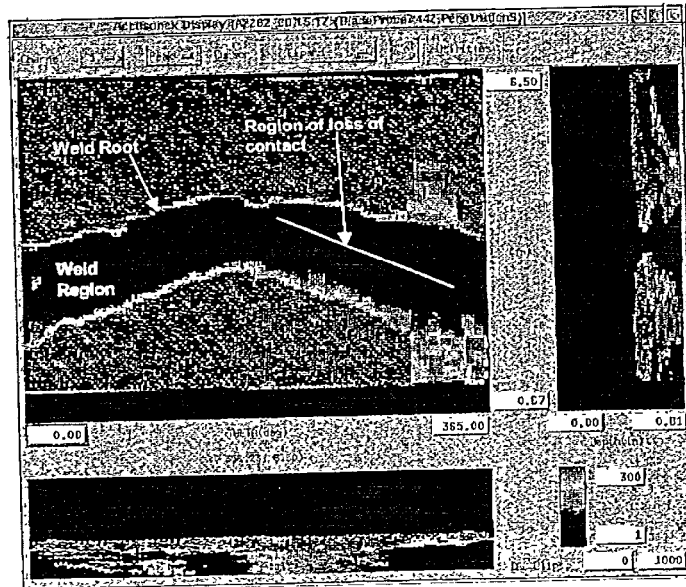
Typical Blade Probe





FPL St. Lucie Unit 1 RVHP Exam Issues

- Typical limited coverage area
- Material adjacent to weld root and above fully interrogated
- Region that safety significant circ flaws could be is addressed





St. Lucie Unit 1 RVHP Exam Issues

- **UT Examination Issues**

- Significance of UT area evaluated
 - Material adjacent to weld root and above (~100% coverage)
 - Growth of circ flaws in this area could lead to safety issue
 - Growth of axial flaws in this area could lead to leaks
 - Obtaining good coverage in material adjacent to the weld root & above
 - Primary concern for circumferential flaws and the potential for pressure boundary leakage is addressed



St. Lucie Unit 1 RVHP Exam Issues

- **UT Examination Issues**

- Significance of UT area with lift off (partial coverage)
 - Nozzle material adjacent to weld below root and above toe
 - no circ flaws identified in this area in industry data evaluated by our vendor
 - axial flaws identified in this area don't leak until they extend above the weld (into the area we have coverage).
 - VT data shows no wastage or evidence of leakage
- Significance of partial UT scan due to guide sleeve interference
 - Fracture mechanics flaw evaluation in place to support acceptable margin for a postulated circ flaw greater than the extent of the missing coverage area



St. Lucie Unit 1 RVHP Exam Issues

- **Remaining Examination Plans/Conclusions**

- Area of complete coverage at/above weld addresses the safety significant circ flaw
- Leakage/wastage is addressed by the VT as well as the UT exam
- Results to date are very good - no indications
- Complete remaining CEDM and ICI RVHPs by Sunday
- Document areas of lack of coverage per Bulletin 2002-02 response.
- Contingency plans for no UT coverage-Bent guide sleeve