

## FENOC Response to NRC Talking Points

- **TALKING POINT 1** - The specific characteristics of the active degradation mechanism in the low row U-bends and sludge pile regions. For example, location (e.g., unit, bend tangent or apex, row and column, location relative to the TTS), flaw size (e.g., voltage, phase angle, average depth, maximum depth, length), characteristics (e.g., ODSCC or PWSCC, axial or circumferential), cycle or EFPY identified, cycle or EFPY plugged, measured growth rates, and in situ pressure test results.

**Response:** See Attachments 1A through 1Q for details regarding indications.

- **TALKING POINT 2** - Criteria for the application of the high frequency Plus-Point probe, if used.

**Response:** FENOC implemented a site specific noise requirement methodology for the 2R08 inspection in October 2000. This methodology is briefly described in Attachment 2 hereto. The pre-outage evaluation demonstrated that the noise levels inherent in the BV2 steam generator tubing in the low row U-bend region (rows 1 and 2) were equivalent or better than the noise levels inherent in the qualification data set used to demonstrate detection capability of the primary EPRI ETSS (mid-range U-bend +Point; ETSS 96404) utilized to inspect the low row U-bend region of the bundle. Although it could be justified from this evaluation that use of the high frequency U-bend +Point probe would not be necessary, FENOC conservatively chose to inspect all inservice row 1 and 2 U-bends with both the mid-range and high frequency U-bend +Point probes. The mid-range and high frequency U-bend +Point probe inspections were conducted as separate inspections and **did not** utilize a combined coil probe. NOTE: Row 3 was sampled on a 20% basis with both probes.

The BV1 steam generator inspection conducted at 1R13 was performed in February – March 2000. BV1 commenced its shutdown for 1R13 one week after the IP-2 tube leak. BV1 had completed its 1R13 inspection before the potential benefits of the high frequency U-bend +Point probe had been identified at IP-2. Therefore, the high frequency U-bend +Point probe was not utilized at 1R13.

Although U-bend noise levels at BV1 are similar to those at BV2, FENOC will utilize both the mid-range and high frequency U-bend +Point probes for the upcoming inspection at 1R14 (Sept. 2001) regardless of the results of a noise evaluation similar to that performed at BV2.

- **TALKING POINT 3** - The range of eddy current noise levels present in the low row U-bends and sludge pile regions at Beaver Valley, compared with the eddy current “size” of a structurally significant indication. Discuss factors such as signal-to-noise ratios and noise parameters, including volts peak-to-peak and vertical maximum.

**Response:** For the BV2 inspection conducted at 2R08, the site specific noise requirement methodology was implemented. Data from 2R07 for a minimum 20 tube random sample for each degradation mechanism was evaluated to determine inherent noise levels. Similarly the noise levels associated with the EPRI ETSS qualification data

sets were determined. The criteria described in Attachment 2 was used to determine the applicability of each EPRI ETSS.

The typical noise levels for the U-bend and sludge piles regions for BV2 are provided in Attachments 3 through 7. Example noise levels for Unit 1 u-bends are provided in Attachment 8.

The site specific noise requirement methodology also determined "noise masked flaw" amplitudes to ensure that structurally significant flaws could be identified when considering the inherent noise. These "noise masked flaw" amplitudes are described in Attachment 2.

- **TALKING POINT 4** - The level of denting that exists in the SGs and the results of any secondary side visual inspections that FENOC performed.

**Response:** The number of dents identified at each BV unit during their most recent inspections are identified in Attachment 1R. Denting has not been a significant issue at either BV unit. At 1R13 (BV1), a remote visual examination of the tube bundle in the flow slot area from TSPs 1 through 7 was conducted in one steam generator. No discernible degradation to the TSPs or deformation of the flow slots was identified.

100% of the bobbin coil data is screened for TSP cracking indications every outage at both BV 1 and 2. No significant or extensive TSP cracking has been identified further supporting the insignificance of denting degradation at the BV units.

- **TALKING POINT 5** - Specific plant action(s) taken in response to RIS 2000-22, "Issues Stemming from NRC Staff Review of Recent Difficulties Experienced in Maintaining Steam Generator Tube Integrity," particularly with respect to the IP2 experience.

**Response:** FENOC conducted a formal self assessment of the steam generator inspection activities during 2R08 (October 2000). This self assessment was specifically focused on the lessons learned from IP-2 and ANO. This self assessment utilized information disseminated by the NRC, Utilities and EPRI regarding the experiences at IP-2 and ANO to develop its assessment attribute check list. This self assessment was performed in October 2000, prior to the issuance of RIS 2000-22.

Specific actions taken to address the lesson learned issues from IP-2 and ANO include but are not limited to:

1. Implementation of a formal methodology to address noise requirements for the 2R08 (Oct. 2000) inspection. This methodology will be adjusted as necessary to reflect latest Industry guidance and experience and will be implemented for the BV1 1R14 steam generator inspection scheduled for Sept. 2001.
2. Incorporated hold times into insitu testing procedures to address pressurization rate issues.

FENOC Life Cycle Management's response to RIS 2000-22 was internally documented and is provided as Attachment 9.

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# **ATTACHMENT 1A**

## **STEAM GENERATOR RC-E-1A UBEND INDICATION HISTORY**

# ATTACHMENT 1A

## STEAM GENERATOR RC-E-1A

### UBEND INDICATION HISTORY

4/11/01  
1 of 2

Indications Recorded with Plus Point

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev   | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|--------|--------|------------------|-----------------------|---------------------|---------|---------|
| 1   | 38  | 13R | PWSCC  | SAI        | 0.96     | 14      | 7H     | 8.96"  | 0.12"            |                       | 42%                 |         | 5218.50 |
| 1   | 6   | 12R | PWSCC  | SAI        | 0.51     | 17      | 7H     | 3.79"  | 0.32"            |                       | 46%                 |         | 4719.13 |
| 1   | 11  | 12R | PWSCC  | SAI        | 0.65     | 27      | 7H     | 3.76"  | 0.29"            |                       | 88%                 | X       | 4719.13 |
| 1   | 67  | 12R | PWSCC  | SAI        | 1.41     | 24      | 7H     | 3.10"  | 0.12"            |                       | 71%                 |         | 4719.13 |
| 1   | 70  | 12R | PWSCC  | SAI        | 0.83     | 23      | 7H     | 3.51"  | 0.19"            |                       | 71%                 |         | 4719.13 |
| 1   | 71  | 12R | PWSCC  | SAI        | 1.56     | 13      | 7H     | 9.72"  | 0.20"            |                       | 59%                 |         | 4719.13 |
| 1   | 51  | 11R | PWSCC  | SAI        | 1.27     | 22      | 7H     | 2.16"  | 0.110"           |                       |                     |         | 4303.77 |
| 1   | 89  | 11R | PWSCC  | SAI        | 1.18     | 19      | 7H     | 2.05"  | 0.129"           |                       |                     |         | 4303.77 |
| 1   | 31  | 10R | PWSCC  | SAI        | 3.17     | 13      | 7H     | 3.70"  | 0.316"           |                       |                     |         | 3950.83 |
| 1   | 85  | 10R | PWSCC  | SAI        | 4.99     | 16      | 7H     | 5.01"  | 0.315"           |                       |                     |         | 3950.83 |
| 1   | 87  | 10R | PWSCC  | SAI        | 4.02     | 15      | 7H     | 4.02"  | 0.313"           |                       |                     |         | 3950.83 |
| 1   | 20  | 07R | ODSCC  | ODI        | 1.63     | 127     | 7H     | 4.90"  |                  |                       | 32%                 |         | 2609.03 |
| 1   | 28  | 07R | PWSCC  | IDI        | 0.95     | 8       | 7H     | 9.30"  |                  |                       | 24%                 |         | 2609.03 |
| 1   | 42  | 07R | PWSCC  | IDI        | 4.04     | 55      | 7H     | 10.70" |                  |                       | 65%                 |         | 2609.03 |
| 1   | 46  | 07R | PWSCC  | IDI        | 7.28     | 30      | 7H     | 5.10"  |                  |                       | 83%                 |         | 2609.03 |
| 1   | 64  | 07R | PWSCC  | IDI        | 4.41     | 33      | 7H     | 4.00"  |                  |                       | 46%                 |         | 2609.03 |
| 1   | 66  | 07R | PWSCC  | IDI        | 2.75     | 26      | 7H     | 4.00"  |                  |                       | 35%                 |         | 2609.03 |
| 1   | 77  | 07R | PWSCC  | IDI        | 3.97     | 17      | 7H     | 4.70"  |                  |                       | 43%                 |         | 2609.03 |
| 1   | 83  | 07R | PWSCC  | IDI        | 3.72     | 8       | 7H     | 4.20"  |                  |                       | 42%                 |         | 2609.03 |
| 1   | 9   | 06R | ODSCC  | ODI        | 2.40     | 124     | U-BEND |        |                  |                       | 54%                 |         | 2152.14 |
| 1   | 15  | 06R | ODSCC  | ODI        | 2.80     | 161     | U-BEND |        |                  |                       | 45%                 |         | 2152.14 |
| 1   | 25  | 06R | PWSCC  | IDI        | 19.90    | 32      | U-BEND |        |                  |                       | 92%                 |         | 2152.14 |
| 1   | 25  | 06R | PWSCC  | IDI        | 11.40    | 26      | U-BEND |        |                  |                       | 94%                 |         | 2152.14 |
| 1   | 27  | 06R | PWSCC  | IDI        | 2.10     | 4       | U-BEND |        |                  |                       | 39%                 |         | 2152.14 |
| 1   | 29  | 06R | PWSCC  | IDI        | 1.70     | 3       | U-BEND |        |                  |                       | 32%                 |         | 2152.14 |
| 1   | 32  | 06R | PWSCC  | IDI        | 1.80     | 24      | U-BEND |        |                  |                       | 45%                 |         | 2152.14 |
| 1   | 35  | 06R | PWSCC  | IDI        | 4.70     | 16      | U-BEND |        |                  |                       | 59%                 |         | 2152.14 |
| 1   | 36  | 06R | PWSCC  | IDI        | 8.40     | 20      | U-BEND |        |                  |                       | 78%                 |         | 2152.14 |
| 1   | 37  | 06R | PWSCC  | IDI        | 4.70     | 29      | U-BEND |        |                  |                       | 60%                 |         | 2152.14 |
| 1   | 39  | 06R | PWSCC  | IDI        | 10.70    | 28      | U-BEND |        |                  |                       | 82%                 |         | 2152.14 |
| 1   | 40  | 06R | ODSCC  | ODI        | 2.40     | 130     | U-BEND |        |                  |                       | 42%                 |         | 2152.14 |
| 1   | 44  | 06R | PWSCC  | IDI        | 14.20    | 28      | U-BEND |        |                  |                       | 85%                 |         | 2152.14 |
| 1   | 44  | 06R | PWSCC  | IDI        | 3.80     | 6       | U-BEND |        |                  |                       | 53%                 |         | 2152.14 |
| 1   | 48  | 06R | ODSCC  | ODI        | 2.35     | 135     | U-BEND |        |                  |                       | 44%                 |         | 2152.14 |
| 1   | 50  | 06R | PWSCC  | IDI        | 1.70     | 3       | U-BEND |        |                  |                       | 45%                 |         | 2152.14 |

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# ATTACHMENT 1A

## STEAM GENERATOR RC-E-1A

### UBEND INDICATION HISTORY

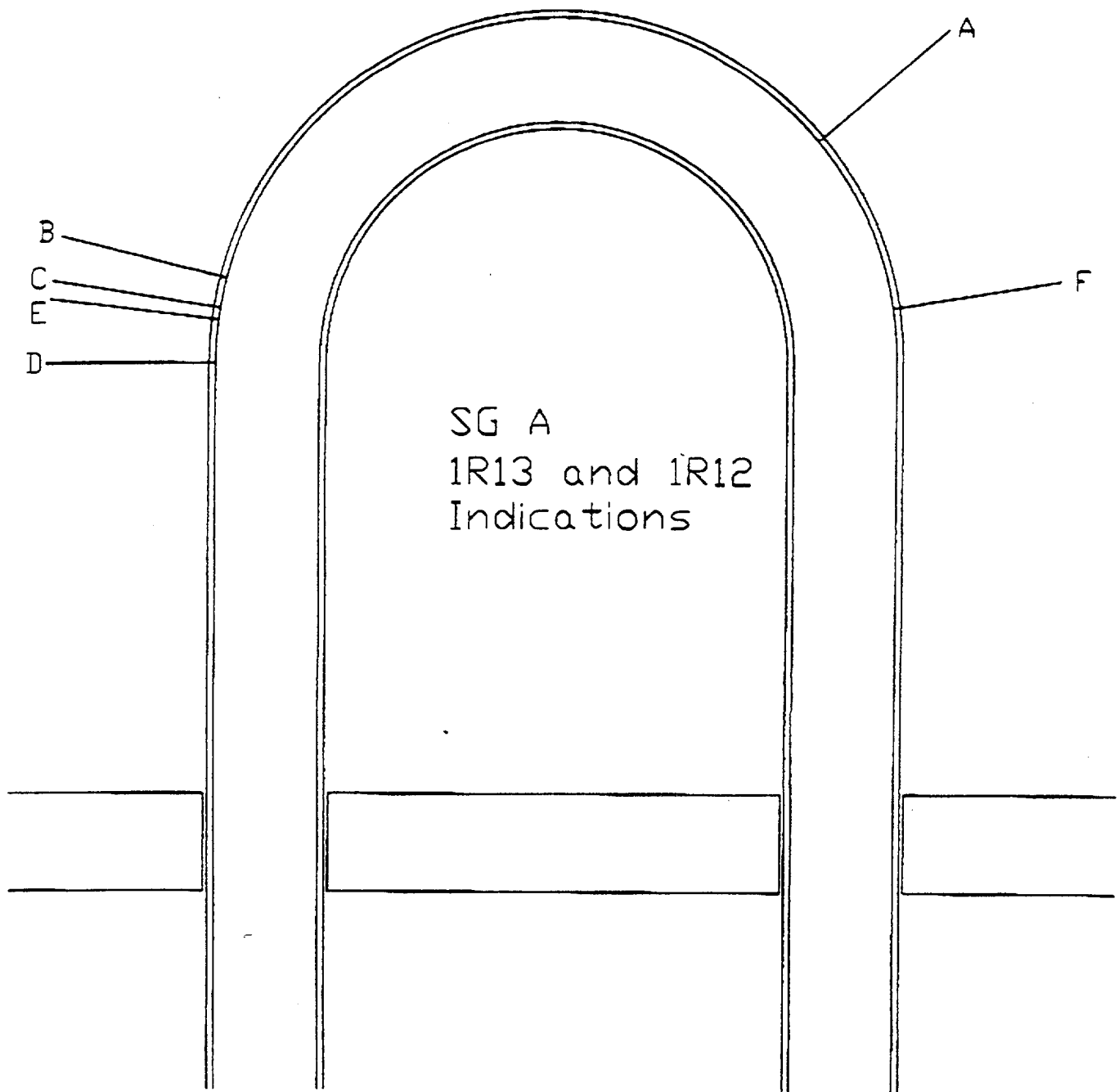
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 Indications Recorded with Plus Point

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev   | Inch | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|--------|------|------------------|-----------------------|---------------------|---------|---------|
| 1   | 52  | 06R | PWSCC  | IDI        | 1.80     | 3       | U-BEND |      |                  |                       | 46%                 |         | 2152.14 |
| 1   | 55  | 06R | PWSCC  | IDI        | 2.10     | 5       | U-BEND |      |                  |                       | 50%                 |         | 2152.14 |
| 1   | 56  | 06R | ODSCC  | ODI        | 1.20     | 65      | U-BEND |      |                  |                       | 35%                 |         | 2152.14 |
| 1   | 58  | 06R | PWSCC  | IDI        | 3.30     | 32      | U-BEND |      |                  |                       | 49%                 |         | 2152.14 |
| 1   | 68  | 06R | PWSCC  | IDI        | 2.30     | 9       | U-BEND |      |                  |                       | 53%                 |         | 2152.14 |
| 1   | 69  | 06R | PWSCC  | IDI        | 2.70     | 27      | U-BEND |      |                  |                       | 58%                 |         | 2152.14 |
| 1   | 72  | 06R | PWSCC  | IDI        | 1.10     | 2       | U-BEND |      |                  |                       | 31%                 |         | 2152.14 |
| 1   | 78  | 06R | PWSCC  | IDI        | 1.30     | 4       | U-BEND |      |                  |                       | 31%                 |         | 2152.14 |
| 1   | 79  | 06R | PWSCC  | IDI        | 2.60     | 4       | U-BEND |      |                  |                       | 56%                 |         | 2152.14 |
| 1   | 80  | 06R | PWSCC  | IDI        | 1.80     | 3       | U-BEND |      |                  |                       | 47%                 |         | 2152.14 |
| 1   | 81  | 06R | PWSCC  | IDI        | 2.00     | 4       | APEX   |      |                  |                       | 41%                 |         | 2152.14 |
| 1   | 82  | 06R | PWSCC  | IDI        | 2.10     | 3       | U-BEND |      |                  |                       | 49%                 |         | 2152.14 |
| 2   | 41  | 06R | PWSCC  | IDI        | 1.80     | 4       | U-BEND |      |                  |                       | 33%                 |         | 2152.14 |
| 2   | 49  | 06R | PWSCC  | IDI        | 1.60     | 3       | U-BEND |      |                  |                       | 31%                 |         | 2152.14 |

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# ATTACHMENT 1A



SG A:

A: 1R13, SAI, R1 C38

B: 1R12, SAI, R1 C6

C: 1R12, SAI, R1 C11

D: 1R12, SAI, R1 C67

E: 1R12, SAI, R1 C70

F: 1R12, SAI, R1 C71

# **ATTACHMENT 1B**

**STEAM GENERATOR RC-E-1A**

**SLUDGE PILE ODSCC INDICATION HISTORY**



# ATTACHMENT 1B

## STEAM GENERATOR 1RC-E-1A

### SLUDGE PILE ODSCC INDICATION HISTORY

4/12/01  
1 of 2

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 2   | 21  | 12R | ODSCC  | SAI        | 0.11     | 108     | TSH  | 0.21"  | 0.21"            |                       | 43%                 |         | 4719.13 |
| 5   | 21  | 12R | ODSCC  | SAI        | 0.24     | 114     | TSH  | -0.32" | 0.23"            |                       | 94%                 | X       | 4719.13 |
| 9   | 9   | 12R | ODSCC  | SCI        | 0.36     | 124     | TSC  | 0.10"  |                  | 51°                   | 48%                 | X       | 4719.13 |
| 9   | 9   | 12R | ODSCC  | SCI        | 0.27     | 108     | TSC  | 0.13"  |                  | 51°                   | 45%                 |         | 4719.13 |
| 9   | 13  | 12R | ODSCC  | SVI        | 0.67     | 96      | TSC  | 0.07"  |                  |                       |                     |         | 4719.13 |
| 10  | 51  | 12R | ODSCC  | SAI        | 0.18     | 130     | TSH  | -0.43" | 0.17"            |                       |                     |         | 4719.13 |
| 10  | 51  | 12R | ODSCC  | SAI        | 0.20     | 118     | TSH  | 0.15"  | 0.19"            |                       | 77%                 |         | 4719.13 |
| 11  | 9   | 12R | ODSCC  | SVI        | 0.53     | 86      | TSC  | 0.36"  |                  |                       |                     |         | 4719.13 |
| 11  | 92  | 12R | ODSCC  | SVI        | 0.24     | 150     | TSH  | 5.98"  |                  |                       |                     |         | 4719.13 |
| 14  | 10  | 12R | ODSCC  | SCI        | 0.23     | 110     | TSC  | 0.23"  |                  | 42°                   | 55%                 | X       | 4719.13 |
| 14  | 11  | 12R | ODSCC  | PIT        | 0.09     | 98      | TSC  | 0.11"  |                  |                       | 48%                 |         | 4719.13 |
| 14  | 80  | 12R | ODSCC  | SAI        | 0.31     | 48      | TSH  | -0.44" | 0.32"            |                       | 94%                 | X       | 4719.13 |
| 16  | 48  | 12R | ODSCC  | SAI        | 0.31     | 113     | TSH  | 0.62"  | 0.82"            |                       | 88%                 | X       | 4719.13 |
| 35  | 19  | 12R | ODSCC  | SCI        | 0.20     | 98      | TSH  | -0.05" |                  | 90°                   |                     |         | 4719.13 |
| 35  | 64  | 12R | ODSCC  | SVI        | 0.09     | 113     | TSH  | 0.18"  |                  |                       |                     |         | 4719.13 |
| 35  | 65  | 12R | ODSCC  | SVI        | 0.27     | 52      | TSH  | 0.28"  |                  |                       |                     |         | 4719.13 |
| 36  | 19  | 12R | ODSCC  | SCI        | 0.15     | 141     | TSC  | -0.05" |                  | 44°                   | 15%                 |         | 4719.13 |
| 37  | 44  | 12R | ODSCC  | SVI        | 0.36     | 98      | TSH  | 0.24"  |                  | 59°                   |                     |         | 4719.13 |
| 8   | 31  | 11R | ODSCC  | MAI        | 0.37     | 79      | TSH  | 0.09"  | 0.454"           |                       |                     |         | 4303.77 |
| 8   | 38  | 11R | ODSCC  | MAI        | 0.82     | 63      | TSH  | 0.79"  | 0.643"           |                       |                     |         | 4303.77 |
| 9   | 43  | 11R | ODSCC  | SAI        | 1.04     | 83      | TSH  | -0.19" | 0.358"           |                       |                     |         | 4303.77 |
| 10  | 26  | 11R | ODSCC  | MAI        | 1.27     | 100     | TSH  | 0.06"  | 0.643"           |                       |                     |         | 4303.77 |
| 10  | 30  | 11R | ODSCC  | DTI        | 0.30     | 103     | TSH  | 0.99"  |                  |                       |                     |         | 4303.77 |
| 12  | 29  | 11R | ODSCC  | MAI        | 0.35     | 72      | TSH  | 0.90"  | 0.597"           |                       |                     |         | 4303.77 |
| 12  | 31  | 11R | ODSCC  | SAI        | 0.42     | 77      | TSH  | 1.04"  | 0.390"           |                       |                     |         | 4303.77 |
| 14  | 42  | 11R | ODSCC  | MAI        | 0.43     | 97      | TSH  | 1.32"  | 0.637"           |                       |                     |         | 4303.77 |
| 16  | 32  | 11R | ODSCC  | MAI        | 0.75     | 78      | TSH  | 0.20"  | 0.750"           |                       |                     |         | 4303.77 |
| 18  | 32  | 11R | ODSCC  | SAI        | 0.36     | 91      | TSH  | 0.18"  | 0.223"           |                       |                     |         | 4303.77 |
| 18  | 34  | 11R | ODSCC  | SAI        | 0.45     | 80      | TSH  | 0.19"  | 0.644"           |                       |                     |         | 4303.77 |
| 18  | 38  | 11R | ODSCC  | SAI        | 0.45     | 74      | TSH  | 0.90"  | 0.895"           |                       |                     |         | 4303.77 |
| 26  | 25  | 11R | ODSCC  | VOL        | 1.05     | 70      | TSH  | 1.08"  | 0.751"           |                       |                     |         | 4303.77 |
| 28  | 80  | 11R | ODSCC  | VOL        | 0.37     | 89      | TSH  | -0.03" | 0.215"           |                       |                     |         | 4303.77 |
| 29  | 76  | 11R | ODSCC  | VOL        | 1.02     | 87      | TSH  | -0.11" | 0.298"           |                       |                     |         | 4303.77 |
| 4   | 23  | 10R | ODSCC  | SAI        | 0.38     | 90      | TSH  | 0.19"  | 0.551"           |                       |                     |         | 3950.83 |
| 8   | 36  | 10R | ODSCC  | VOL        | 0.69     | 47      | TSH  | 0.43"  | 0.343"           |                       |                     |         | 3950.83 |
| 10  | 31  | 10R | ODSCC  | SAI        | 0.70     | 94      | TSH  | 1.41"  | 0.276"           |                       |                     |         | 3950.83 |

# ATTACHMENT 1B

## STEAM GENERATOR 1RC-E-1A

### SLUDGE PILE ODSCC INDICATION HISTORY

4/12/01  
2 of 2

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch  | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|-------|------------------|-----------------------|---------------------|---------|---------|
| 10  | 34  | 10R | ODSCC  | MAI        | 0.58     | 126     | TSH  | 0.43" | 0.556"           |                       |                     |         | 3950.83 |
| 10  | 36  | 10R | ODSCC  | VOL        | 1.40     | 100     | TSH  | 0.76" | 0.725"           |                       |                     |         | 3950.83 |
| 10  | 48  | 10R | ODSCC  | SAI        | 1.14     | 80      | TSH  | 0.46" | 0.902"           |                       |                     |         | 3950.83 |
| 11  | 27  | 10R | ODSCC  | SAI        | 0.54     | 59      | TSH  | 0.75" | 0.517"           |                       |                     |         | 3950.83 |
| 11  | 29  | 10R | ODSCC  | DTI        | 0.41     | 57      | TSH  | 0.69" |                  |                       |                     |         | 3950.83 |
| 11  | 29  | 10R | ODSCC  | DTI        | 0.32     | 117     | TSH  | 1.30" |                  |                       |                     |         | 3950.83 |
| 31  | 16  | 10R | ODSCC  | SAI        | 1.97     | 81      | TSH  | 0.62" | 0.504"           |                       |                     |         | 3950.83 |
| 10  | 33  | 09R | ODSCC  | SAI        | 0.78     | 71      | TSH  | 0.66" |                  |                       |                     |         | 3515.03 |
| 11  | 48  | 08R | ODSCC  | SAI        | 0.53     | 48      | TSH  | 0.48" |                  |                       | 68%                 |         | 3011.36 |

# **ATTACHMENT 1C**

**STEAM GENERATOR RC-E-1A**

**TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13**

# ATTACHMENT 1C

## STEAM GENERATOR 1RC-E-1A

### TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13

### SLUDGE PILE ODSCC

4/12/01  
1 of 5

(All tubes un-plugged 1R13 except as noted)

= E.O.C. 13 Inservice Tube

| Row | Col | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Est. Length | Est. Depth |
|-----|-----|--------|------------|----------|---------|------|--------|-------------|------------|
| 2   | 22  | ODSCC  | MAI        | 0.37     | 90      | TSH  | 0.38"  |             |            |
| 2   | 48  | ODSCC  | SAI        | 0.24     | 113     | TSH  | -0.12" |             |            |
| 2   | 57  | ODSCC  | SAI        | 0.18     | 93      | TSH  | -0.02" |             |            |
| 3   | 21  | ODSCC  | MAI        | 0.49     | 88      | TSH  | 0.47"  |             |            |
| 3   | 50  | ODSCC  | SAI        | 0.16     | 115     | TSH  | 0.17"  | 0.11"       |            |
| 4   | 18  | ODSCC  | SAI        | 0.21     | 68      | TSH  | -0.22" |             |            |
| 4   | 19  | ODSCC  | MAI        | 0.21     | 92      | TSH  | 0.39"  |             |            |
| 4   | 52  | ODSCC  | SAI        | 0.17     | 147     | TSH  | -0.32" | 0.05"       |            |
| 5   | 19  | ODSCC  | MAI        | 0.22     | 121     | TSH  | 0.16"  |             |            |
| 5   | 25  | ODSCC  | SAI        | 0.26     | 113     | TSH  | 0.18"  |             |            |
| 5   | 48  | ODSCC  | SAI        | 0.89     | 87      | TSH  | 0.44"  |             |            |
| 5   | 76  | ODSCC  | SAI        | 0.20     | 80      | TSH  | 0.39"  |             |            |
| 6   | 71  | ODSCC  | SAI        | 0.24     | 116     | TSH  | 0.32"  |             |            |
| 6   | 76  | ODSCC  | SAI        | 0.28     | 108     | TSH  | 0.11"  | 0.21"       | 70%        |
| 7   | 22  | ODSCC  | SAI        | 0.15     | 95      | TSH  | 0.27"  |             |            |
| 7   | 31  | ODSCC  | SAI        | 0.21     | 71      | TSH  | 0.27"  | 0.24"       | 94%        |
| 7   | 33  | ODSCC  | SAI        | 0.23     | 79      | TSH  | 0.47"  |             |            |
| 7   | 36  | ODSCC  | MAI        | 0.33     | 108     | TSH  | 0.52"  |             |            |
| 7   | 39  | ODSCC  | MAI        | 0.15     | 117     | TSH  | 0.77"  |             |            |
| 7   | 43  | ODSCC  | MAI        | 0.40     | 110     | TSH  | 0.64"  |             |            |
| 8   | 26  | ODSCC  | MAI        | 0.30     | 102     | TSH  | 0.53"  |             |            |
| 8   | 28  | ODSCC  | SAI        | 0.19     | 112     | TSH  | 1.50"  |             |            |
| 8   | 29  | ODSCC  | MAI        | 0.60     | 104     | TSH  | 0.89"  |             |            |
| 8   | 34  | ODSCC  | MAI        | 0.30     | 87      | TSH  | 0.54"  |             |            |
| 8   | 35  | ODSCC  | MAI        | 0.95     | 100     | TSH  | 0.64"  |             |            |
| 8   | 41  | ODSCC  | MAI        | 0.68     | 103     | TSH  | 0.75"  |             |            |
| 8   | 43  | ODSCC  | MAI        | 0.62     | 96      | TSH  | 0.86"  |             |            |
| 8   | 46  | ODSCC  | SAI        | 0.14     | 118     | TSH  | 0.64"  |             |            |
| 9   | 32  | ODSCC  | MAI        | 2.09     | 62      | TSH  | 1.48"  |             |            |
| 9   | 33  | ODSCC  | MAI        | 0.63     | 106     | TSH  | 1.31"  |             |            |
| 9   | 34  | ODSCC  | MAI        | 0.44     | 111     | TSH  | 0.92"  |             |            |
| 9   | 36  | ODSCC  | MAI        | 0.76     | 90      | TSH  | 1.22"  |             |            |
| 9   | 38  | ODSCC  | MAI        | 0.67     | 101     | TSH  | 1.47"  |             |            |
| 9   | 41  | ODSCC  | MAI        | 0.18     | 94      | TSH  | 0.96"  |             |            |
| 9   | 44  | ODSCC  | MAI        | 0.37     | 106     | TSH  | 1.32"  |             |            |
| 9   | 46  | ODSCC  | MAI        | 0.24     | 83      | TSH  | 1.29"  |             |            |
| 10  | 32  | ODSCC  | MAI        | 0.97     | 84      | TSH  | 2.27"  |             |            |
| 10  | 37  | ODSCC  | MAI        | 0.29     | 97      | TSH  | 1.85"  |             |            |
| 10  | 38  | ODSCC  | MAI        | 0.76     | 89      | TSH  | 1.03"  |             |            |
| 10  | 40  | ODSCC  | MAI        | 0.53     | 80      | TSH  | 2.20"  |             |            |
| 10  | 41  | ODSCC  | MAI        | 1.90     | 82      | TSH  | 2.11"  |             |            |
| 10  | 44  | ODSCC  | MAI        | 0.57     | 99      | TSH  | 2.35"  |             |            |
| 10  | 45  | ODSCC  | MAI        | 0.26     | 124     | TSH  | 1.73"  |             |            |
| 10  | 46  | ODSCC  | SAI        | 0.34     | 91      | TSH  | 0.75"  |             |            |
| 10  | 47  | ODSCC  | MAI        | 0.75     | 105     | TSH  | 1.29"  |             |            |
| 10  | 52  | ODSCC  | SAI        | 0.21     | 53      | TSH  | -0.13" |             |            |
| 11  | 26  | ODSCC  | MAI        | 0.44     | 109     | TSH  | 0.68"  |             |            |
| 11  | 28  | ODSCC  | MAI        | 0.24     | 102     | TSH  | 1.05"  |             |            |

# ATTACHMENT 1C

## STEAM GENERATOR 1RC-E-1A

### TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13

### SLUDGE PILE ODSCC

4/12/01

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(All tubes un-plugged 1R13 except as noted)

= E.O.C. 13 Inservice Tube

| Row | Col | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Est. Length | Est. Depth |
|-----|-----|--------|------------|----------|---------|------|--------|-------------|------------|
| 11  | 30  | ODSCC  | MAI        | 0.27     | 90      | TSH  | 0.81"  |             |            |
| 11  | 32  | ODSCC  | MAI        | 0.68     | 94      | TSH  | 2.51"  |             |            |
| 11  | 33  | ODSCC  | MAI        | 0.54     | 109     | TSH  | 2.22"  |             |            |
| 11  | 37  | ODSCC  | MAI        | 0.43     | 97      | TSH  | 2.81"  |             |            |
| 11  | 39  | ODSCC  | MAI        | 0.23     | 110     | TSH  | 3.13"  |             |            |
| 11  | 40  | ODSCC  | MAI        | 0.53     | 94      | TSH  | 2.07"  |             |            |
| 11  | 42  | ODSCC  | MAI        | 1.13     | 86      | TSH  | 1.90"  |             |            |
| 11  | 44  | ODSCC  | MAI        | 0.40     | 107     | TSH  | 3.13"  |             |            |
| 11  | 46  | ODSCC  | SAI        | 0.60     | 119     | TSH  | 1.81"  |             |            |
| 11  | 47  | ODSCC  | SAI        | 0.25     | 103     | TSH  | 0.81"  |             |            |
| 11  | 49  | ODSCC  | SAI        | 0.68     | 92      | TSH  | 1.03"  |             |            |
| 11  | 50  | ODSCC  | MAI        | 0.27     | 90      | TSH  | 0.33"  |             |            |
| 11  | 50  | ODSCC  | SAI        | 0.56     | 95      | TSH  | 0.79"  |             |            |
| 11  | 52  | ODSCC  | SAI        | 0.28     | 105     | TSH  | 0.27"  | 0.24"       | 69%        |
| 11  | 53  | ODSCC  | SAI        | 0.27     | 118     | TSH  | 0.41"  | 0.41"       |            |
| 11  | 55  | ODSCC  | SAI        | 0.19     | 83      | TSH  | -0.42" |             |            |
| 11  | 55  | ODSCC  | SAI        | 0.20     | 118     | TSH  | 0.43"  |             |            |
| 12  | 30  | ODSCC  | SAI        | 0.20     | 112     | TSH  | 1.81"  |             |            |
| 12  | 32  | ODSCC  | MAI        | 0.59     | 84      | TSH  | 3.25"  |             |            |
| 12  | 33  | ODSCC  | MAI        | 0.27     | 100     | TSH  | 2.94"  |             |            |
| 12  | 34  | ODSCC  | MAI        | 0.27     | 116     | TSH  | 2.60"  |             |            |
| 12  | 35  | ODSCC  | MAI        | 0.54     | 106     | TSH  | 2.87"  |             |            |
| 12  | 37  | ODSCC  | MAI        | 0.16     | 101     | TSH  | 3.19"  |             |            |
| 12  | 40  | ODSCC  | MAI        | 0.26     | 116     | TSH  | 1.86"  |             |            |
| 12  | 42  | ODSCC  | MAI        | 0.34     | 97      | TSH  | 4.39"  |             |            |
| 12  | 44  | ODSCC  | MAI        | 0.72     | 98      | TSH  | 3.02"  |             |            |
| 12  | 46  | ODSCC  | SAI        | 0.22     | 136     | TSH  | 1.30"  |             |            |
| 12  | 46  | ODSCC  | SAI        | 0.22     | 115     | TSH  | 2.44"  |             |            |
| 12  | 47  | ODSCC  | MAI        | 0.28     | 112     | TSH  | 0.66"  |             |            |
| 12  | 47  | ODSCC  | MAI        | 0.24     | 112     | TSH  | 1.36"  |             |            |
| 12  | 48  | ODSCC  | MAI        | 0.42     | 95      | TSH  | 0.44"  |             |            |
| 12  | 48  | ODSCC  | SAI        | 0.39     | 93      | TSH  | 0.82"  |             |            |
| 12  | 48  | ODSCC  | MAI        | 0.37     | 97      | TSH  | 1.03"  |             |            |
| 12  | 49  | ODSCC  | MAI        | 0.44     | 107     | TSH  | 0.58"  |             |            |
| 12  | 51  | ODSCC  | SAI        | 0.14     | 96      | TSH  | 0.63"  |             |            |
| 13  | 26  | ODSCC  | SAI        | 0.27     | 119     | TSH  | 0.24"  |             |            |
| 13  | 30  | ODSCC  | MAI        | 0.26     | 118     | TSH  | 1.80"  |             |            |
| 13  | 31  | ODSCC  | SAI        | 0.23     | 115     | TSH  | 2.56"  |             |            |
| 13  | 32  | ODSCC  | MAI        | 0.51     | 104     | TSH  | 2.88"  |             |            |
| 13  | 33  | ODSCC  | MAI        | 0.91     | 83      | TSH  | 4.70"  |             |            |
| 13  | 33  | ODSCC  | MAI        | 0.54     | 100     | TSH  | 1.47"  |             |            |
| 13  | 33  | ODSCC  | MAI        | 1.00     | 83      | TSH  | 3.10"  |             |            |
| 13  | 33  | ODSCC  | MAI        | 0.41     | 95      | TSH  | 3.34"  |             |            |
| 13  | 33  | ODSCC  | MAI        | 0.50     | 87      | TSH  | 3.40"  |             |            |
| 13  | 33  | ODSCC  | MAI        | 0.24     | 110     | TSH  | 3.95"  |             |            |
| 13  | 35  | ODSCC  | MAI        | 0.48     | 101     | TSH  | 3.44"  |             |            |
| 13  | 36  | ODSCC  | MAI        | 0.58     | 106     | TSH  | 3.26"  |             |            |
| 13  | 37  | ODSCC  | MAI        | 0.40     | 109     | TSH  | 2.99"  |             |            |

**ATTACHMENT 1C**  
**STEAM GENERATOR 1RC-E-1A**  
**TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13**  
**SLUDGE PILE ODSCC**  
(All tubes un-plugged 1R13 except as noted)

4/12/01  
3 of 5

= E.O.C. 13 Inservice Tube

| Row | Col | Reason | Indication | Volts PP | Degrees | Elev | Inch  | Est. Length | Est. Depth |
|-----|-----|--------|------------|----------|---------|------|-------|-------------|------------|
| 13  | 38  | ODSCC  | MAI        | 0.56     | 101     | TSH  | 2.82" |             |            |
| 13  | 40  | ODSCC  | SAI        | 0.17     | 102     | TSH  | 2.15" |             |            |
| 13  | 41  | ODSCC  | MAI        | 0.32     | 119     | TSH  | 2.99" |             |            |
| 13  | 42  | ODSCC  | MAI        | 0.26     | 96      | TSH  | 2.99" |             |            |
| 13  | 43  | ODSCC  | SAI        | 0.36     | 99      | TSH  | 2.16" |             |            |
| 13  | 45  | ODSCC  | SAI        | 0.41     | 103     | TSH  | 1.35" |             |            |
| 13  | 45  | ODSCC  | SAI        | 0.28     | 103     | TSH  | 2.22" |             |            |
| 13  | 47  | ODSCC  | MAI        | 0.52     | 94      | TSH  | 2.56" |             |            |
| 13  | 49  | ODSCC  | MAI        | 0.32     | 107     | TSH  | 1.60" |             |            |
| 13  | 50  | ODSCC  | MAI        | 0.25     | 76      | TSH  | 1.08" |             |            |
| 13  | 53  | ODSCC  | SAI        | 0.33     | 103     | TSH  | 0.56" |             |            |
| 14  | 29  | ODSCC  | SAI        | 0.20     | 114     | TSH  | 0.81" |             |            |
| 14  | 29  | ODSCC  | SAI        | 0.35     | 105     | TSH  | 0.94" |             |            |
| 14  | 31  | ODSCC  | SAI        | 0.48     | 100     | TSH  | 1.18" |             |            |
| 14  | 33  | ODSCC  | MAI        | 0.94     | 96      | TSH  | 2.24" |             |            |
| 14  | 34  | ODSCC  | MAI        | 1.22     | 80      | TSH  | 2.82" |             |            |
| 14  | 36  | ODSCC  | MAI        | 0.55     | 111     | TSH  | 2.66" |             |            |
| 14  | 37  | ODSCC  | MAI        | 0.79     | 99      | TSH  | 2.88" |             |            |
| 14  | 38  | ODSCC  | MAI        | 0.36     | 120     | TSH  | 2.60" |             |            |
| 14  | 39  | ODSCC  | MAI        | 0.45     | 110     | TSH  | 2.43" |             |            |
| 14  | 40  | ODSCC  | MAI        | 0.65     | 83      | TSH  | 2.59" |             |            |
| 14  | 41  | ODSCC  | MAI        | 0.33     | 105     | TSH  | 2.17" |             |            |
| 14  | 43  | ODSCC  | SAI        | 0.27     | 118     | TSH  | 1.67" |             |            |
| 14  | 45  | ODSCC  | SAI        | 0.27     | 104     | TSH  | 0.82" |             |            |
| 14  | 45  | ODSCC  | MAI        | 0.63     | 99      | TSH  | 1.90" |             |            |
| 14  | 46  | ODSCC  | MAI        | 0.42     | 113     | TSH  | 2.18" |             |            |
| 14  | 47  | ODSCC  | MAI        | 0.37     | 99      | TSH  | 1.64" |             |            |
| 14  | 48  | ODSCC  | MAI        | 0.69     | 111     | TSH  | 1.45" |             |            |
| 14  | 49  | ODSCC  | MAI        | 0.42     | 117     | TSH  | 0.92" |             |            |
| 14  | 53  | ODSCC  | MAI        | 0.22     | 107     | TSH  | 0.34" |             |            |
| 15  | 29  | ODSCC  | SAI        | 0.27     | 120     | TSH  | 0.68" |             |            |
| 15  | 30  | ODSCC  | MAI        | 0.77     | 104     | TSH  | 0.79" |             |            |
| 15  | 32  | ODSCC  | MAI        | 0.34     | 120     | TSH  | 1.65" |             |            |
| 15  | 33  | ODSCC  | MAI        | 0.29     | 110     | TSH  | 2.01" |             |            |
| 15  | 34  | ODSCC  | MAI        | 0.65     | 103     | TSH  | 2.29" |             |            |
| 15  | 35  | ODSCC  | MAI        | 0.36     | 109     | TSH  | 2.01" |             |            |
| 15  | 36  | ODSCC  | MAI        | 0.24     | 114     | TSH  | 1.65" |             |            |
| 15  | 37  | ODSCC  | MAI        | 0.63     | 100     | TSH  | 1.83" |             |            |
| 15  | 38  | ODSCC  | MAI        | 0.33     | 110     | TSH  | 1.83" |             |            |
| 15  | 39  | ODSCC  | MAI        | 0.36     | 80      | TSH  | 1.64" |             |            |
| 15  | 41  | ODSCC  | MAI        | 0.17     | 109     | TSH  | 1.70" |             |            |
| 15  | 42  | ODSCC  | MAI        | 0.39     | 86      | TSH  | 2.13" |             |            |
| 15  | 43  | ODSCC  | MAI        | 0.37     | 124     | TSH  | 1.65" |             |            |
| 15  | 44  | ODSCC  | MAI        | 0.18     | 83      | TSH  | 0.82" |             |            |
| 15  | 45  | ODSCC  | MAI        | 0.39     | 70      | TSH  | 1.74" |             |            |
| 15  | 46  | ODSCC  | MAI        | 0.16     | 110     | TSH  | 0.78" |             |            |
| 15  | 47  | ODSCC  | MAI        | 0.17     | 109     | TSH  | 1.58" |             |            |
| 15  | 48  | ODSCC  | MAI        | 0.35     | 122     | TSH  | 1.04" |             |            |

**ATTACHMENT 1C**  
**STEAM GENERATOR 1RC-E-1A**  
**TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13**  
**SLUDGE PILE ODSCC**

4/12/01  
4 of 5

(All tubes un-plugged 1R13 except as noted)

= E.O.C. 13 Inservice Tube

| Row | Col | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Est. Length | Est. Depth |
|-----|-----|--------|------------|----------|---------|------|--------|-------------|------------|
| 15  | 49  | ODSCC  | SAI        | 0.34     | 137     | TSH  | 0.91"  |             |            |
| 16  | 29  | ODSCC  | SAI        | 0.34     | 111     | TSH  | 0.24"  |             |            |
| 16  | 31  | ODSCC  | MAI        | 0.26     | 112     | TSH  | 0.27"  |             |            |
| 16  | 31  | ODSCC  | MAI        | 0.11     | 75      | TSH  | 0.38"  |             |            |
| 16  | 31  | ODSCC  | MAI        | 0.37     | 115     | TSH  | 0.59"  |             |            |
| 16  | 31  | ODSCC  | MAI        | 0.26     | 101     | TSH  | 0.79"  |             |            |
| 16  | 33  | ODSCC  | MAI        | 0.47     | 88      | TSH  | 0.22"  |             |            |
| 16  | 33  | ODSCC  | MAI        | 0.68     | 95      | TSH  | 0.82"  |             |            |
| 16  | 33  | ODSCC  | MAI        | 0.41     | 114     | TSH  | 0.97"  |             |            |
| 16  | 33  | ODSCC  | MAI        | 0.51     | 103     | TSH  | 1.48"  |             |            |
| 16  | 34  | ODSCC  | MAI        | 0.33     | 95      | TSH  | 1.73"  |             |            |
| 16  | 35  | ODSCC  | MAI        | 0.62     | 103     | TSH  | 1.80"  |             |            |
| 16  | 36  | ODSCC  | MAI        | 0.71     | 103     | TSH  | 1.70"  |             |            |
| 16  | 37  | ODSCC  | MAI        | 0.40     | 89      | TSH  | 1.78"  |             |            |
| 16  | 38  | ODSCC  | MAI        | 0.53     | 83      | TSH  | 1.70"  |             |            |
| 16  | 39  | ODSCC  | MAI        | 0.30     | 101     | TSH  | 2.10"  |             |            |
| 16  | 40  | ODSCC  | SAI        | 0.18     | 103     | TSH  | 0.75"  |             |            |
| 16  | 40  | ODSCC  | SAI        | 0.17     | 87      | TSH  | 1.31"  |             |            |
| 16  | 41  | ODSCC  | MAI        | 0.48     | 93      | TSH  | 1.43"  |             |            |
| 16  | 42  | ODSCC  | MAI        | 0.62     | 110     | TSH  | 1.59"  |             |            |
| 16  | 43  | ODSCC  | MAI        | 0.59     | 113     | TSH  | 1.49"  |             |            |
| 16  | 44  | ODSCC  | MAI        | 0.27     | 113     | TSH  | 1.36"  |             |            |
| 16  | 46  | ODSCC  | MAI        | 0.22     | 116     | TSH  | 0.87"  |             |            |
| 16  | 47  | ODSCC  | MAI        | 0.27     | 110     | TSH  | 0.84"  |             |            |
| 17  | 31  | ODSCC  | MAI        | 0.14     | 109     | TSH  | 0.30"  |             |            |
| 17  | 31  | ODSCC  | MAI        | 0.31     | 106     | TSH  | 0.57"  |             |            |
| 17  | 32  | ODSCC  | MAI        | 0.66     | 101     | TSH  | 0.93"  |             |            |
| 17  | 33  | ODSCC  | MAI        | 0.56     | 100     | TSH  | 0.55"  |             |            |
| 17  | 33  | ODSCC  | MAI        | 0.66     | 119     | TSH  | 0.75"  |             |            |
| 17  | 34  | ODSCC  | MAI        | 0.40     | 108     | TSH  | 1.43"  |             |            |
| 17  | 35  | ODSCC  | MAI        | 0.46     | 111     | TSH  | 1.23"  |             |            |
| 17  | 36  | ODSCC  | MAI        | 0.35     | 105     | TSH  | 1.32"  |             |            |
| 17  | 37  | ODSCC  | MAI        | 1.39     | 78      | TSH  | 1.54"  |             |            |
| 17  | 38  | ODSCC  | MAI        | 0.38     | 97      | TSH  | 1.29"  |             |            |
| 17  | 39  | ODSCC  | MAI        | 0.39     | 99      | TSH  | 1.19"  |             |            |
| 17  | 40  | ODSCC  | MAI        | 1.53     | 82      | TSH  | 3.30"  |             |            |
| 17  | 41  | ODSCC  | MAI        | 0.66     | 114     | TSH  | 1.26"  |             |            |
| 17  | 42  | ODSCC  | MAI        | 0.30     | 97      | TSH  | 1.11"  |             |            |
| 17  | 43  | ODSCC  | MAI        | 0.52     | 67      | TSH  | 1.26"  |             |            |
| 17  | 45  | ODSCC  | SAI        | 0.46     | 77      | TSH  | 1.08"  |             |            |
| 17  | 46  | ODSCC  | SAI        | 0.30     | 54      | TSH  | -0.23" |             |            |
| 18  | 30  | ODSCC  | SAI        | 0.27     | 113     | TSH  | 0.21"  | 0.12"       |            |
| 18  | 33  | ODSCC  | MAI        | 0.30     | 131     | TSH  | 0.28"  |             |            |
| 18  | 33  | ODSCC  | MAI        | 0.34     | 103     | TSH  | 0.65"  |             |            |
| 18  | 35  | ODSCC  | SAI        | 0.53     | 102     | TSH  | 0.68"  |             |            |
| 18  | 36  | ODSCC  | MAI        | 0.51     | 107     | TSH  | 0.80"  |             |            |
| 18  | 37  | ODSCC  | MAI        | 0.20     | 107     | TSH  | 0.92"  |             |            |
| 18  | 39  | ODSCC  | MAI        | 0.68     | 113     | TSH  | 1.01"  |             |            |

**ATTACHMENT 1C**  
**STEAM GENERATOR 1RC-E-1A**  
**TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13**  
**SLUDGE PILE ODSCC**

4/12/01  
5 of 5

(All tubes un-plugged 1R13 except as noted)

= E.O.C. 13 Inservice Tube

| Row | Col | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Est. Length | Est. Depth |
|-----|-----|--------|------------|----------|---------|------|--------|-------------|------------|
| 18  | 41  | ODSCC  | MAI        | 0.26     | 118     | TSH  | 0.91"  |             |            |
| 18  | 42  | ODSCC  | MAI        | 0.26     | 109     | TSH  | 0.90"  |             |            |
| 18  | 44  | ODSCC  | MAI        | 0.34     | 103     | TSH  | 0.57"  |             |            |
| 19  | 35  | ODSCC  | MAI        | 0.41     | 92      | TSH  | 0.41"  |             |            |
| 19  | 36  | ODSCC  | MAI        | 0.34     | 111     | TSH  | 0.60"  |             |            |
| 19  | 37  | ODSCC  | SAI        | 0.21     | 99      | TSH  | 0.36"  |             |            |
| 19  | 58  | ODSCC  | SAI        | 0.20     | 138     | TSH  | 0.20"  |             |            |
| 20  | 38  | ODSCC  | SAI        | 0.40     | 103     | TSH  | 0.44"  |             |            |
| 23  | 52  | ODSCC  | SAI        | 0.18     | 114     | TSH  | 0.58"  |             |            |
| 27  | 40  | ODSCC  | SAI        | 0.45     | 102     | TSH  | 0.42"  |             |            |
| 29  | 41  | ODSCC  | SAI        | 0.17     | 66      | TSH  | 0.30"  |             |            |
| 30  | 36  | ODSCC  | SAI        | 0.23     | 72      | TSH  | -0.21" |             |            |
| 31  | 67  | ODSCC  | SAI        | 0.16     | 77      | TSH  | -0.63" |             |            |



# **ATTACHMENT 1D**

**STEAM GENERATOR RC-E-1B**

**UBEND INDICATION HISTORY**

# ATTACHMENT 1D

## STEAM GENERATOR RC-E-1B

### U-BEND INDICATION HISTORY

4/12/01  
1 of 2

Indications Recorded with Plus Point

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 1   | 1   | 12R | PWSCC  | SAI        | 1.46     | 20      | 7H   | 8.96"  | 0.26"            |                       | 75%                 |         | 4719.13 |
| 1   | 16  | 12R | PWSCC  | SAI        | 0.35     | 26      | 7C   | 3.89"  | 0.23"            |                       | 82%                 |         | 4719.13 |
| 1   | 23  | 12R | PWSCC  | MAI        | 0.40     | 33      | 7H   | 10.42" | 0.18"            |                       | 82%                 |         | 4719.13 |
| 1   | 32  | 12R | PWSCC  | SAI        | 0.56     | 27      | 7H   | 10.50" | 0.25"            |                       | 79%                 |         | 4719.13 |
| 1   | 38  | 12R | PWSCC  | SCI        | 4.07     | 28      | 7H   | 10.12" | 0.66"            | 98°                   | 82%                 | X       | 4719.13 |
| 1   | 38  | 12R | PWSCC  | SAI        | 2.00     | 22      | 7H   | 10.02" | 0.27"            |                       | 65%                 |         | 4719.13 |
| 1   | 44  | 12R | PWSCC  | SAI        | 2.07     | 21      | 7H   | 9.97"  | 0.27"            |                       | 62%                 |         | 4719.13 |
| 1   | 45  | 12R | PWSCC  | SAI        | 2.09     | 26      | 7H   | 9.87"  | 0.27"            |                       | 67%                 | X       | 4719.13 |
| 1   | 75  | 12R | PWSCC  | SAI        | 1.18     | 18      | 7H   | 3.91"  | 0.28"            |                       | 56%                 |         | 4719.13 |
| 1   | 78  | 12R | PWSCC  | SAI        | 1.02     | 21      | 7H   | 3.84"  | 0.27"            |                       | 63%                 |         | 4719.13 |
| 1   | 63  | 11R | PWSCC  | SAI        | 1.17     | 10      | 7H   | 9.58"  | 0.212"           |                       |                     |         | 4303.77 |
| 1   | 81  | 11R | PWSCC  | SAI        | 0.98     | 12      | 7H   | 9.76"  | 0.288"           |                       |                     |         | 4303.77 |
| 1   | 40  | 10R | PWSCC  | SAI        | 2.33     | 9       | 7H   | 8.49"  | 0.154"           |                       |                     |         | 3950.83 |
| 1   | 3   | 09R | PWSCC  | SAI        | 4.01     | 27      | 7H   | 10.03" |                  |                       |                     |         | 3515.03 |
| 1   | 7   | 09R | PWSCC  | SAI        | 3.46     | 25      | 7H   | 10.15" |                  |                       |                     |         | 3515.03 |
| 1   | 11  | 09R | PWSCC  | SAI        | 0.61     | 44      | 7H   | 9.91"  |                  |                       |                     |         | 3515.03 |
| 1   | 18  | 09R | PWSCC  | SAI        | 1.54     | 19      | 7H   | 4.51"  |                  |                       |                     |         | 3515.03 |
| 1   | 20  | 09R | PWSCC  | SAI        | 4.91     | 23      | 7H   | 10.14" |                  |                       |                     |         | 3515.03 |
| 1   | 25  | 09R | PWSCC  | SAI        | 4.14     | 17      | 7H   | 10.41" |                  |                       |                     |         | 3515.03 |
| 1   | 26  | 09R | PWSCC  | SAI        | 2.62     | 21      | 7H   | 10.27" |                  |                       |                     |         | 3515.03 |
| 1   | 30  | 09R | PWSCC  | SAI        | 7.63     | 20      | 7H   | 10.01" |                  |                       |                     |         | 3515.03 |
| 1   | 35  | 09R | PWSCC  | SAI        | 3.17     | 18      | 7H   | 10.45" |                  |                       |                     |         | 3515.03 |
| 1   | 37  | 09R | PWSCC  | SAI        | 4.59     | 10      | 7H   | 10.20" |                  |                       |                     |         | 3515.03 |
| 1   | 41  | 09R | PWSCC  | SAI        | 1.75     | 25      | 7H   | 11.14" |                  |                       |                     |         | 3515.03 |
| 1   | 42  | 09R | PWSCC  | SAI        | 4.33     | 18      | 7H   | 10.24" |                  |                       |                     |         | 3515.03 |
| 1   | 53  | 09R | PWSCC  | SAI        | 2.72     | 15      | 7H   | 9.60"  |                  |                       |                     |         | 3515.03 |
| 1   | 56  | 09R | PWSCC  | SAI        | 3.66     | 12      | 7H   | 3.45"  |                  |                       |                     |         | 3515.03 |
| 1   | 56  | 09R | PWSCC  | SAI        | 3.86     | 20      | 7H   | 3.97"  |                  |                       |                     |         | 3515.03 |
| 1   | 59  | 09R | PWSCC  | SAI        | 1.94     | 23      | 7H   | 3.49"  |                  |                       |                     |         | 3515.03 |
| 1   | 61  | 09R | ODSCC  | SAI        | 1.57     | 80      | 7H   | 3.56"  |                  |                       |                     |         | 3515.03 |
| 1   | 73  | 09R | PWSCC  | SAI        | 5.34     | 19      | 7H   | 3.72"  |                  |                       |                     |         | 3515.03 |
| 1   | 74  | 09R | PWSCC  | MAI        | 1.05     | 22      | 7H   | 3.74"  |                  |                       |                     |         | 3515.03 |
| 1   | 80  | 09R | PWSCC  | SAI        | 2.74     | 11      | 7H   | 10.14" |                  |                       |                     |         | 3515.03 |
| 2   | 10  | 09R | PWSCC  | SAI        | 1.87     | 14      | 7C   | 4.46"  |                  |                       |                     |         | 3515.03 |
| 1   | 9   | 07R | PWSCC  | IDI        | 2.45     | 20      | 7C   | 3.40"  |                  |                       | 36%                 |         | 2609.03 |

# ATTACHMENT 1D

## STEAM GENERATOR RC-E-1B

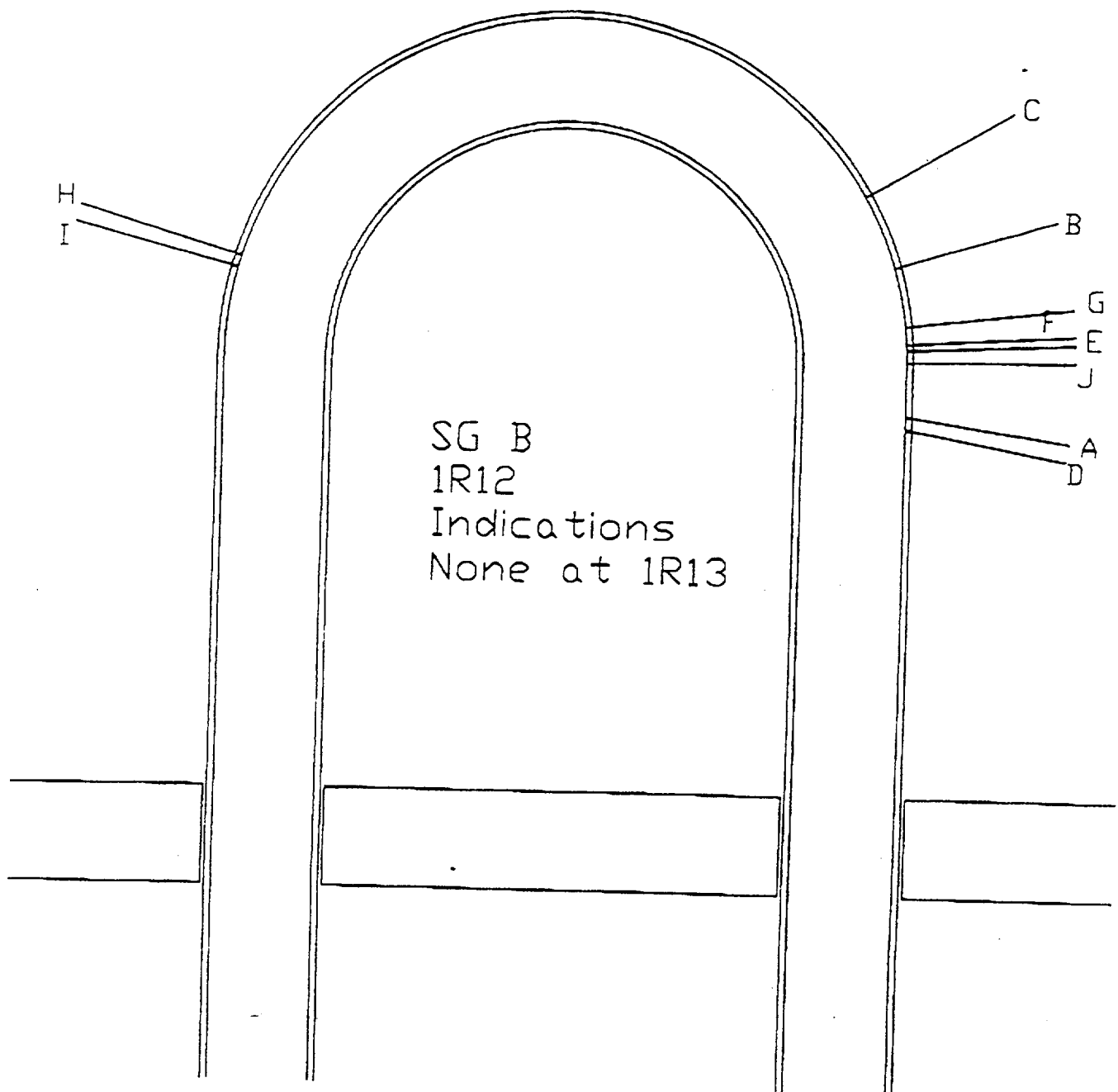
### U-BEND INDICATION HISTORY

4/12/01  
2 of 2

Indications Recorded with Plus Point

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev                  | Inch | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|-----------------------|------|------------------|-----------------------|---------------------|---------|---------|
| 1   | 8   | 06R | PWSCC  | IDI        | 1.80     | 7       | C/L U-BEND TRANSITION |      |                  |                       | 33%                 |         | 2152.14 |
| 1   | 12  | 06R | ODSCC  | QDI        | 1.60     | 167     | APEX                  |      |                  |                       | 30%                 |         | 2152.14 |
| 1   | 22  | 06R | ODSCC  | ODI        | 1.20     | 141     | C/L U-BEND TRANSITION |      |                  |                       | 26%                 |         | 2152.14 |
| 1   | 36  | 06R | PWSCC  | IDI        | 2.60     | 11      | C/L U-BEND TRANSITION |      |                  |                       | 42%                 |         | 2152.14 |
| 1   | 39  | 06R | PWSCC  | IDI        | 2.90     | 11      | C/L U-BEND TRANSITION |      |                  |                       | 43%                 |         | 2152.14 |
| 1   | 46  | 06R | PWSCC  | IDI        | 1.60     | 10      | C/L U-BEND TRANSITION |      |                  |                       | 30%                 |         | 2152.14 |
| 1   | 58  | 06R | PWSCC  | IDI        | 1.00     | 6       | C/L U-BEND TRANSITION |      |                  |                       | 23%                 |         | 2152.14 |
| 1   | 69  | 06R | PWSCC  | IDI        | 1.80     | 4       | H/L U-BEND TRANSITION |      |                  |                       | 32%                 |         | 2152.14 |
| 1   | 77  | 06R | PWSCC  | IDI        | 0.90     | 3       | C/L U-BEND TRANSITION |      |                  |                       | 22%                 |         | 2152.14 |
| 2   | 20  | 06R | ODSCC  | ODI        | 1.50     | 122     | H/L U-BEND TRANSITION |      |                  |                       | 28%                 |         | 2152.14 |

# ATTACHMENT 1D



SG B:  
A: 1R12, SAI, R1 C23  
B: 1R12, SAI, R1 C16  
C: 1R12, SAI, R1 C1  
D: 1R12, SAI, R1 C32  
E: 1R12, SAI, R1 C38  
F: 1R12, SAI, R1 C44  
G: 1R12, SAI, R1 C45  
H: 1R12, SAI, R1 C75  
I: 1R12, SAI, R1 C78  
J: 1R12, SCI, R1 C38

# **ATTACHMENT 1E**

**STEAM GENERATOR RC-E-1B**

**SLUDGE PILE ODSCC INDICATION HISTORY**

# ATTACHMENT 1E

## STEAM GENERATOR 1RC-E-1B

### SLUDGE PILE ODSCC INDICATION HISTORY

4/12/01  
1 of 3

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 5   | 27  | 12R | ODSCC  | SAI        | 0.47     | 78      | TSH  | -0.31" | 0.30"            |                       | 76%                 | X       | 4719.13 |
| 9   | 35  | 12R | ODSCC  | SAI        | 0.12     | 98      | TSH  | 2.07"  | 0.50"            |                       | 66%                 |         | 4719.13 |
| 9   | 35  | 12R | ODSCC  | SAI        | 0.19     | 78      | TSH  | 1.21"  | 0.50"            |                       | 85%                 | X       | 4719.13 |
| 25  | 62  | 12R | ODSCC  | SCI        | 0.16     | 135     | TSH  | 0.24"  |                  | 62°                   |                     |         | 4719.13 |
| 12  | 49  | 12R | ODSCC  | SAI        | 0.31     | 97      | TSH  | 0.64"  | 0.81"            |                       | 54%                 | X       | 4719.13 |
| 12  | 50  | 12R | ODSCC  | SAI        | 0.30     | 85      | TSH  | 0.38"  | 0.15"            |                       | 70%                 | X       | 4719.13 |
| 13  | 24  | 12R | ODSCC  | MAI        | 0.11     | 103     | TSH  | 0.25"  | 0.46"            |                       | 87%                 | X       | 4719.13 |
| 18  | 42  | 12R | ODSCC  | SAI        | 0.10     | 114     | TSH  | 0.98"  | 0.88"            |                       |                     | X       | 4719.13 |
| 25  | 62  | 12R | ODSCC  | SCI        | 0.19     | 144     | TSH  | 0.09"  |                  | 68°                   |                     |         | 4719.13 |
| 33  | 67  | 12R | ODSCC  | SCI        | 0.15     | 119     | TSH  | 0.03"  |                  | 58°                   | 88%                 | X       | 4719.13 |
| 45  | 37  | 12R | ODSCC  | SSA        | 0.11     | 127     | TSC  | 0.00"  |                  |                       |                     |         | 4719.13 |
| 45  | 38  | 12R | ODSCC  | SVI        | 0.08     | 137     | TSH  | 0.01"  | 0.46"            |                       |                     |         | 4719.13 |
| 1   | 84  | 11R | ODSCC  | SCI        | 0.23     | 97      | TSH  | 0.02"  | 0.309"           |                       |                     |         | 4303.77 |
| 1   | 89  | 11R | ODSCC  | SCI        | 0.17     | 102     | TSH  | 0.02"  | 0.166"           |                       |                     |         | 4303.77 |
| 2   | 22  | 11R | ODSCC  | MAI        | 0.50     | 79      | TSH  | 0.68"  | 0.538"           |                       |                     |         | 4303.77 |
| 2   | 23  | 11R | ODSCC  | SAI        | 0.34     | 76      | TSH  | 0.53"  | 0.474"           |                       |                     |         | 4303.77 |
| 3   | 20  | 11R | ODSCC  | SAI        | 0.25     | 54      | TSH  | 0.81"  | 0.437"           |                       |                     |         | 4303.77 |
| 3   | 22  | 11R | ODSCC  | MAI        | 0.76     | 82      | TSH  | 0.64"  | 0.538"           |                       |                     |         | 4303.77 |
| 4   | 79  | 11R | ODSCC  | SAI        | 0.30     | 75      | TSH  | -0.02" | 0.345"           |                       |                     |         | 4303.77 |
| 5   | 8   | 11R | ODSCC  | DTI        | 0.51     | 106     | TSH  | 2.69"  |                  |                       |                     |         | 4303.77 |
| 6   | 23  | 11R | ODSCC  | SAI        | 0.34     | 65      | TSH  | 0.30"  | 0.236"           |                       |                     |         | 4303.77 |
| 7   | 27  | 11R | ODSCC  | SAI        | 0.31     | 69      | TSH  | 0.50"  | 0.380"           |                       |                     |         | 4303.77 |
| 8   | 37  | 11R | ODSCC  | MAI        | 0.30     | 96      | TSH  | 1.06"  | 0.734"           |                       |                     |         | 4303.77 |
| 8   | 38  | 11R | ODSCC  | MAI        | 0.84     | 65      | TSH  | 1.30"  | 1.170"           |                       |                     |         | 4303.77 |
| 9   | 27  | 11R | ODSCC  | SAI        | 0.27     | 84      | TSH  | 0.83"  | 0.436"           |                       |                     |         | 4303.77 |
| 13  | 40  | 11R | ODSCC  | SAI        | 0.28     | 72      | TSH  | 1.81"  | 0.429"           |                       |                     |         | 4303.77 |
| 14  | 41  | 11R | ODSCC  | SAI        | 0.59     | 86      | TSH  | 2.50"  | 0.258"           |                       |                     |         | 4303.77 |
| 14  | 41  | 11R | ODSCC  | SAI        | 0.30     | 99      | TSH  | 1.08"  | 0.559"           |                       |                     |         | 4303.77 |
| 10  | 29  | 11R | ODSCC  | SAI        | 0.51     | 83      | TSH  | 1.55"  | 1.035"           |                       |                     |         | 4303.77 |
| 10  | 43  | 11R | ODSCC  | SAI        | 0.19     | 77      | TSH  | 0.93"  | 0.259"           |                       |                     |         | 4303.77 |
| 11  | 43  | 11R | ODSCC  | MAI        | 0.36     | 91      | TSH  | 1.65"  | 0.423"           |                       |                     |         | 4303.77 |
| 12  | 26  | 11R | ODSCC  | MAI        | 0.19     | 100     | TSH  | 0.86"  | 0.354"           |                       |                     |         | 4303.77 |
| 12  | 45  | 11R | ODSCC  | MAI        | 0.41     | 127     | TSH  | 0.03"  | 1.835"           |                       |                     |         | 4303.77 |
| 13  | 27  | 11R | ODSCC  | MAI        | 0.63     | 78      | TSH  | 1.38"  | 0.883"           |                       |                     |         | 4303.77 |
| 13  | 29  | 11R | ODSCC  | MAI        | 0.43     | 85      | TSH  | 1.86"  | 0.657"           |                       |                     |         | 4303.77 |
| 13  | 40  | 11R | ODSCC  | SAI        | 0.30     | 68      | TSH  | 2.69"  | 0.383"           |                       |                     |         | 4303.77 |

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# ATTACHMENT 1E

## STEAM GENERATOR 1RC-E-1B

### SLUDGE PILE ODSCC INDICATION HISTORY

4/12/01  
2 of 3

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev  | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|-------|--------|------------------|-----------------------|---------------------|---------|---------|
| 13  | 49  | 11R | ODSCC  | MAI        | 0.45     | 102     | TSH   | 0.47"  | 0.516"           |                       |                     |         | 4303.77 |
| 14  | 25  | 11R | ODSCC  | SAI        | 0.39     | 95      | TSH   | 0.74"  | 0.245"           |                       |                     |         | 4303.77 |
| 14  | 27  | 11R | ODSCC  | MAI        | 0.22     | 90      | TSH   | 1.10"  | 0.263"           |                       |                     |         | 4303.77 |
| 14  | 41  | 11R | ODSCC  | SAI        | 0.31     | 85      | TSH   | 2.91"  | 0.211"           |                       |                     |         | 4303.77 |
| 15  | 27  | 11R | ODSCC  | MAI        | 0.28     | 119     | TSH   | 1.03"  | 0.738"           |                       |                     |         | 4303.77 |
| 15  | 37  | 11R | ODSCC  | SAI        | 0.28     | 83      | TSH   | 2.00"  | 0.350"           |                       |                     |         | 4303.77 |
| 16  | 27  | 11R | ODSCC  | MAI        | 0.47     | 73      | TSH   | 0.68"  | 0.550"           |                       |                     |         | 4303.77 |
| 16  | 29  | 11R | ODSCC  | MAI        | 1.69     | 71      | TSH   | 1.53"  | 1.459"           |                       |                     |         | 4303.77 |
| 17  | 36  | 11R | ODSCC  | SAI        | 0.29     | 61      | TSH   | 0.75"  | 0.261"           |                       |                     |         | 4303.77 |
| 18  | 46  | 11R | ODSCC  | SAI        | 0.23     | 107     | TSH   | 0.78"  | 0.269"           |                       |                     |         | 4303.77 |
| 19  | 37  | 11R | ODSCC  | MAI        | 0.36     | 67      | TSH   | 0.87"  | 0.713"           |                       |                     |         | 4303.77 |
| 19  | 39  | 11R | ODSCC  | MAI        | 1.45     | 63      | TSH   | 1.78"  | 1.573"           |                       |                     |         | 4303.77 |
| 26  | 19  | 11R | ODSCC  | VOL        | 1.25     | 51      | TSH   | 0.12"  | 0.293"           |                       |                     |         | 4303.77 |
| 30  | 26  | 11R | ODSCC  | VOL        | 0.71     | 111     | TSH   | 0.11"  | 0.487"           |                       |                     |         | 4303.77 |
| 31  | 15  | 11R | ODSCC  | VOL        | 0.27     | 53      | TSH   | 0.25"  | 0.166"           |                       |                     |         | 4303.77 |
| 31  | 27  | 11R | ODSCC  | SCI        | 0.24     | 109     | TSH   | 0.00"  | 0.132"           |                       |                     |         | 4303.77 |
| 31  | 73  | 11R | ODSCC  | VOL        | 0.89     | 100     | TSH   | 0.55"  | 0.421"           |                       |                     |         | 4303.77 |
| 32  | 67  | 11R | ODSCC  | VOL        | 0.26     | 81      | TSH   | -0.08" | 0.380"           |                       |                     |         | 4303.77 |
| 7   | 32  | 10R | ODSCC  | SAI        | 0.90     | 142     | TSH   | 0.63"  | 0.363"           |                       |                     |         | 3950.83 |
| 9   | 30  | 10R | ODSCC  | SAI        | 0.37     | 72      | TSH   | 1.42"  | 0.655"           |                       |                     |         | 3950.83 |
| 13  | 30  | 10R | ODSCC  | DTI        | 0.65     | 126     | TSH   | 1.71"  |                  |                       |                     |         | 3950.83 |
| 11  | 27  | 10R | ODSCC  | DTI        | 0.16     | 81      | TSH   | 1.77"  |                  |                       |                     |         | 3950.83 |
| 13  | 30  | 10R | ODSCC  | DTI        | 0.63     | 66      | TSH   | 1.41"  |                  |                       |                     |         | 3950.83 |
| 13  | 41  | 10R | ODSCC  | DTI        | 0.47     | 103     | TSH   | 2.60"  |                  |                       |                     |         | 3950.83 |
| 14  | 45  | 10R | ODSCC  | DTI        | 0.73     | 62      | TSH   | 0.62"  |                  |                       |                     |         | 3950.83 |
| 15  | 28  | 10R | ODSCC  | DTI        | 0.29     | 58      | TSH   | 0.69"  |                  |                       |                     |         | 3950.83 |
| 17  | 33  | 10R | ODSCC  | DTI        | 1.73     | 87      | TSH   | 0.73"  |                  |                       |                     |         | 3950.83 |
| 24  | 85  | 10R | ODSCC  | DTI        | 0.27     | 128     | TSH   | 1.14"  |                  |                       |                     |         | 3950.83 |
| 34  | 66  | 10R | ODSCC  | VOL        | 0.88     | 158     | 1.57" | 0.384" |                  |                       |                     |         | 3950.83 |
| 45  | 54  | 10R | ODSCC  | VOL        | 0.75     | 77      | TSH   | 10.93" | 0.337"           |                       |                     |         | 3950.83 |
| 43  | 58  | 09R | ODSCC  | VOL        | 2.64     | 56      | TSH   | 2.24"  |                  |                       |                     |         | 3515.03 |
| 13  | 26  | 09R | ODSCC  | ODI        | 0.58     | 103     | TSH   | 0.57"  |                  |                       | 62%                 |         | 3515.03 |
| 13  | 33  | 09R | ODSCC  | ODI        | 1.23     | 53      | TSH   | 2.47"  |                  |                       | 84%                 |         | 3515.03 |
| 15  | 30  | 09R | ODSCC  | ODI        | 0.41     | 66      | TSH   | 1.43"  |                  |                       | 54%                 |         | 3515.03 |
| 16  | 30  | 09R | ODSCC  | ODI        | 1.64     | 60      | TSH   | 1.64"  |                  |                       | 78%                 |         | 3515.03 |
| 18  | 32  | 09R | ODSCC  | ODI        | 0.43     | 78      | TSH   | 0.49"  |                  |                       | 64%                 |         | 3515.03 |

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# ATTACHMENT 1E

## STEAM GENERATOR 1RC-E-1B

### SLUDGE PILE ODSCC INDICATION HISTORY

4/12/01  
3 of 3

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 43  | 58  | 09R | ODSCC  | SAI        | 1.83     | 33      | TSH  | 0.00"  |                  |                       |                     |         | 3515.03 |
| 45  | 55  | 09R | ODSCC  | VOL        | 0.50     | 86      | TSH  | 2.91"  |                  |                       |                     |         | 3515.03 |
| 1   | 87  | 07R | ODSCC  | ODI        | 11.79    | 42      | TSH  | 0.00"  |                  |                       | 75%                 |         | 2609.03 |
| 2   | 87  | 07R | ODSCC  | ODI        | 14.45    | 128     | TSH  | 0.10"  |                  |                       | 82%                 |         | 2609.03 |
| 2   | 87  | 07R | ODSCC  | ODI        | 2.58     | 155     | TSH  | -0.10" |                  |                       | 42%                 |         | 2609.03 |
| 3   | 87  | 07R | ODSCC  | ODI        | 7.23     | 133     | TSH  | 0.10"  |                  |                       | 66%                 |         | 2609.03 |
| 3   | 87  | 07R | ODSCC  | ODI        | 3.74     | 129     | TSH  | -0.10" |                  |                       | 48%                 |         | 2609.03 |
| 4   | 87  | 07R | ODSCC  | ODI        | 6.04     | 129     | TSH  | 0.00"  |                  |                       | 63%                 |         | 2609.03 |
| 5   | 87  | 07R | ODSCC  | ODI        | 6.99     | 106     | TSH  | 0.00"  |                  |                       | 66%                 |         | 2609.03 |
| 33  | 16  | 07R | ODSCC  | ODI        | 2.70     | 117     | TSH  | 0.40"  |                  |                       | 52%                 |         | 2609.03 |
| 31  | 16  | 06R | ODSCC  | ODI        | 9.47     | 91      | TSH  | 0.90"  |                  |                       | 72%                 |         | 2152.14 |
| 46  | 54  | 03R | ODSCC  | ODI        |          |         | TSH  | 10.00" |                  |                       | 35%                 |         | 973.88  |

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# **ATTACHMENT 1F**

**STEAM GENERATOR RC-E-1B**

**TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13**

# ATTACHMENT 1F

## STEAM GENERATOR 1RC-E-1B

### TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13

#### SLUDGE PILE ODSCC

4/12/01

1 of 4

(All tubes un-plugged 1R13 except as noted)

= E.O.C. 13 Inservice Tube



= Sleeve Rejected/Plugged

| Row | Col | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Est. Length | Est. Depth |
|-----|-----|--------|------------|----------|---------|------|--------|-------------|------------|
| 3   | 23  | ODSCC  | MAI        | 0.46     | 92      | TSH  | 0.78"  |             |            |
| 3   | 24  | ODSCC  | MAI        | 0.89     | 89      | TSH  | 0.54"  |             |            |
| 3   | 56  | ODSCC  | SAI        | 0.16     | 107     | TSH  | 0.15"  | 0.15"       |            |
| 4   | 23  | ODSCC  | MAI        | 0.31     | 108     | TSH  | 0.48"  |             |            |
| 4   | 24  | ODSCC  | MAI        | 0.44     | 95      | TSH  | 0.48"  |             |            |
| 4   | 25  | ODSCC  | MAI        | 0.27     | 50      | TSH  | 0.36"  |             |            |
| 5   | 18  | ODSCC  | SAI        | 0.21     | 56      | TSH  | 0.45"  |             |            |
| 5   | 20  | ODSCC  | SAI        | 0.25     | 100     | TSH  | 0.41"  |             |            |
| 5   | 50  | ODSCC  | SAI        | 0.22     | 103     | TSH  | -0.29" |             |            |
| 6   | 29  | ODSCC  | SAI        | 0.16     | 100     | TSH  | 0.29"  |             |            |
| 6   | 30  | ODSCC  | MAI        | 0.12     | 59      | TSH  | 0.24"  |             |            |
| 6   | 34  | ODSCC  | SAI        | 0.36     | 78      | TSH  | 0.44"  |             |            |
| 7   | 23  | ODSCC  | SAI        | 0.24     | 98      | TSH  | 0.13"  |             |            |
| 7   | 25  | ODSCC  | SAI        | 0.15     | 92      | TSH  | 0.47"  |             |            |
| 7   | 31  | ODSCC  | SAI        | 0.32     | 116     | TSH  | 0.71"  |             |            |
| 7   | 34  | ODSCC  | MAI        | 1.18     | 95      | TSH  | 0.94"  |             |            |
| 7   | 36  | ODSCC  | SAI        | 0.16     | 130     | TSH  | 0.83"  | 0.57"       | 71%        |
| 7   | 38  | ODSCC  | SAI        | 0.17     | 62      | TSH  | 0.73"  |             |            |
| 8   | 26  | ODSCC  | NQI        | 0.15     | 46      | TSH  | 1.78"  |             |            |
| 8   | 28  | ODSCC  | MAI        | 0.31     | 111     | TSH  | 0.89"  |             |            |
| 8   | 29  | ODSCC  | SAI        | 0.28     | 112     | TSH  | 1.07"  |             |            |
| 8   | 31  | ODSCC  | MAI        | 0.90     | 103     | TSH  | 1.58"  |             |            |
| 8   | 32  | ODSCC  | SAI        | 0.21     | 122     | TSH  | 1.38"  |             |            |
| 8   | 34  | ODSCC  | MAI        | 0.32     | 129     | TSH  | 1.37"  |             |            |
| 8   | 35  | ODSCC  | MAI        | 0.32     | 90      | TSH  | 1.52"  |             |            |
| 8   | 36  | ODSCC  | SAI        | 0.20     | 113     | TSH  | 1.36"  |             |            |
| 8   | 39  | ODSCC  | SAI        | 0.47     | 97      | TSH  | 0.89"  |             |            |
| 9   | 22  | ODSCC  | SAI        | 0.16     | 143     | TSH  | -0.07" |             |            |
| 9   | 25  | ODSCC  | SAI        | 0.37     | 94      | TSH  | 0.55"  |             |            |
| 9   | 28  | ODSCC  | MAI        | 0.43     | 99      | TSH  | 1.22"  |             |            |
| 9   | 29  | ODSCC  | MAI        | 0.46     | 96      | TSH  | 1.32"  |             |            |
| 9   | 32  | ODSCC  | MAI        | 0.36     | 96      | TSH  | 1.68"  |             |            |
| 9   | 33  | ODSCC  | SAI        | 0.15     | 91      | TSH  | 1.75"  |             |            |
| 9   | 34  | ODSCC  | MAI        | 0.57     | 103     | TSH  | 1.75"  |             |            |
| 9   | 36  | ODSCC  | MAI        | 1.20     | 113     | TSH  | 1.90"  |             |            |
| 9   | 37  | ODSCC  | MAI        | 0.43     | 84      | TSH  | 1.54"  |             |            |
| 9   | 38  | ODSCC  | MAI        | 0.15     | 134     | TSH  | 1.52"  |             |            |
| 9   | 39  | ODSCC  | MAI        | 0.53     | 92      | TSH  | 1.03"  |             |            |
| 9   | 40  | ODSCC  | MAI        | 0.29     | 97      | TSH  | 1.42"  |             |            |
| 9   | 45  | ODSCC  | SAI        | 0.28     | 60      | TSH  | 0.58"  |             |            |
| 9   | 47  | ODSCC  | SAI        | 0.29     | 137     | TSH  | 0.47"  |             |            |
| 10  | 25  | ODSCC  | MAI        | 0.26     | 122     | TSH  | 0.63"  |             |            |
| 10  | 26  | ODSCC  | MAI        | 0.19     | 106     | TSH  | 0.40"  |             |            |
| 10  | 28  | ODSCC  | MAI        | 0.20     | 120     | TSH  | 1.93"  |             |            |
| 10  | 30  | ODSCC  | SAI        | 0.24     | 116     | TSH  | 1.72"  |             |            |
| 10  | 31  | ODSCC  | MAI        | 0.45     | 80      | TSH  | 2.24"  |             |            |
| 10  | 32  | ODSCC  | SAI        | 0.09     | 110     | TSH  | 2.13"  |             |            |
| 10  | 33  | ODSCC  | SAI        | 0.34     | 108     | TSH  | 2.19"  |             |            |

# ATTACHMENT 1F

## STEAM GENERATOR 1RC-E-1B

### TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13

### SLUDGE PILE ODSCC

4/12/01

2 of 4

(All tubes un-plugged 1R13 except as noted)

= E.O.C. 13 Inservice Tube

  = Sleeve Rejected/Plugged

| Row | Col | Reason | Indication | Volts PP | Degrees | Elev | Inch  | Est. Length | Est. Depth |
|-----|-----|--------|------------|----------|---------|------|-------|-------------|------------|
| 10  | 38  | ODSCC  | MAI        | 0.13     | 116     | TSH  | 0.95" |             |            |
| 10  | 39  | ODSCC  | MAI        | 0.19     | 116     | TSH  | 0.82" |             |            |
| 10  | 40  | ODSCC  | SAI        | 0.13     | 101     | TSH  | 1.63" | 0.40"       |            |
| 10  | 40  | ODSCC  | SAI        | 0.14     | 129     | TSH  | 1.00" | 0.38"       | 42%        |
| 10  | 45  | ODSCC  | SAI        | 0.16     | 115     | TSH  | 0.77" |             |            |
| 10  | 47  | ODSCC  | MAI        | 0.53     | 109     | TSH  | 0.58" |             |            |
| 10  | 48  | ODSCC  | SAI        | 0.29     | 120     | TSH  | 0.81" |             |            |
| 11  | 24  | ODSCC  | MAI        | 0.13     | 113     | TSH  | 0.44" |             |            |
| 11  | 25  | ODSCC  | SAI        | 0.17     | 108     | TSH  | 0.57" |             |            |
| 11  | 28  | ODSCC  | MAI        | 0.50     | 101     | TSH  | 2.14" |             |            |
| 11  | 29  | ODSCC  | MAI        | 0.64     | 104     | TSH  | 2.02" |             |            |
| 11  | 31  | ODSCC  | MAI        | 0.31     | 100     | TSH  | 2.43" |             |            |
| 11  | 32  | ODSCC  | SAI        | 0.63     | 88      | TSH  | 2.46" |             |            |
| 11  | 33  | ODSCC  | MAI        | 0.14     | 128     | TSH  | 2.51" |             |            |
| 11  | 34  | ODSCC  | MAI        | 0.21     | 63      | TSH  | 2.61" |             |            |
| 11  | 38  | ODSCC  | SAI        | 0.12     | 114     | TSH  | 2.65" |             |            |
| 11  | 38  | ODSCC  | SAI        | 0.12     | 105     | TSH  | 3.07" |             |            |
| 11  | 39  | ODSCC  | MAI        | 0.80     | 96      | TSH  | 2.76" |             |            |
| 11  | 40  | ODSCC  | SAI        | 0.11     | 103     | TSH  | 2.45" |             |            |
| 11  | 41  | ODSCC  | MAI        | 1.08     | 99      | TSH  | 2.66" |             |            |
| 11  | 46  | ODSCC  | MAI        | 0.27     | 90      | TSH  | 0.83" |             |            |
| 11  | 47  | ODSCC  | MAI        | 0.48     | 94      | TSH  | 1.06" |             |            |
| 11  | 50  | ODSCC  | SAI        | 0.37     | 106     | TSH  | 0.45" |             |            |
| 12  | 24  | ODSCC  | MAI        | 0.61     | 90      | TSH  | 0.98" |             |            |
| 12  | 27  | ODSCC  | MAI        | 0.11     | 122     | TSH  | 1.07" |             |            |
| 12  | 28  | ODSCC  | MAI        | 0.33     | 101     | TSH  | 1.88" |             |            |
| 12  | 29  | ODSCC  | MAI        | 0.26     | 96      | TSH  | 1.94" |             |            |
| 12  | 31  | ODSCC  | MAI        | 0.22     | 106     | TSH  | 2.65" |             |            |
| 12  | 33  | ODSCC  | SAI        | 0.17     | 137     | TSH  | 2.37" |             |            |
| 12  | 34  | ODSCC  | MAI        | 0.47     | 105     | TSH  | 2.73" |             |            |
| 12  | 38  | ODSCC  | SAI        | 0.13     | 110     | TSH  | 3.29" | 0.25"       |            |
| 12  | 39  | ODSCC  | SAI        | 0.22     | 93      | TSH  | 2.77" |             |            |
| 12  | 43  | ODSCC  | SAI        | 0.18     | 112     | TSH  | 0.95" |             |            |
| 12  | 44  | ODSCC  | MAI        | 0.23     | 113     | TSH  | 1.00" |             |            |
| 12  | 46  | ODSCC  | MAI        | 1.05     | 82      | TSH  | 1.41" |             |            |
| 12  | 47  | ODSCC  | MAI        | 0.19     | 81      | TSH  | 1.55" |             |            |
| 12  | 48  | ODSCC  | SAI        | 0.22     | 89      | TSH  | 0.82" | 0.11"       |            |
| 12  | 54  | ODSCC  | MAI        | 0.75     | 90      | TSH  | 0.80" |             |            |
| 13  | 25  | ODSCC  | MAI        | 0.62     | 92      | TSH  | 1.11" |             |            |
| 13  | 28  | ODSCC  | MAI        | 0.72     | 97      | TSH  | 1.98" |             |            |
| 13  | 31  | ODSCC  | MAI        | 0.17     | 65      | TSH  | 2.71" |             |            |
| 13  | 32  | ODSCC  | MAI        | 0.46     | 104     | TSH  | 2.53" |             |            |
| 13  | 34  | ODSCC  | MAI        | 0.21     | 109     | TSH  | 3.11" |             |            |
| 13  | 35  | ODSCC  | MAI        | 0.63     | 95      | TSH  | 3.03" |             |            |
| 13  | 36  | ODSCC  | MAI        | 0.27     | 105     | TSH  | 3.15" |             |            |
| 13  | 38  | ODSCC  | MAI        | 0.16     | 128     | TSH  | 3.25" |             |            |
| 13  | 39  | ODSCC  | MAI        | 0.33     | 103     | TSH  | 2.92" |             |            |
| 13  | 44  | ODSCC  | MAI        | 0.32     | 116     | TSH  | 2.58" |             |            |

# ATTACHMENT 1F

## STEAM GENERATOR 1RC-E-1B

### TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13

### SLUDGE PILE ODSCC

4/12/01

3 of 4

(All tubes un-plugged 1R13 except as noted)

= E.O.C. 13 Inservice Tube



= Sleeve Rejected/Plugged

| Row | Col | Reason | Indication | Volts PP | Degrees | Elev | Inch  | Est. Length | Est. Depth |
|-----|-----|--------|------------|----------|---------|------|-------|-------------|------------|
| 13  | 47  | ODSCC  | MAI        | 0.61     | 107     | TSH  | 1.39" |             |            |
| 13  | 48  | ODSCC  | MAI        | 0.47     | 103     | TSH  | 1.50" |             |            |
| 13  | 50  | ODSCC  | MAI        | 0.25     | 116     | TSH  | 0.78" |             |            |
| 13  | 51  | ODSCC  | SAI        | 0.28     | 103     | TSH  | 0.75" |             |            |
| 13  | 52  | ODSCC  | SAI        | 0.23     | 101     | TSH  | 0.26" |             |            |
| 13  | 54  | ODSCC  | MAI        | 0.35     | 93      | TSH  | 0.81" |             |            |
| 13  | 55  | ODSCC  | SAI        | 0.38     | 130     | TSH  | 0.79" |             |            |
| 14  | 24  | ODSCC  | SAI        | 0.28     | 96      | TSH  | 0.52" |             |            |
| 14  | 29  | ODSCC  | MAI        | 0.33     | 277     | TSH  | 1.40" |             |            |
| 14  | 30  | ODSCC  | MAI        | 0.50     | 99      | TSH  | 1.67" |             |            |
| 14  | 31  | ODSCC  | SAI        | 0.52     | 103     | TSH  | 1.97" |             |            |
| 14  | 32  | ODSCC  | SAI        | 0.22     | 121     | TSH  | 1.87" | 0.56"       | 49%        |
| 14  | 33  | ODSCC  | MAI        | 0.26     | 104     | TSH  | 2.81" |             |            |
| 14  | 35  | ODSCC  | SAI        | 0.20     | 103     | TSH  | 2.69" |             |            |
| 14  | 39  | ODSCC  | MAI        | 0.47     | 95      | TSH  | 2.83" |             |            |
| 14  | 40  | ODSCC  | MAI        | 0.12     | 70      | TSH  | 3.67" | 1.19"       | 82%        |
| 14  | 42  | ODSCC  | MAI        | 0.30     | 115     | TSH  | 2.75" |             |            |
| 14  | 43  | ODSCC  | SAI        | 0.11     | 108     | TSH  | 2.27" | 0.12"       |            |
| 14  | 44  | ODSCC  | MAI        | 0.25     | 138     | TSH  | 0.99" |             |            |
| 14  | 46  | ODSCC  | MAI        | 0.66     | 88      | TSH  | 1.95" |             |            |
| 14  | 47  | ODSCC  | MAI        | 0.47     | 115     | TSH  | 1.35" |             |            |
| 14  | 48  | ODSCC  | SAI        | 0.16     | 110     | TSH  | 0.96" |             |            |
| 14  | 49  | ODSCC  | MAI        | 0.63     | 104     | TSH  | 0.69" |             |            |
| 14  | 51  | ODSCC  | MAI        | 0.60     | 115     | TSH  | 0.67" |             |            |
| 15  | 25  | ODSCC  | SAI        | 0.11     | 99      | TSH  | 0.31" | 0.08"       |            |
| 15  | 29  | ODSCC  | MAI        | 0.69     | 85      | TSH  | 1.41" |             |            |
| 15  | 31  | ODSCC  | MAI        | 0.40     | 115     | TSH  | 1.82" |             |            |
| 15  | 32  | ODSCC  | MAI        | 0.28     | 100     | TSH  | 2.15" |             |            |
| 15  | 34  | ODSCC  | MAI        | 0.66     | 102     | TSH  | 2.78" |             |            |
| 15  | 35  | ODSCC  | MAI        | 0.95     | 106     | TSH  | 2.69" |             |            |
| 15  | 36  | ODSCC  | MAI        | 0.42     | 95      | TSH  | 3.19" |             |            |
| 15  | 41  | ODSCC  | SAI        | 0.12     | 106     | TSH  | 2.33" | 0.05"       |            |
| 15  | 49  | ODSCC  | MAI        | 0.10     | 96      | TSH  | 1.10" |             |            |
| 16  | 28  | ODSCC  | MAI        | 0.63     | 79      | TSH  | 0.71" |             |            |
| 16  | 31  | ODSCC  | MAI        | 0.48     | 91      | TSH  | 1.45" |             |            |
| 16  | 32  | ODSCC  | MAI        | 0.25     | 111     | TSH  | 1.70" |             |            |
| 16  | 33  | ODSCC  | MAI        | 0.56     | 99      | TSH  | 2.06" |             |            |
| 16  | 35  | ODSCC  | MAI        | 0.35     | 119     | TSH  | 2.27" |             |            |
| 16  | 36  | ODSCC  | MAI        | 0.60     | 94      | TSH  | 2.43" |             |            |
| 16  | 38  | ODSCC  | MAI        | 0.42     | 114     | TSH  | 2.75" |             |            |
| 16  | 39  | ODSCC  | MAI        | 0.30     | 91      | TSH  | 1.75" |             |            |
| 16  | 40  | ODSCC  | MAI        | 0.26     | 110     | TSH  | 2.77" |             |            |
| 16  | 42  | ODSCC  | MAI        | 0.64     | 102     | TSH  | 2.50" |             |            |
| 16  | 43  | ODSCC  | SAI        | 0.21     | 104     | TSH  | 1.13" |             |            |
| 16  | 45  | ODSCC  | MAI        | 0.20     | 98      | TSH  | 0.82" |             |            |
| 16  | 46  | ODSCC  | SAI        | 0.25     | 110     | TSH  | 0.87" |             |            |
| 17  | 28  | ODSCC  | SAI        | 0.34     | 111     | TSH  | 0.72" |             |            |
| 17  | 29  | ODSCC  | MAI        | 0.67     | 103     | TSH  | 0.73" |             |            |

**ATTACHMENT 1F**  
**STEAM GENERATOR 1RC-E-1B**  
**TOP-OF-TUBESHEET SLEEVES INSTALLED 1R13**  
**SLUDGE PILE ODSCC**

4/12/01

4 of 4

(All tubes un-plugged 1R13 except as noted)

= E.O.C. 13 Inservice Tube



= Sleeve Rejected/Plugged

| Row | Col | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Est. Length | Est. Depth |
|-----|-----|--------|------------|----------|---------|------|--------|-------------|------------|
| 17  | 30  | ODSCC  | MAI        | 0.81     | 94      | TSH  | 0.99"  |             |            |
| 17  | 32  | ODSCC  | MAI        | 0.31     | 131     | TSH  | 1.11"  |             |            |
| 17  | 38  | ODSCC  | SAI        | 0.09     | 85      | TSH  | 1.24"  | 0.33"       |            |
| 17  | 39  | ODSCC  | MAI        | 0.24     | 97      | TSH  | 1.66"  |             |            |
| 17  | 40  | ODSCC  | MAI        | 0.27     | 122     | TSH  | 2.19"  |             |            |
| 17  | 41  | ODSCC  | SAI        | 0.13     | 100     | TSH  | 0.79"  |             |            |
| 17  | 41  | ODSCC  | SAI        | 0.10     | 119     | TSH  | 1.48"  |             |            |
| 17  | 42  | ODSCC  | MAI        | 0.17     | 108     | TSH  | 0.72"  |             |            |
| 17  | 42  | ODSCC  | SAI        | 0.20     | 104     | TSH  | 2.00"  |             |            |
| 17  | 43  | ODSCC  | SAI        | 0.59     | 113     | TSH  | 1.51"  |             |            |
| 17  | 44  | ODSCC  | SAI        | 0.25     | 122     | TSH  | 0.98"  |             |            |
| 18  | 28  | ODSCC  | MAI        | 0.99     | 95      | TSH  | 0.82"  |             |            |
| 18  | 33  | ODSCC  | MAI        | 0.37     | 107     | TSH  | 1.05"  |             |            |
| 18  | 36  | ODSCC  | MAI        | 0.56     | 111     | TSH  | 1.03"  |             |            |
| 18  | 39  | ODSCC  | SAI        | 0.20     | 73      | TSH  | 0.81"  | 0.08"       |            |
| 18  | 39  | ODSCC  | SAI        | 0.18     | 96      | TSH  | 1.12"  | 0.05"       |            |
| 18  | 39  | ODSCC  | SAI        | 0.11     | 73      | TSH  | 1.25"  | 0.04"       |            |
| 18  | 40  | ODSCC  | MAI        | 0.74     | 100     | TSH  | 2.26"  |             |            |
| 18  | 41  | ODSCC  | SAI        | 0.13     | 68      | TSH  | 0.41"  | 0.09"       |            |
| 19  | 28  | ODSCC  | SAI        | 0.25     | 80      | TSH  | 0.53"  |             |            |
| 19  | 32  | ODSCC  | SAI        | 0.31     | 107     | TSH  | 0.50"  |             |            |
| 19  | 34  | ODSCC  | MAI        | 0.26     | 109     | TSH  | 0.62"  |             |            |
| 19  | 38  | ODSCC  | SAI        | 0.21     | 104     | TSH  | 1.06"  |             |            |
| 19  | 40  | ODSCC  | MAI        | 0.42     | 99      | TSH  | 0.98"  |             |            |
| 19  | 41  | ODSCC  | MAI        | 0.27     | 113     | TSH  | 1.29"  |             |            |
| 19  | 42  | ODSCC  | MAI        | 0.43     | 109     | TSH  | 1.04"  |             |            |
| 19  | 43  | ODSCC  | SAI        | 0.12     | 122     | TSH  | 0.37"  |             |            |
| 19  | 43  | ODSCC  | SAI        | 0.32     | 110     | TSH  | 0.95"  |             |            |
| 20  | 34  | ODSCC  | SAI        | 0.17     | 120     | TSH  | 0.61"  |             |            |
| 26  | 38  | ODSCC  | SAI        | 0.15     | 117     | TSH  | 0.20"  |             |            |
| 33  | 63  | ODSCC  | SCI        | 0.13     | 96      | TSH  | -0.08" |             |            |

# **ATTACHMENT 1G**

**STEAM GENERATOR RC-E-1C**

**UBEND INDICATION HISTORY**

# ATTACHMENT 1G

## STEAM GENERATOR RC-E-1C

### U-BEND INDICATION HISTORY

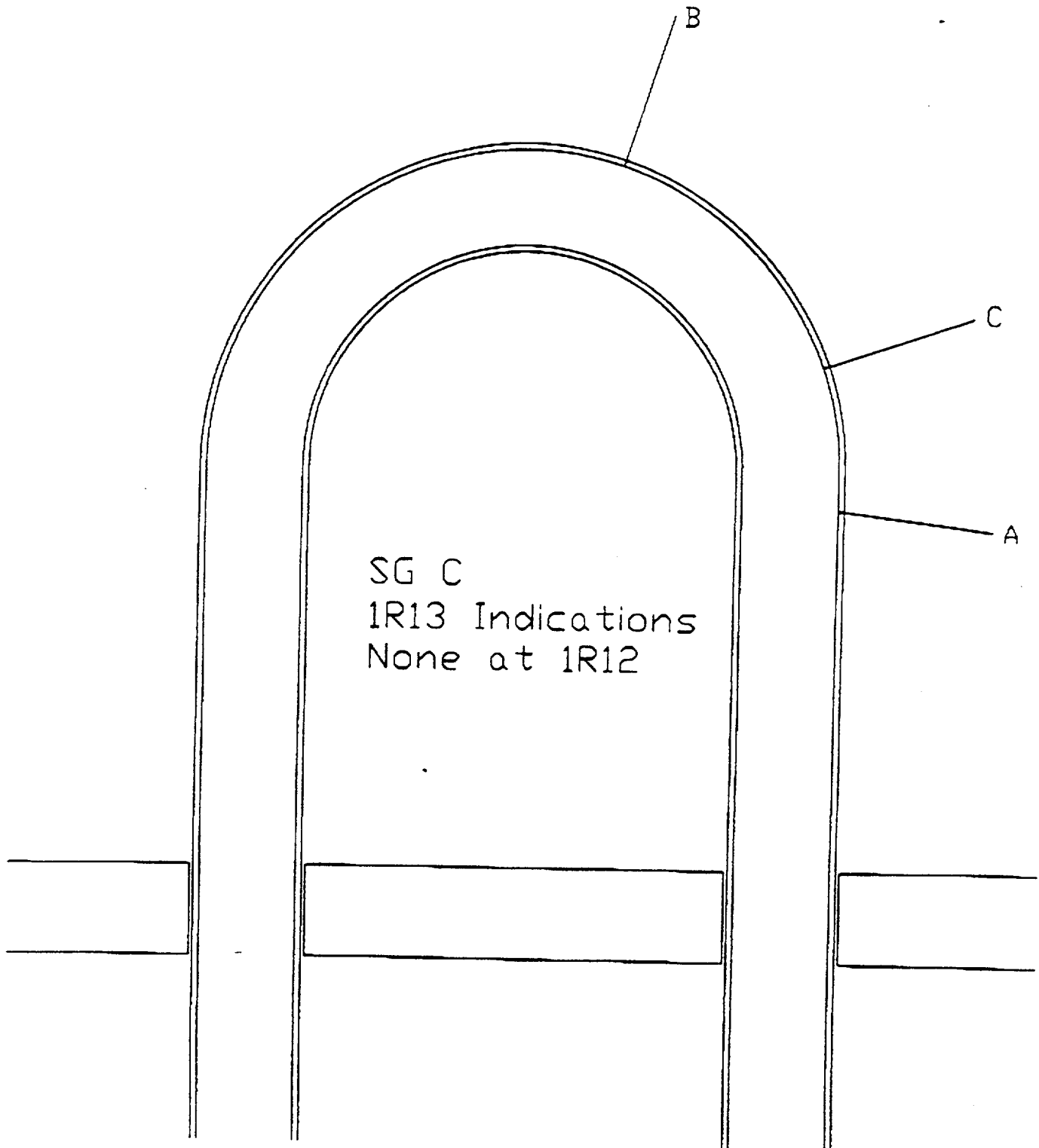
4/12/01  
1 of 1

Indications Recorded with Plus Point

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev           | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|----------------|--------|------------------|-----------------------|---------------------|---------|---------|
| 1   | 44  | 13R | PWSCC  | SCI        | 0.96     | 28      | 7H             | 9.39"  | 0.17"            | 22°                   | 85%                 |         | 5218.50 |
| 1   | 46  | 13R | PWSCC  | SCI        | 0.98     | 17      | 7H             | 7.39"  | 0.38"            | 51°                   | 67%                 |         | 5218.50 |
| 1   | 46  | 13R | PWSCC  | SCI        | 0.74     | 22      | 7H             | 10.38" | 0.25"            | 33°                   | 52%                 |         | 5218.50 |
| 2   | 47  | 12R | PWSCC  | SCI        | 0.74     | 16      | 7H             | 14.50" | 0.34"            | 45°                   | 47%                 | X       | 4719.13 |
| 1   | 1   | 09R | PWSCC  | SAI        | 3.42     | 23      | 7H             | 3.72"  |                  |                       |                     |         | 3515.03 |
| 1   | 2   | 09R | PWSCC  | SAI        | 4.93     | 20      | 7H             | 3.79"  |                  |                       |                     |         | 3515.03 |
| 1   | 7   | 09R | PWSCC  | SAI        | 3.31     | 21      | 7H             | 3.86"  |                  |                       |                     |         | 3515.03 |
| 1   | 57  | 06R | PWSCC  | IDI        | 0.90     | 5       | H/L TRANSITION |        |                  |                       | 21%                 |         | 2152.14 |
| 1   | 62  | 06R | PWSCC  | IDI        | 0.90     | 4       | H/L TRANSITION |        |                  |                       | 22%                 |         | 2152.14 |
| 1   | 66  | 06R | PWSCC  | IDI        | 0.90     | 3       | H/L TRANSITION |        |                  |                       | 21%                 |         | 2152.14 |
| 2   | 71  | 06R | PWSCC  | IDI        | 0.80     | 3       | APEX           |        |                  |                       | 20%                 |         | 2152.14 |

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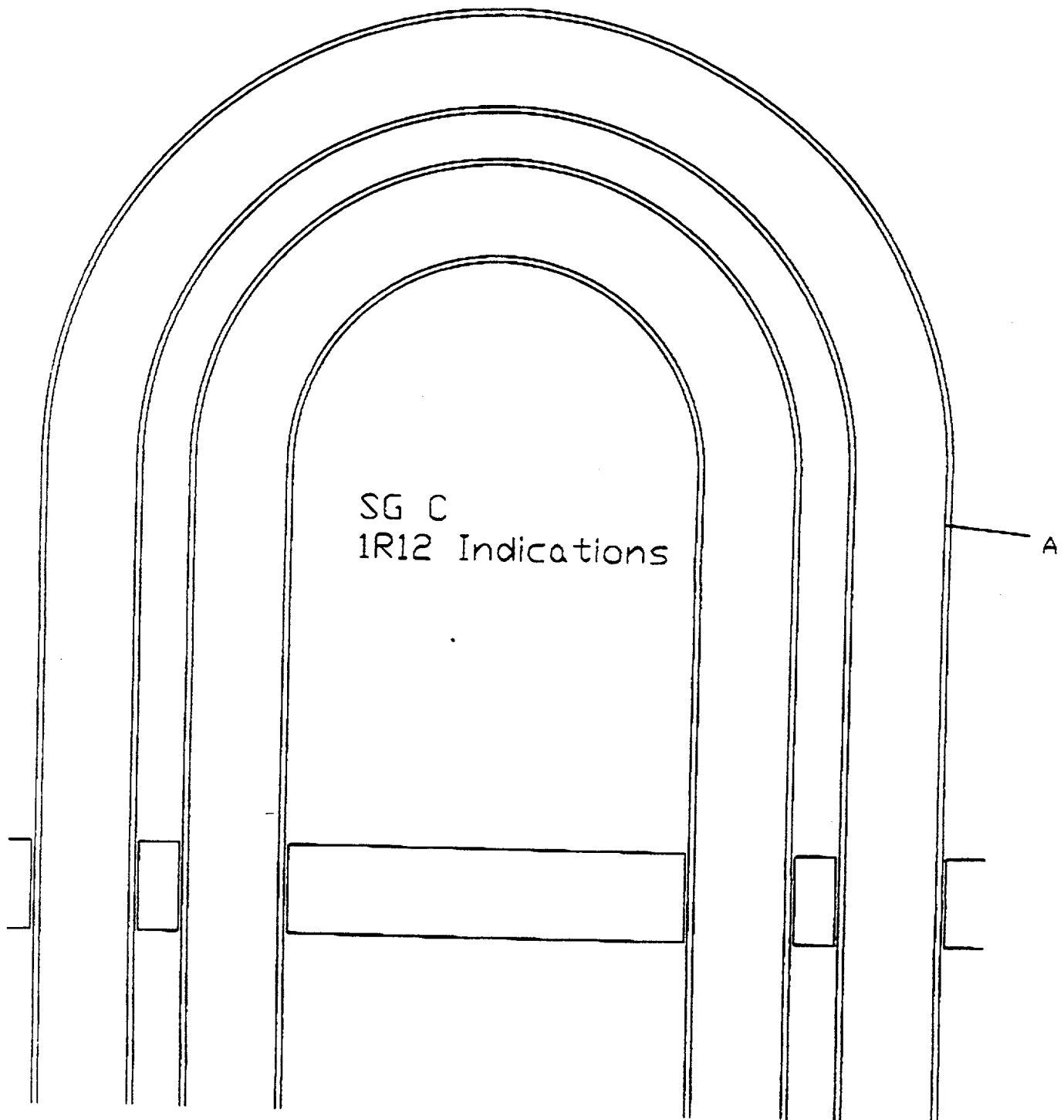
# ATTACHMENT 1G



SG C:  
A: 1R13, SCI, R1 C46  
B: 1R13, SCI, R1 C46  
C: 1R13, SCI, R1 C44



# ATTACHMENT 1G



SG C:  
A: 1R12, SCI, R2 C47

# **ATTACHMENT 1H**

**STEAM GENERATOR RC-E-1C**

**SLUDGE PILE ODSCC INDICATION HISTORY**

# ATTACHMENT 1H

## STEAM GENERATOR 1RC-E-1C

### SLUDGE PILE ODSCC INDICATION HISTORY

4/12/01

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Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 17  | 30  | 13R | ODSCC  | SAI        | 0.15     | 95      | TSH  | 0.72"  | 0.31"            |                       |                     |         | 5218.50 |
| 11  | 31  | 13R | ODSCC  | SAI        | 0.20     | 123     | TSH  | 1.54"  | 0.53"            |                       | 41%                 |         | 5218.50 |
| 17  | 30  | 13R | ODSCC  | SAI        | 0.08     | 108     | TSH  | 1.23"  | 0.33"            |                       |                     |         | 5218.50 |
| 17  | 31  | 13R | ODSCC  | SAI        | 0.13     | 84      | TSH  | 2.01"  | 0.24"            |                       |                     |         | 5218.50 |
| 20  | 34  | 13R | ODSCC  | MAI        | 0.68     | 83      | TSH  | 0.54"  | 0.29"            |                       | 90%                 |         | 5218.50 |
| 24  | 34  | 13R | ODSCC  | SAI        | 0.19     | 62      | TSH  | 0.13"  | 0.11"            |                       |                     |         | 5218.50 |
| 28  | 51  | 13R | ODSCC  | SAI        | 0.23     | 113     | TSH  | 0.17"  | 0.13"            |                       |                     |         | 5218.50 |
| 29  | 55  | 13R | ODSCC  | SAI        | 0.13     | 96      | TSH  | 0.12"  | 0.08"            |                       |                     |         | 5218.50 |
| 4   | 56  | 12R | ODSCC  | SAI        | 0.24     | 111     | TSH  | 0.07"  | 0.24"            |                       | 38%                 |         | 4719.13 |
| 5   | 76  | 12R | ODSCC  | SAI        | 0.13     | 97      | TSH  | 0.14"  | 0.20"            |                       | 58%                 |         | 4719.13 |
| 7   | 26  | 12R | ODSCC  | SAI        | 0.11     | 85      | TSH  | 0.31"  | 0.24"            |                       | 70%                 |         | 4719.13 |
| 8   | 31  | 12R | ODSCC  | SAI        | 0.26     | 85      | TSH  | 0.33"  | 0.47"            |                       | 82%                 |         | 4719.13 |
| 9   | 37  | 12R | ODSCC  | NQI        | 0.22     | 46      | TSH  | 1.11"  |                  |                       |                     |         | 4719.13 |
| 9   | 38  | 12R | ODSCC  | NQI        | 0.20     | 149     | TSH  | 0.60"  |                  |                       |                     |         | 4719.13 |
| 13  | 34  | 12R | ODSCC  | SAI        | 0.13     | 93      | TSH  | 2.13"  | 0.23"            |                       | 62%                 |         | 4719.13 |
| 13  | 34  | 12R | ODSCC  | SAI        | 0.11     | 76      | TSH  | 2.31"  | 0.34"            |                       | 77%                 |         | 4719.13 |
| 13  | 34  | 12R | ODSCC  | SAI        | 0.08     | 87      | TSH  | 2.59"  | 0.23"            |                       | 67%                 |         | 4719.13 |
| 15  | 35  | 12R | ODSCC  | SAI        | 0.18     | 109     | TSH  | 2.22"  | 0.21"            |                       | 42%                 |         | 4719.13 |
| 24  | 28  | 12R | ODSCC  | SAI        | 0.18     | 62      | TSH  | -0.39" | 0.16"            |                       | 87%                 |         | 4719.13 |
| 24  | 28  | 12R | ODSCC  | SAI        | 0.13     | 105     | TSH  | -0.48" | 0.16"            |                       | 48%                 |         | 4719.13 |
| 38  | 53  | 12R | ODSCC  | SCI        | 0.12     | 118     | TSH  | 0.15"  |                  | 69°                   |                     |         | 4719.13 |
| 11  | 41  | 12R | ODSCC  | NQI        | 0.39     | 100     | TSH  | 0.54"  |                  |                       |                     |         | 4719.13 |
| 12  | 31  | 12R | ODSCC  | SAI        | 0.10     | 102     | TSH  | 2.21"  | 0.21"            |                       | 52%                 |         | 4719.13 |
| 12  | 32  | 12R | ODSCC  | SAI        | 0.19     | 131     | TSH  | 2.63"  | 0.26"            |                       |                     |         | 4719.13 |
| 12  | 35  | 12R | ODSCC  | NQI        | 0.24     | 69      | TSH  | 2.40"  |                  |                       |                     |         | 4719.13 |
| 12  | 41  | 12R | ODSCC  | SAI        | 0.08     | 94      | TSH  | 1.18"  | 0.23"            |                       | 61%                 |         | 4719.13 |
| 13  | 26  | 12R | ODSCC  | SAI        | 0.13     | 117     | TSH  | 0.58"  | 0.24"            |                       | 28%                 |         | 4719.13 |
| 13  | 34  | 12R | ODSCC  | SAI        | 0.20     | 110     | TSH  | 1.22"  | 0.57"            |                       | 77%                 |         | 4719.13 |
| 13  | 35  | 12R | ODSCC  | SAI        | 0.13     | 89      | TSH  | 2.60"  | 0.14"            |                       | 66%                 |         | 4719.13 |
| 13  | 40  | 12R | ODSCC  | NQI        | 0.34     | 122     | TSH  | 2.05"  |                  |                       |                     |         | 4719.13 |
| 13  | 41  | 12R | ODSCC  | SAI        | 0.10     | 91      | TSH  | 1.68"  | 0.47"            |                       | 64%                 |         | 4719.13 |
| 13  | 45  | 12R | ODSCC  | SAI        | 0.16     | 55      | TSH  | 0.45"  | 0.26"            |                       | 91%                 |         | 4719.13 |
| 13  | 46  | 12R | ODSCC  | NQI        | 0.36     | 157     | TSH  | 0.70"  |                  |                       |                     |         | 4719.13 |
| 14  | 29  | 12R | ODSCC  | SVI        | 0.10     | 78      | TSH  | 2.05"  | 0.21"            |                       |                     |         | 4719.13 |
| 15  | 32  | 12R | ODSCC  | SAI        | 0.16     | 127     | TSH  | 1.74"  | 0.40"            |                       | 5%                  |         | 4719.13 |
| 15  | 34  | 12R | ODSCC  | SAI        | 0.12     | 79      | TSH  | 0.56"  | 0.42"            |                       | 75%                 |         | 4719.13 |

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# ATTACHMENT 1H

## STEAM GENERATOR 1RC-E-1C

### SLUDGE PILE ODSCC INDICATION HISTORY

4/12/01  
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Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 15  | 35  | 12R | ODSCC  | SAI        | 0.20     | 56      | TSH  | 1.34"  | 0.62"            |                       | 90%                 |         | 4719.13 |
| 15  | 48  | 12R | ODSCC  | SAI        | 0.16     | 114     | TSH  | 0.41"  | 0.23"            |                       | 33%                 |         | 4719.13 |
| 16  | 26  | 12R | ODSCC  | SAI        | 0.16     | 134     | TSH  | 0.69"  | 0.23"            |                       |                     |         | 4719.13 |
| 16  | 40  | 12R | ODSCC  | SAI        | 0.17     | 117     | TSH  | 0.73"  | 0.30"            |                       | 28%                 |         | 4719.13 |
| 16  | 42  | 12R | ODSCC  | SAI        | 0.14     | 119     | TSH  | 0.53"  | 0.38"            |                       | 24%                 |         | 4719.13 |
| 17  | 27  | 12R | ODSCC  | SAI        | 0.10     | 113     | TSH  | 0.66"  | 0.20"            |                       | 35%                 |         | 4719.13 |
| 19  | 34  | 12R | ODSCC  | MAI        | 0.15     | 74      | TSH  | 0.50"  | 0.67"            |                       | 79%                 |         | 4719.13 |
| 19  | 37  | 12R | ODSCC  | SAI        | 0.10     | 89      | TSH  | 0.68"  | 0.21"            |                       |                     |         | 4719.13 |
| 20  | 35  | 12R | ODSCC  | SAI        | 0.19     | 124     | TSH  | 0.73"  | 0.56"            |                       | 49%                 |         | 4719.13 |
| 23  | 33  | 12R | ODSCC  | SAI        | 0.14     | 106     | TSH  | 0.11"  | 0.16"            |                       | 46%                 |         | 4719.13 |
| 24  | 28  | 12R | ODSCC  | SAI        | 0.14     | 113     | TSH  | -0.19" | 0.16"            |                       | 87%                 |         | 4719.13 |
| 25  | 57  | 12R | ODSCC  | MAI        | 0.23     | 103     | TSH  | 0.26"  | 0.36"            |                       | 50%                 |         | 4719.13 |
| 26  | 48  | 12R | ODSCC  | SAI        | 0.35     | 98      | TSH  | 0.17"  | 0.20"            |                       | 57%                 |         | 4719.13 |
| 26  | 55  | 12R | ODSCC  | SAI        | 0.34     | 118     | TSH  | 0.41"  | 0.49"            |                       | 49%                 |         | 4719.13 |
| 29  | 77  | 12R | ODSCC  | SCI        | 0.17     | 108     | TSH  | -0.12" |                  | 24°                   |                     |         | 4719.13 |
| 32  | 17  | 12R | ODSCC  | SVI        | 0.25     | 68      | TSH  | 7.65"  | 1.38"            |                       |                     |         | 4719.13 |
| 32  | 79  | 12R | ODSCC  | PIT        | 0.30     | 70      | TSC  | 0.48"  |                  |                       | 80%                 | X       | 4719.13 |
| 34  | 18  | 12R | ODSCC  | SVI        | 0.09     | 118     | TSH  | 2.85"  | 0.26"            |                       |                     |         | 4719.13 |
| 38  | 53  | 12R | ODSCC  | SCI        | 0.10     | 118     | TSH  | 0.02"  |                  | 69°                   |                     |         | 4719.13 |
| 8   | 34  | 11R | ODSCC  | SAI        | 0.45     | 73      | TSH  | 0.44"  | 0.257"           |                       |                     |         | 4303.77 |
| 10  | 33  | 11R | ODSCC  | SAI        | 0.13     | 66      | TSH  | 0.70"  | 0.296"           |                       |                     |         | 4303.77 |
| 11  | 27  | 11R | ODSCC  | DTI        | 0.60     | 88      | TSH  | 0.34"  |                  |                       |                     |         | 4303.77 |
| 11  | 29  | 11R | ODSCC  | DTI        | 0.55     | 75      | TSH  | 1.34"  |                  |                       |                     |         | 4303.77 |
| 11  | 37  | 11R | ODSCC  | DTI        | 0.34     | 40      | TSH  | 1.72"  |                  |                       |                     |         | 4303.77 |
| 12  | 27  | 11R | ODSCC  | DTI        | 0.38     | 72      | TSH  | 0.49"  |                  |                       |                     |         | 4303.77 |
| 12  | 28  | 11R | ODSCC  | DTI        | 0.32     | 131     | TSH  | 1.62"  |                  |                       |                     |         | 4303.77 |
| 12  | 29  | 11R | ODSCC  | DTI        | 0.15     | 118     | TSH  | 1.71"  |                  |                       |                     |         | 4303.77 |
| 12  | 30  | 11R | ODSCC  | SAI        | 0.38     | 51      | TSH  | 2.27"  | 0.340"           |                       |                     |         | 4303.77 |
| 13  | 29  | 11R | ODSCC  | DTI        | 0.37     | 86      | TSH  | 1.74"  |                  |                       |                     |         | 4303.77 |
| 13  | 31  | 11R | ODSCC  | DTI        | 0.26     | 90      | TSH  | 2.79"  |                  |                       |                     |         | 4303.77 |
| 13  | 37  | 11R | ODSCC  | SAI        | 0.36     | 66      | TSH  | 1.70"  | 0.344"           |                       |                     |         | 4303.77 |
| 13  | 39  | 11R | ODSCC  | SAI        | 0.27     | 90      | TSH  | 2.19"  | 0.432"           |                       |                     |         | 4303.77 |
| 13  | 42  | 11R | ODSCC  | DTI        | 0.81     | 48      | TSH  | 1.46"  |                  |                       |                     |         | 4303.77 |
| 13  | 43  | 11R | ODSCC  | DTI        | 0.31     | 58      | TSH  | 1.34"  |                  |                       |                     |         | 4303.77 |
| 13  | 48  | 11R | ODSCC  | VOL        | 0.40     | 94      | TSH  | 0.23"  | 0.192"           |                       |                     |         | 4303.77 |
| 14  | 37  | 11R | ODSCC  | DTI        | 0.19     | 97      | TSH  | 2.00"  |                  |                       |                     |         | 4303.77 |

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# ATTACHMENT 1H

## STEAM GENERATOR 1RC-E-1C

### SLUDGE PILE ODSCC INDICATION HISTORY

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Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch  | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|-------|------------------|-----------------------|---------------------|---------|---------|
| 14  | 47  | 11R | ODSCC  | SAI        | 0.34     | 86      | TSH  | 0.96" | 0.286"           |                       |                     |         | 4303.77 |
| 16  | 27  | 11R | ODSCC  | MAI        | 0.30     | 69      | TSH  | 0.84" | 0.579"           |                       |                     |         | 4303.77 |
| 16  | 28  | 11R | ODSCC  | SAI        | 0.35     | 72      | TSH  | 1.64" | 1.040"           |                       |                     |         | 4303.77 |
| 16  | 32  | 11R | ODSCC  | MAI        | 1.13     | 128     | TSH  | 2.29" | 0.647"           |                       |                     |         | 4303.77 |
| 16  | 36  | 11R | ODSCC  | DTI        | 0.38     | 72      | TSH  | 1.23" |                  |                       |                     |         | 4303.77 |
| 16  | 37  | 11R | ODSCC  | DTI        | 0.30     | 132     | TSH  | 1.19" |                  |                       |                     |         | 4303.77 |
| 16  | 38  | 11R | ODSCC  | SAI        | 0.38     | 89      | TSH  | 0.95" | 0.468"           |                       |                     |         | 4303.77 |
| 16  | 46  | 11R | ODSCC  | VOL        | 0.39     | 79      | TSH  | 0.62" | 0.304"           |                       |                     |         | 4303.77 |
| 17  | 34  | 11R | ODSCC  | DTI        | 0.45     | 44      | TSH  | 1.26" |                  |                       |                     |         | 4303.77 |
| 17  | 37  | 11R | ODSCC  | DTI        | 0.14     | 78      | TSH  | 1.09" |                  |                       |                     |         | 4303.77 |
| 18  | 27  | 11R | ODSCC  | SAI        | 0.34     | 83      | TSH  | 0.91" | 0.599"           |                       |                     |         | 4303.77 |
| 18  | 30  | 11R | ODSCC  | MAI        | 0.83     | 80      | TSH  | 1.54" | 1.080"           |                       |                     |         | 4303.77 |
| 18  | 32  | 11R | ODSCC  | MAI        | 0.61     | 110     | TSH  | 0.96" | 0.517"           |                       |                     |         | 4303.77 |
| 18  | 35  | 11R | ODSCC  | DTI        | 0.46     | 43      | TSH  | 0.96" |                  |                       |                     |         | 4303.77 |
| 18  | 36  | 11R | ODSCC  | SAI        | 0.09     | 91      | TSH  | 0.84" | 0.297"           |                       |                     |         | 4303.77 |
| 18  | 38  | 11R | ODSCC  | DTI        | 0.54     | 115     | TSH  | 0.81" |                  |                       |                     |         | 4303.77 |
| 18  | 39  | 11R | ODSCC  | DTI        | 0.85     | 146     | TSH  | 0.79" |                  |                       |                     |         | 4303.77 |
| 21  | 31  | 11R | ODSCC  | MAI        | 0.92     | 52      | TSH  | 0.58" | 0.423"           |                       |                     |         | 4303.77 |
| 21  | 33  | 11R | ODSCC  | SAI        | 0.21     | 47      | TSH  | 0.68" | 0.416"           |                       |                     |         | 4303.77 |
| 21  | 34  | 11R | ODSCC  | SAI        | 0.17     | 61      | TSH  | 0.80" | 0.455"           |                       |                     |         | 4303.77 |
| 23  | 30  | 11R | ODSCC  | SAI        | 0.41     | 85      | TSH  | 0.10" | 0.341"           |                       |                     |         | 4303.77 |
| 25  | 31  | 11R | ODSCC  | SAI        | 0.86     | 98      | TSH  | 0.39" | 0.383"           |                       |                     |         | 4303.77 |
| 25  | 55  | 11R | ODSCC  | SAI        | 0.51     | 99      | TSH  | 0.44" | 0.265"           |                       |                     |         | 4303.77 |
| 25  | 56  | 11R | ODSCC  | MAI        | 1.41     | 60      | TSH  | 0.30" | 0.473"           |                       |                     |         | 4303.77 |
| 26  | 38  | 11R | ODSCC  | SAI        | 0.45     | 45      | TSH  | 0.55" | 0.300"           |                       |                     |         | 4303.77 |
| 26  | 39  | 11R | ODSCC  | SAI        | 0.53     | 53      | TSH  | 0.01" | 0.292"           |                       |                     |         | 4303.77 |
| 26  | 57  | 11R | ODSCC  | DTI        | 1.48     | 154     | TSH  | 0.60" |                  |                       |                     |         | 4303.77 |
| 27  | 53  | 11R | ODSCC  | SAI        | 0.67     | 111     | TSH  | 0.16" | 0.483"           |                       |                     |         | 4303.77 |
| 27  | 56  | 11R | ODSCC  | SAI        | 0.53     | 44      | TSH  | 0.40" | 0.186"           |                       |                     |         | 4303.77 |
| 31  | 54  | 11R | ODSCC  | VOL        | 0.23     | 96      | TSH  | 0.53" | 0.299"           |                       |                     |         | 4303.77 |
| 9   | 30  | 10R | ODSCC  | DTI        | 0.34     | 87      | TSH  | 1.04" |                  |                       |                     |         | 3950.83 |
| 16  | 29  | 10R | ODSCC  | DTI        | 0.57     | 109     | TSH  | 1.12" |                  |                       |                     |         | 3950.83 |
| 11  | 40  | 10R | ODSCC  | DTI        | 0.18     | 110     | TSH  | 1.02" |                  |                       |                     |         | 3950.83 |
| 13  | 27  | 10R | ODSCC  | VOL        | 0.23     | 102     | TSH  | 0.96" | 0.438"           |                       |                     |         | 3950.83 |
| 13  | 28  | 10R | ODSCC  | DTI        | 0.71     | 66      | TSH  | 0.84" |                  |                       |                     |         | 3950.83 |
| 13  | 30  | 10R | ODSCC  | DTI        | 0.27     | 89      | TSH  | 2.63" |                  |                       |                     |         | 3950.83 |

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# ATTACHMENT 1H

## STEAM GENERATOR 1RC-E-1C

### SLUDGE PILE ODSCC INDICATION HISTORY

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Indications Recorded with Bobbin

| Row | Col | Out     | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|---------|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 13  | 36  | 10R     | ODSCC  | DTI        |          |         | TSH  | 1.68"  |                  |                       |                     |         | 3950.83 |
| 13  | 38  | 10R     | ODSCC  | DTI        |          |         | TSH  | 1.95"  |                  |                       |                     |         | 3950.83 |
| 16  | 29  | 10R     | ODSCC  | DTI        | 0.28     | 139     | TSH  | 1.80"  |                  |                       |                     |         | 3950.83 |
| 16  | 31  | 10R     | ODSCC  | DTI        | 0.64     | 83      | TSH  | 2.20"  |                  |                       |                     |         | 3950.83 |
| 16  | 34  | 10R     | ODSCC  | SAI        | 0.33     | 103     | TSH  | 0.87"  | 0.248"           |                       |                     |         | 3950.83 |
| 17  | 29  | 10R     | ODSCC  | DTI        | 0.29     | 89      | TSH  | 1.43"  |                  |                       |                     |         | 3950.83 |
| 18  | 28  | 10R     | ODSCC  | DTI        | 0.82     | 121     | TSH  | 1.05"  |                  |                       |                     |         | 3950.83 |
| 18  | 29  | 10R     | ODSCC  | DTI        | 0.52     | 39      | TSH  | 1.01"  |                  |                       |                     |         | 3950.83 |
| 18  | 33  | 10R     | ODSCC  | DTI        | 0.35     | 79      | TSH  | 1.59"  |                  |                       |                     |         | 3950.83 |
| 19  | 30  | 10R     | ODSCC  | DTI        | 0.27     | 132     | TSH  | 0.90"  |                  |                       |                     |         | 3950.83 |
| 21  | 26  | 10R     | ODSCC  | DTI        | 0.21     | 47      | TSH  | 0.96"  |                  |                       |                     |         | 3950.83 |
| 26  | 56  | 10R     | ODSCC  | DTI        | 0.29     | 83      | TSH  | 0.49"  |                  |                       |                     |         | 3950.83 |
| 12  | 66  | 09R     | ODSCC  | VOL        | 0.64     | 116     | TSH  | -0.29" |                  |                       |                     |         | 3515.03 |
| 12  | 71  | 09R     | ODSCC  | VOL        | 0.45     | 85      | TSH  | -0.13" |                  |                       |                     |         | 3515.03 |
| 13  | 32  | 09R     | ODSCC  | ODI        | 0.28     | 88      | TSH  | 2.63"  |                  |                       | 58%                 |         | 3515.03 |
| 13  | 33  | 09R     | ODSCC  | ODI        | 0.43     | 82      | TSH  | 2.64"  |                  |                       | 63%                 |         | 3515.03 |
| 14  | 30  | 09R     | ODSCC  | ODI        | 0.20     | 118     | TSH  | 2.30"  |                  |                       | 40%                 |         | 3515.03 |
| 26  | 58  | 09R     | ODSCC  | SAI        | 0.34     | 85      | TSH  | 0.16"  |                  |                       |                     |         | 3515.03 |
| 30  | 15  | 09R     | ODSCC  | VOL        | 0.83     | 47      | TSH  | 1.61"  |                  |                       |                     |         | 3515.03 |
| 30  | 54  | 08R     | ODSCC  | VOL        | 0.18     | 80      | TSH  | 2.43"  | 0.150"           |                       |                     |         | 3011.36 |
| 32  | 16  | 08R     | ODSCC  | ODI        | 1.12     | 130     | TSH  | 1.51"  |                  |                       | 41%                 |         | 3011.36 |
| 44  | 55  | 07R     | ODSCC  | ODI        | 2.66     | 56      | TSH  |        |                  |                       | 65%                 |         | 2609.03 |
| 44  | 56  | 07R     | ODSCC  | ODI        | 6.66     | 60      | TSH  |        |                  |                       | 86%                 |         | 2609.03 |
| 30  | 16  | 03R     | ODSCC  | ODI        |          |         | TSH  | 1.00"  |                  |                       | 48%                 |         | 973.88  |
| 31  | 16  | 03R     | ODSCC  | ODI        |          |         | TSH  | 1.30"  |                  |                       | 49%                 |         | 973.88  |
| 45  | 59  | 02R LKR | ODSCC  | ODI        |          |         | TSH  | 0.30"  |                  |                       | 100%                |         |         |

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# **ATTACHMENT 1I**

**STEAM GENERATOR 2RCS-SG21A**

**UBEND INDICATION HISTORY**

**ATTACHMENT 1I**  
**STEAM GENERATOR 2RCS-SG21A**  
**UBEND INDICATION HISTORY**

4/12/01  
1 of 1

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated<br>Length | Estimated<br>Circ Length | Estimated<br>Max Depth | In-situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|---------------------|--------------------------|------------------------|---------|---------|
| 1   | 84  | 4R  | PWSCC  | VOL        | 2.10     | 28      | 8H   | 13.13" |                     |                          |                        |         | 1741.57 |
| 1   | 93  | 4R  | PWSCC  | NQI        | 2.64     | 17      | 8H   | 0.50"  |                     |                          |                        |         | 1741.57 |

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# **ATTACHMENT 1J**

**STEAM GENERATOR 2RCS-SG21A**

**SLUDGE PILE ODSCC INDICATION HISTORY**

# ATTACHMENT 1J

## STEAM GENERATOR 2RCS-SG21A

### SLUDGE PILE ODSCC INDICATION HISTORY

4/11/01  
1 of 2

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 2   | 44  | 8R  | ODSCC  | SCI        | 0.13     | 138     | TSH  | -0.10" | 0.26"            | 124°                  |                     |         | 3598.31 |
| 4   | 44  | 8R  | ODSCC  | SAI        | 0.20     | 86      | TSH  | 0.45"  | 0.26"            | 43°                   |                     |         | 3598.31 |
| 5   | 48  | 8R  | ODSCC  | SCI        | 0.13     | 138     | TSH  | 0.02"  | 0.23"            | 47°                   |                     |         | 3598.31 |
| 9   | 45  | 8R  | ODSCC  | SCI        | 0.45     | 117     | TSH  | -0.10" | 0.17"            | 217°                  | 93%                 |         | 3598.31 |
| 9   | 46  | 8R  | ODSCC  | SCI        | 0.18     | 148     | TSH  | -0.11" | 0.27"            | 156°                  |                     |         | 3598.31 |
| 10  | 42  | 8R  | ODSCC  | MCI        | 0.16     | 127     | TSH  | -0.03" | 0.27"            | 148°                  | 77%                 |         | 3598.31 |
| 10  | 46  | 8R  | ODSCC  | SCI        | 0.16     | 136     | TSH  | -0.11" | 0.12"            | 84°                   |                     |         | 3598.31 |
| 11  | 46  | 8R  | ODSCC  | MCI        | 0.16     | 136     | TSH  | -0.11" | 0.22"            | 160°                  |                     |         | 3598.31 |
| 20  | 80  | 8R  | ODSCC  | SVI        | 0.13     | 114     | TSH  | 0.06"  | 0.15"            | 38°                   |                     |         | 3598.31 |
| 34  | 60  | 8R  | ODSCC  | SAI        | 0.20     | 147     | TSH  | 0.44"  | 0.22"            | 34°                   |                     |         | 3598.31 |
| 38  | 54  | 8R  | ODSCC  | NQI        | 0.33     | 117     | TSH  | 1.13"  |                  |                       |                     |         | 3598.31 |
| 8   | 48  | 7R  | ODSCC  | SCI        | 0.23     | 99      | TSH  | 0.00"  |                  | 29°                   | 89%                 |         | 3111.37 |
| 13  | 88  | 7R  | ODSCC  | SCI        | 0.11     | 64      | TSH  | -0.04" | 0.85"            | 111°                  | 100%                |         | 3111.37 |
| 19  | 80  | 7R  | ODSCC  | PIT        | 0.17     | 62      | TSH  | 0.04"  |                  |                       | 27%                 |         | 3111.37 |
| 33  | 31  | 7R  | ODSCC  | SCI        | 0.14     | 120     | TSH  | 0.05"  | 0.16"            | 21°                   | 97%                 |         | 3111.37 |
| 7   | 44  | 6R  | ODSCC  | MAI        | 0.08     | 86      | TSH  | 0.24"  |                  |                       |                     |         | 2646.23 |
| 7   | 44  | 6R  | ODSCC  | MAI        | 0.17     | 92      | TSH  | 0.40"  |                  |                       |                     |         | 2646.23 |
| 7   | 46  | 6R  | ODSCC  | SCI        | 0.17     | 140     | TSH  | -0.03" |                  | 206°                  | 88%                 | X       | 2646.23 |
| 7   | 46  | 6R  | ODSCC  | MAI        | 0.14     | 137     | TSH  | 0.27"  | 0.29"            |                       | 44%                 |         | 2646.23 |
| 7   | 46  | 6R  | ODSCC  | MAI        | 0.24     | 111     | TSH  | 0.39"  | 0.59"            |                       | 33%                 |         | 2646.23 |
| 8   | 43  | 6R  | ODSCC  | SCI        | 0.82     | 67      | TSH  | -0.03" |                  | 236°                  | 83%                 | X       | 2646.23 |
| 8   | 44  | 6R  | ODSCC  | SCI        | 0.15     | 71      | TSH  | -0.04" |                  | 276°                  | 93%                 | X       | 2646.23 |
| 8   | 44  | 6R  | ODSCC  | SAI        | 0.19     | 100     | TSH  | 0.19"  | 0.52"            |                       | 63%                 |         | 2646.23 |
| 8   | 46  | 6R  | ODSCC  | SAI        | 0.33     | 111     | TSH  | 0.65"  |                  |                       |                     |         | 2646.23 |
| 9   | 41  | 6R  | ODSCC  | SCI        | 0.41     | 105     | TSH  | -0.05" |                  |                       |                     |         | 2646.23 |
| 9   | 43  | 6R  | ODSCC  | MCI        | 0.10     | 112     | TSH  | -0.13" |                  | 119°                  | 87%                 | X       | 2646.23 |
| 9   | 43  | 6R  | ODSCC  | MCI        | 0.09     | 108     | TSH  | 0.12"  |                  | 79°                   | 89%                 |         | 2646.23 |
| 10  | 45  | 6R  | ODSCC  | SCI        | 0.13     | 119     | TSH  | -0.14" |                  |                       |                     |         | 2646.23 |
| 11  | 47  | 6R  | ODSCC  | SCI        | 0.13     | 103     | TSH  | -0.03" |                  |                       |                     |         | 2646.23 |
| 14  | 62  | 6R  | ODSCC  | NQI        | 0.31     | 99      | TSH  | 0.56"  |                  |                       |                     |         | 2646.23 |
| 29  | 78  | 6R  | ODSCC  | SCI        | 0.11     | 119     | TSH  | 0.06"  |                  |                       |                     |         | 2646.23 |
| 29  | 78  | 6R  | ODSCC  | SCI        | 0.12     | 118     | TSH  | 0.23"  |                  |                       |                     |         | 2646.23 |
| 34  | 61  | 6R  | ODSCC  | SAI        | 0.14     | 131     | TSH  | 0.55"  |                  |                       |                     |         | 2646.23 |

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# ATTACHMENT 1J

## STEAM GENERATOR 2RCS-SG21A

### SLUDGE PILE ODSCC INDICATION HISTORY

4/11/01  
2 of 2

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 34  | 65  | 6R  | ODSCC  | SAI        | 0.28     | 88      | TSH  | 0.50"  |                  |                       |                     |         | 2646.23 |
| 37  | 59  | 6R  | ODSCC  | NQI        | 0.55     | 81      | TSH  | 0.06"  |                  |                       |                     |         | 2646.23 |
| 38  | 53  | 6R  | ODSCC  | NQI        | 0.45     | 86      | TSH  | 0.90"  |                  |                       |                     |         | 2646.23 |
| 1   | 85  | 5R  | ODSCC  | DTI        | 15.05    | 113     | TSC  | -0.16" |                  |                       |                     |         | 2189.94 |
| 2   | 85  | 5R  | ODSCC  | DTI        | 12.06    | 82      | TSH  | -0.11" |                  |                       |                     |         | 2189.94 |
| 11  | 54  | 5R  | ODSCC  | DTI        | 7.81     | 56      | TSC  | -0.05" |                  |                       |                     |         | 2189.94 |
| 12  | 22  | 5R  | ODSCC  | VOL        | 0.69     | 139     | TSC  | 3.13"  |                  |                       |                     |         | 2189.94 |
| 18  | 86  | 5R  | ODSCC  | VOL        | 0.45     | 98      | TSH  | 1.74"  |                  |                       |                     |         | 2189.94 |
| 18  | 86  | 5R  | ODSCC  | VOL        | 0.69     | 120     | TSH  | 0.29"  |                  |                       |                     |         | 2189.94 |
| 20  | 13  | 5R  | ODSCC  | VOL        | 0.36     | 98      | TSH  | 2.37"  |                  |                       |                     |         | 2189.94 |
| 21  | 41  | 5R  | ODSCC  | VOL        | 0.48     | 106     | TSH  | 1.19"  |                  |                       |                     |         | 2189.94 |
| 21  | 41  | 5R  | ODSCC  | VOL        | 0.69     | 155     | TSH  | 0.38"  |                  |                       |                     |         | 2189.94 |
| 21  | 41  | 5R  | ODSCC  | VOL        | 0.79     | 111     | TSH  | 1.93"  |                  |                       |                     |         | 2189.94 |
| 27  | 81  | 5R  | ODSCC  | VOL        | 1.70     | 127     | TSH  | 2.35"  |                  |                       |                     |         | 2189.94 |
| 3   | 37  | 4R  | ODSCC  | NQI        | 0.84     | 136     | TSH  | 1.58"  |                  |                       |                     |         | 1741.57 |
| 10  | 39  | 4R  | ODSCC  | VOL        | 0.39     | 94      | TSH  | 0.16"  |                  |                       |                     |         | 1741.57 |
| 10  | 39  | 4R  | ODSCC  | VOL        | 0.72     | 94      | TSH  | 1.45"  |                  |                       |                     |         | 1741.57 |
| 10  | 39  | 4R  | ODSCC  | VOL        | 0.68     | 93      | TSH  | 5.32"  |                  |                       |                     |         | 1741.57 |
| 29  | 77  | 3R  | ODSCC  | PIT        | 46.73    | 98      | TSH  | 0.53"  |                  |                       | 70%                 |         | 1280.02 |

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# **ATTACHMENT 1K**

**STEAM GENERATOR 2RCS-SG21B**

**UBEND INDICATION HISTORY**

# ATTACHMENT 1K

## STEAM GENERATOR 2RCS-SG21B

### UBEND INDICATION HISTORY

4/11/01  
1 of 1

Indications Recorded with Plus Point

| Row | Col | Out | Reason    | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|-----------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 1   | 5   | 8R  | Adm. Plug | SAI        | 0.61     | 83      | 8H   | 9.85"  | 0.21"            |                       |                     |         | 3598.31 |
| 2   | 6   | 8R  | Adm. Plug | SAI        | 0.26     | 12      | 8H   | 14.04" |                  |                       |                     |         | 3598.31 |
| 1   | 15  | 7R  | ODSCC     | SVI        | 0.27     | 43      | 8H   | 11.32" |                  |                       |                     |         | 3111.37 |
| 1   | 31  | 5R  | PWSCC     | SAI        | 2.05     | 19      | 8H   | 3.42"  |                  |                       |                     |         | 2189.94 |
| 1   | 32  | 5R  | PWSCC     | SAI        | 1.61     | 16      | 8H   | 3.53"  |                  |                       |                     |         | 2189.94 |
| 1   | 34  | 5R  | PWSCC     | SAI        | 0.44     | 18      | 8H   | 3.05"  |                  |                       |                     |         | 2189.94 |
| 1   | 36  | 5R  | PWSCC     | SAI        | 1.14     | 18      | 8H   | 3.25"  |                  |                       |                     |         | 2189.94 |
| 1   | 59  | 4R  | PWSCC     | SAI        | 1.77     | 20      | 8H   | 3.54"  |                  |                       |                     |         | 1741.57 |

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# **ATTACHMENT 1L**

**STEAM GENERATOR 2RCS-SG21B**

**SLUDGE PILE ODSCC INDICATION HISTORY**

# ATTACHMENT 1L

## STEAM GENERATOR 2RCS-SG21B

### SLUDGE PILE ODSCC INDICATION HISTORY

4/11/01  
1 of 2

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 2   | 46  | 8R  | ODSCC  | SCI        | 0.17     | 138     | TSH  | -0.08" | 0.20"            | 54°                   |                     |         | 3598.31 |
| 2   | 46  | 8R  | ODSCC  | MCI        | 0.19     | 124     | TSH  | -0.09" | 0.17"            | 174°                  |                     |         | 3598.31 |
| 2   | 48  | 8R  | ODSCC  | SCI        | 0.16     | 139     | TSH  | -0.08" | 0.27"            | 83°                   | 30%                 |         | 3598.31 |
| 3   | 46  | 8R  | ODSCC  | SCI        | 0.19     | 125     | TSH  | -0.08" |                  | 109°                  |                     |         | 3598.31 |
| 6   | 38  | 8R  | ODSCC  | SAI        | 0.20     | 67      | TSH  | 0.08"  | 0.22"            | 47°                   |                     |         | 3598.31 |
| 6   | 48  | 8R  | ODSCC  | SCI        | 0.10     | 125     | TSH  | -0.07" | 0.22"            | 71°                   | 94%                 |         | 3598.31 |
| 7   | 40  | 8R  | ODSCC  | SAI        | 0.23     | 162     | TSH  | 0.41"  |                  |                       |                     |         | 3598.31 |
| 7   | 45  | 8R  | ODSCC  | SCI        | 0.51     | 117     | TSH  | -0.11" | 0.16"            | 307°                  | 82%                 |         | 3598.31 |
| 7   | 45  | 8R  | ODSCC  | SCI        | 0.38     | 124     | TSH  | -0.16" | 0.17"            | 184°                  |                     |         | 3598.31 |
| 7   | 46  | 8R  | ODSCC  | MCI        | 0.20     | 117     | TSH  | -0.01" |                  | 125°                  |                     |         | 3598.31 |
| 7   | 55  | 8R  | ODSCC  | SVI        | 0.70     | 147     | TSH  | -0.06" | 0.14"            | 49°                   |                     |         | 3598.31 |
| 8   | 46  | 8R  | ODSCC  | SCI        | 0.34     | 125     | TSH  | -0.07" | 0.16"            | 93°                   |                     |         | 3598.31 |
| 8   | 46  | 8R  | ODSCC  | SAI        | 0.20     | 136     | TSH  | 0.32"  | 0.25"            | 53°                   |                     |         | 3598.31 |
| 8   | 48  | 8R  | ODSCC  | SCI        | 0.16     | 130     | TSH  | -0.09" | 0.22"            | 49°                   | 94%                 |         | 3598.31 |
| 8   | 48  | 8R  | ODSCC  | SCI        | 1.24     | 119     | TSH  | -0.15" | 0.23"            | 55°                   |                     |         | 3598.31 |
| 8   | 49  | 8R  | ODSCC  | SCI        | 0.14     | 131     | TSH  | -0.01" | 0.28"            | 86°                   | 100%                | X       | 3598.31 |
| 8   | 52  | 8R  | ODSCC  | SCI        | 0.28     | 134     | TSH  | -0.09" | 0.22"            | 117°                  |                     |         | 3598.31 |
| 10  | 46  | 8R  | ODSCC  | SCI        | 0.23     | 129     | TSH  | -0.04" | 0.13"            | 69°                   | 100%                | X       | 3598.31 |
| 13  | 55  | 8R  | ODSCC  | SVI        | 0.52     | 162     | TSH  | -0.07" | 0.14"            | 45°                   |                     |         | 3598.31 |
| 15  | 41  | 8R  | ODSCC  | SVI        | 0.17     | 133     | TSH  | -0.31" |                  | 20°                   |                     |         | 3598.31 |
| 18  | 25  | 8R  | ODSCC  | SAI        | 0.14     | 150     | TSH  | 0.22"  | 0.35"            | 49°                   |                     |         | 3598.31 |
| 6   | 46  | 7R  | ODSCC  | SAI        | 0.38     | 111     | TSH  | 0.10"  | 0.27"            |                       | 46%                 |         | 3111.37 |
| 8   | 50  | 7R  | ODSCC  | SCI        | 0.21     | 142     | TSH  | -0.12" | 0.23"            | 30°                   | 84%                 |         | 3111.37 |
| 2   | 44  | 6R  | ODSCC  | SAI        | 1.81     | 86      | TSH  | 0.05"  |                  |                       |                     |         | 2646.23 |
| 2   | 47  | 6R  | ODSCC  | SCI        | 0.35     | 61      | TSH  | -0.03" |                  |                       |                     |         | 2646.23 |
| 3   | 45  | 6R  | ODSCC  | SAI        | 0.61     | 143     | TSH  | 0.18"  |                  |                       |                     |         | 2646.23 |
| 3   | 47  | 6R  | ODSCC  | SCI        | 0.12     | 117     | TSH  | -0.03" |                  |                       |                     |         | 2646.23 |
| 4   | 45  | 6R  | ODSCC  | SAI        | 0.07     | 55      | TSH  | 0.57"  | 0.21"            |                       | 53%                 | X       | 2646.23 |
| 4   | 45  | 6R  | ODSCC  | SAI        | 0.10     | 76      | TSH  | 0.78"  | 0.24"            |                       | 93%                 |         | 2646.23 |
| 4   | 45  | 6R  | ODSCC  | SAI        | 0.11     | 110     | TSH  | 0.97"  | 0.47"            |                       | 83%                 |         | 2646.23 |
| 4   | 46  | 6R  | ODSCC  | SAI        | 0.52     | 112     | TSH  | 0.22"  |                  |                       |                     |         | 2646.23 |
| 5   | 46  | 6R  | ODSCC  | MAI        | 0.06     | 157     | TSH  | 0.69"  |                  |                       |                     |         | 2646.23 |
| 5   | 46  | 6R  | ODSCC  | MAI        | 0.10     | 117     | TSH  | 0.85"  |                  |                       |                     |         | 2646.23 |

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# ATTACHMENT 1L

## STEAM GENERATOR 2RCS-SG21B

### SLUDGE PILE ODSCC INDICATION HISTORY

4/11/01  
2 of 2

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 6   | 40  | 6R  | ODSCC  | SAI        | 0.29     | 89      | TSH  | 0.46"  |                  |                       |                     |         | 2646.23 |
| 6   | 40  | 6R  | ODSCC  | SAI        | 0.34     | 90      | TSH  | 0.54"  |                  |                       |                     |         | 2646.23 |
| 6   | 45  | 6R  | ODSCC  | MAI        | 0.12     | 168     | TSH  | 0.51"  | 0.34"            |                       | 56%                 | X       | 2646.23 |
| 6   | 45  | 6R  | ODSCC  | MAI        | 0.16     | 127     | TSH  | 1.35"  | 0.63"            |                       | 67%                 |         | 2646.23 |
| 7   | 44  | 6R  | ODSCC  | SAI        | 0.07     | 122     | TSH  | 0.69"  |                  |                       |                     |         | 2646.23 |
| 7   | 44  | 6R  | ODSCC  | SAI        | 0.10     | 101     | TSH  | 1.11"  |                  |                       |                     |         | 2646.23 |
| 7   | 48  | 6R  | ODSCC  | SCI        | 0.08     | 130     | TSH  | -0.18" |                  |                       |                     |         | 2646.23 |
| 7   | 49  | 6R  | ODSCC  | MCI        | 0.13     | 143     | TSH  | -0.11" |                  |                       |                     |         | 2646.23 |
| 7   | 49  | 6R  | ODSCC  | MCI        | 0.09     | 142     | TSH  | -0.12" |                  |                       |                     |         | 2646.23 |
| 12  | 19  | 6R  | ODSCC  | SCI        | 0.24     | 43      | TSH  | -0.03" |                  |                       |                     |         | 2646.23 |
| 17  | 29  | 6R  | ODSCC  | MCI        | 0.88     | 87      | TSH  | -0.10" |                  |                       |                     |         | 2646.23 |
| 17  | 29  | 6R  | ODSCC  | MCI        | 0.91     | 78      | TSH  | -0.10" |                  |                       |                     |         | 2646.23 |
| 24  | 28  | 6R  | ODSCC  | SAI        | 0.10     | 63      | TSH  | -0.06" |                  |                       |                     |         | 2646.23 |
| 28  | 27  | 6R  | ODSCC  | SCI        | 0.14     | 104     | TSH  | -0.08" |                  |                       |                     |         | 2646.23 |
| 22  | 65  | 5R  | ODSCC  | VOL        | 0.39     | 67      | TSH  | 1.66"  |                  |                       |                     |         | 2189.94 |
| 21  | 82  | 4R  | ODSCC  | ODI        | 0.70     | 44      | TSC  | 0.66"  |                  |                       |                     |         | 1741.57 |

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# **ATTACHMENT 1M**

**STEAM GENERATOR 2RCS-SG21C**

**UBEND INDICATION HISTORY**

**ATTACHMENT 1M**  
**STEAM GENERATOR 2RCS-SG21C**  
**UBEND INDICATION HISTORY**

4/11/01  
1 of 1

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated<br>Length | Estimated<br>Circ Length | Estimated<br>Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|---------------------|--------------------------|------------------------|---------|---------|
| 1   | 63  | 5R  | PWSCC  | SAI        | 1.53     | 30      | 8H   | 13.31" |                     |                          |                        |         | 2189.94 |

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# **ATTACHMENT 1N**

**STEAM GENERATOR 2RCS-SG21C**

**SLUDGE PILE ODSCC INDICATION HISTORY**

# ATTACHMENT 1N

## STEAM GENERATOR 2RCS-SG21C

### SLUDGE PILE ODSCC INDICATION HISTORY

4/11/01  
1 of 2

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 3   | 44  | 8R  | ODSCC  | SAI        | 0.27     | 124     | TSH  | 0.32"  | 0.35"            | 57°                   |                     |         | 3598.31 |
| 7   | 43  | 8R  | ODSCC  | SCI        | 0.10     | 126     | TSH  | 0.00"  |                  |                       |                     |         | 3598.31 |
| 7   | 45  | 8R  | ODSCC  | SCI        | 0.20     | 124     | TSH  | 0.13"  | 0.35"            | 130°                  |                     |         | 3598.31 |
| 9   | 46  | 8R  | ODSCC  | SAI        | 0.30     | 112     | TSH  | 0.13"  | 0.31"            | 59°                   |                     |         | 3598.31 |
| 9   | 46  | 8R  | ODSCC  | SCI        | 0.12     | 157     | TSH  | -0.12" | 0.19"            | 292°                  | 97%                 |         | 3598.31 |
| 10  | 48  | 8R  | ODSCC  | SCI        | 0.25     | 145     | TSH  | -0.08" | 0.25"            | 88°                   |                     |         | 3598.31 |
| 29  | 72  | 8R  | ODSCC  | SCI        | 0.27     | 83      | TSH  | -0.08" |                  | 161°                  |                     |         | 3598.31 |
| 8   | 46  | 7R  | ODSCC  | SCI        | 0.50     | 102     | TSH  | -0.15" | 0.74"            | 97°                   | 82%                 |         | 3111.37 |
| 25  | 84  | 7R  | ODSCC  | SVI        | 1.13     | 76      | TSC  | 0.08"  | 0.31"            | 50°                   | 60%                 |         | 3111.37 |
| 25  | 84  | 7R  | ODSCC  | SVI        | 0.45     | 100     | TSC  | 0.09"  |                  |                       |                     |         | 3111.37 |
| 2   | 92  | 6R  | ODSCC  | SCI        | 0.20     | 113     | TSH  | -0.05" |                  | 101°                  | 46%                 |         | 2646.23 |
| 4   | 43  | 6R  | ODSCC  | NQI        | 0.70     | 111     | TSH  | 0.78"  |                  |                       |                     |         | 2646.23 |
| 4   | 44  | 6R  | ODSCC  | SAI        | 0.32     | 108     | TSH  | 0.83"  | 0.47"            |                       | 50%                 |         | 2646.23 |
| 4   | 44  | 6R  | ODSCC  | MAI        | 0.41     | 118     | TSH  | 0.42"  | 0.20"            |                       | 41%                 |         | 2646.23 |
| 4   | 45  | 6R  | ODSCC  | SAI        | 0.10     | 67      | TSH  | 0.59"  | 0.18"            |                       | 65%                 |         | 2646.23 |
| 4   | 90  | 6R  | ODSCC  | SCI        | 0.17     | 132     | TSH  | -0.08" |                  |                       |                     |         | 2646.23 |
| 5   | 43  | 6R  | ODSCC  | SAI        | 0.09     | 125     | TSH  | 0.82"  | 0.24"            |                       | 35%                 |         | 2646.23 |
| 6   | 43  | 6R  | ODSCC  | NQI        | 0.61     | 82      | TSH  | 1.48"  |                  |                       |                     |         | 2646.23 |
| 7   | 44  | 6R  | ODSCC  | SCI        | 0.08     | 116     | TSH  | -0.10" |                  | 45°                   | 60%                 |         | 2646.23 |
| 8   | 45  | 6R  | ODSCC  | SCI        | 0.15     | 125     | TSH  | -0.08" |                  | 130°                  | 25%                 |         | 2646.23 |
| 11  | 8   | 6R  | ODSCC  | PIT        | 0.53     | 127     | TSH  | -0.41" | 0.22"            | 0.26"                 | 9%                  |         | 2646.23 |
| 11  | 75  | 6R  | ODSCC  | SAI        | 0.08     | 44      | TSH  | 0.32"  | 0.23"            |                       | 45%                 |         | 2646.23 |
| 14  | 44  | 6R  | ODSCC  | PIT        | 0.29     | 163     | TSH  | -0.08" | 0.25"            | 0.26"                 | 14%                 |         | 2646.23 |
| 17  | 10  | 6R  | ODSCC  | PIT        | 0.13     | 99      | TSH  | 0.39"  | 0.25"            | 0.29"                 | 32%                 |         | 2646.23 |
| 17  | 11  | 6R  | ODSCC  | PIT        | 0.10     | 84      | TSH  | 0.35"  | 0.20"            | 0.31"                 | 56%                 |         | 2646.23 |
| 18  | 11  | 6R  | ODSCC  | PIT        | 0.50     | 121     | TSH  | -0.50" | 0.30"            |                       | 28%                 |         | 2646.23 |
| 18  | 11  | 6R  | ODSCC  | PIT        | 0.20     | 124     | TSH  | -1.49" | 0.30"            | 0.31"                 | 28%                 |         | 2646.23 |
| 19  | 78  | 6R  | ODSCC  | PIT        | 0.35     | 127     | TSH  | 0.42"  | 0.31"            | 0.60"                 | 20%                 |         | 2646.23 |
| 20  | 11  | 6R  | ODSCC  | PIT        | 0.16     | 142     | TSH  | -0.36" | 0.26"            | 0.26"                 | 10%                 |         | 2646.23 |
| 36  | 28  | 6R  | ODSCC  | PIT        | 0.17     | 130     | TSH  | 1.41"  | 0.22"            | 0.26"                 | 21%                 |         | 2646.23 |
| 36  | 28  | 6R  | ODSCC  | PIT        | 0.64     | 101     | TSH  | 0.62"  | 0.30"            | 0.39"                 | 56%                 |         | 2646.23 |
| 14  | 13  | 5R  | ODSCC  | VOL        | 0.28     | 90      | TSH  | 1.38"  |                  |                       |                     |         | 2189.94 |
| 16  | 11  | 5R  | ODSCC  | VOL        | 0.37     | 99      | TSH  | 0.74"  |                  |                       |                     |         | 2189.94 |

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# ATTACHMENT 1N

## STEAM GENERATOR 2RCS-SG21C

### SLUDGE PILE ODSCC INDICATION HISTORY

4/11/01  
2 of 2

Indications Recorded with Bobbin

| Row | Col | Out | Reason | Indication | Volts PP | Degrees | Elev | Inch   | Estimated Length | Estimated Circ Length | Estimated Max Depth | In-Situ | EFPD    |
|-----|-----|-----|--------|------------|----------|---------|------|--------|------------------|-----------------------|---------------------|---------|---------|
| 18  | 25  | 5R  | ODSCC  | VOL        | 0.34     | 140     | TSH  | 3.43"  |                  |                       |                     |         | 2189.94 |
| 21  | 21  | 5R  | ODSCC  | VOL        | 0.28     | 124     | TSH  | -0.14" |                  |                       |                     |         | 2189.94 |
| 27  | 13  | 5R  | ODSCC  | VOL        | 0.66     | 93      | TSH  | 0.84"  |                  |                       |                     |         | 2189.94 |
| 27  | 13  | 5R  | ODSCC  | VOL        | 0.43     | 96      | TSH  | 2.55"  |                  |                       |                     |         | 2189.94 |
| 39  | 42  | 5R  | ODSCC  | VOL        | 5.27     | 75      | TSH  | 1.44"  |                  |                       |                     |         | 2189.94 |
| 39  | 42  | 5R  | ODSCC  | VOL        | 0.30     | 59      | TSH  | -0.40" |                  |                       |                     |         | 2189.94 |
| 12  | 4   | 4R  | ODSCC  | NQI        |          |         | TSH  | 5.55"  |                  |                       |                     |         | 1741.57 |

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# **ATTACHMENT 1P**

## **UNIT #1 STEAM GENERATOR IN-SITU PRESSURE TEST DATABASE**

# ATTACHMENT 1P

## UNIT #1 IN-SITU PRESSURE TEST DATABASE

DNO - Depth Not Obtainable

4/12/01

1 of 2

| S/G | OUT | ROW | COL | IND        | LOCATION                 | ANTICIPATED<br>MORPHOLOGY | + POINT<br>VOLTAGE | AXIAL<br>LENGTH | CIRC<br>LENGTH | PLUS POINT<br>ESTIMATED DEPTH |            | TEST PRESSURE    |                  |                  | MAX<br>LEAKAGE<br>DETECTED         |
|-----|-----|-----|-----|------------|--------------------------|---------------------------|--------------------|-----------------|----------------|-------------------------------|------------|------------------|------------------|------------------|------------------------------------|
|     |     |     |     |            |                          |                           |                    |                 |                | MAX                           | AVG        | NOP              | MSLB             | MAX              |                                    |
| A   | 12R | 1   | 11  | SAI        | 7H +3.76"                | PWSCC                     | 0.65               | 0.29"           |                | 88%                           |            | 1650             | 2950             | 4900             | NONE                               |
| A   | 12R | 5   | 21  | SAI        | TSH -0.32"               | ODSCC                     | 0.24               | 0.23"           |                | 94%                           |            | 1700             | 3050             | 5050             | NONE                               |
| A   | 12R | 8   | 44  | SAI        | TSH -0.35"               | ODSCC                     | 0.28               | 0.29"           |                | 99%                           |            | 1700             | 3050             | 5050             | NONE                               |
| A   | 12R | 9   | 9   | SCI<br>SCI | TSC +0.10"<br>TSC +0.13" | CIRC ODSCC<br>CIRC ODSCC  | 0.36<br>0.27       |                 | 51"<br>51"     | 48%<br>45%                    | 32%<br>32% | 1700             | 3050             | 5050             | NONE                               |
| A   | 12R | 10  | 51  | SAI        | TSH -0.24"               | PWSCC                     | 0.76               | 0.30"           |                | 77%                           |            | 1700             | 3050             | 5050             | NONE                               |
| A   | 12R | 14  | 10  | SCI        | TSH +0.23"               | CIRC ODSCC                | 0.23               |                 | 42"            | 55%                           | 34%        | 1700             | 3050             | 5050             | NONE                               |
| A   | 12R | 14  | 80  | SAI        | TSH -0.44"               | ODSCC                     | 0.31               | 0.32"           |                | 94%                           |            | 1700             | 3050             | 5050             | NONE                               |
| A   | 12R | 16  | 48  | SAI        | TSH +0.62"               | ODSCC                     | 0.31               | 0.82"           |                | 88%                           | 65%        | 1700             | 3050             | 5100             | NONE                               |
| A   | 12R | 27  | 28  | SAI        | TSH -3.20"               | PWSCC                     | 1.25               | 0.22"           |                | 35%                           |            | 1700             | 3050             | 5050             | NONE                               |
| A   | 12R | 35  | 19  | SCI        | TSH -0.05"               | CIRC ODSCC                | 0.20               |                 | 90"            | DNO                           |            | 1700             | 3050             | 5050             | NONE                               |
| B   | 12R | 1   | 38  | SCI<br>SAI | 7H +10.12"<br>7H +10.02" | CIRC ODSCC<br>PWSCC       | 4.07<br>2.00       | 0.66"<br>0.27"  | 98"            | 82%<br>65%                    |            | 1650<br>1650     | 2950<br>2950     | 5000<br>5000     | System Leakage<br>(FTI NCR 97-502) |
| B   | 12R | 1   | 45  | SAI        | 7H +9.87"                | PWSCC                     | 2.09               | 0.27"           |                | 76%                           |            | 1650<br>21.6 gpd | 2950<br>17.3 gpd | 4900<br>22.4 gpd | Leakage<br>Verified                |
| B   | 12R | 5   | 27  | SAI        | TSH -0.31"               | ODSCC                     | 0.47               | 0.30"           |                | 76%                           |            | 1650             | 2950             | 4900             | System Leakage<br>(FTI NCR 97-503) |
| B   | 12R | 5   | 83  | SAI        | TSH -0.35"               | PWSCC                     | 1.54               | 0.21"           |                | 30%                           |            | 1700             | 2975             | 4900             | System Leakage<br>(FTI NCR 97-502) |
| B   | 12R | 9   | 35  | SAI<br>SAI | TSH +1.21"<br>TSH +2.07" | ODSCC<br>ODSCC            | 0.19<br>0.12       | 0.50"<br>0.50"  |                | 85%<br>66%                    | 70%<br>25% | 1700             | 3050             | 5050             | NONE                               |
| B   | 12R | 12  | 49  | SAI        | TSH +0.64"               | ODSCC                     | 0.31               | 0.81"           |                | 54%                           | 33%        | 1700             | 3050             | 5050             | NONE                               |
| B   | 12R | 12  | 50  | SAI        | TSH +0.38"               | ODSCC                     | 0.30               | 0.15"           |                | 70%                           |            | 1700             | 3050             | 5050             | NONE                               |

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# ATTACHMENT 1P

## UNIT #1 IN-SITU PRESSURE TEST DATABASE

4/12/01  
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DNO - Depth Not Obtainable

| S/G  | OUT | ROW | COL | IND | LOCATION   | ANTICIPATED<br>MORPHOLOGY | + POINT<br>VOLTAGE | AXIAL<br>LENGTH | CIRC<br>LENGTH    | PLUS POINT<br>ESTIMATED DEPTH |     | TEST PRESSURE |      |      | MAX<br>LEAKAGE<br>DETECTED         |
|--|-----|-----|-----|-----|------------|---------------------------|--------------------|-----------------|-------------------|-------------------------------|-----|---------------|------|------|------------------------------------|
|  |     |     |     |     |            |                           |                    |                 |                   | MAX                           | AVG | NOP           | MSLB | MAX  |                                    |
| B  | 12R | 13  | 24  | MAI | TSH +0.25" | ODSCC                     | 0.11               | 0.46"           |                   | 87%                           | 68% | 1700          | 3050 | 5050 | NONE                               |
| B  | 12R | 18  | 42  | SAI | TSH +0.98" | ODSCC                     | 0.10               | 0.88"           |                   | DNO                           |     | 1700          | 3050 | 5050 | NONE                               |
| B  | 12R | 33  | 67  | SCI | TSH +0.03" | CIRC ODSCC                | 0.15               |                 | 58 <sup>u</sup>   | 88%                           | 49% | 1700          | 3050 | 5050 | NONE                               |
| C  | 12R | 2   | 47  | SCI | 7H +14.50" | CIRC PWSCC                | 0.74               | 0.34"           | 44.8 <sup>u</sup> | 100%                          |     | 1650          | 2950 | 4900 | NONE                               |
| C  | 12R | 27  | 31  | SAI | TSH -0.60" | PWSCC                     | 0.95               | 0.18"           |                   | 44%                           |     | 1650          | 2950 | 4900 | System Leakage<br>(FTI NCR 97-501) |
| C  | 12R | 32  | 79  | NQI | TSC +0.48" | PIT/VOL                   | 0.30               |                 |                   | 80%                           |     | 1700          | 3050 | 5050 | NONE                               |
| C  | 12R | 42  | 34  | CLT | 1C -0.03"  | THINNING                  | 2.89<br>(Bobbin)   |                 |                   | 44%                           |     | 1700          | 3050 | 5050 | NONE                               |
| NO TUBES REQUIRED IN-SITU PRESSURE TESTING DURING THE 1R13 EXAMINATION |     |     |     |     |            |                           |                    |                 |                   |                               |     |               |      |      |                                    |

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# **ATTACHMENT 1Q**

## **UNIT #2 STEAM GENERATOR IN-SITU PRESSURE TEST DATABASE**

# ATTACHMENT 1Q

4/12/01

1 of 1

## UNIT #2 IN-SITU PRESSURE TEST DATABASE

DNO - Depth Not Obtainable

| S/G  | OUT | ROW | COL | IND   | LOCATION   | ANTICIPATED<br>MORPHOLOGY | + POINT<br>VOLTAGE   | AXIAL<br>LENGTH   | ARC<br>DEGREES                      | PLUS POINT  |  | TEST PRESSURE |      |      | MAX<br>LEAKAGE<br>DETECTED |
|--|-----|-----|-----|---|--|---------------------------|--|---|-------------------------------------|---|--|---------------|------|------|----------------------------|
|  |     |     |     |   |  |                           |  |   |                                     | ESTIMATED DEPTH<br>MAX                                      | AVG  | NOP           | MSLB | MAX  |                            |
| A  | 6R  | 7   | 46  | SCI<br>MAI<br>MAI   | TSH -0.03"<br>TSH +0.27"<br>TSH +0.39"   | ODSCC                     | 0.17<br>0.14<br>0.24   | 0.29"<br>0.59"  | 206 <sup>u</sup>                    | 88%<br>44%<br>33%   |  | 1800          | 3250 | 5500 | NONE                       |
| A  | 6R  | 8   | 43  | SCI   | TSH -0.04"   | ODSCC                     | 0.82   |   | 236 <sup>u</sup>                    | 83%   |  | 1800          | 3250 | 5500 | NONE                       |
| A  | 6R  | 8   | 44  | SAI<br>SCI  | TSH +0.19"<br>TSH -0.04"   | ODSCC                     | 0.19<br>0.15   | 0.52"   | 276 <sup>u</sup>                    | 63%<br>93%  |  | 1800          | 3250 | 5500 | NONE                       |
| A  | 6R  | 9   | 43  | MCI<br>MCI  | TSH +0.12"<br>TSH -0.13"   | ODSCC                     | 0.09<br>0.10   |   | 79 <sup>u</sup><br>119 <sup>u</sup> | 89%<br>87%  |  | 1800          | 3250 | 5500 | NONE                       |
| B  | 6R  | 4   | 45  | SAI<br>SAI<br>SAI   | TSH +0.57"<br>TSH +0.78"<br>TSH +0.97"   | ODSCC                     | 0.07<br>0.10<br>0.11   | 0.21"<br>0.24"<br>0.47"   |                                     | 53%<br>93%<br>83%   |  | 1650          | 3100 | 5500 | System Leakage             |
| B  | 6R  | 6   | 45  | MAI<br>MAI<br>MAI<br>MAI<br>MAI<br>MAI<br>MAI<br>MAI<br>MAI | TSH +0.49"<br>TSH +0.51"<br>TSH +0.70"<br>TSH +0.79"<br>TSH +0.86"<br>TSH +0.98"<br>TSH +1.35"<br>TSH +1.36"<br>TSH +1.54" | ODSCC                     | 0.10<br>0.12<br>0.12<br>0.11<br>0.04<br>0.09<br>0.16<br>0.10<br>0.14 | 0.24"<br>0.34"<br>0.45"<br>1.00"<br>0.18"<br>0.55"<br>0.63"<br>0.26"<br>0.26" |                                     | DNO<br>56%<br>DNO<br>DNO<br>DNO<br>DNO<br>67%<br>44%<br>81% |  | 1650          | 3100 | 5450 | System Leakage             |
| NO TUBES REQUIRED IN-SITU PRESSURE TESTING DURING THE 8/98 EXAMINATION |     |     |     |   |  |                           |  |   |                                     |   |  |               |      |      |                            |
| B  | 8R  | 7   | 45  | SCI   | TSH -0.11"   | ODSCC                     | 0.69   |   | 307 <sup>u</sup>                    | 82%   | NOT TESTED DUE TO OBSTRUCTION IN TUBESHEET |               |      |      |                            |
| B  | 8R  | 8   | 49  | SCI   | TSH -0.01"   | ODSCC                     | 0.18   |   | 311 <sup>u</sup>                    | 100%  |  | 1650          | 2960 | 5000 | NONE                       |
| B  | 8R  | 10  | 46  | SCI   | TSH -0.04"   | ODSCC                     | 0.35   |   | 120 <sup>u</sup>                    | 100%  |  | 1650          | 2960 | 5000 | NONE                       |

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# **ATTACHMENT 1R**

## **UNIT #1 & UNIT #2 STEAM GENERATOR DENT/DING POPULATION**

# ATTACHMENT 1R

## Unit 1 Dent/Ding Population

|                    |             | 1RC-E-1A | 1RC-E-1B | 1RC-E-1C | HI VOLTAGE  |
|--------------------|-------------|----------|----------|----------|-------------|
| 1R13<br>March 2000 | DNT's/Tubes | 62/56    | 49/41    | 105/73   | 13.69 Volts |
|                    | DNG's/Tubes | 61/53    | 88/75    | 68/54    | 25.01 Volts |
|                    |             |          |          |          |             |

**Note 1:** 1 tube administratively plugged in S/G A 1R13 for an DNT indication @ 3H

## Unit 2 Dent/Ding Population

|                      |             | 2RCS-SG21A | 2RCS-SG21B | 2RCS-SG21C | HI VOLTAGE  |
|----------------------|-------------|------------|------------|------------|-------------|
| 2R08<br>October 2000 | DNT's/Tubes | 43/29      | 142/80     | 105/73     | 28.28 Volts |
|                      | DNG's/Tubes | 260/173    | 213/152    | 159/115    | 29.14 Volts |
|                      |             |            |            |            |             |

**Note 1:** 47 tubes were plugged 2R04 for indications @ DNG's

## ATTACHMENT 2

### SITE SPECIFIC NOISE REQUIREMENTS RELATED TO TUBE INTEGRITY

#### Methodology

The methodology will use a multi-tier approach to define acceptable noise levels. The first tier approach will utilize a comparison of a sampling of previous inspection data noise levels for specific SG locations against the noise levels present in the EPRI technique qualification databases. The second tier will evaluate specific cases where the plant noise levels exceed the EPRI database levels. This method will compare the noise amplitudes against characteristic flaw amplitudes to help to ensure that detection of such a flaw can be accomplished.

#### SG Specific Comparison

The specific SG location comparison will compare the average noise amplitude of the EPRI technique qualification database against the plant sample. The vertical maximum component will be used. If the plant noise levels are found to be within 10% of the EPRI level on average and bounded by the EPRI 95% confidence levels, the plant conditions are judged to be acceptable with regard to detection capabilities. The average noise comparison gives a general measure of conformity while the 95% confidence comparison evaluates the variance in the data. For those cases where plant noise levels are unacceptable (i.e., either of the first two comparisons are not met), noise levels should be monitored during the outage. The extent to which monitoring is required will vary depending upon individual plant conditions. Tubes with noise amplitudes exceeding the characteristic flaw values should be retested, or tested with an alternate technique judged to provide consistent flaw detection capabilities. The characteristic flaw levels are selected such that if such an indication was permitted to be left in service, the probability of exceeding the structural or leakage integrity requirements is considered low. It should be noted that individual plant evaluations that pass the average and 95% confidence comparison are not required to monitor noise levels during the inspection.

For axial PWSCC indications, the characteristic flaw vertical maximum amplitude considered represents a flaw of 60% maximum depth, with an associated peak to peak amplitude of 1.26 volts. These values are developed from the available database for axial PWSCC at dented TSP intersections. The value of 1.26 volts is taken from a correlation of maximum depth vs +Pt peak to peak amplitude, provided in Figure 1. The geometry influence introduced by the denting is judged to be a sufficient representation of characteristic flaws in light of now pulled tubes from small radius U-bends. As PWSCC is a stress driven mechanism, flaws are expected to have little non-degraded ligament influence. Therefore, the location of the PWSCC indication should be independent of the amplitude response. At 60%TW, the associated phase angle is 22.5°, and the vertical maximum amplitude is 0.48 volts. For the small radius U-bends, a 60% maximum depth flaw would imply an average depth of about 48%. Combining the U-bend axial PWSCC flaw data from BVPS Unit 1 and Diablo Canyon Units 1 and 2, the average reported flaw length is 0.19". Average flaw length is decreased with successive +Pt applications. Available growth

## ATTACHMENT 2

average depth flaw were permitted to remain in service, the projected end of cycle flaw length and average depth would be bounded by 0.29", 78% average depth. Using LTL material properties, the burst pressure is predicted to be 8210 psi. Upper bound maximum depth growth is reported to be 42%TW. It is therefore, possible that 100%TW degradation could be postulated, however, the short flaw length is unlikely to support leakage.

For axial ODSCC at expansion transitions, within the sludge pile, or TSP intersections, at 60%TW, the peak to peak associated amplitude is approximately 0.5 volts, and the associated phase is approximately 95°, resulting in a vertical maximum amplitude of 0.49 volts. A sampling of the Beaver Valley Unit 1 +Pt phase calibration curves were used to establish a nominal phase angle of 95° for a 60%TW flaw. For ODSCC, a 60% maximum depth flaw would imply an average depth of about 48%. For the last BVPS Unit 1 outage, the average sludge pile ODSCC flaw length was reported to be 0.20". Upper bound flaw length is estimated to be approximately 0.30". Growth evaluation of the 1R13 indications indicates that the average depth growth histogram for the last two cycles was essentially equal, with the Cycle 12 growth data slightly larger at lower cumulative probabilities. The average depth growth was approximately 25%. If a 0.20" long, 48% average depth flaw were permitted to remain in service, the projected end of cycle flaw length and average depth would be bounded by 0.50", 73% average depth. Using LTL material properties, the burst pressure is predicted to be 4524 psi. Maximum depth is selected to be 31%, based on an empirical correlation of pulled tube results that indicate the maximum to average depth ratio is approximately 1.25. The average depth growth of 25% was multiplied by 1.25 to establish a maximum depth growth allowance of 31%. Postulated maximum depth at EOC conditions is 91%TW, and judged not sufficient to result in leakage at accident conditions.

Until addition data is acquired specifically for Beaver Valley Unit 2, the characteristic flaw levels for both PWSCC and ODSCC are set at 0.45 volts.

**ATTACHMENT 3**  
**+Point MRPC – Low Row U-bends at Apex – 2R07 DATA**

| <b>SG</b> | <b>Row</b> | <b>Col</b> | <b>Vpp</b> | <b>Vvm</b> |
|-----------|------------|------------|------------|------------|
| B         | 1          | 61         | 0.96       | 0.40       |
| B         | 1          | 58         | 1.01       | 0.31       |
| B         | 1          | 56         | 1.03       | 0.33       |
| B         | 1          | 54         | 0.82       | 0.28       |
| B         | 1          | 4          | 0.97       | 0.33       |
| B         | 1          | 7          | 1.06       | 0.30       |
| B         | 1          | 9          | 1.09       | 0.35       |
| B         | 1          | 11         | 1.08       | 0.33       |
| B         | 1          | 12         | 1.15       | 0.35       |
| B         | 1          | 14         | 1.15       | 0.35       |
| B         | 1          | 60         | 0.98       | 0.35       |
| B         | 1          | 57         | 1.19       | 0.37       |
| B         | 1          | 55         | 0.84       | 0.31       |
| B         | 1          | 5          | 1.03       | 0.37       |
| B         | 1          | 6          | 0.99       | 0.31       |
| B         | 1          | 8          | 0.97       | 0.30       |
| B         | 1          | 10         | 1.09       | 0.34       |
| B         | 1          | 12         | 0.98       | 0.32       |
| B         | 1          | 13         | 1.15       | 0.36       |
| B         | 1          | 15         | 1.21       | 0.28       |
| A         | 2          | 60         | 0.76       | 0.30       |
| A         | 2          | 59         | 0.64       | 0.29       |
| A         | 2          | 57         | 0.68       | 0.31       |
| A         | 2          | 4          | 0.77       | 0.26       |
| A         | 2          | 6          | 0.91       | 0.32       |
| A         | 2          | 9          | 1.01       | 0.31       |
| A         | 2          | 11         | 1.05       | 0.35       |
| A         | 2          | 13         | 0.81       | 0.35       |
| A         | 2          | 16         | 0.91       | 0.27       |
| A         | 2          | 49         | 0.68       | 0.30       |
| A         | 2          | 47         | 0.85       | 0.32       |
| A         | 2          | 55         | 0.77       | 0.31       |
| A         | 2          | 5          | 0.86       | 0.29       |
| A         | 2          | 7          | 0.83       | 0.27       |
| A         | 2          | 10         | 0.92       | 0.32       |
| A         | 2          | 12         | 0.81       | 0.27       |
| A         | 2          | 14         | 0.98       | 0.34       |

**AVG Vpp = 0.97 Volts**  
**AVG Vvm = 0.32 Volts**

# ATTACHMENT 4

## Mid-Range +Pt MRPC – Low Row U-bends– 2R08 DATA

| SG      | Row | Col | Apex<br>Vpp | Apex<br>Vvm | H/L<br>Tan<br>Vpp | H/L<br>Tan<br>Vvm | C/L<br>Tan<br>Vpp | C/L<br>Tan<br>Vvm |
|---------|-----|-----|-------------|-------------|-------------------|-------------------|-------------------|-------------------|
| B       | 1   | 61  | 0.90        | 0.45        | 1.63              | 1.02              | 1.14              | 0.65              |
| B       | 1   | 58  | 1.10        | 0.48        | 1.38              | 0.73              | 1.57              | 0.34              |
| B       | 1   | 56  | 1.02        | 0.47        | 1.63              | 0.91              | 1.25              | 0.46              |
| B       | 1   | 54  | 0.87        | 0.37        | 1.21              | 0.71              | 0.77              | 0.47              |
| B       | 1   | 4   | 1.23        | 0.21        | 0.74              | 0.46              | 0.68              | 0.58              |
| B       | 1   | 7   | 0.98        | 0.18        | 0.75              | 0.58              | 0.67              | 0.64              |
| B       | 1   | 9   | 1.07        | 0.13        | 0.55              | 0.45              | 0.84              | 0.80              |
| B       | 1   | 11  | 1.15        | 0.17        | 1.38              | 0.21              | 0.57              | 0.54              |
| B       | 1   | 12  | 1.09        | 0.20        | 0.77              | 0.53              | 1.13              | 0.35              |
| B       | 1   | 14  | 1.20        | 0.20        | 0.74              | 0.64              | 1.11              | 0.24              |
| B       | 1   | 60  | 1.09        | 0.42        | 1.67              | 0.81              | 0.92              | 0.44              |
| B       | 1   | 57  | 0.99        | 0.42        | 1.36              | 0.73              | 1.10              | 0.51              |
| B       | 1   | 55  | 0.93        | 0.41        | 0.99              | 0.37              | 1.28              | 0.60              |
| B       | 1   | 5   | 1.06        | 0.18        | 0.82              | 0.63              | 0.45              | 0.31              |
| B       | 1   | 6   | 1.01        | 0.21        | 0.94              | 0.61              | 0.61              | 0.56              |
| B       | 1   | 8   | 0.91        | 0.18        | 0.82              | 0.58              | 0.70              | 0.59              |
| B       | 1   | 10  | 0.89        | 0.19        | 0.81              | 0.45              | 0.92              | 0.39              |
| B       | 1   | 12  | 1.09        | 0.20        | 0.77              | 0.53              | 1.13              | 0.35              |
| B       | 1   | 13  | 1.25        | 0.20        | 0.75              | 0.42              | 0.85              | 0.35              |
| B       | 1   | 15  | PLG         | PLG         | PLG               | PLG               | PLG               | PLG               |
| A       | 2   | 60  | 0.67        | 0.22        | 0.66              | 0.31              | 1.03              | 0.30              |
| A       | 2   | 59  | 0.56        | 0.21        | 0.75              | 0.37              | 0.87              | 0.23              |
| A       | 2   | 57  | 0.66        | 0.21        | 0.93              | 0.43              | 0.88              | 0.28              |
| A       | 2   | 4   | 0.77        | 0.26        | 0.89              | 0.36              | 0.92              | 0.23              |
| A       | 2   | 6   | 0.91        | 0.22        | 0.96              | 0.43              | 1.17              | 0.37              |
| A       | 2   | 9   | 0.90        | 0.26        | 0.82              | 0.41              | 0.92              | 0.27              |
| A       | 2   | 11  | 0.98        | 0.28        | 0.88              | 0.41              | 1.15              | 0.26              |
| A       | 2   | 13  | 0.83        | 0.26        | 0.95              | 0.43              | 1.53              | 0.34              |
| A       | 2   | 16  | 0.86        | 0.27        | 0.89              | 0.37              | 0.87              | 0.24              |
| A       | 2   | 49  | 0.47        | 0.25        | 0.59              | 0.40              | 0.74              | 0.33              |
| A       | 2   | 47  | 0.86        | 0.26        | 0.66              | 0.33              | 0.60              | 0.32              |
| A       | 2   | 55  | 0.74        | 0.28        | 0.59              | 0.34              | 0.72              | 0.20              |
| A       | 2   | 5   | 0.62        | 0.25        | 0.85              | 0.36              | 0.86              | 0.31              |
| A       | 2   | 7   | 0.65        | 0.24        | 0.93              | 0.43              | 1.20              | 0.22              |
| A       | 2   | 10  | 0.84        | 0.29        | 0.99              | 0.41              | 0.45              | 0.27              |
| A       | 2   | 12  | 0.84        | 0.25        | 1.00              | 0.43              | 1.33              | 0.27              |
| A       | 2   | 14  | 0.90        | 0.27        | 0.94              | 0.41              | 0.86              | 0.23              |
| AVERAGE |     |     | 0.91        | 0.27        | 0.94              | 0.50              | 0.94              | 0.38              |



## ATTACHMENT 5

### Hi-Freq +Pt MRPC – Low Row U-bends – 2R08 DATA

| SG             | Row | Col | Apex<br>Vpp | Apex<br>Vvm | H/L<br>Tan<br>Vpp | H/L<br>Tan<br>Vvm | C/L<br>Tan<br>Vpp | C/L<br>Tan<br>Vvm |
|----------------|-----|-----|-------------|-------------|-------------------|-------------------|-------------------|-------------------|
| B              | 1   | 61  | 1.12        | 0.37        | 1.50              | 0.25              | 1.50              | 0.55              |
| B              | 1   | 58  | 1.19        | 0.67        | 1.95              | 0.54              | 1.92              | 1.00              |
| B              | 1   | 56  | 1.21        | 0.51        | 1.68              | 0.52              | 2.09              | 0.85              |
| B              | 1   | 54  | 1.26        | 0.54        | 1.63              | 0.53              | 1.40              | 0.99              |
| B              | 1   | 4   | 0.86        | 0.45        | 1.19              | 0.73              | 1.23              | 0.59              |
| B              | 1   | 7   | 0.81        | 0.29        | 1.07              | 0.52              | 1.02              | 0.57              |
| B              | 1   | 9   | 1.05        | 0.50        | 1.78              | 0.94              | 1.01              | 0.59              |
| B              | 1   | 11  | 0.83        | 0.52        | 1.79              | 0.86              | 1.09              | 0.59              |
| B              | 1   | 12  | 0.80        | 0.44        | 1.18              | 0.63              | 1.01              | 0.59              |
| B              | 1   | 14  | 1.05        | 0.43        | 1.41              | 0.58              | 1.23              | 0.78              |
| B              | 1   | 60  | 1.16        | 0.31        | 1.23              | 0.24              | 1.63              | 0.62              |
| B              | 1   | 57  | 1.03        | 0.40        | 1.50              | 0.36              | 2.11              | 0.70              |
| B              | 1   | 55  | 1.08        | 0.51        | 1.27              | 0.29              | 1.80              | 0.65              |
| B              | 1   | 5   | 0.64        | 0.50        | 1.44              | 0.74              | 1.11              | 0.54              |
| B              | 1   | 6   | 0.68        | 0.49        | 2.07              | 1.00              | 1.06              | 0.57              |
| B              | 1   | 8   | 0.69        | 0.37        | 1.75              | 0.80              | 1.04              | 0.64              |
| B              | 1   | 10  | 0.82        | 0.50        | 1.50              | 0.70              | 1.25              | 0.66              |
| B              | 1   | 13  | 0.92        | 0.37        | 0.92              | 0.51              | 1.09              | 0.61              |
| B              | 1   | 15  | PLG         | PLG         | PLG               | PLG               | PLG               | PLG               |
| A              | 2   | 60  | 1.11        | 0.26        | 1.50              | 0.41              | 1.62              | 0.37              |
| A              | 2   | 59  | 0.80        | 0.31        | 0.80              | 0.44              | 0.92              | 0.37              |
| A              | 2   | 57  | 0.76        | 0.33        | 1.19              | 0.72              | 1.78              | 1.34              |
| A              | 2   | 4   | 0.63        | 0.25        | 0.82              | 0.29              | 1.44              | 0.41              |
| A              | 2   | 6   | 0.67        | 0.26        | 1.18              | 0.51              | 0.77              | 0.33              |
| A              | 2   | 9   | 0.75        | 0.22        | 0.90              | 0.32              | 0.65              | 0.35              |
| A              | 2   | 11  | 0.83        | 0.23        | 1.38              | 0.27              | 1.04              | 0.35              |
| A              | 2   | 13  | 0.68        | 0.29        | 1.34              | 0.47              | 1.00              | 0.30              |
| A              | 2   | 16  | 0.74        | 0.28        | 1.27              | 0.65              | 0.60              | 0.40              |
| A              | 2   | 49  | 0.46        | 0.34        | 0.63              | 0.33              | 0.62              | 0.54              |
| A              | 2   | 47  | 0.99        | 0.36        | 0.92              | 0.79              | 0.67              | 0.55              |
| A              | 2   | 55  | 0.93        | 0.56        | 1.47              | 0.94              | 1.79              | 1.58              |
| A              | 2   | 5   | 0.66        | 0.23        | 0.73              | 0.33              | 0.61              | 0.37              |
| A              | 2   | 7   | 0.53        | 0.33        | 1.26              | 0.51              | 0.64              | 0.33              |
| A              | 2   | 10  | 0.91        | 0.20        | 1.25              | 0.36              | 0.76              | 0.31              |
| A              | 2   | 12  | 0.94        | 0.25        | 1.18              | 0.37              | 1.40              | 0.43              |
| A              | 2   | 14  | 0.71        | 0.30        | 0.88              | 0.36              | 0.52              | 0.49              |
| <b>AVERAGE</b> |     |     | <b>0.87</b> | <b>0.38</b> | <b>1.73</b>       | <b>0.54</b>       | <b>1.18</b>       | <b>0.59</b>       |

## ATTACHMENT 6

### + POINT MRPC – Hot Leg Sludge Pile & Expansion Transition – 2R07 Data

| SG | Row | Col | Vpp  | Vvm  | Location |
|----|-----|-----|------|------|----------|
| B  | 42  | 62  | 0.29 | 0.04 | Sludge   |
| B  | 26  | 63  | 0.14 | 0.07 | Sludge   |
| B  | 26  | 53  | 0.10 | 0.06 | Sludge   |
| C  | 34  | 34  | 0.10 | 0.03 | Sludge   |
| C  | 35  | 46  | 0.20 | 0.04 | Sludge   |
| A  | 30  | 73  | 0.13 | 0.06 | Sludge   |
| A  | 26  | 66  | 0.38 | 0.06 | Sludge   |
| A  | 19  | 60  | 0.14 | 0.04 | Sludge   |
| A  | 22  | 49  | 0.18 | 0.07 | Sludge   |
| B  | 28  | 57  | 0.30 | 0.20 | Exp      |
| C  | 27  | 41  | 0.67 | 0.20 | Exp      |
| C  | 34  | 34  | 0.57 | 0.18 | Exp      |
| A  | 22  | 49  | 0.76 | 0.12 | Exp      |
| B  | 30  | 60  | 0.13 | 0.06 | Sludge   |
| B  | 28  | 57  | 0.20 | 0.13 | Sludge   |
| B  | 28  | 49  | 0.24 | 0.12 | Sludge   |
| C  | 41  | 42  | 0.16 | 0.09 | Sludge   |
| C  | 23  | 35  | 0.13 | 0.07 | Sludge   |
| A  | 26  | 69  | 0.29 | 0.06 | Sludge   |
| A  | 38  | 63  | 0.26 | 0.09 | Sludge   |
| A  | 44  | 52  | 0.09 | 0.06 | Sludge   |
| B  | 26  | 63  | 0.33 | 0.16 | Exp      |
| B  | 28  | 49  | 0.62 | 0.14 | Exp      |
| C  | 23  | 35  | 0.50 | 0.14 | Exp      |
| A  | 44  | 52  | 0.55 | 0.14 | Exp      |

**AVG Vpp = 0.30 Volts**

**AVG Vvm = 0.13 Volts**

## ATTACHMENT 7

### + POINT MRPC – Hot Leg Sludge Pile & Expansion Transition – 2R08 DATA

| SG | Row | Col | Vpp  | Vvm  | Location |
|----|-----|-----|------|------|----------|
| B  | 42  | 62  | 0.17 | 0.09 | Sludge   |
| B  | 26  | 63  | 0.16 | 0.06 | Sludge   |
| B  | 26  | 53  | 0.12 | 0.09 | Sludge   |
| C  | 34  | 34  | 0.12 | 0.08 | Sludge   |
| C  | 35  | 46  | 0.22 | 0.06 | Sludge   |
| A  | 30  | 73  | 0.13 | 0.07 | Sludge   |
| A  | 26  | 66  | 0.35 | 0.12 | Sludge   |
| A  | 19  | 60  | 0.15 | 0.10 | Sludge   |
| A  | 22  | 49  | 0.17 | 0.05 | Sludge   |
| B  | 28  | 57  | 0.45 | 0.26 | Exp      |
| C  | 27  | 41  | 0.43 | 0.11 | Exp      |
| C  | 34  | 34  | 0.54 | 0.19 | Exp      |
| A  | 22  | 49  | 0.46 | 0.18 | Exp      |
| B  | 30  | 60  | 0.19 | 0.12 | Sludge   |
| B  | 28  | 57  | 0.14 | 0.09 | Sludge   |
| B  | 28  | 49  | 0.18 | 0.09 | Sludge   |
| C  | 41  | 42  | 0.13 | 0.06 | Sludge   |
| C  | 23  | 35  | 0.13 | 0.09 | Sludge   |
| A  | 26  | 69  | 0.25 | 0.05 | Sludge   |
| A  | 38  | 63  | 0.21 | 0.09 | Sludge   |
| A  | 44  | 52  | 0.16 | 0.16 | Sludge   |
| B  | 26  | 63  | 0.28 | 0.15 | Exp      |
| B  | 28  | 49  | 0.40 | 0.27 | Exp      |
| C  | 23  | 35  | 0.67 | 0.17 | Exp      |
| A  | 44  | 52  | 0.55 | 0.15 | Exp      |

**AVG Vpp = 0.27 Volts**

**AVG Vvm = 0.12 Volts**

## ATTACHMENT 8

### Mid-Range +Pt MRPC – Low Row U-bends– Unit 1 DATA

| OUTAGE         | SG | ROW | COL | Apex<br>Vpp | Apex<br>Vvm | H/L<br>Tan<br>Vpp | H/L<br>Tan<br>Vvm | C/L<br>Tan<br>Vpp | C/L<br>Tan<br>Vvm |
|----------------|----|-----|-----|-------------|-------------|-------------------|-------------------|-------------------|-------------------|
| 1R13           | A  | 1   | 38  | 0.88        | 0.38        | 0.84              | 0.49              | 1.68              | 0.37              |
| 1R13           | B  | 1   | 89  | 1.56        | 0.33        | 1.49              | 0.45              | 1.34              | 0.35              |
| 1R13           | C  | 1   | 44  | 1.15        | 0.35        | 1.14              | 0.57              | 1.40              | 0.43              |
| 1R13           | C  | 1   | 46  | 1.25        | 0.43        | 1.07              | 0.63              | 1.18              | 0.43              |
| 1R12           | A  | 1   | 6   | 1.26        | 0.55        | 0.96              | 0.95              | 1.01              | 0.49              |
| 1R12           | A  | 1   | 11  | 1.23        | 0.39        | 1.30              | 0.82              | 1.17              | 0.40              |
| 1R12           | A  | 1   | 67  | 0.94        | 0.32        | 0.99              | 0.49              | 1.70              | 0.98              |
| 1R12           | A  | 1   | 70  | 1.08        | 0.39        | 1.17              | 0.54              | 1.58              | 0.96              |
| 1R12           | A  | 1   | 71  | 1.29        | 0.33        | 1.13              | 0.57              | 1.15              | 0.94              |
| 1R12           | A  | 2   | 22  | 0.94        | 0.54        | 0.94              | 0.46              | 0.90              | 0.42              |
| 1R12           | A  | 2   | 21  | 0.88        | 0.44        | 0.91              | 0.47              | 0.86              | 0.43              |
| 1R12           | B  | 1   | 23  | 0.95        | 0.37        | 1.25              | 0.65              | 1.42              | 0.63              |
| 1R12           | B  | 1   | 1   | 1.09        | 0.33        | 1.41              | 0.62              | 1.20              | 0.21              |
| 1R12           | B  | 1   | 16  | 1.09        | 0.39        | 2.19              | 0.88              | 1.64              | 0.60              |
| 1R12           | B  | 1   | 32  | 0.80        | 0.26        | 1.03              | 0.51              | 1.35              | 0.62              |
| 1R12           | B  | 1   | 38  | 0.90        | 0.37        | 1.46              | 0.63              | 1.76              | 0.42              |
| 1R12           | B  | 1   | 44  | 1.08        | 0.33        | 1.15              | 0.68              | 0.94              | 0.39              |
| 1R12           | B  | 1   | 45  | 0.92        | 0.35        | 1.12              | 0.76              | 1.26              | 0.52              |
| 1R12           | B  | 1   | 75  | 1.14        | 0.25        | 1.30              | 0.23              | 1.04              | 0.61              |
| 1R12           | C  | 2   | 47  | 0.76        | 0.36        | 0.63              | 0.32              | 0.68              | 0.26              |
| <b>AVERAGE</b> |    |     |     | <b>1.06</b> | <b>0.37</b> | <b>1.17</b>       | <b>0.58</b>       | <b>1.26</b>       | <b>0.52</b>       |

# **FENOC**

First Energy Nuclear Operating Company

**BEAVER VALLEY POWER STATION**  
Life-Cycle Management Department

February 7, 2001  
ND3MCE:0164

**Subject: CATS Item #E2000535-A01 Position on NRC Regulatory Response**  
**Summary 2000-12 "Steam Generator Tube Integrity"**

Mr. Tom Cosgrove:

Attached is Life Cycle Management's input for development of a position on NRC RIS 2000-12. Please close CATS item #E2000535-A.

Please call me at x5677 if you should have any questions regarding this matter.



G. A. Kammerdeiner  
Senior Staff Engineer

GAK/tar

Attachment

Cc: Bill Kline  
John Maracek  
Gary Alberti  
Scanning File  
Central File

## ATTACHMENT 9

### Beaver Valley Response to Regulatory Issue Summary 2000-22. "Issues Stemming from NRC Staff Review of Recent Difficulties Experienced in Maintaining Steam Generator Tube Integrity"

The following discussion provides information for the development of a site position regarding the issues identified by the NRC in RIS 2000-22. Further detailed information addressing several of these issues can be found in Self-Assessment Report, BV-SA-00-21 that was performed by the Life Cycle Management group during 2R08. This self-assessment addressed issues arising from the IP-2 and ANO-2 events.

- Issue 1:** Consideration of relevant operating experience and appropriate diagnostic, corrective or compensatory measures to ensure tube integrity.
- Issue 2:** Assessment of the root causes of all degradation mechanisms at a plant and appropriate diagnostic, corrective, or compensatory measures to ensure tube integrity.

Issues 1 and 2 derive from two performance issues identified in the IP-2 1997 inspections (and documented in the NRC special inspection report dated August 31, 2000).

**RESPONSE:** As required by the EPRI Structural Integrity Guidelines, a degradation assessment is performed prior to the steam generator inspections conducted at BV. These degradation assessments are unit specific and consider all relevant operating experience from the entire industry in addition to prior BV experience. The degradation assessments define the known and active degradation mechanisms in the BV steam generators and additionally identify potential degradation mechanisms that have not yet initiated at BV but could have a potential to occur based on experience from other similarly designed units. The Degradation Assessments will be revised as necessary prior to each scheduled steam generator inspection to ensure they reflect the latest industry and plant specific experience.

The Degradation Assessments are used to formulate a comprehensive inspection plan that will ensure the identified active and potential degradation mechanisms are adequately interrogated by eddy current techniques exhibiting sufficient POD and sizing capabilities. All degradation mechanisms identified during an inspection are evaluated in the Condition Monitoring and Operational Assessments. An integral part of a comprehensive assessment is an understanding of the causes of degradation and the actions necessary to either mitigate the degradation or provide other compensatory measures to ensure structural integrity will be maintained. The Beaver Valley Degradation, Condition Monitoring and Operational Assessments adequately consider and address the concerns identified in Issues 1 and 2.

## ATTACHMENT 9

### Issue 3: Data Quality

Issue 3 derives from a performance issue identified during the IP-2 1997 inspection (and documented in the NRC special inspection report dated August 31, 2000).

**RESPONSE:** An industry response to the data quality issue is still under development, however, FENOC took a proactive approach to the issue by requiring its eddy current vendor to develop a formal methodology to define data quality in measurable terms. This methodology was implemented at 2R08. This methodology ensured that the data eddy current techniques utilized at BV during 2R08 and their associated essential variables remained valid for the conditions found in the BV steam generators. BV will continue to use this data quality methodology in future outages and will amend it as appropriate as further industry guidance is finalized.

Further conservative measures were taken at 2R08 specifically for the data quality associated with low row u-bend inspections. Both the mid range and high frequency Plus Point probes were used to inspect low row u-bends to address the noise issue identified at IP-2. Similarly, the mid-range and high frequency probes will be used to inspect the low row u-bends at BV 1 during 1R14.

### Issue 4: Nondestructive examination (NDE) qualification programs that include tube samples with flaws that truly represent flaws in the field.

**RESPONSE:** The Examination Technique Specification Sheet (ETSS) define the eddy current technique parameters for the inspections conducted at Beaver Valley. These ETSS are primarily compiled and qualified by the EPRI SGMP. The appropriateness of the flaw data set used to perform the ETSS qualification has long been an issue between the Industry and the NRC. The ETSS are qualified with the best available data and "pulled tube" data is used whenever available. These "pulled tube" data provide samples of specific degradation morphologies and certainly provide the ideal data set for technique qualification. However, it is necessary to supplement pulled tube data with data from laboratory fabricated flaws since limited pulled tube data is available for certain flaw morphologies. It is the industry's position that the data sets used to qualify ETSS are adequate and that continued updates to the data sets and ETSS requalification will be performed as additional pulled tube data becomes available.

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**Issue 5:** Site specific qualification of generically qualified techniques ensuring an application with site specific conditions and that appropriate NDE performance capabilities are considered in operational assessments (e.g., POD of flaws and flaw size measurement error).

**RESPONSE:** A comparison of BV specific data to the EPRI ETSS qualification data set is completed and documented prior to the start of the inspections. This comparison demonstrates that the ETSS utilized at BV are acceptable and that steam generator conditions do not adversely affect POD and measurement uncertainty. Site qualification of ETSS is performed for those damage mechanisms that are known to exist at BV and for which site specific data exists. The remaining techniques are qualified using industry available data.

In process confirmation of the ETSS essential variables is performed by a dedicated "Qualified Data Analyst" (QDA) known as the "Data Cop". The Data Cop has responsibility for performing data quality checks and verifying that sample rates, pull and rotational speeds, etc. are in accordance with applicable ETSS. Additionally, the Data Cop is responsible for ensuring steam generator noise conditions do not impact the validity of the ETSS qualification.

**Issue 6:** Consideration of flaw size measurement error when applying the threshold screening criteria for selection of insitu pressure test results.

**RESPONSE:** Insitu test screening criteria are established prior to each scheduled steam generator inspection. These screening criteria account for flaw size measurement uncertainty as required by the EPRI Insitu Test Guidelines.

**Issue 7:** Rigorous analyses of the results of insitu pressure tests that are terminated when leakage exceeds the capacity of the test system.

**RESPONSE:** Insitu testing performed at BV to date has not resulted in a condition where the leakage exceeded the capacity of the test system. If such a condition were to occur retesting with an installed bladder would be the preferred approach. If testing with a bladder was not successful or possible, adequate conservatism would be incorporated into the operational assessment to ensure continued structural integrity. The industry position regarding this issue is that the EPRI Insitu Test Guidelines and supplemental interim guidance letter provide adequate instructions for supplemental and post NDE as well as leakage correlation with NDE. BV will continue to meet the requirements of the EPRI Insitu Test Guidelines.



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**Issue 8:** Laboratory and insitu pressure test procedures utilizing pressurization rates that do not influence burst pressure results.

**RESPONSE:** Insitu testing performed at BV follows the requirements of the EPRI Insitu Test Guidelines. However, interim industry guidance was conservatively implemented during 2R08 to address the pressurization rate issue. Insitu testing performed at 2R08 incorporated a 2-minute hold time at every 500 psi to address this concern.

**Issue 9:** Use of a "fractional flaw" method or other similar methods for determining a beginning-of-cycle flaw distribution may lead to nonconservative results when used in conjunction with a POD parameter that varies as a function of flaw size or voltage.

**RESPONSE:** BV does not use a fractional flaw size methodology for determining beginning of cycle flaw distribution other than that licensed for TSP ODSCC per G.L. 95-05.

**Issue 10:** Benchmarking operational assessment methodologies against actual operating experience to ensure realistic results.

**RESPONSE:** The condition monitoring results for the completed cycle are compared to the Operational Assessment per the requirements of the EPRI Structural Integrity Guidelines. There has not been any significant non-conservative differences between the CM and OA at either BV unit that would suggest the methodologies employed are flawed. These comparisons (benchmarking) of the CM and OA will continue to be performed as required by the EPRI guidelines.