

ATTACHMENT *II*SUMMARY OF REPAIR METHODOLOGY OF UT INDICATIONS
IN BYRON UNIT 1 STEAM GENERATOR SHELL WELDS

I. STEAM GENERATOR SERIAL #CBGT-1731

| <u>Indication No.</u> | <u>Ebasco Def. No.</u> | <u>Location</u> | <u>Weld Seam</u> |
|-----------------------|------------------------|-----------------|------------------|
| 1 | D-147 | 95.25" CW | SGC-06 |
| 2 | D-148 | 113.0" CW | SGC-06 |
| 3 | D-160 | 69.75" CCW | SGC-06 |

A brief synopsis of the removal/repair process is as follows:

1. A reference point was established from which to work.
2. U.T. examined for wall thickness and compared to minimum wall thickness requirements.
3. Removed indications by grinding.
4. M.T. and U.T. examined groundout areas to ensure complete removal.
5. Recorded length, width and depth of grind out these were:

| <u>Indication No.</u> | <u>Length</u> | <u>Width</u> | <u>Depth</u> |
|-----------------------|---------------|--------------|--------------|
| 1 | 8" | 1.15" | 3.0" |
| 2 | 8.75" | 2.0" | 3.75" |
| 3 | 8.75" | 1.81" | 3.0" |

6. Cleaned repair area. Installed thermocouples and preheat elements.
7. Preheat: Maintained preheat to 250 degrees F min.-500 degrees F. max.
8. Perform weld repair using E9018, SMAW process, Heat #32230.
9. Perform M.T. and U.T. Examination.
10. Attach Thermocouples and PWHT Elements.

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11. Performed PWHT at a maximum heating rate of 100 degrees F. per hour; maximum cooling rate of 100 degrees F per hour; soaking temperature: 11/25 degrees F. (plus/minus 25 degrees F.) hours at soaking temperature: 2 hours, 45 minutes.
12. After PWHT:
 - A. MT examined repaired areas and thermocouple removal areas.
 - B. UT examined repaired areas to ensure defect removal.
 - C. UT examined for wall thickness.

Note: A completed 2033 form (ASME Section XI) was submitted to CECO after Hydrostatic Test was completed on 1/3/84.

II. STEAM GENERATOR SERIAL #CBGT-1732

| <u>Indication No.</u> | <u>Ebasco Def. No.</u> | <u>Location</u> | <u>Weld Seam</u> |
|-----------------------|------------------------|-----------------|------------------|
| 1 | D-139 | 93" CCW | SGC-03 |
| 2 | D-144 | 113" CCW | SGC-03 |

The repair was accomplished by machining a 5.0" diameter and a 2.5" diameter opening with bolted cover plates. The 5.0" diameter opening received a weld pad build-up of 13" diameter and approximately 2.25" thick (machined to 10.50" diameter and minimum wall 5.087").

A brief synopsis of the removal/repair is as follows:

1. Preheat: maintained preheat to 250 degrees F. min.- 500 degrees F. maximum.
2. Preheat and welded with E9018, SMAW process, Heat #32230 and 48409.
3. M.T. examined each 1/2 inch of deposited weld metal.
4. Checked minimum pad thickness.
5. Manually ground surfaces of the pad to an acceptable finish for U.T.
6. M.T. examined final finish.
7. U.T. examined for acceptance to minimum pad thickness. M.T. examined for indication, if any, removal.

8. Attached thermocouples and PWHT elements.
9. Heat treated as follows:
 - A. Heat uniformly at any rate up to 800 Degrees F.
 - B. Above 800 Degrees F heat uniformly at 100 Degrees F. per hour maximum to 1125 Degrees F. (+/-) 25 Degrees F.
 - C. Held at 1125 Degrees F. (+/-) 25 Degrees F. for 2-1/2 Hours.
 - D. Cooled uniformly to 800 Degrees F. at a maximum rate of 100 Degrees F. per hour, thereafter steam generator may cool to ambient.
10. Removed thermocouples and PWHT elements.
11. M.T. examined removal areas.
12. M.T. examined weld pad build-up.
13. U.T. examined weld pad build-up.
14. Finish machining finishes and spot facing of bolt holes.
15. Performed M.T. examination of finished machine work.

Note: A completed 2033 form (Section XI) was submitted to CECO after hydrostatic test was completed on 1/3/84.

ATTACHMENT III