

# START

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|----------------------------------|--------------------|----------------------|
| <b>ENGINEERING CHANGE NOTICE</b> | Page 1 of <u>2</u> | 1. ECN <b>633310</b> |
|                                  |                    | Proj. ECN            |

|   |   |   |                                    |
|---|---|---|------------------------------------|
| <b>2. ECN Category (mark one)</b><br><br>Supplemental <input type="checkbox"/><br>Direct Revision <input checked="" type="checkbox"/><br>Change ECN <input type="checkbox"/><br>Temporary <input type="checkbox"/><br>Standby <input type="checkbox"/><br>Supersedeure <input type="checkbox"/><br>Cancel/Void <input type="checkbox"/> | <b>3. Originator's Name, Organization, MSIN, and Telephone No.</b><br>Ruth A. Esch, Production Planning & Control /T6-06/373-4314 | <b>3a. USA Required?</b><br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <b>4. Date</b><br>07-09-96         |
|   | <b>5. Project Title/No./Work Order No.</b><br>Tank 241-AN-107   | <b>6. Bldg./Sys./Fac. No.</b><br>NA   | <b>7. Approval Designator</b><br>Q |
|   | <b>8. Document Numbers Changed by this ECN (includes sheet no. and rev.)</b><br>WHC-SD-WM-DP-176, REV. 1                          | <b>9. Related ECN No(s).</b><br>NA  | <b>10. Related PO No.</b><br>NA    |

|  |                                    |  |  |
|--|------------------------------------|--|--|
| <b>11a. Modification Work</b><br><br><input type="checkbox"/> Yes (fill out Blk. 11b)<br><input checked="" type="checkbox"/> No (NA Blks. 11b, 11c, 11d) | <b>11b. Work Package No.</b><br>NA | <b>11c. Modification Work Complete</b><br>N/A<br><br>_____<br>Cog. Engineer Signature & Date | <b>11d. Restored to Original Condition (Temp. or Standby ECN only)</b><br>N/A<br><br>_____<br>Cog. Engineer Signature & Date |
|--|------------------------------------|--|--|

**12. Description of Change**  
 This ECN is being generated because the units and calculations initially reported on revision 1 of this document were incorrect.

Changes to be made are as follows:  
 Remove Page 5 Rev. 1 and insert page 5 Rev. 1A  
 Remove Page 7 Rev. 1 and insert Page 7 Rev. 1A



**13a. Justification (mark one)**

|   |   |  |  |
|---|---|--|--|
| Criteria Change <input checked="" type="checkbox"/> | Design Improvement <input type="checkbox"/> | Environmental <input type="checkbox"/>         | Facility Deactivation <input type="checkbox"/> |
| As-Found <input type="checkbox"/>                   | Facilitate Const <input type="checkbox"/>   | Const. Error/Omission <input type="checkbox"/> | Design Error/Omission <input type="checkbox"/> |

**13b. Justification Details**  
 This ECN will assist in the completion of the documentation process for this document.

**14. Distribution (include name, MSIN, and no. of copies)**  
 See Attached Distribution Sheet.

|                          |                     |
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|  |  |                                  |           |                               |  |  |  |                                     |                                     |   |
|--|--|----------------------------------|-----------|-------------------------------|--|--|--|-------------------------------------|-------------------------------------|---|
| <b>ENGINEERING CHANGE NOTICE</b>   |  |                                  |           | Page 2 of 2                   | 1. ECM (use no. from pg. 1)<br><b>633310</b> |  |  |                                     |                                     |   |
| <b>15. Design Verification Required</b><br><input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No  | <b>16. Cost Impact</b><br><table style="width:100%; border: none;"> <tr> <td style="text-align: center; width: 50%;"><b>ENGINEERING</b></td> <td style="text-align: center; width: 50%;"><b>CONSTRUCTION</b></td> </tr> <tr> <td>Additional <input type="checkbox"/> \$</td> <td>Additional <input type="checkbox"/> \$</td> </tr> <tr> <td>Savings <input type="checkbox"/> \$</td> <td>Savings <input type="checkbox"/> \$</td> </tr> </table> |                                  |           | <b>ENGINEERING</b>            | <b>CONSTRUCTION</b>                          | Additional <input type="checkbox"/> \$ | Additional <input type="checkbox"/> \$ | Savings <input type="checkbox"/> \$ | Savings <input type="checkbox"/> \$ | <b>17. Schedule Impact (days)</b><br>Improvement <input type="checkbox"/><br>Delay <input type="checkbox"/> |
| <b>ENGINEERING</b>   | <b>CONSTRUCTION</b>  |                                  |           |                               |  |  |  |                                     |                                     |   |
| Additional <input type="checkbox"/> \$   | Additional <input type="checkbox"/> \$   |                                  |           |                               |  |  |  |                                     |                                     |   |
| Savings <input type="checkbox"/> \$  | Savings <input type="checkbox"/> \$  |                                  |           |                               |  |  |  |                                     |                                     |   |
| <b>18. Change Impact Review:</b> Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19. |  |                                  |           |                               |  |  |  |                                     |                                     |   |
| SDD/DD   | [ ]  | Seismic/Stress Analysis          | [ ]       | Tank Calibration Manual       | [ ]  |  |  |                                     |                                     |   |
| Functional Design Criteria   | [ ]  | Stress/Design Report             | [ ]       | Health Physics Procedure      | [ ]  |  |  |                                     |                                     |   |
| Operating Specification  | [ ]  | Interface Control Drawing        | [ ]       | Spares Multiple Unit Listing  | [ ]  |  |  |                                     |                                     |   |
| Criticality Specification  | [ ]  | Calibration Procedure            | [ ]       | Test Procedures/Specification | [ ]  |  |  |                                     |                                     |   |
| Conceptual Design Report   | [ ]  | Installation Procedure           | [ ]       | Component Index               | [ ]  |  |  |                                     |                                     |   |
| Equipment Spec.  | [ ]  | Maintenance Procedure            | [ ]       | ASME Coded Item               | [ ]  |  |  |                                     |                                     |   |
| Const. Spec.   | [ ]  | Engineering Procedure            | [ ]       | Human Factor Consideration    | [ ]  |  |  |                                     |                                     |   |
| Procurement Spec.  | [ ]  | Operating Instruction            | [ ]       | Computer Software             | [ ]  |  |  |                                     |                                     |   |
| Vendor Information   | [ ]  | Operating Procedure              | [ ]       | Electric Circuit Schedule     | [ ]  |  |  |                                     |                                     |   |
| OM Manual  | [ ]  | Operational Safety Requirement   | [ ]       | ICRS Procedure                | [ ]  |  |  |                                     |                                     |   |
| FSAR/SAR   | [ ]  | IEFD Drawing                     | [ ]       | Process Control Manual/Plan   | [ ]  |  |  |                                     |                                     |   |
| Safety Equipment List  | [ ]  | Cell Arrangement Drawing         | [ ]       | Process Flow Chart            | [ ]  |  |  |                                     |                                     |   |
| Radiation Work Permit  | [ ]  | Essential Material Specification | [ ]       | Purchase Requisition          | [ ]  |  |  |                                     |                                     |   |
| Environmental Impact Statement   | [ ]  | Fac. Proc. Samp. Schedule        | [ ]       | Tickler File                  | [ ]  |  |  |                                     |                                     |   |
| Environmental Report   | [ ]  | Inspection Plan                  | [ ]       |                               | [ ]  |  |  |                                     |                                     |   |
| Environmental Permit   | [ ]  | Inventory Adjustment Request     | [ ]       |                               | [ ]  |  |  |                                     |                                     |   |
| <b>19. Other Affected Documents:</b> (NOTE: Documents listed below will not be revised by this ECM.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.               |  |                                  |           |                               |  |  |  |                                     |                                     |   |
| Document Number/Revision   |  | Document Number/Revision         |           | Document Number/Revision      |  |  |  |                                     |                                     |   |
| NA   |  |                                  |           |                               |  |  |  |                                     |                                     |   |
| <b>20. Approvals</b>   |  |                                  |           |                               |  |  |  |                                     |                                     |   |
|  | Signature  | Date                             | Signature | Date                          |  |  |  |                                     |                                     |   |
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| Cog. Eng. R. A. Esch   | <i>Ruch Esch</i>   | <u>7/9/96</u>                    | PE        |                               |  |  |  |                                     |                                     |   |
| Cog. Mgr. J. G. Kristofzski  | <i>Jim Krist</i>   | <u>7/10/96</u>                   | QA        |                               |  |  |  |                                     |                                     |   |
| QA T. L. Tung  | <i>Tia Li Tung</i>   | <u>7/9/96</u>                    | Safety    |                               |  |  |  |                                     |                                     |   |
| Safety   |  |                                  | Design    |                               |  |  |  |                                     |                                     |   |
| Environ.   |  |                                  | Environ.  |                               |  |  |  |                                     |                                     |   |
| Other  |  |                                  | Other     |                               |  |  |  |                                     |                                     |   |
| Production Planning & Control  | A. D. Rice   | <u>7-9-96</u>                    |           |                               |  |  |  |                                     |                                     |   |
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| Signature or a Control Number that tracks the Approval Signature   |  |                                  |           |                               |  |  |  |                                     |                                     |   |
| <b>ADDITIONAL</b>  |  |                                  |           |                               |  |  |  |                                     |                                     |   |

# "REVISED FINAL REPORT FOR TANK 241-AN-107, GRAB SAMPLES 7AN-95-1 THROUGH 7AN-95-10 AND 7AN-95-FB."

Ruth A. Esch  
Westinghouse Hanford Company, Richland, WA 99352  
U.S. Department of Energy Contract DE-AC06-87RL10930

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Org Code: 7576B Charge Code: MD378  
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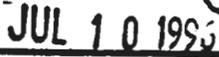
Key Words: Revised Final Report for Tank 241-AN-107,  
Grab Samples 7AN-95-1 through 7AN-95-10 and  
7AN-95-FB,

Abstract: N/A

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*Ruth A. Esch*  
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## WHC-SD-WM-DP-176 REV. 1A

The measured concentration of TOC (on a wet weight basis) for the six supernates and the interstitial liquid from the four sludge samples submitted were all above the notification limit of 30,000  $\mu\text{g/mL}$ . Two of the four sludge samples had TOC concentrations for the solid portions above the limit (30,000  $\mu\text{g/g}$  for solids). For the two remaining sludges, the TOC results for the solids were just slightly below the limit (approximately 27,000  $\mu\text{g/mL}$ ).

The safety screening DQO requires that total cyanide (CN) be determined for solid samples if the TOC does not account for the energetics observed in the DSC analysis, or if the TOC concentration is less than 3 wt% (30,000  $\mu\text{g/g}$ ). The calculation for the energy equivalent (X) of TOC for comparison with the DSC energetics value is given in equation (1). The calculation for TOC on a dry weight basis is given in equation (2). It was determined that the TOC concentration in the two sludge samples that were below the limit accounted for the energetics observed in the DSC analysis. Therefore, no CN analyses were requested.

$$X = (\text{wt\% TOC dry weight basis}) \times \frac{151 \text{ cal/g}}{5} \quad (1)$$

Note: 151 cal/g represents the energy equivalent of 5 wt% TOC (based on sodium acetate average energetics standard). For conversion, 4.184 joules = 1 cal.

$$\text{TOC (dry weight)} = \frac{[(\text{TOC (wet weight)/density}) \times 100]}{(100 - \% \text{water})} \quad (2)$$

Note: %water = average thermogravimetric analysis (TGA) %moisture result.

## WHC-SD-WM-DP-176, REV.1A

Table 2: Comparison of Total Organic Carbon Results (dry weight) at a 95% Confidence Level

| Customer  | Segment Portion | LabCore ID | Sample Result     | Duplicate Result  | Mean              | Standard Deviation | 95% Upper Limit (Mean) |
|-----------|-----------------|------------|-------------------|-------------------|-------------------|--------------------|------------------------|
|           |                 |            | $\mu\text{g C/g}$ | $\mu\text{g C/g}$ | $\mu\text{g C/g}$ |                    | $\mu\text{g C/g}$      |
| 7AN-95-1  | Supernate       | S96T000723 | 8.85E+04          | 8.88E+04          | 8.87E+04          | 207.6              | 8.96E+04               |
| 7AN-95-2  | Supernate       | S96T000724 | 8.13E+04          | 8.16E+04          | 8.15E+04          | 202.8              | 8.24E+04               |
| 7AN-95-3  | Supernate       | S96T000725 | 7.53E+04          | 7.87E+04          | 7.70E+04          | 2382.8             | 8.76E+04               |
| 7AN-95-6  | Supernate       | S96T000697 | 7.52E+04          | 7.56E+04          | 7.54E+04          | 310.9              | 7.68E+04               |
| 7AN-95-7  | Supernate       | S96T000698 | 7.93E+04          | 7.87E+04          | 7.90E+04          | 401.0              | 8.08E+04               |
| 7AN-95-8  | Supernate       | S96T000699 | 8.50E+04          | 8.28E+04          | 8.39E+04          | 1535.0             | 9.07E+04               |
|           |                 |            | $\mu\text{g C/g}$ | $\mu\text{g C/g}$ | $\mu\text{g C/g}$ |                    | $\mu\text{g C/g}$      |
| 7AN-95-4  | Decant. Sup.    | S96T000746 | 8.77E+04          | 8.64E+04          | 8.71E+04          | 943.2              | 9.13E+04               |
| 7AN-95-5  | Decant. Sup.    | S96T000747 | 8.47E+04          | 8.39E+04          | 8.43E+04          | 527.1              | 8.67E+04               |
| 7AN-95-9  | Decant. Sup.    | S96T000700 | 7.93E+04          | 7.67E+04          | 7.80E+04          | 1811.5             | 8.61E+04               |
| 7AN-95-10 | Decant. Sup.    | S96T000701 | 8.58E+04          | 8.53E+04          | 8.56E+04          | 412.2              | 8.74E+04               |
|           |                 |            | $\mu\text{g C/g}$ | $\mu\text{g C/g}$ | $\mu\text{g C/g}$ |                    | $\mu\text{g C/g}$      |
| 7AN-95-4  | Cent. Sol.      | S96T000744 | 4.38E+04          | 4.37E+04          | 4.37E+04          | 114.8              | 4.43E+04               |
| 7AN-95-5  | Cent. Sol.      | S96T000745 | 4.60E+04          | 4.65E+04          | 4.63E+04          | 353.8              | 4.79E+04               |
| 7AN-95-9  | Cent. Sol.      | S96T000707 | 5.37E+04          | 4.92E+04          | 5.15E+04          | 3218.1             | 6.58E+04               |
| 7AN-95-10 | Cent. Sol.      | S96T000708 | 5.47E+04          | 5.44E+04          | 5.45E+04          | 235.9              | 5.56E+04               |

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|   |                                    | Date: 07/09/96       |              |  |
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| WHC-SD-WM-DP-176, REV. 1A "Revised Final Report for Tank 241-AN-107, Grab Samples 7AN-95-1 Through 7AN-95-10 and 7AN-95-FB" |                                    | ECN NO.: 633310      |              |  |
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