



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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August 25, 2011

11-NWP-098

Mr. Scott L. Samuelson, Manager  
United States Department of Energy  
Office of River Protection  
P.O. Box 450, MSIN: H6-60  
Richland, Washington 99352

Re: Modification of Double Shell Tank (DST) Permit to reflect Enraf<sup>TM</sup> Installation in the 241-AP, 241-AW, and 241-AN DST Farms, and Ecology Receipt of DST Supplemental Information

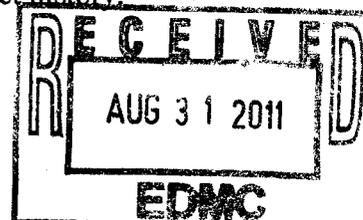
Dear Mr. Samuelson:

The Department of Ecology (Ecology) received revisions to the draft DST System portion of the Hanford Site Dangerous Waste Permit (Reference 1) from the United States Department of Energy-Office of River Protection. We also received the DST supplemental information we requested. The revisions and the supplemental information reflected the completion of installation of automatic level detectors (Enrafs<sup>TM</sup>) in the annulus space of the 241-AP, 241-AW, and 241-AN DST Farms.

Ecology verified that field installation of the Enrafs<sup>TM</sup> consisted of:

1. Installing 16 (two of three at each DST annulus) Enrafs<sup>TM</sup>, including electrical and communication components.
2. Testing, powering, calibrating, and tying the components into the Tank Monitor and Control System (TMACS).
3. Removing the manual tape detectors and associated components to the extent possible.
4. Installing the remaining eight Enrafs<sup>TM</sup> detectors (third of three at each DST annulus).
5. Testing, powering, calibrating, and tying the components to TMACS for the last set installed.

Ecology has closely monitored this project, including reviewing and concurring with the design, monitoring the installation, and providing input on the necessary permitting documentation needed for this effort. Enclosed is a detailed summary of this project history.



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The Manual Tapes previously installed in the 241-AP, 241-AW, and 241-AN Tank Farms were aged past their useful life expectancy and were difficult to read on a daily basis. In addition, the alarms sounded only in the control room, and their housings required frequent repair. Additional constraints of the Manual Tape detector's operations were caused during power outages. During an electrical outage, wires were disconnected and relanded in the Flake Boxes and required functional tests were performed for the Manual Tapes.

Replacement of the Manual Tapes with Enrafs™ is a significant upgrade to the DST leak detection. Ecology is pleased that all DST tank and annulus leak detection is upgraded to Enrafs™ and that the supplemental information has been placed in the DST System Operating Record.

Based on the referenced information and responses to comments, Ecology has concluded the proposed permitting information including Enrafs™ operational description, design, and installation information is complete, technically appropriate, and a basis for a permit decision. We intend to include this monitoring system upgrade into the draft Revision 9 of the Hanford Dangerous Waste Permit when issued and accept comments on this leak detection upgrade as part of that Permit's public comment process.

If there are any questions, contact Jeff Lyon at 509-372-7914; Michelle Hendrickson, PE, at 509-372-7970; or Kristi Wold at 509-372-7985.

Sincerely,



Jane A. Hedges  
Program Manager  
Nuclear Waste Program

mh/dm  
Enclosure

References:

1. Letter 11-ESQ-134 dated June 15, 2011, from Scott L. Samuelson, USDOE-ORP, and Charles G. Spencer, WRPS, to Jane A Hedges, Ecology., regarding draft for operation unit 12, DST system and 204 AR, supplemental information for American recovery and reinvestment act project RA-1.7-1 refurbish Enrafs™ project
2. Email sent June 17, 2010, from Michelle Hendrickson of Ecology to Eric Van Mason of CEES and Felix Miera, Sherman Tiff, and Del Scott of WRPS, regarding 241-AP Enraf™ Installation.

3. Letter dated September 27, 2010, from Michelle Hendrickson, Ecology, to Stacy Charboneau, USDOE-ORP, regarding 241-AP DST Farm Annulus Leak Detection Replacement Construction Assessment Field Visit.
4. Email sent August 31, 2010, from Del Scott (WRPS) to Michelle Hendrickson (Ecology) and Carol Slack and Sherman Tiff (WRPS), regarding Interim Construction Rpt. Form-241-AP Enrafs<sup>TM</sup>.
5. Draft Supplemental Information regarding Enraf<sup>TM</sup> design and installation, received October 2010 by Ecology from WRPS.
6. Email sent January 20, 2011, from Michelle Hendrickson (Ecology) to Carol Slack, Felix Miera, Bret Peck and Del Scott (WRPS); Eric Van Mason (CEES); and Lori Huffman (USDOE-ORP), regarding Enrafs<sup>TM</sup>.

cc: Dennis Faulk, EPA  
Dave Bartus, EPA  
Lori Huffman, USDOE  
Scott Stubblebine, USDOE  
Brian Dixon, WRPS  
Jack Donnely, WRPS  
Gloria Johnson, WRPS  
Felix Miera, WRPS  
Bret Peck, WRPS  
Lucinda Penn, WRPS  
Jeff Voogd, WRPS  
Carol Slack, WRPS  
Del Scott, WRPS  
Stuart Harris, CTUIR  
Gabriel Bohnee, NPT  
Russell Jim, YN  
Susan Leckband, HAB  
Ken Niles, ODOE  
Administrative Record: DST  
Environmental Portal  
Hanford Operating Record General File  
USDOE-ORP Correspondence Control

**Enclosure  
11-NWP-098**

**Enraf™ Installation in the 241-AP, 241-AW, and 241-AN DST Farms  
Project History**

The United States Department of Energy – Office of River Protection and Washington River Protection Solutions (WRPS) presented a briefing to Ecology on March 3, 2010, regarding installation of Enrafs™ at the 241-AN, 241-AP, and 241-AW DST Farms. We received the Enraf™ engineering design packages on April 12, 2010.

Ecology sent an email (Reference 2) on June 17, 2010, with questions about the design and field construction activities. WRPS's proposed responses, provided by telephone, were incorporated into the email. In that email, Ecology also endorsed the construction activities to begin as scheduled and requested that the installation, start-up, and testing be monitored by an Independent, Qualified, Registered Profession Engineer (IQRPE). We requested the monitoring for assurance that the owner/operator would prevent damage to the DST system during the installation. An IQRPE or qualified inspector certifies the system does not contain the presence of any weld breaks, punctures, scrapes, cracks, corrosion, or any other structural damage or inadequate construction or installation.

Ecology also requested that WRPS consider removing all electrical components, conduits, wiring, etc. associated with the Manual Tapes. We asked if any electrical components remaining could release free current, causing a potential for corrosion.

On August 13, 2010, Ecology visited the 241-AP Farm and witnessed the installation of Enrafs™. A letter detailing these findings was sent September 27, 2010 (Reference 3).

WRPS sent an email August 31, 2010, (Reference 4) noting that all of the Manual Tapes' wiring from the flake boxes are being reused in the field as part of the Enraf™ project. Reusing the wire meant there would be no free current; thus, no corrosion source from free current would be present once the Manual Tapes were exchanged with Enrafs™. Ecology did not see a basis for this statement in the engineering plans and drawings, and asked WRPS to provide that basis.

In October 2010, WRPS provided Ecology an informal, draft response to Ecology's electrical current question. Ecology reviewed the draft information (Reference 5) and noted the additional comments via email January 20, 2011(Reference 6). The comments were resolved in a comment resolution meeting on May 4, 2011, and the information was transmitted to Ecology by letter on June 15, 2011 (Reference 1). Also included in this submittal (Reference 1) were copies of the signed National Electric Code (NEC) checklist that addressed Ecology concerns on electrical work.

After further review of the provided information and discussions between Ecology, ORP, and WRPS, we agreed that an IQRPE review as discussed above, was no longer necessary.