



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

MAR 20 2019

19-ECD-0021
REISSUE

Ms. Alexandra K. Smith, Program Manager
Nuclear Waste Program
Washington State
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

Ms. Smith:

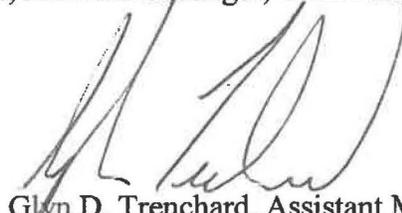
**REISSUE – RESPONSE TO WASHINGTON STATE DEPARTMENT OF ECOLOGY
ENGINEERING REVIEW FOR THE PC-5000 LEAK RATE CALCULATION**

Reference: Ecology document from S. Lowe, “Engineering Review WTP / Evaporator
Transfer System Hydraulic Analysis, RPP-CALC-62638, Rev 00,” dated
December 20, 2018.

The purpose of this reissue is to add names to the cc: distribution list.

The attached responses are provided to address the recommendations included in Reference,
which was provided via Washington State Department of Ecology email titled “Approval of
Leak Rate Calculations,” from K. Hall to R.L. Evans, ORP, and R.J. Valle, ORP, dated
December 26, 2018.

If you have any questions, please contact Chris Kemp, Director, Environmental Compliance
Division, (509) 373-0649, or Robert G. Hastings, Assistant Manager, Tank Farms Project,
(509) 376-9824.



Glyn D. Trenchard, Assistant Manager
Technical and Regulatory Support

ECD:RLE

Attachment

cc: See page 2

Ms. Alexandra K. Smith
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cc w/attach:

A.S. Carlson, Ecology
S.S. Lowe, Ecology
J.J. Lyon, Ecology
A.G. Pomiak, Ecology
C.L. Whalen, Ecology
L.E. Borneman, WRPS
J.L. Foster, WRPS
J.A. Joyner, WRPS
S.A. Thompson, WRPS
J. Atwood, YN
Administrative Record (T-2-6, T-2-8, S-2-8)
Environmental Portal
WRPS Correspondence

cc w/o attach:

M. Johnson, CTUIR
S.L. Dahl, Ecology
J.A. Bell, NPT
K. Niles, Oregon Energy
J.A. Joyner WRPS
R. Longoria, YN

Attachment
19-ECD-0021 REISSUE
(3 Pages Excluding Cover Sheet)

Response to Ecology Engineering Review, S.S. Lowe PE
Stamped on December 20, 2018
WTP/Evaporator Transfer System Hydraulic Analysis
RPP-CALC-62638, Rev 00 (aka 200-E-310-PL / 200-E-311-PL /
PC-5000 Leak Rate Calculations)

**Response to Ecology Engineering Review, S.S. Lowe PE Stamped on December 20, 2018.
“WTP/Evaporator Transfer System Hydraulic Analysis RPP-CALC-62638, Rev 00
(aka 200-E-310-PL / 200-E-311-PL / PC-5000 Leak Rate Calculations)”**

Ecology Recommendations

Ecology Recommendation 1: “Conduct field tests by simulating leak rates of 0.25 to 2.0 gph to verify the minimum detectable leak rate for the 310, 311, and PC-5000 lines. The calculation recommends this in Section 8.0, as there were many assumptions needed to calculate the estimated leak rate. This also serves to demonstrate what the existing leak detection technologies or site conditions are capable of detecting [see WAC 173-303-640(4)(c)(iii)].”

Response 1: WAC/173-303-640(4)(c)(iii) requires secondary containment systems be designed and operated with a leak detection system capable of detecting a release within 24-hours; and WAC/173-303-640(3)(e) and Washington Department of Ecology Publication Number 94-114, *Guidance for Assessing and Certifying Tank Systems* (revised November 2014) require all new tanks and ancillary equipment be tested for tightness prior to being covered, enclosed, or placed in use. The Independent Qualified Registered Professional Engineer (IQRPE) evaluation should be relied upon to determine whether leak detection is adequate. (See Reference section for WAC citations). Please clarify the regulatory basis for requesting field-testing to verify leak rate detection.

Ecology Recommendation 2: “Conduct a pressure test of the 310 and 311 lines. The lines were installed in 2002, and a considerable time has passed with no inspection or maintenance: (The PC-5000 line was last tested in 2016 according to the 2017 Evaporator integrity assessment report RPP-RPT-60098, Table 5-2.)”

Response 2: After the Waste Treatment Plant (WTP) contractor connects their portion of the transfer lines at Node 8A/B, WTP and Washington River Protection Solutions (WRPS) personnel will test the entire primary line as part of the IQRPE integrity assessment to determine if the lines are fit for use.

Ecology Recommendation 3: “Include in the permit a requirement to pressure test the - 310, -311, and PC-5000 lines every 10 years or less. Pressure testing will confirm the integrity of the lines, and the frequency needs to be enforceable.”

Response 3: “The schedule frequency for the integrity assessments is every 10 years over the life of the facility.” This sentence will be proposed to be deleted from Chapter 4 and inserted into Chapter 6 where the frequencies of inspections and assessments should be identified.

Ecology Recommendation 4: “Include in the permit a requirement to conduct a functional test of the leak detection systems for the 310 line and the 311/PC-5000 lines annually. Section 3.10 of the calculation describes the past issues with previous generations of the leak detection systems.”

Response 4: The frequency of functional testing for the leak detection systems will be based on maintenance history and the manufacturer's recommendations (engineering provides functional check frequency).

The 242-A Evaporator permit, Chapter 6, Section 6.2.1.3, Maintenance, states that leak detectors are functionally checked annually.

In the Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (200 Area ETF) permit, Addendum I, Section I.1.1, General Inspection Requirements states “instrumentation at 200 Area ETF is calibrated regularly to ensure accuracy and reliability. All process control instrumentation is calibrated on a schedule depending on previous calibration experience. An instrument calibration and recall system is employed to manage calibrations”

Ecology Recommendation 5: “Include in the permit a requirement to notify Ecology if the electronic leak detection system is not operating properly or is taken out of service. Ecology was unaware that the leak detection system for the PC-5000 line was out of service from 2003 to 2010.”

Response 5: Notifications to Ecology are consistent with current permit requirements. The permittee does not intend to propose changes regarding Ecology notifications. Section 6.2.2.3, Leak Detectors, allows either continuous monitoring in the control room, or daily visual inspection at Catch Basin 43 encasement catch tank (60M-TK-1) to meet the leak detection requirements during waste transfers. Replacing the continuous cable leak detection system with the dispersion leak detector, will allow the PC-5000 transfer line to be continuously monitored during transfers by an electronic leak detection system, or by daily visual inspection at the encasement catch tank 60M-TK-1 (sight glass FG-60M-001) during waste transfers.

Ecology Recommendation 6: “Include in the permit a requirement to visually inspect the manhole MH-WTP-01 for signs of leaks every 24 hrs during waste transfers through the PC-5000 or 311 lines. Alternative means of detecting the presence of free liquid in the manhole will also be considered.”

Response 6: Breaching the secondary containment on a periodic (24-hr) basis is not feasible due to the complexity of opening manhole MH-WTP-001. Installation of a sight glass is not practical due to the depth, lighting, and design of the manhole. Currently, by design, any liquid that enters the manhole will drain to LERF and trigger the low point leak detector. The addition of a leak detector in the manhole would require damming the waste stream to achieve a depth great enough to be detectable. This would prevent draining of liquid as required per WAC 173-303-640, WAC 173-303-640(4)(c)(iv) and prolong or prevent triggering of the low point leak detector. WRPS does not recommended leak detection in manhole MH-WTP-001. Checking for signs of a leak at manhole MH-WTP-001 every 24 hours is unnecessary; the system design results in draining of leaks to the leak detection system.

Additional Questions and Comments

Ecology Comment 1: “Will the drawings submitted with the permit modification request for the new leak detection system be stamped and signed by a PE, similar to the Project W-519

drawings that installed the 310 and 311 lines and the manhole? TBI is also providing stamped and signed drawings.”

Response 1: Drawings submitted with the signed permit modification package will meet the requirements of WAC 173-303-806(4)(a).

Ecology Comment 2: “The calculation cites several drawings in Sections 3 .1-3 .2 for the design of the PC-5000 line and its leak detection system. Only one of these (the plot plan H-2-79604) is listed in Tables 4.1 and 4.2 of the Evaporator Rev 8C permit. The list of engineering drawings in the Evaporator permit needs to be more complete.”

Response 2: The PC-5000 drawing (H-2-79604) listed in the 242-A Evaporator permit will be replaced with an updated drawing that shows the WTP-002 pipeline from the WTP fence connecting to PC-5000 at manhole MH-WTP-001.

For LERF and 200 Area ETF, a new drawing will be added to the permit showing WTP-001 from the WTP fence line to LERF Catch Basin 42.

Ecology Comment 3: Several of the drawings themselves may need to be updated. H-2-79604 is the plot plan and H-2-79609 is the piping plan for the PC-5000 line; these drawings do not show the manhole MH-WTP-01 (see details on H-2-830102). H-2-88766 Sh. 5 still shows the continuous leak detection cable which is no longer in service.

Response 3: See response to Question 2. Drawings will be updated to reflect as-built conditions.

References:

-640(3)(e) All new tanks and ancillary equipment must be tested for tightness prior to being covered, enclosed, or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the tank system being covered, enclosed, or placed into use.

-640(4)(c)(iii) Provided with a leak-detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous waste or accumulated liquid in the secondary containment system within twenty-four hours, or at the earliest practicable time if the owner or operator can demonstrate to the department that existing detection technologies or site conditions will not allow detection of a release within twenty-four hours; and

-640(4)(c)(iv) Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within twenty-four hours, or in as timely a manner as is possible to prevent harm to human health and the environment, if the owner or operator can demonstrate to the department that removal of the released waste or accumulated precipitation cannot be accomplished within twenty-four hours.