



STATE OF WASHINGTON  
DEPARTMENT OF HEALTH

OFFICE OF RADIATION PROTECTION

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October 6, 2016

Sean Murphy, RSO  
US Ecology Washington  
1777 Terminal Drive  
Richland, Washington 99354

**License No. WN-I019-2**

Subject: WN-I019-2, Annual Environmental Monitoring Report 2015

Dear Mr. Murphy:

Thank you for submitting the Annual Environmental Monitoring Report, for Calendar year 2015. The department has reviewed this report and is requesting that the report be reissued in its entirety to address the department's comments. The department expects that US Ecology will perform QA on this document and have the radiation safety committee review it before it is resubmitted. The department expects the report to be reissued by November 30<sup>th</sup>, 2016. Below are the comments from the department:

Comments from 2015 Annual Environmental Monitoring Report:

Comment No.	Section No. / ¶ / Page	Comments
1	General	All graphs and figures of graphs should have minor tics to help evaluate the results.
2	General	All graphs and figures of graphs should be in color to help trace the individual lines.
3	General	The Environmental Report Format revision 8 dated October 21, 2013, requires a glossary. This is missing from the report.
4	General	The Environmental Report Format revision 8 dated October 21, 2013, requires an appendix for internal audits. This is missing from the report.



5	General	<p>Most sections and information requested in the report format are included, but do not necessarily follow the outline given by the report format. This is most notable with data tables and maps.</p> <p>Missing from report:</p> <ul style="list-style-type: none"> <li>-Location and a map showing location of MEI, plus dose calculation in the executive report section</li> <li>-Statement on why environmental monitoring is a sound business practice in Description of Environmental Monitoring Program section</li> <li>-Met Data should at least be referenced to in the Environmental Monitoring Program section</li> <li>-Statistical methods used to analyze and validate data and MDL/MDA in QA program section</li> <li>-Sample recount data and a column indicating how many times action or investigation levels are exceeded in the data table in Samples Exceeding Investigation or Action Levels, as well as a statement regarding remediation activities</li> </ul>
6	General	<p>Data tables are not in a consistent format. Some show standard deviation while others do not; some compare past to current averages without the deviation to show whether the current data is statistically similar; many tables are not discussed or referenced in the text.</p>
7	Section 1 Paragraph 5 Page 1	<p>USEW dose limit to the general public is 100 mrem not 400 mrem.</p>
8	Figure 2.1 Page 3	<p>The map has sections of the facility cut off on the south side. The size of the map legend makes it unreadable. This map should be on a 11 x 17 sheet of paper.</p>
9	Table 4.1 Page 8	<p>Did USEW change labs in 2015?</p>
10	Section 5.6 Page 25	<p>USEW reported a value of 102 mrem for the general public. This value is above the dose limit for the general public. Please confirm if this number is correct.</p>
11	Section 6.0 Page 27	<p>USEW makes the statement "Groundwater sample results show very little variation from sample to sample." What does USEW mean by this statement?</p>
12	Table 6.1 Page 32	<p>USEW has an error in this table for well 9. USEW reported 28 pCi/l as the mean with the max reading of 7.7 pCi/l.</p>

13	Section 6.2 Paragraph 2 Page 32	USEW states that "Technitium-99 is the largest contributor to gross beta in up-gradient wells." How can USEW support this statement? Figure 6.2 indicates that the Tritium concentration is well above 2,000 pCi/l while Figure 6.1 indicates that the Technitium-99 concentration is only 20 pCi/l.
14	Section 6.2 Paragraph 2 Page 32	USEW stated "Our contract laboratory has investigated the possibility that Technitium-99 is driven off during the drying portion of the gross beta analysis, and concluded that there is no appreciable loss during their procedure." What support did USEW's lab provide to support this statement?
15	Pages 19 & 26	Station 1 average concentrations in Table 5.1 and 5.8 do not match. Please reconcile the difference.
16	Page 19	Tables 5.1 and 5.2 are not discussed in text
17	Pages 22 & 2	Data for previous years at Trench 13 are discussed, but not 2015.
18	Pages 23 & 2	"Uranium in Soil" subsection does not have any statement regarding the results or trends. Include a summary of findings.
19	Page 24	Table 5.6 shows 4-year averages and the current year's average at the TLD locations. Standard deviations or min & max are not included; nor a discussion on whether the current year's averages are statistically similar to past years. Include an analysis of how the current's year's data fits into the trend shown in the previous years.
20	Pages 27 & 7	"Since 2002, the slope has decreased, but it is still increasing from year to year" is a bit difficult to understand. Clarify what the statement means. It also seems that, per Fig. 6.1, gross beta has shown an overall slight increase since 2000, not 2002.
21	Page 31	Fig. 6.2 shows that tritium concentration at Well 3 is significantly higher than the other wells; the text should address this increase.
22	Pages 32, 1, & 2	It is stated that wells MW-3, 4, 5 have higher C-14 concentrations than the other wells, but the reason why is not discussed. Address why this might have occurred.
23	Pages 32 & 2	Data and/or graph are not referenced for discussion of Tc-99.
24	Appendix C	This is not the most current amendment of license. The current amendment is not releasable to general public and should not be included.
25	Appendix H	The title page is mislabeled as appendix I.
26	Appendix H	Did you mean to record the volume for station 1 in meters? The rest of the volumes are in feet. Please be consistent.
27	Appendix H	What type of volume are FT2 and FT1? These units are listed in the volume column, for H-3 in environmental air.

28	Appendix H	The Environmental Report Format revision 8 dated October 21, 2013, requires reported values to be accompanied by uncertainty absolute error values of plus/minus 2 sigma. These are missing from the environmental air section.
29	Appendix H	The 3 <sup>rd</sup> quarter groundwater for well 9 is missing U-239 and total U.
30	Appendix J	Missing the Total Uranium in vegetation graph, for the NE corner.
31	Appendix J	Missing all the graphs for Tritium in vegetation.
32	Appendix J	Fence line dose should be graphed in either gross or net mrem for the quarter instead of mrem per day.

If you have any questions, comments, or would like to discuss responses please do not hesitate to contact me at 360-236-3247.

Sincerely,



Kevin Siebert  
Waste Management Section

cc:

Mike Ault, - Facility Manager, US Ecology  
Joe Weisman - US Ecology Boise, Id.  
John Martell - Washington DOH  
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