

## **APPENDIX I**

### **FILTERED VERSUS UNFILTERED LIQUID SAMPLE COMPARISON**

## EVALUATION OF THE EFFECTS OF LABORATORY FILTERING ON SAMPLE ACTIVITY

Influent and effluent samples collected from CWT, ZLD, POTW-I wastewater treatment facilities, and produced water from well sites were analyzed both pre- and post-filtering (samples are hereafter referred to as "unfiltered," and "filtered," respectively). The filtering was only performed in the laboratory, and no samples were filtered prior to reaching the laboratory. Each pair of unfiltered/filtered results were then compared and evaluated to determine what effects, if any, filtering may have had on the activity. The following hierarchy was used to break down this comparison study:

- Facility type (CWT, ZLD, POTW-I, and Production),
- Sample type (influent or effluent; note that produced water only had one sample type), and
- Target analyte/nuclide (including: gross  $\alpha$ , gross  $\beta$ , Ra-226, and Ra-228).

This hierarchy yielded 27 unique target analyte groups in total. Each of the 27 groups were evaluated by considering the following metrics:

- Only detected data were considered for this evaluation. If one or both of the unfiltered/filtered pair had a non-detect (result less than MDC), then that sample pair was not included in the evaluation.
- The results from each unfiltered/filtered pair were checked for consistency by evaluating whether the error bars from the pair overlapped. If the error bars did overlap, the pair was said to be "consistent"; if the error bars did not overlap, the pair was said to be "discrepant."
- Each unfiltered/filtered pair was then evaluated by performing a relative percent difference (RPD) calculation. If the RPD was less than 35 percent, the pair was thought of as having passed a duplicate test for consistency; if the results were greater than 35 percent, the pair was thought of as having failed the duplicate check, which may indicate that the results are discrepant.
- Each unfiltered/filtered pair was then evaluated by performing a duplicate error ratio (DER). If the DER was less than 1.42, the pair was thought of as having passed a duplicate test for consistency; if the results were greater than 1.42, the pair was thought of as having failed the duplicate check, which may indicate that the results are discrepant.
- Each unfiltered/filtered pair was also evaluated to determine which sample had the higher activity. A finding that either the filtered or the unfiltered results exclusively or consistently had the higher activity would allow the conclusion that filtered had some effect. A finding that there was a mix of both filtered and unfiltered results that had higher activity indicated that there was no appreciable effect that filtering had on the samples.
- Finally, for each unfiltered/filtered pair, each of the four analytes were reviewed against the above criteria to determine whether there was a sample-specific correlation of the results. For example, if gross  $\alpha$  and gross  $\beta$  were discrepant for a given sample pair, each of the remaining nuclides for that sample pair were checked to see if they were discrepant. A sample pair that was discrepant across all analytes would be considered a strong indication that filtering had some effect on that specific sample pair. If the results yielded a mix of discrepant and consistent results across all analytes, then the conclusion may be that filtering had no discernible effect.

## **Results**

**Table I-1** is generally representative of the outcome of the evaluation that was observed in all sample groups (i.e., across all facilities and analytes).

## **Discussion**

Using **Table I-1** as an example, the evaluation leading to a conclusion is as follows:

- There were nine pairs usable for the evaluation.
- Of the nine pairs of usable data, there were three pairs of results that were consistent and six pairs of results that were discrepant.
- Of the six discrepant pairs, there were four pairs in which the filtered result was higher than the unfiltered results, and two pairs in which the unfiltered result was higher than the filtered result.

The conclusion from this evaluation is that there is no apparent trend or bias that filtering produces. This same evaluation was performed for each sample group and the conclusions are presented in **Table I-2**.

The conclusions fall into the following categories:

- NC (No Conclusion) – indicates that there were too few data points to make a conclusion.
- NE (No Effect) – indicates that there appears to be no consistent effect that filtered had on sample results.
- UBH (Unfiltered Biased High) – indicates that although there was a mix of data, there are significantly more unfiltered results that were higher than their unfiltered counterparts.
- FBH (Filtered Biased High) – indicates that although there was a mix of data, there are significantly more filtered results that are higher than their unfiltered counterparts.
- UCH (Unfiltered Correlates High) – indicates that there appears to be a correlation between unfiltered results and greater activity.
- FCH (Filtered Correlates High) – indicates that there appears to be a correlation between filtered results and greater activity.

There was no correlation found within any sample group. For the most part, there was either not enough data to evaluate or the data appeared to be mainly consistent with a distribution of results around the consistency.

There were some indications that either the unfiltered results or the filtered results may have been biased higher. However, across different sample groups this bias was not maintained for any analyte.

The totals serve to provide a general synopsis of all the data. Sixty-seven percent of the data pairs exhibit results that are consistent between the filtered and unfiltered analyses. Of the remaining data, 20 percent of the pairs had unfiltered data that were more elevated than their

filtered counterpart, whereas only 13 percent of the pairs contained filtered results that were higher.

Overall, the data seem to indicate that filtering may have a very small, if not negligible, effect. Considering that this effect, if it exists, resulted in a meaningful distribution of both sample activity increases and decreases, it is likely nuclide-specific and/or facility-specific.

One final analysis was performed on the data which looked at all the results for a given sample pair to determine whether the effects of filtering were consistent for a given sample across all analytes. The results of this evaluation were inconclusive at best, indicating once again the filtering may have no consistently recognizable effect.

**Table I-1. Gross Alpha Filtered/Unfiltered Comparison – CWT Effluent**

Study ID	Sample Type	Gross Alpha Result (pCi/L)	Gross Alpha Error (pCi/L)	Gross Alpha MDC (pCi/L)	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-06-LQ-075	Unfiltered	13,700	1,800	1,420	Discrepant	35.8	1.11	Filtered
WT-06-LQ-076	Filtered	19,600	2,070	1,410				
WT-08-LQ-085	Filtered	22,800	1,470	595	Discrepant	18.6	0.965	Filtered
WT-08-LQ-086	Unfiltered	18,900	1,420	744				
WT-06-LQ-149	Filtered	13,300	1,820	2,020	Discrepant	69.4	2.48	Unfiltered
WT-06-LQ-150	Unfiltered	27,300	2,250	1040				
WT-08-LQ-151	Filtered	8.25	1.16	0.874	Discrepant	55.3	0.957	Filtered
WT-08-LQ-152	Unfiltered	4.68	1.51	1.95				
WT-08-LQ-153	Filtered	22,700	2,340	1,840	Discrepant	28.1	1.67	Filtered
WT-08-LQ-154	Unfiltered	17,100	2,470	2800				
WT-11-LQ-187	Filtered	5,520	1,490	1,830	Consistent	45.9	0.468	Filtered
WT-11-LQ-188	Unfiltered	3,460	1,680	2,510				
WT-11-LQ-221	Filtered	4,160	1,460	1,950	Consistent	7.125	0.064	Filtered
WT-11-LQ-222	Unfiltered	3,876	1,770	2,630				
WT-08-LQ-237	Filtered	40,700	2,780	1,270	Consistent	3.86	0.207	Unfiltered
WT-08-LQ-238	Unfiltered	42,300	2,800	131				
WT-06-LQ-245	Filtered	13,700	1,730	1,600	Discrepant	93.4	4.25	Unfiltered
WT-06-LQ-246	Unfiltered	37,600	2,290	879				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Concentration.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-2. Summary of Evaluation Data**

Sample Group	Number of Usable Pairs	Number of Pairs with consistent results	No. of Discrepant Unfiltered Higher	No. of Discrepant Filtered Higher	Conclusion
Produced Water Gross Beta	6	5	1	0	NC/NE
Produced Water Ra-226	5	5	0	0	NC/NE
Produced Water Ra-228	6	5	0	1	NC/NE
INFLUENT POTW-I Gross Alpha	2	1	1	0	NC
INFLUENT POTW-I Gross Beta	3	2	0	1	NE
INFLUENT POTW-I Ra-226	6	4	1	1	NE
INFLUENT POTW-I Ra-228	6	3	2	1	NC/NE
EFFLUENT POTW-I Gross Beta	5	4	0	1	NC/NE
EFFLUENT POTW-I Ra-226	5	4	0	1	NE
EFFLUENT POTW-I Ra-228	2	1	1	0	NC/NE
INFLUENT CWT Gross Alpha	10	7	2	1	NE
INFLUENT CWT Gross Beta	21	12	7	2	NE/UBH
INFLUENT CWT Ra-226	22	14	5	3	NE
INFLUENT CWT Ra-228	20	13	6	1	NE/UBH
EFFLUENT CWT Gross Alpha	10	3	3	4	NE
EFFLUENT CWT Gross Beta	10	7	2	1	NE
EFFLUENT CWT Ra-226	22	18	1	3	NE/FBH
EFFLUENT CWT Ra-228	14	11	2	1	NE/UBH
INFLUENT ZLD Gross Alpha	18	10	6	2	UBH
INFLUENT ZLD Gross Beta	17	10	5	2	UBH
INFLUENT ZLD Ra-226	25	17	4	4	NE
INFLUENT ZLD Ra-228	23	17	5	1	NE/UBH
EFFLUENT ZLD Gross Alpha	17	8	6	3	NE/UBH
EFFLUENT ZLD Gross Beta	17	9	5	3	NE/UBH
EFFLUENT ZLD Ra-226	20	16	1	3	NE/FBH
EFFLUENT ZLD Ra-228	18	15	1	2	NE
Totals	330	221	67	42	

**Notes:**

NC (No Conclusion) – indicates that there were too few data points to make a conclusion.

NE (No Effect) – indicates that there appears to be no consistent effect that filtered had on sample results.

UBH (Unfiltered Biased High) – indicates that although there was a mix of data, there are significantly more unfiltered results that were higher than their unfiltered counterparts.

FBH (Filtered Biased High) – indicates that although there was a mix of data, there are significantly more filtered results that are higher than their unfiltered counterparts.

UCH (Unfiltered Correlates High) – indicates that there appears to be a correlation between unfiltered results and greater activity.

FCH (Filtered Correlates High) – indicates that there appears to be a correlation between filtered results and greater activity.

**Table I-3. Gross Alpha Filtered/Unfiltered Comparison – Produced Water**

Study ID	Sample Type	Gross Alpha Result	Gross Alpha Error	Gross Alpha MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WP-09-LQ-018	Filtered	8,780	1,470	1,330	Consistent	10.5	0.208	Unfiltered
WP-09-LQ-019	Unfiltered	9,760	1,840	2,040				
WP-08-LQ-020	Filtered	11,200	1,590	1,310	Consistent	1.12	0.025	Unfiltered
WP-08-LQ-021	Unfiltered	11,300	1,920	2,040				
WP-21-LQ-037	Unfiltered	10,700	1,700	1,740	Consistent	6.38	0.149	Filtered
WP-21-LQ-038	Filtered	11,400	1,630	1,450				
WP-04-LQ-039	Unfiltered	30,000	2,600	1,860	Consistent	9.45	0.401	Filtered
WP-04-LQ-040	Filtered	33,000	2,670	1,820				
WP-12-LQ-041	Unfiltered	21,800	2,130	1,480	Consistent	18.9	0.636	Unfiltered
WP-12-LQ-042	Filtered	18,000	2,050	1,750				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-4. Gross Beta Filtered/Unfiltered Comparison – Produced Water**

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WP-09-LQ-018	Filtered	3,040	604	849	Consistent	16.6	0.277	Filtered
WP-09-LQ-019	Unfiltered	2,570	608	881				
WP-08-LQ-020	Filtered	4,050	641	862	Consistent	21.4	0.446	Filtered
WP-08-LQ-021	Unfiltered	3,270	629	882				
WP-16-LQ-027	Unfiltered	1,140	627	997	Consistent	33.8	0.279	Filtered
WP-16-LQ-028	Filtered	1,610	575	876				
WP-21-LQ-037	Unfiltered	2,300	617	915	Consistent	37.9	0.614	Filtered
WP-21-LQ-038	Filtered	3,370	645	904				
WP-04-LQ-039	Unfiltered	7,600	750	898	Consistent	5.67	0.199	Unfiltered
WP-04-LQ-040	Filtered	7,180	767	946				
WP-12-LQ-041	Unfiltered	6,810	750	923	Discrepant	51.0	1.43	Unfiltered
WP-12-LQ-042	Filtered	4,050	640	868				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).



**Table I-5. Ra-226 Filtered/Unfiltered Comparison – Produced Water**

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WP-16-LQ-027	Unfiltered	819	167	134	Consistent	3.60	0.064	Filtered
WP-16-LQ-028	Filtered	849	170	129				
WP-20-LQ-031	Unfiltered	145	44.0	57.0	Consistent	31.1	0.283	Unfiltered
WP-20-LQ-032	Filtered	106	55.0	84.0				
WP-21-LQ-033	Unfiltered	340	59.0	68.0	Consistent	15.2	0.605	Filtered
WP-21-LQ-034	Filtered	292	53.0	62.0				
WP-21-LQ-037	Unfiltered	6,300	113	436	Consistent	6.45	0.226	Filtered
WP-21-LQ-038	Filtered	6,720	941	627				
WP-04-LQ-039	Unfiltered	26,600	3,330	764	Consistent	9.86	0.295	Unfiltered
WP-04-LQ-040	Filtered	24,100	2,750	654				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-6. Ra-228 Filtered/Unfiltered Comparison – Produced Water**

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WP-16-LQ-027	Unfiltered	896	76.0	11.0	Consistent	5.15	0.219	Unfiltered
WP-16-LQ-028	Filtered	851	72.0	11.0				
WP-19-LQ-029	Unfiltered	26.0	8.00	10.0	Discrepant	51.4	0.717	Filtered
WP-19-LQ-030	Filtered	44.0	10.0	12.0				
WP-20-LQ-031	Unfiltered	42.0	6.00	6.00	Consistent	13.3	0.332	Filtered
WP-20-LQ-032	Filtered	48.0	7.00	6.00				
WP-21-LQ-033	Unfiltered	214	17.0	19.0	Consistent	1.89	0.17	Filtered
WP-21-LQ-034	Filtered	210	16.0	6.00				
WP-21-LQ-037	Unfiltered	941	110	48.0	Consistent	6.36	0.033	Unfiltered
WP-21-LQ-038	Filtered	883	885	28.0				
WP-04-LQ-039	Unfiltered	1,900	161	68.0	Consistent	2.13	0.084	Unfiltered
WP-04-LQ-040	Filtered	1,860	182	55.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-7. Gross Alpha Filtered/Unfiltered Comparison –POTW - I Influent**

Study ID	Sample Type	Gross Alpha Result	Gross Alpha Error	Gross Alpha MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-15-LQ-183	Filtered	11.0	5.13	7.61	Discrepant	182	1.84	Unfiltered
WT-15-LQ-184	Unfiltered	240	124	160				
WT-15-LQ-225	Filtered	490	180	222	Consistent	83.4	0.612	Unfiltered
WT-15-LQ-226	Unfiltered	1,190	556	788				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-8. Gross Beta Filtered/Unfiltered Comparison – POTW-I Influent**

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-16-LQ-077	Filtered	6.24	1.44	2.08	Consistent	18.3	0.373	Unfiltered
WT-16-LQ-078	Unfiltered	7.50	0.941	1.19				
WT-16-LQ-143	Filtered	11,300	1,540	1,980	Discrepant	200	3.72	Filtered
WT-16-LQ-144	Unfiltered	9.94	1.56	2.08				
WT-16-LQ-243	Filtered	6.75	1.85	2.73	Consistent	35.4	0.517	Unfiltered
WT-16-LQ-244	Unfiltered	9.64	2.18	3.20				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-9. Ra-226 Filtered/Unfiltered Comparison –POTW-I Influent**

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-17-LQ-189	Filtered	131	41.0	60.0	Consistent	26.8	0.315	Filtered
WT-17-LQ-190	Unfiltered	100	29.0	45.0				
WT-13-LQ-211	Filtered	58.0	26.0	39.0	Consistent	49.4	0.421	Unfiltered
WT-13-LQ-212	Unfiltered	96.0	38.0	59.0				
WT-14-LQ-213	Filtered	82.0	32.0	45.0	Consistent	37.6	0.415	Unfiltered
WT-14-LQ-214	Unfiltered	120	34.0	51.0				
WT-15-LQ-225	Filtered	255	60.0	81.0	Discrepant	61.0	0.695	Unfiltered
WT-15-LQ-226	Unfiltered	479	153	235				
WT-16-LQ-243	Filtered	66.0	22.0	33.0	Consistent	65.9	0.886	Unfiltered
WT-16-LQ-244	Unfiltered	131	70.0	106				
WT-12-LQ-293	Filtered	100	32.0	42.0	Discrepant	110	3.56	Filtered
WT-12-LQ-294	Unfiltered	345	61.0	58.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-10. Ra-228 Filtered/Unfiltered Comparison – POTW-I Influent**

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-15-LQ-183	Filtered	103	28.0	36.0	Discrepant	72.8	1.73	Filtered
WT-15-LQ-184	Unfiltered	48.0	15.0	17.0				
WT-17-LQ-189	Filtered	12.0	4.00	6.00	Consistent	15.4	0.180	Unfiltered
WT-17-LQ-190	Unfiltered	14.0	4.00	6.00				
WT-14-LQ-213	Filtered	10.0	4.00	5.00	Consistent	10.5	0.080	Filtered
WT-14-LQ-214	Unfiltered	9.00	5.00	8.00				
WT-17-LQ-219	Filtered	20.0	7.00	10.0	Consistent	0.000	0.000	Unfiltered
WT-17-LQ-220	Unfiltered	20.0	7.00	10.0				
WT-15-LQ-225	Filtered	91.0	13.0	10.0	Discrepant	85.5	2.01	Unfiltered
WT-15-LQ-226	Unfiltered	227	32.0	31.0				
WT-16-LQ-243	Filtered	5.00	3.00	4.00	Discrepant	157	2.91	Unfiltered
WT-16-LQ-244	Unfiltered	41.0	12.0	16.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-11. Gross Beta Filtered/Unfiltered Comparison – POTW-I Effluent**

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-16-LQ-079	Filtered	5.77	0.858	1.14	Consistent	21.5	0.415	Unfiltered
WT-16-LQ-080	Unfiltered	7.16	1.48	2.10				
WT-16-LQ-145	Filtered	11.3	1.89	2.64	Discrepant	37.7	0.760	Filtered
WT-16-LQ-146	Unfiltered	7.71	1.49	2.08				
WT-12-LQ-159	Filtered	10.6	2.79	4.08	Consistent	2.70	0.037	Unfiltered
WT-12-LQ-160	Unfiltered	10.9	2.88	4.23				
WT-15-LQ-185	Filtered	8.70	1.95	2.79	Consistent	9.84	0.309	Unfiltered
WT-15-LQ-186	Unfiltered	9.60	2.16	3.15				
WT-16-LQ-241	Filtered	10.7	1.63	2.18	Consistent	2.45	0.058	Filtered
WT-16-LQ-242	Unfiltered	10.5	1.59	2.13				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-12. Ra-226 Filtered/Unfiltered Comparison – POTW-I Effluent**

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-16-LQ-079	Filtered	101	33.0	50.0	Consistent	32.2	0.232	Filtered
WT-16-LQ-080	Unfiltered	73.0	52.0	53.0				
WT-17-LQ-191	Filtered	144	36.0	53.0	Consistent	36.1	0.406	Filtered
WT-17-LQ-192	Unfiltered	100	42.0	65.0				
WT-17-LQ-217	Filtered	116	42.0	62.0	Consistent	29.4	0.250	Unfiltered
WT-17-LQ-218	Unfiltered	156	70.0	107				
WT-16-LQ-241	Filtered	335	59.0	54.0	Discrepant	103	1.65	Filtered
WT-16-LQ-242	Unfiltered	107	39.0	57.0				
WT-12-LQ-295	Filtered	77.0	43.0	67.0	Consistent	26.5	.358	Filtered
WT-12-LQ-296	Unfiltered	59.0	26.0	40.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).



**Table I-13. Ra-228 Filtered/Unfiltered Comparison – POTW-I Effluent**

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-17-LQ-217	Filtered	12.0	5.00	8.00	Discrepant	97.9	0.971	Unfiltered
WT-17-LQ-218	Unfiltered	35.0	11.0	13.0				
WT-15-LQ-223	Filtered	25.0	5.00	6.00	Consistent	7.69	0.108	Unfiltered
WT-15-LQ-224	Unfiltered	27.0	8.00	9.00				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-14. Gross Alpha Filtered/Unfiltered Comparison – CWT Influent

Study ID	Sample Type	Gross Alpha Result	Gross Alpha Error	Gross Alpha MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-06-LQ-073	Filtered	21,400	2,120	124	Consistent	18.5	0.657	Filtered
WT-06-LQ-074	Unfiltered	17,700	1,840	1,030				
WT-08-LQ-083	Filtered	6,100	926	796	Consistent	26.3	0.713	Unfiltered
WT-08-LQ-084	Unfiltered	8,000	947	590				
WT-02-LQ-113	Filtered	2,360	886	1,040	Discrepant	181	7.19	Unfiltered
WT-02-LQ-114	Unfiltered	47,100	3,050	1,240				
WT-01-LQ-117	Filtered	10,500	1,940	1,790	Consistent	22.2	0.856	Filtered
WT-01-LQ-118	Unfiltered	8,400	1,500	1,240				
WT-06-LQ-147	Filtered	23,500	2,160	1,260	Consistent	8.42	0.321	Unfiltered
T-06-LQ-148	Unfiltered	25,500	2,470	1,870				
WT-08-LQ-155	Filtered	22,200	2,550	2,630	Discrepant	22.2	0.825	Unfiltered
WT-08-LQ-156	Unfiltered	27,700	2,290	1,060				
WT-08-LQ-239	Filtered	28,400	2,030	962	Consistent	3.05	0.149	Filtered
WT-08-LQ-240	Unfiltered	27,600	2,100	1,400				
WT-06-LQ-247	Filtered	13,100	992	424	Discrepant	52.3	2.07	Filtered
WT-06-LQ-248	Unfiltered	7,700	912	671				
WT-02-LQ-277	Filtered	3,930	1,070	1,140	Consistent	7.20	0.095	Unfiltered
WT-02-LQ-278	Unfiltered	4,220	1,160	1,320				
WT-01-LQ-283	Filtered	3,940	1,080	1,160	Consistent	29.3	0.339	Filtered
WT-01-LQ-284	Unfiltered	2,940	1,070	1,330				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-15. Gross Beta Filtered/Unfiltered Comparison – CWT Influent

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-02-LQ-019	Filtered	2,810	276	320	Discrepant	39.4	0.728	Filtered
WT-02-LQ-020	Unfiltered	1,890	588	879				
WT-01-LQ-025	Filtered	3,040	279	320	Discrepant	52.3	1.97	Unfiltered
WT-01-LQ-026	Unfiltered	1,780	575	863				
WT-04-LQ-033	Filtered	276	115	177	Discrepant	115	3.81	Unfiltered
WT-04-LQ-034	Unfiltered	1,030	161	214				
WT-06-LQ-073	Filtered	4,530	665	882	Discrepant	26.6	0.724	Unfiltered
WT-06-LQ-074	Unfiltered	5,920	719	901				
WT-08-LQ-083	Filtered	1,570	534	811	Consistent	47.4	0.644	Unfiltered
WT-08-LQ-084	Unfiltered	2,550	563	803				
WT-02-LQ-113	Filtered	1,900	596	893	Discrepant	148	5.30	Unfiltered
WT-02-LQ-114	Unfiltered	12,800	866	884				
WT-01-LQ-117	Filtered	2,970	655	937	Consistent	14.7	0.501	Unfiltered
WT-01-LQ-118	Unfiltered	3,440	672	940				
WT-03-LQ-119	Filtered	99.7	123.519	202	Consistent	250	0.331	Filtered
WT-03-LQ-120	Unfiltered	-11.0	118	199				
WT-06-LQ-147	Filtered	5,630	657	808	Consistent	5.58	0.173	Unfiltered
T-06-LQ-148	Unfiltered	5,950	686	847				
WT-08-LQ-155	Filtered	4,640	722	994	Discrepant	38.8	1.12	Unfiltered
WT-08-LQ-156	Unfiltered	6,870	721	866				
WT-10-LQ-163	Filtered	276	142	225	Consistent	30.3	0.261	Unfiltered
WT-10-LQ-164	Unfiltered	375	131	198				
WT-04-LQ-167	Filtered	1,510	508	766	Consistent	28.3	0.258	Filtered
WT-04-LQ-168	Unfiltered	1,130	538	839				
WT-09-LQ-173	Filtered	1,360	542	830	Consistent	26.7	0.218	Filtered
WT-09-LQ-174	Unfiltered	1,040	517	807				

Table I-15. Gross Beta Filtered/Unfiltered Comparison – CWT Influent

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-05-LQ-199	Filtered	587	281	438	Consistent	0.762	0.006	Unfiltered
WT-05-LQ-200	Unfiltered	591	259	400				
WT-04-LQ-203	Filtered	250	512	846	Consistent	51.0	0.120	Unfiltered
WT-04-LQ-204	Unfiltered	421	516	842				
WT-05-LQ-205	Filtered	-107	473	802	Discrepant	239	0.905	Unfiltered
WT-05-LQ-206	Unfiltered	1,200	561	874				
WT-08-LQ-239	Filtered	7,820	718	831	Discrepant	26.8	1.16	Unfiltered
WT-08-LQ-240	Unfiltered	10,200	785	845				
WT-06-LQ-247	Filtered	4,340	382	434	Discrepant	93.9	2.92	Filtered
WT-06-LQ-248	Unfiltered	1,570	299	417				
WT-02-LQ-277	Filtered	2,760	629	907	Consistent	50.5	0.671	Filtered
WT-02-LQ-278	Unfiltered	1,650	567	860				
WT-01-LQ-283	Filtered	1,950	596	894	Consistent	31.2	0.330	Filtered
WT-01-LQ-284	Unfiltered	1,420	558	857				
WT-03-LQ-285	Filtered	-156	121	212	Consistent	153	0.396	Unfiltered
WT-03-LQ-286	Unfiltered	-20.6	125	212				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-16. Ra-226 Filtered/Unfiltered Comparison – CWT Influent

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-02-LQ-019	Filtered	1,650	199	251	Consistent	5.31	0.171	Unfiltered
WT-02-LQ-020	Unfiltered	1,740	180	207				
WT-01-LQ-025	Filtered	1,760	338	476	Consistent	20.7	0.439	Filtered
WT-01-LQ-026	Unfiltered	1,430	181	230				
WT-04-LQ-033	Filtered	175	70.0	111	Consistent	20.1	0.183	Unfiltered
WT-04-LQ-034	Unfiltered	214	83.0	130				
WT-09-LQ-047	Filtered	469	111	165	Discrepant	67.8	1.18	Unfiltered
WT-09-LQ-048	Unfiltered	950	176	249				
WT-05-LQ-059	Unfiltered	146	65.0	102	Discrepant	87.7	0.671	Unfiltered
WT-05-LQ-060	Filtered	57.0	19.0	24.0				
WT-06-LQ-073	Filtered	12,800	1,080	916	Consistent	4.80	0.183	Filtered
WT-06-LQ-074	Unfiltered	12,200	1,280	947				
WT-08-LQ-083	Filtered	7,150	560	381	Discrepant	18.8	0.880	Filtered
WT-08-LQ-084	Unfiltered	5,920	441	247				
WT-02-LQ-113	Filtered	1,660	177	210	Discrepant	74.5	1.58	Unfiltered
WT-02-LQ-114	Unfiltered	3,630	613	846				
WT-01-LQ-117	Filtered	2,810	375	477	Discrepant	154	3.29	Filtered
WT-01-LQ-118	Unfiltered	362	62.0	57.0				
WT-03-LQ-119	Filtered	121	64.0	100	Discrepant	92.0	1.04	Unfiltered
WT-03-LQ-120	Unfiltered	327	78.0	105				
WT-06-LQ-147	Filtered	11,300	855	494	Consistent	1.79	0.087	Filtered
T-06-LQ-148	Unfiltered	11,100	798	349				
WT-08-LQ-155	Filtered	14,100	985	425	Consistent	5.09	0.244	Filtered
WT-08-LQ-156	Unfiltered	13,400	1,080	692				
WT-04-LQ-167	Filtered	445	190	300	Consistent	1.78	0.020	Unfiltered
WT-04-LQ-168	Unfiltered	453	70.0	98.0				

**Table I-16. Ra-226 Filtered/Unfiltered Comparison – CWT Influent**

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-09-LQ-173	Filtered	300	101	158	Consistent	41.9	0.469	Unfiltered
WT-09-LQ-174	Unfiltered	458	139	212				
WT-05-LQ-199	Filtered	118	58.0	90.0	Discrepant	123	2.06	Unfiltered
WT-05-LQ-200	Unfiltered	492	72.0	96.0				
WT-04-LQ-203	Filtered	216	44.0	64.0	Consistent	27.9	0.350	Unfiltered
WT-04-LQ-204	Unfiltered	286	92.0	141				
WT-05-LQ-205	Filtered	242	51.0	74.0	Consistent	1.67	0.058	Filtered
WT-05-LQ-206	Unfiltered	238	46.0	67.0				
WT-08-LQ-239	Filtered	7,080	1,230	285	Consistent	2.00	0.048	Filtered
WT-08-LQ-240	Unfiltered	6,940	815	261				
WT-06-LQ-247	Filtered	3,910	698	220	Consistent	9.50	0.187	Unfiltered
WT-06-LQ-248	Unfiltered	4,300	801	362				
WT-02-LQ-277	Filtered	1,770	265	231	Consistent	1.12	0.024	Unfiltered
WT-02-LQ-278	Unfiltered	1,790	340	239				
WT-01-LQ-283	Filtered	1,900	319	380	Consistent	4.30	0.081	Filtered
WT-01-LQ-284	Unfiltered	1,820	393	373				
WT-03-LQ-285	Filtered	126	38.0	49.0	Discrepant	62.5	0.806	Filtered
WT-03-LQ-286	Unfiltered	66.0	0.00	34.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-17. Ra-228 Filtered/Unfiltered Comparison – CWT Influent

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-02-LQ-019	Filtered	747	67.0	20.0	Consistent	11.1	0.492	Unfiltered
WT-02-LQ-020	Unfiltered	835	62.0	13.0				
WT-01-LQ-025	Filtered	711	90.0	84.0	Consistent	4.00	0.142	Unfiltered
WT-01-LQ-026	Unfiltered	740	52.0	18.0				
WT-04-LQ-033	Filtered	172	19.0	15.0	Discrepant	28.4	0.975	Unfiltered
WT-04-LQ-034	Unfiltered	229	23.0	17.0				
WT-09-LQ-047	Filtered	247	26.0	18.0	Discrepant	28.2	0.931	Unfiltered
WT-09-LQ-048	Unfiltered	328	36.0	31.0				
WT-05-LQ-059	Unfiltered	77.0	12.0	14.0	Consistent	31.6	0.495	Unfiltered
WT-05-LQ-060	Filtered	56.0	18.0	24.0				
WT-06-LQ-073	Filtered	1,100	107	113	Consistent	0.913	0.034	Filtered
WT-06-LQ-074	Unfiltered	1,090	105	107				
WT-08-LQ-083	Filtered	411	33.0	26.0	Consistent	11.3	0.511	Filtered
WT-08-LQ-084	Unfiltered	367	29.0	17.0				
WT-02-LQ-113	Filtered	913	68.0	14.0	Discrepant	71.1	2.97	Unfiltered
WT-02-LQ-114	Unfiltered	1,920	159	116				
WT-01-LQ-117	Filtered	1,120	87.0	40.0	Discrepant	196	6.50	Filtered
WT-01-LQ-118	Unfiltered	11.0	0.000	10.0				
WT-06-LQ-147	Filtered	1,290	96.0	34.0	Consistent	3.95	0.194	Filtered
T-06-LQ-148	Unfiltered	1,240	90.0	25.0				
WT-08-LQ-155	Filtered	1,520	109	34.0	Consistent	0.000	0.000	
WT-08-LQ-156	Unfiltered	1,520	103	54.0				
WT-04-LQ-167	Filtered	392	46.0	32.0	Consistent	17.5	0.655	Unfiltered
WT-04-LQ-168	Unfiltered	467	36.0	13.0				
WT-09-LQ-173	Filtered	238	24.0	17.0	Consistent	6.96	0.236	Filtered
WT-09-LQ-174	Unfiltered	222	25.0	21.0				

**Table I-17. Ra-228 Filtered/Unfiltered Comparison – CWT Influent**

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-05-LQ-199	Filtered	48.0	10.0	12.0	Discrepant	56.7	1.30	Unfiltered
WT-05-LQ-200	Unfiltered	86.0	11.0	12.0				
WT-04-LQ-203	Filtered	173	14.0	8.00	Discrepant	27.4	0.979	Unfiltered
WT-04-LQ-204	Unfiltered	228	25.0	18.0				
WT-05-LQ-205	Filtered	78.0	10.0	9.00	Discrepant	47.1	3.07	Unfiltered
WT-05-LQ-206	Unfiltered	126	12.0	8.00				
WT-08-LQ-239	Filtered	615	50.0	23.0	Consistent	1.29	0.061	Unfiltered
WT-08-LQ-240	Unfiltered	623	45.0	18.0				
WT-06-LQ-247	Filtered	230	25.0	22.0	Consistent	8.33	0.261	Unfiltered
WT-06-LQ-248	Unfiltered	250	30.0	42.0				
WT-02-LQ-277	Filtered	962	83.0	20.0	Consistent	4.87	0.193	Unfiltered
WT-02-LQ-278	Unfiltered	1,010	96.0	21.0				
WT-01-LQ-283	Filtered	961	101	35.0	Consistent	2.367	0.080	Unfiltered
WT-01-LQ-284	Unfiltered	984	106	52.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).



**Table I-18. Gross Alpha Filtered/Unfiltered Comparison – CWT Effluent**

Study ID	Sample Type	Gross Alpha Result	Gross Alpha Error	Gross Alpha MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-09-LQ-045	Unfiltered	0.260	-0.560	-1.00	Discrepant	203	0.239	Unfiltered
WT-09-LQ-046	Filtered	-0.002	-0.004	-0.007				
WT-06-LQ-075	Unfiltered	13,700	1,800	1,420	Discrepant	35.8	1.11	Filtered
WT-06-LQ-076	Filtered	19,600	2,070	1,400				
WT-08-LQ-085	Filtered	22,800	1,470	595	Discrepant	18.6	0.965	Filtered
WT-08-LQ-086	Unfiltered	18,900	1,420	744				
WT-06-LQ-149	Filtered	13,300	1,820	2,020	Discrepant	69.4	2.48	Unfiltered
WT-06-LQ-150	Unfiltered	27,300	2,250	1,040				
WT-08-LQ-151	Filtered	8.25	1.16	0.874	Discrepant	55.3	0.957	Filtered
WT-08-LQ-152	Unfiltered	4.68	1.51	1.95				
WT-08-LQ-153	Filtered	22,700	2,340	1,840	Discrepant	28.1	1.64	Filtered
WT-08-LQ-154	Unfiltered	17,100	2,470	2,800				
WT-11-LQ-187	Filtered	5,520	1,490	1,830	Consistent	45.9	0.468	Filtered
WT-11-LQ-188	Unfiltered	3,460	1,680	2,510				
WT-11-LQ-221	Filtered	4,160	1,460	1,950	Consistent	7.13	0.064	Filtered
WT-11-LQ-222	Unfiltered	3,900	1,770	2,630				
WT-08-LQ-237	Filtered	40,700	2,780	1,270	Consistent	3.86	0.207	Unfiltered
WT-08-LQ-238	Unfiltered	42,300	2,800	131				
WT-06-LQ-245	Filtered	13,700	1,730	1,600	Discrepant	93.4	4.25	Unfiltered
WT-06-LQ-246	Unfiltered	37,600	2,290	879				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

**Table I-19. Gross Beta Filtered/Unfiltered Comparison – CWT Effluent**

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-06-LQ-075	Unfiltered	3,770	667	924	Consistent	24.7	0.566	Filtered
WT-06-LQ-076	Filtered	4,840	692	917				
WT-08-LQ-085	Filtered	5,810	429	454	Discrepant	17.0	0.793	Filtered
WT-08-LQ-086	Unfiltered	4,900	398	434				
WT-06-LQ-149	Filtered	3,340	655	940	Discrepant	64.8	1.69	Unfiltered
WT-06-LQ-150	Unfiltered	6,530	706	857				
WT-08-LQ-151	Filtered	1.98	0.671	1.02	Consistent	54.6	0.308	Filtered
WT-08-LQ-152	Unfiltered	1.13	1.24	2.01				
WT-08-LQ-153	Filtered	4,570	66.6	876	Consistent	3.79	0.225	Filtered
WT-08-LQ-154	Unfiltered	4,440	754	1,060				
WT-11-LQ-187	Filtered	1,670	559	84	Consistent	16.9	0.159	Filtered
WT-11-LQ-188	Unfiltered	1,410	623	974				
WT-05-LQ-197	Filtered	608	275	426	Consistent	57.9	0.661	Filtered
WT-05-LQ-198	Unfiltered	335	308	500				
WT-11-LQ-221	Filtered	1,730	575	871	Consistent	27.1	0.246	Filtered
WT-11-LQ-222	Unfiltered	1,320	633	998				
WT-08-LQ-237	Filtered	12,100	826	849	Consistent	6.595	0.358	Unfiltered
WT-08-LQ-238	Unfiltered	12,900	832	824				
WT-06-LQ-245	Filtered	2,100	578	856	Discrepant	142.927	5.296	Unfiltered
WT-06-LQ-246	Unfiltered	12,600	834	842				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-20. Ra-226 Filtered/Unfiltered Comparison – CWT Effluent

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-02-LQ-021	Filtered	113	47.0	74.0	Consistent	55.4	0.493	Filtered
WT-02-LQ-022	Unfiltered	64.0	19.0	29.0				
WT-01-LQ-023	Filtered	110	67.0	106	Consistent	5.61	0.036	Filtered
WT-01-LQ-024	Unfiltered	104	54.0	86.0				
WT-03-LQ-029	Filtered	23.0	36.0	0.000	Consistent	90.5	0.397	Unfiltered
WT-03-LQ-030	Unfiltered	61.0	33.0	52.0				
WT-05-LQ-057	Unfiltered	357	100	151	Consistent	49.7	0.599	Unfiltered
WT-05-LQ-058	Filtered	215	68.0	103				
WT-06-LQ-075	Unfiltered	12,100	1,060	980	Consistent	0.000	0.000	
WT-06-LQ-076	Filtered	12,100	1,250	1,130				
WT-08-LQ-081	Filtered	84.0	311	48.0	Consistent	3.51	0.005	Unfiltered
WT-08-LQ-082	Unfiltered	87.0	23.0	34.0				
WT-08-LQ-085	Filtered	12,700	903	426	Discrepant	20.9	0.991	Filtered
WT-08-LQ-086	Unfiltered	10,300	844	577				
WT-03-LQ-121	Filtered	91.0	42.0	65.0	Consistent	32.3	0.233	Unfiltered
WT-03-LQ-122	Unfiltered	126	64.0	101				
WT-06-LQ-149	Filtered	11,200	1,020	602	Consistent	0.889	0.039	Unfiltered
WT-06-LQ-150	Unfiltered	11,300	839	463				
WT-08-LQ-153	Filtered	14,900	1,180	693	Consistent	3.95	0.184	Unfiltered
WT-08-LQ-154	Unfiltered	15,500	1,170	803				
WT-04-LQ-165	Filtered	104	60.0	95.0	Consistent	11.8	0.092	Unfiltered
WT-04-LQ-166	Unfiltered	117	40.0	63.0				
WT-09-LQ-175	Filtered	503	206	324	Consistent	31.3	0.327	Filtered
WT-09-LQ-176	Unfiltered	367	52.0	70.0				
WT-11-LQ-187	Filtered	1,700	209	264	Consistent	7.91	0.250	Unfiltered
WT-11-LQ-188	Unfiltered	1,840	194	227				

**Table I-20. Ra-226 Filtered/Unfiltered Comparison – CWT Effluent**

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-05-LQ-207	Filtered	181	63.0	97.0	Consistent	28.0	0.310	Unfiltered
WT-05-LQ-208	Unfiltered	240	74.0	110				
WT-11-LQ-221	Filtered	2,090	305	228	Discrepant	34.8	0.812	Filtered
WT-11-LQ-222	Unfiltered	1,470	242	301				
WT-09-LQ-227	Filtered	273	54.0	68.0	Consistent	38.7	0.377	Unfiltered
WT-09-LQ-228	Unfiltered	404	169	264				
WT-08-LQ-237	Filtered	12,400	1,440	500	Consistent	2.39	0.007	Unfiltered
WT-08-LQ-238	Unfiltered	12,700	22,240	383				
WT-06-LQ-245	Filtered	8,360	1,490	533	Consistent	5.03	0.122	Filtered
WT-06-LQ-246	Unfiltered	7,950	835	257				
WT-02-LQ-279	Filtered	55.0	27.0	42.0	Consistent	65.0	0.634	Unfiltered
WT-02-LQ-280	Unfiltered	108	33.0	48.0				
WT-01-LQ-281	Filtered	287	87.0	116	Discrepant	86.3	0.853	Filtered
WT-01-LQ-282	Unfiltered	114	56.0	83.0				
WT-03-LQ-287	Filtered	86.0	47.0	71.0	Discrepant	123	3.54	Unfiltered
WT-03-LQ-288	Unfiltered	362	62.0	57.0				
WT-10-LQ-291	Filtered	77.0	43.0	64.0	Consistent	75.0	0.977	Filtered
WT-10-LQ-292	Unfiltered	35.0	0.000	95.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

ND denotes a non-detected result (result less than MDC).

Table I-21. Ra-228 Filtered/Unfiltered Comparison – CWT Effluent

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-04-LQ-031	Filtered	37.0	5.00	5.00	Discrepant	77.7	1.72	Unfiltered
WT-04-LQ-032	Unfiltered	84.0	13.0	14.0				
WT-05-LQ-057	Unfiltered	133	19.0	18.0	Consistent	12.0	0.316	Unfiltered
WT-05-LQ-058	Filtered	118	15.0	13.0				
WT-06-LQ-075	Unfiltered	914	92.0	97.0	Consistent	4.18	0.134	Filtered
WT-06-LQ-076	Filtered	953	117	141				
WT-08-LQ-085	Filtered	110	81.0	39.0	Discrepant	157	3.92	Unfiltered
WT-08-LQ-086	Unfiltered	912	66.0	48.0				
WT-06-LQ-149	Filtered	806	77.0	86.0	Consistent	7.18	0.314	Unfiltered
WT-06-LQ-150	Unfiltered	866	60.0	37.0				
WT-08-LQ-153	Filtered	1,300	90.0	55.0	Consistent	3.92	0.183	Filtered
WT-08-LQ-154	Unfiltered	1,250	106	80.0				
WT-04-LQ-165	Filtered	94.0	15.0	14.0	Consistent	17.5	0.478	Unfiltered
WT-04-LQ-166	Unfiltered	112	12.0	12.0				
WT-09-LQ-175	Filtered	319	44.0	40.0	Discrepant	32.8	1.91	Filtered
WT-09-LQ-176	Unfiltered	229	17.0	6.00				
WT-11-LQ-187	Filtered	943	74.0	19.0	Consistent	2.41	0.220	Unfiltered
WT-11-LQ-188	Unfiltered	966	74.0	14.0				
WT-05-LQ-207	Filtered	80.0	13.0	15.0	Consistent	13.9	0.308	Unfiltered
WT-05-LQ-208	Unfiltered	92.0	15.0	16.0				
WT-11-LQ-221	Filtered	976	93.0	18.0	Consistent	11.9	0.489	Unfiltered
WT-11-LQ-222	Unfiltered	1,100	90.0	53.0				
WT-09-LQ-227	Filtered	164	13.0	6.00	Consistent	1.21	0.028	Unfiltered
WT-09-LQ-228	Unfiltered	166	34.0	40.0				
WT-08-LQ-237	Filtered	1,220	120	40.0	Consistent	1.65	0.065	Filtered
WT-08-LQ-238	Unfiltered	1,200	102	32.0				

**Table I-21. Ra-228 Filtered/Unfiltered Comparison – CWT Effluent**

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-06-LQ-245	Filtered	571	79.0	67.0	Consistent	8.78	0.278	Filtered
WT-06-LQ-246	Unfiltered	523	39.0	21.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-22. Gross Alpha Filtered/Unfiltered Comparison – ZLD Influent

Study ID	Sample Type	Gross Alpha Result	Gross Alpha Error	Gross Alpha MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-24-LQ-003	Filtered	3,630	641	525	Consistent	0.358	0.007	Unfiltered
WT-24-LQ-004	Unfiltered	3,640	705	692				
WT-07-LQ-013	Filtered	2,290	313	216	Consistent	19.3	0.476	Filtered
WT-07-LQ-014	Unfiltered	1,890	296	260				
WT-20-LQ-067	Unfiltered	16,200	1,940	1,210	Consistent	14.0	0.435	Filtered
WT-20-LQ-068	Filtered	18,700	2,100	1,340				
WT-25-LQ-089	Unfiltered	9,270	1,480	1,200	Consistent	3.82	0.086	Unfiltered
WT-25-LQ-090	Filtered	8,920	1,440	1,280				
WT-24-LQ-099	Filtered	2,300	362	318	Discrepant	38.3	1.01	Unfiltered
WT-24-LQ-100	Unfiltered	3,380	416	266				
WT-22-LQ-103	Filtered	30,800	2,190	892	Discrepant	51.7	2.95	Unfiltered
WT-22-LQ-104	Unfiltered	52,400	3,000	1,170				
WT-07-LQ-107	Filtered	3,420	658	566	Consistent	2.02	0.038	Unfiltered
WT-07-LQ-108	Unfiltered	3,490	683	651				
WT-21-LQ-125	Filtered	4,750	774	638	Discrepant	37.3	0.929	Unfiltered
WT-21-LQ-126	Unfiltered	6,920	912	719				
WT-25-LQ-129	Filtered	2,290	494	494	Consistent	23.7	0.351	Filtered
WT-25-LQ-130	Unfiltered	1,810	503	623				
WT-20-LQ-137	Filtered	59,400	4,014	3,080	Discrepant	18.9	1.04	Filtered
WT-20-LQ-138	Unfiltered	49,200	2,989	1,050				
WT-23-LQ-181	Filtered	2,080	556	610	Consistent	46.5	0.576	Filtered
WT-23-LQ-182	Unfiltered	1,300	417	543				
WT-19-LQ-231	Filtered	4,770	450	233	Discrepant	52.3	1.70	Filtered
WT-19-LQ-232	Unfiltered	2,800	385	326				
WT-25-LQ-233	Filtered	3,220	509	448	Consistent	32.4	0.640	Unfiltered
WT-25-LQ-234	Unfiltered	4,470	853	1,070				

**Table I-22. Gross Alpha Filtered/Unfiltered Comparison – ZLD Influent**

Study ID	Sample Type	Gross Alpha Result	Gross Alpha Error	Gross Alpha MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-20-LQ-249	Filtered	36,000	2,230	1,680	Discrepant	83.9	5.47	Unfiltered
WT-20-LQ-250	Unfiltered	88,000	4,300	2,040				
WT-23-LQ-255	Filtered	497	180	221	Discrepant	76.9	1.11	Unfiltered
WT-23-LQ-256	Unfiltered	1,120	220	218				
WT-21-LQ-263	Filtered	17,100	1,770	1,190	Consistent	10.3	0.356	Unfiltered
WT-21-LQ-264	Unfiltered	18,900	1,960	1,620				
WT-22-LQ-271	Filtered	754	177	190	Discrepant	49.1	0.822	Unfiltered
WT-22-LQ-272	Unfiltered	1,240	247	280				
WT-07-LQ-275	Filtered	1,920	490	605	Consistent	9.64	0.117	Filtered
WT-07-LQ-276	Unfiltered	1,740	592	842				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).



Table I-23. Gross Beta Filtered/Unfiltered Comparison – ZLD Influent

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-24-LQ-003	Filtered	1,530	314	442	Consistent	14.5	0.337	Filtered
WT-24-LQ-004	Unfiltered	1,320	3.09	448				
WT-07-LQ-013	Filtered	1,310	145	168	Discrepant	92.1	2.26	Filtered
WT-07-LQ-014	Unfiltered	485	118	172				
WT-23-LQ-035	Filtered	425	137	209	Discrepant	136	4.09	Unfiltered
WT-23-LQ-036	Unfiltered	2243.6	181	198				
WT-20-LQ-067	Unfiltered	6,060	746	938	Consistent	24.4	0.665	Unfiltered
WT-20-LQ-068	Filtered	4,740	681	900				
WT-25-LQ-089	Unfiltered	977	528	833	Consistent	5.72	0.039	Filtered
WT-25-LQ-090	Filtered	1,030	545	859				
WT-24-LQ-099	Filtered	395	140	214	Discrepant	65.8	0.941	Unfiltered
WT-24-LQ-100	Unfiltered	782	156	219				
WT-22-LQ-103	Filtered	3,730	376	445	Discrepant	102	4.53	Unfiltered
WT-22-LQ-104	Unfiltered	11,500	786	788				
WT-07-LQ-107	Filtered	893	281	421	Consistent	27.9	0.360	Unfiltered
WT-07-LQ-108	Unfiltered	1180	298	436				
WT-21-LQ-125	Filtered	1,340	296	425	Discrepant	56.4	1.18	Unfiltered
WT-21-LQ-126	Unfiltered	2,400	349	465				
WT-25-LQ-129	Filtered	396	245	388	Consistent	16.2	0.099	Unfiltered
WT-25-LQ-130	Unfiltered	466	260	410				
WT-20-LQ-137	Filtered	10,700	918	1,080	Consistent	1.39	0.062	Filtered
WT-20-LQ-138	Unfiltered	10,600	807	863				
WT-18-LQ-141	Filtered	592	133	190	Consistent	30.6	0.551	Unfiltered
WT-18-LQ-142	Unfiltered	806	147	203				
WT-23-LQ-181	Filtered	492	257	403	Consistent	8.33	0.059	Unfiltered
WT-23-LQ-182	Unfiltered	535	262	410				

**Table I-23. Gross Beta Filtered/Unfiltered Comparison – ZLD Influent**

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-19-LQ-231	Filtered	1,860	185	219	Discrepant	44.9	1.42	Filtered
WT-19-LQ-232	Unfiltered	1,180	160	208				
WT-25-LQ-233	Filtered	1,320	284	405	Consistent	6.13	0.098	Unfiltered
WT-25-LQ-234	Unfiltered	1,400	326	481				
WT-20-LQ-249	Filtered	7,680	516	559	Discrepant	101	6.78	Unfiltered
WT-20-LQ-250	Unfiltered	23,400	1,060	874				
WT-07-LQ-275	Filtered	853	279	422	Consistent	28.8	0.268	Filtered
WT-07-LQ-276	Unfiltered	638	298	470				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-24. Ra-226 Filtered/Unfiltered Comparison – ZLD Influent

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-24-LQ-003	Filtered	2,580	256	283	Consistent	4.55	0.183	Unfiltered
WT-24-LQ-004	Unfiltered	2,700	214	174				
WT-22-LQ-005	Filtered	106	35.0	55.0	Discrepant	68.3	1.90	Unfiltered
WT-22-LQ-006	Unfiltered	216	46.0	66.0				
WT-21-LQ-009	Filtered	2,580	289	301	Consistent	16.0	0.612	Unfiltered
WT-21-LQ-010	Unfiltered	3,030	239	192				
WT-07-LQ-013	Filtered	1,390	180	235	Consistent	2.18	0.073	Filtered
WT-07-LQ-014	Unfiltered	1,360	110	87.0				
WT-23-LQ-035	Filtered	1,300	138	162	Consistent	1.55	0.034	Filtered
WT-23-LQ-036	Unfiltered	1,280	265	386				
WT-19-LQ-063	Unfiltered	1,470	329	495	Consistent	42.9	0.82	Unfiltered
WT-19-LQ-064	Filtered	950	542	873				
WT-20-LQ-067	Unfiltered	13,600	1,140	972	Consistent	2.99	0.134	Unfiltered
WT-20-LQ-068	Filtered	13,200	1,010	632				
WT-18-LQ-071	Unfiltered	1,310	262	361	Discrepant	130	1.91	Unfiltered
WT-18-LQ-072	Filtered	278	84.0	118				
WT-25-LQ-089	Unfiltered	6,870	561	477	Consistent	3.25	0.142	Unfiltered
WT-25-LQ-090	Filtered	6,650	554	489				
WT-24-LQ-099	Filtered	1,920	325	433	Consistent	8.96	0.215	Unfiltered
WT-24-LQ-100	Unfiltered	2,100	278	342				
WT-22-LQ-103	Filtered	16,300	1,650	1,040	Consistent	4.79	0.187	Unfiltered
WT-22-LQ-104	Unfiltered	17,100	1,430	1,205				
WT-07-LQ-107	Filtered	1,930	168	159	Consistent	18.8	0.697	Unfiltered
WT-07-LQ-108	Unfiltered	2,330	240	263				
WT-21-LQ-125	Filtered	3,360	340	360	Discrepant	24.7	0.769	Filtered
WT-21-LQ-126	Unfiltered	2,620	354	443				

**Table I-24. Ra-226 Filtered/Unfiltered Comparison – ZLD Influent**

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-25-LQ-129	Filtered	2,100	186	181	Discrepant	29.5	1.00	Filtered
WT-25-LQ-130	Unfiltered	1,560	202	261				
WT-19-LQ-131	Filtered	131	44.0	67.0	Discrepant	196	5.22	Unfiltered
WT-19-LQ-132	Unfiltered	11,700	1,130	1,119				
WT-20-LQ-137	Filtered	6,690	470	713	Discrepant	188	6.96	Filtered
WT-20-LQ-138	Unfiltered	210	70.0	105				
WT-23-LQ-181	Filtered	564	106	150	Consistent	16.4	0.372	Unfiltered
WT-23-LQ-182	Unfiltered	665	89.0	117				
WT-19-LQ-231	Filtered	1,140	248	233	Consistent	33.6	0.691	Unfiltered
WT-19-LQ-232	Unfiltered	1,600	232	303				
WT-25-LQ-233	Filtered	903	201	196	Discrepant	72.5	1.22	Unfiltered
WT-25-LQ-234	Unfiltered	1,930	378	252				
WT-20-LQ-249	Filtered	18,400	1,450	769	Consistent	10.9	0.304	Filtered
WT-20-LQ-250	Unfiltered	16,500	2,840	518				
WT-23-LQ-255	Filtered	226	60.0	71.0	Consistent	2.24	0.034	Filtered
WT-23-LQ-256	Unfiltered	221	45.0	56.0				
WT-21-LQ-263	Filtered	6,190	806	602	Consistent	5.80	0.133	Unfiltered
WT-21-LQ-264	Unfiltered	6,560	1,170	526				
WT-24-LQ-267	Filtered	832	232	351	Consistent	27.3	0.343	Filtered
WT-24-LQ-268	Unfiltered	632	186	239				
WT-22-LQ-271	Filtered	590	111	132	Consistent	23.9	0.313	Unfiltered
WT-22-LQ-272	Unfiltered	750	236	307				
WT-07-LQ-275	Filtered	1,410	203	138	Discrepant	31.1	0.810	Filtered
WT-07-LQ-276	Unfiltered	1,030	127	105				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-25. Ra-228 Filtered/Unfiltered Comparison – ZLD Influent

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-24-LQ-003	Filtered	332	38.0	28.0	Discrepant	31.7	1.30	Unfiltered
WT-24-LQ-004	Unfiltered	457	31.0	13.0				
WT-22-LQ-005	Filtered	10.0	5.00	7.00	Consistent	33.3	0.625	Unfiltered
WT-22-LQ-006	Unfiltered	14.0	4.00	7.00				
WT-21-LQ-009	Filtered	338	34.0	35.0	Discrepant	23.7	0.994	Unfiltered
WT-21-LQ-010	Unfiltered	429	32.0	15.0				
WT-07-LQ-013	Filtered	203	23.0	22.0	Consistent	9.82	0.360	Filtered
WT-07-LQ-014	Unfiltered	184	14.0	7.00				
WT-23-LQ-035	Filtered	413	32.0	11.0	Consistent	5.65	0.219	Unfiltered
WT-23-LQ-036	Unfiltered	437	46.0	31.0				
WT-19-LQ-063	Unfiltered	777	75.0	60.0	Consistent	14.8	0.764	Filtered
WT-19-LQ-064	Filtered	901	114	118				
WT-20-LQ-067	Unfiltered	1,390	120	90.0	Consistent	0.000	0.000	
WT-20-LQ-068	Filtered	1,390	111	61.0				
WT-25-LQ-089	Unfiltered	628	48.0	37.0	Consistent	4.97	0.210	Filtered
WT-25-LQ-090	Filtered	660	61.0	51.0				
WT-24-LQ-099	Filtered	153	40.0	55.0	Consistent	16.8	0.282	Unfiltered
WT-24-LQ-100	Unfiltered	181	31.0	39.0				
WT-22-LQ-103	Filtered	847	95.0	116	Consistent	6.40	0.238	Unfiltered
WT-22-LQ-104	Unfiltered	903	73.0	106				
WT-07-LQ-107	Filtered	322	27.0	19.0	Consistent	12.8	0.499	Unfiltered
WT-07-LQ-108	Unfiltered	366	36.0	31.0				
WT-21-LQ-125	Filtered	515	47.0	42.0	Consistent	20.1	0.616	Filtered
WT-21-LQ-126	Unfiltered	421	62.0	71.0				
WT-25-LQ-129	Filtered	181	18.0	19.0	Discrepant	25.5	0.716	Filtered
WT-25-LQ-130	Unfiltered	140	23.0	29.0				

**Table I-25. Ra-228 Filtered/Unfiltered Comparison – ZLD Influent**

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-19-LQ-131	Filtered	13.0	5.00	7.00	Discrepant	195	4.62	Unfiltered
WT-19-LQ-132	Unfiltered	1,000	109	118				
WT-23-LQ-181	Filtered	94.0	16.0	17.0	Consistent	1.06	0.026	Unfiltered
WT-23-LQ-182	Unfiltered	95.0	11.0	12.0				
WT-19-LQ-231	Filtered	91.0	26.0	26.0	Consistent	11.6	0.139	Filtered
WT-19-LQ-232	Unfiltered	81.0	26.0	37.0				
WT-25-LQ-233	Filtered	127	20.0	22.0	Discrepant	44.2	1.09	Unfiltered
WT-25-LQ-234	Unfiltered	199	27.0	28.0				
WT-20-LQ-249	Filtered	1,410	50.0	74.0	Consistent	7.35	0.449	Filtered
WT-20-LQ-250	Unfiltered	1,310	102	37.0				
WT-23-LQ-255	Filtered	28.0	6.00	7.00	Discrepant	37.7	0.782	Unfiltered
WT-23-LQ-256	Unfiltered	41.0	6.00	7.00				
WT-21-LQ-263	Filtered	687	84.0	66.0	Consistent	5.66	0.166	Unfiltered
WT-21-LQ-264	Unfiltered	727	90.0	75.0				
WT-24-LQ-267	Filtered	380	42.0	40.0	Consistent	2.08	0.071	Unfiltered
WT-24-LQ-268	Unfiltered	388	39.0	26.0				
WT-22-LQ-271	Filtered	51.0	12.0	15.0	Consistent	17.0	0.147	Filtered
WT-22-LQ-272	Unfiltered	43.0	25.0	38.0				
WT-07-LQ-275	Filtered	203	25.0	19.0	N/A	0.000	0.000	Unfiltered
WT-07-LQ-276	Unfiltered	203	18.0	13.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-26. Gross Alpha Filtered/Unfiltered Comparison – ZLD Effluent

Study ID	Sample Type	Gross Alpha Result	Gross Alpha Error	Gross Alpha MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-24-LQ-001	Filtered	2,540	600	645	Consistent	7.94	0.122	Unfiltered
WT-24-LQ-002	Unfiltered	2,750	638	637				
WT-21-LQ-011	Filtered	6,830	1,240	1,030	Consistent	20.8	0.370	Filtered
WT-21-LQ-012	Unfiltered	5,540	1,270	1,260				
WT-23-LQ-037	Unfiltered	1,570	501	705	Consistent	5.57	0.141	Filtered
WT-23-LQ-038	Filtered	1,660	393	409				
WT-23-LQ-039	Unfiltered	4.94	2.19	2.92	Consistent	2.20	0.38	Filtered
WT-23-LQ-040	Filtered	5.05	1.84	2.14				
WT-19-LQ-061	Unfiltered	-0.007	-0.084	-0.140	Discrepant	231	0.390	Filtered
WT-19-LQ-062	Filtered	0.097	-0.107	-0.190				
WT-20-LQ-065	Unfiltered	14,500	1,810	1,380	Consistent	20.9	0.565	Unfiltered
WT-20-LQ-066	Filtered	11,800	1,680	1,400				
WT-24-LQ-101	Filtered	3,660	434	289	Consistent	19.3	0.606	Unfiltered
WT-24-LQ-102	Unfiltered	4,440	492	346				
WT-22-LQ-105	Filtered	5,0340	601	375	Discrepant	55.9	1.74	Unfiltered
WT-22-LQ-106	Unfiltered	8,940	975	568				
WT-07-LQ-109	Filtered	2,330	657	738	Consistent	1.95	0.027	Unfiltered
WT-07-LQ-110	Unfiltered	2,370	548	522				
WT-21-LQ-123	Filtered	10,900	1,530	1,073	Discrepant	38.3	1.12	Unfiltered
WT-21-LQ-124	Unfiltered	16,000	1,785	1,060				
WT-20-LQ-135	Filtered	31,100	2,450	1,260	Discrepant	27.0	1.27	Unfiltered
WT-20-LQ-136	Unfiltered	40,900	3,030	1,900				
WT-20-LQ-251	Filtered	14,400	1,570	980	Discrepant	99.2	4.34	Unfiltered
WT-20-LQ-252	Unfiltered	42,800	2,940	2,310				
WT-23-LQ-257	Filtered	23.6	4.97	5.08	Discrepant	129	1.67	Filtered
WT-23-LQ-258	Unfiltered	5.12	2.70	4.25				

**Table I-26. Gross Alpha Filtered/Unfiltered Comparison – ZLD Effluent**

Study ID	Sample Type	Gross Alpha Result	Gross Alpha Error	Gross Alpha MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-23-LQ-259	Filtered	9,610	1,300	1,050	Discrepant	32.0	0.957	Unfiltered
WT-23-LQ-260	Unfiltered	13,300	1,460	852				
WT-21-LQ-261	Filtered	10,200	1,870	2,330	Consistent	24.7	0.612	Unfiltered
WT-21-LQ-262	Unfiltered	13,100	1,500	975				
WT-22-LQ-269	Filtered	2,690	721	986	Discrepant	62.1	1.28	Unfiltered
WT-22-LQ-270	Unfiltered	5,100	635	437				
WT-07-LQ-273	Filtered	21,400	2,060	1,304	Discrepant	199	5.30	Filtered
WT-07-LQ-274	Unfiltered	33.6	3.27	2.60				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).



Table I-27. Gross Beta Filtered/Unfiltered Comparison – ZLD Effluent

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-22-LQ-007	Filtered	284	127	199	Consistent	12.6	0.113	Unfiltered
WT-22-LQ-008	Unfiltered	322	116	460				
WT-21-LQ-011	Filtered	2,160	576	845	Consistent	15.7	0.199	Filtered
WT-21-LQ-012	Unfiltered	1,850	562	842				
WT-07-LQ-015	Filtered	7,660	323	252	Discrepant	66.9	5.41	Filtered
WT-07-LQ-016	Unfiltered	3,820	632	861				
WT-23-LQ-037	Unfiltered	358	140	218	Discrepant	50.8	1.31	Unfiltered
WT-23-LQ-038	Filtered	602	123	173				
WT-19-LQ-061	Unfiltered	92.6	10.3	12.6	Discrepant	37.1	0.927	Filtered
WT-19-LQ-062	Filtered	135	20.8	28.9				
WT-20-LQ-065	Unfiltered	3,540	604	823	Consistent	36.8	0.649	Unfiltered
WT-20-LQ-066	Filtered	2,440	620	911				
WT-24-LQ-101	Filtered	1,520	175	217	Consistent	15.6	0.470	Filtered
WT-24-LQ-102	Unfiltered	1,300	163	205				
WT-22-LQ-105	Filtered	1,530	189	238	Consistent	6.01	0.184	Unfiltered
WT-22-LQ-106	Unfiltered	1,630	183	224				
WT-07-LQ-109	Filtered	1,080	309	458	Consistent	1.09	0.014	Filtered
WT-07-LQ-110	Unfiltered	1,060	307	456				
WT-21-LQ-123	Filtered	2,650	603	864	Discrepant	70.4	1.60	Unfiltered
WT-21-LQ-124	Unfiltered	5,530	695	879				
WT-20-LQ-135	Filtered	6,190	673	810	Discrepant	29.5	1.09	Unfiltered
WT-20-LQ-136	Unfiltered	8,340	750	851				
WT-18-LQ-139	Filtered	435	149	229	Consistent	27.3	0.345	Unfiltered
WT-18-LQ-140	Unfiltered	573	139	201				
WT-20-LQ-251	Filtered	4,110	634	851	Discrepant	109	4.51	Unfiltered
WT-20-LQ-252	Unfiltered	13,900	907	964				

**Table I-27. Gross Beta Filtered/Unfiltered Comparison – ZLD Effluent**

Study ID	Sample Type	Gross Beta Result	Gross Beta Error	Gross Beta MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-23-LQ-259	Filtered	3,210	594	824	Consistent	22.6	0.478	Unfiltered
WT-23-LQ-260	Unfiltered	4,030	643	867				
WT-21-LQ-261	Filtered	2,890	665	980	Consistent	32.8	0.631	Unfiltered
WT-21-LQ-262	Unfiltered	4,020	631	850				
WT-22-LQ-269	Filtered	515	301	480	Discrepant	84.0	0.909	Unfiltered
WT-22-LQ-270	Unfiltered	1,260	291	430				
WT-07-LQ-273	Filtered	8,700	769	876	Discrepant	47.2	1.87	Filtered
WT-07-LQ-274	Unfiltered	5,380	485	557				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-28. Ra-226 Filtered/Unfiltered Comparison – ZLD Effluent

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-24-LQ-001	Filtered	1,830	146	117	Consistent	10.9	0.344	Unfiltered
WT-24-LQ-002	Unfiltered	2,040	275	364				
WT-22-LQ-007	Filtered	418	99.0	137	Discrepant	86.8	1.25	Filtered
WT-22-LQ-008	Unfiltered	165	29.0	40.0				
WT-21-LQ-011	Filtered	3,470	281	214	Consistent	8.29	0.336	Unfiltered
WT-21-LQ-012	Unfiltered	3,770	359	388				
WT-07-LQ-015	Filtered	5,510	631	747	Consistent	0.364	0.014	Filtered
WT-07-LQ-016	Unfiltered	5,490	406	257				
WT-07-LQ-017	Filtered	7,750	926	1,039	Discrepant	21.6	0.721	Filtered
WT-07-LQ-018	Unfiltered	6,240	532	474				
WT-23-LQ-037	Unfiltered	531	102	148	Consistent	8.82	0.173	Filtered
WT-23-LQ-038	Filtered	580	102	143				
WT-24-LQ-101	Filtered	2,260	336	442	Consistent	9.28	0.253	Unfiltered
WT-24-LQ-102	Unfiltered	2,480	290	353				
WT-22-LQ-105	Filtered	3,280	375	444	Consistent	18.3	0.597	Filtered
WT-22-LQ-106	Unfiltered	2,730	283	324				
WT-07-LQ-109	Filtered	1,630	238	323	Consistent	2.42	0.065	Unfiltered
WT-07-LQ-110	Unfiltered	1,670	203	255				
WT-21-LQ-123	Filtered	5,050	423	364	Consistent	1.38	0.059	Unfiltered
WT-21-LQ-124	Unfiltered	5,120	433	365				
WT-25-LQ-127	Filtered	163	47.0	72.0	Discrepant	115	1.43	Unfiltered
WT-25-LQ-128	Unfiltered	601	149	228				
WT-20-LQ-135	Filtered	12,500	925	482	Discrepant	155	5.89	Filtered
WT-20-LQ-136	Unfiltered	1,580	200	255				
WT-23-LQ-179	Filtered	587	134	199	Consistent	30.7	1.36	Unfiltered
WT-23-LQ-180	Unfiltered	800	82.0	91.0				

**Table I-28. Ra-226 Filtered/Unfiltered Comparison – ZLD Effluent**

Study ID	Sample Type	Ra-226 Result	Ra-226 Error	Ra-226 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-20-LQ-251	Filtered	11,100	1,290	305	Consistent	6.96	0.165	Unfiltered
WT-20-LQ-252	Unfiltered	11,900	2,110	664				
WT-18-LQ-253	Filtered	94.0	30.0	42.0	Consistent	12.0	0.142	Unfiltered
WT-18-LQ-254	Unfiltered	106	31.0	43.0				
WT-23-LQ-259	Filtered	2,540	280	151	Consistent	3.86	0.092	Unfiltered
WT-23-LQ-260	Unfiltered	2,640	476	177				
WT-21-LQ-261	Filtered	4,690	544	369	Consistent	7.06	0.167	Filtered
WT-21-LQ-262	Unfiltered	4,370	812	411				
WT-24-LQ-265	Filtered	292	129	200	Consistent	0.342	0.003	Unfiltered
WT-24-LQ-266	Unfiltered	293	103	141				
WT-22-LQ-269	Filtered	2,310	383	366	Consistent	3.08	0.066	Filtered
WT-22-LQ-270	Unfiltered	2,240	379	387				
WT-07-LQ-273	Filtered	8,810	1,560	364	Consistent	9.02	0.227	Filtered
WT-07-LQ-274	Unfiltered	8,050	687	535				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

DER denotes Duplicate Error Ratio (values less than 1.42 are potentially identical).

Table I-29. Ra-228 Filtered/Unfiltered Comparison – ZLD Effluent

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-24-LQ-001	Filtered	277	21.0	14.0	Consistent	2.93	0.109	Filtered
WT-24-LQ-002	Unfiltered	269	31.0	31.0				
WT-21-LQ-011	Filtered	503	39.0	17.0	Consistent	9.29	0.425	Unfiltered
WT-21-LQ-012	Unfiltered	552	44.0	30.0				
WT-07-LQ-015	Filtered	849	86.0	83.0	Consistent	3.02	0.124	Unfiltered
WT-07-LQ-016	Unfiltered	875	63.0	20.0				
WT-07-LQ-017	Filtered	1,480	140	140	Discrepant	17.6	0.731	Filtered
WT-07-LQ-018	Unfiltered	1,240	92.0	36.0				
WT-23-LQ-037	Unfiltered	121	16.0	17.0	Consistent	8.62	0.225	Unfiltered
WT-23-LQ-038	Filtered	111	16.0	17.0				
WT-20-LQ-065	Unfiltered	1,090	91.0	63.0	Consistent	0.000	0.000	
WT-20-LQ-066	Filtered	1,090	109	107				
WT-24-LQ-101	Filtered	204	42.0	54.0	Discrepant	38.4	0.905	Unfiltered
WT-24-LQ-102	Unfiltered	301	35.0	36.0				
WT-22-LQ-105	Filtered	241	43.0	57.0	Consistent	3.67	0.093	Unfiltered
WT-22-LQ-106	Unfiltered	250	24.0	23.0				
WT-07-LQ-109	Filtered	324	35.0	29.0	Consistent	1.87	0.068	Filtered
WT-07-LQ-110	Unfiltered	318	28.0	22.0				
WT-21-LQ-123	Filtered	750	66.0	47.0	Consistent	4.56	0.190	Unfiltered
WT-21-LQ-124	Unfiltered	785	67.0	43.0				
WT-20-LQ-135	Filtered	941	65.0	40.0	Discrepant	124	5.04	Filtered
WT-20-LQ-136	Unfiltered	221	33.0	43.0				
WT-23-LQ-179	Filtered	96.0	16.0	18.0	Consistent	12.7	0.670	Unfiltered
WT-23-LQ-180	Unfiltered	109	11.0	10.0				
WT-20-LQ-251	Filtered	910	65.0	25.0	Consistent	5.42	0.024	Filtered
WT-20-LQ-252	Unfiltered	862	1,032	70.0				

**Table I-29. Ra-228 Filtered/Unfiltered Comparison – ZLD Effluent**

Study ID	Sample Type	Ra-228 Result	Ra-228 Error	Ra-228 MDC	Results Consistent (Error Bars Overlap)?	RPD	DER	Highest Result Matrix?
WT-23-LQ-259	Filtered	280	22.0	13.0	Consistent	9.52	0.401	Unfiltered
WT-23-LQ-260	Unfiltered	308	28.0	15.0				
WT-21-LQ-261	Filtered	725	63.0	46.0	Consistent	0.553	0.022	Filtered
WT-21-LQ-262	Unfiltered	721	66.0	36.0				
WT-24-LQ-265	Filtered	120	24.0	25.0	Consistent	16.2	0.312	Filtered
WT-24-LQ-266	Unfiltered	102	17.0	17.0				
WT-22-LQ-269	Filtered	163	34.0	41.0	Consistent	8.80	0.155	Unfiltered
WT-22-LQ-270	Unfiltered	178	36.0	45.0				
WT-07-LQ-273	Filtered	1,740	145	29.0	Consistent	0.000	0.000	
WT-07-LQ-274	Unfiltered	1,740	45.0	47.0				

Notes: All results in units of pCi/L.

Conclusion based on detected results only, by evaluating the four comparison metrics presented.

MDC denotes Minimum Detectable Activity.

RPD denotes Relative Percent Difference (values less than 35% are potentially identical).

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