

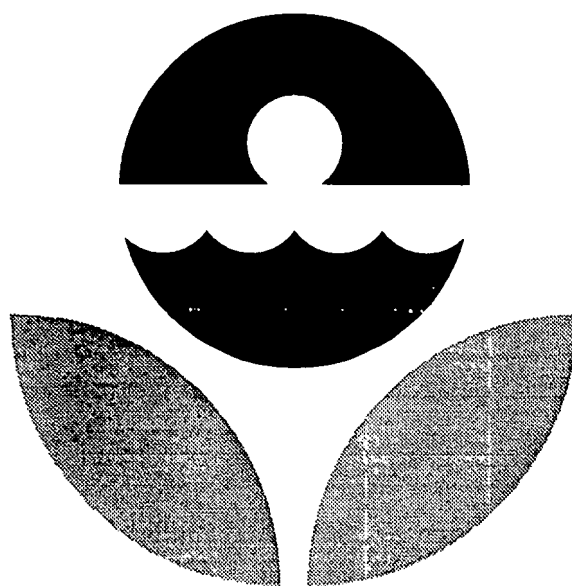


Tritium in Water Performance Evaluation Study

A Statistical Evaluation of the August 8, 1997 Data



Tritium in Water
Performance Evaluation Study
August 8, 1997



Environmental Protection Agency
National Exposure Research Laboratory
Environmental Sciences Division
Las Vegas, Nevada



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
NATIONAL EXPOSURE RESEARCH LABORATORY
ENVIRONMENTAL SCIENCES DIVISION-LAS VEGAS
P.O. BOX 93478
LAS VEGAS, NEVADA 89193-3478
(702/798-2100)

Dear Participant,

Enclosed are the results of the Environmental Sciences Division (ESD-LV) Performance Evaluation Study for *Tritium in Water; August 8, 1997*.

The known value for each analysis was determined by gravimetric methods, checked by chemical analyses performed by ESD-LV's Radiochemistry Laboratory, and compared to the participating laboratories' grand average.

The expected precision, determined by the known value, was taken from "Table 3. Laboratory Precision: One Standard Deviation Values and Control Limits for Various Analyses", which is based on data accumulated over the years by the Performance Evaluation Program, and can be found in the Environmental Radioactivity Performance Evaluation Studies Program and Radioactive Standards Distribution Program information brochure.

Please take a few minutes to review this report and the analytical data your laboratory submitted to us. If there are any apparent discrepancies, please notify us immediately.

We encourage you to make use of the computer-automated data-entry system that has been in place for some time now. As the number of participants increases, and it becomes unrealistic for us to receive results by mail or FAX, the computer system will be our only avenue for accepting data.

If you have any questions or comments, please send a message via the data-entry system or contact Stephen Pia at 702/798-2102 or Patricia Honsa at 702/798-2141.

Sincerely,

A handwritten signature in black ink that reads "Stephen Pia".

Stephen Pia
Team Leader
RADQA Program

Enclosure

NOTICE

This material has been funded wholly by the U.S. Environmental Protection Agency. It has been subjected to the Agency's review, and has been approved for publication as an EPA document.

The following pages consist of separate sections for each of the nuclides in this study with four parts per section. After the first, each part is separated from the next by a new page or a thick horizontal bar. The first page of each section is a statistical summary for the nuclide and starts with a statement of the known value, the control limits, and the warning limits.

The warning limits are placed at two normalized standard deviations above and below the known value and the control limits are three normalized standard deviations above and below the known value. If you keep control charts, these values will be useful for anticipating problems with the accuracy of your analytical methods.

The coin shaped pie chart at the top of the summary page shows the fate of all the samples sent out in number and percentage terms. The pie chart starts at the top and rotates clockwise. The first sector represents those participants who submitted analytical results within both the warning and control limits. The next sector represents those who are in the warning region but not out of control. The third sector represents those who are out of control, but have passed the outlier test. The fourth sector represents those who have failed the outlier test. The last sector represents those participants who have failed to respond properly. This is the case if no analytical results were returned, or less than three determinations were reported, or if the results were received too late. The reeding on the edge of the coin is spaced at one percent intervals, and the sector shading becomes darker as the data reliability decreases. Sectors with zero width are not shown.

The table in the center shows a number of statistical quantities calculated from the submitted data based on the mean and median values in relation to the known value, both before and after outlier removal. The lower pie chart uses the same construction as the upper chart and shows the distribution of properly submitted data in terms of deviation from the known value divided into sectors representing one, two, three, and greater than three normalized standard deviations.

The second part is an alphabetical listing, in lab-code order, of submitted data and several calculated quantities. An entry that is shaded has been rejected because of one of the reasons listed above or failure of the outlier test. The fifth and sixth columns are a measure of laboratory precision. The Range analysis is a normalized value that you may use to keep precision control charts. The eighth and ninth columns are the differences from the mean of all non-outliers and from the known value, respectively. If this value is between 2.0 and 3.0, your analytical process precision is in the warning zone; if it exceeds 3.0 it is out of control. A tag symbol may appear in the last column. Each page with tags has a symbol definition summary at the bottom. If there is no tag symbol, the data is within the control limits, but it may be in the warning zone.

The third part is a three-column listing of result average, tag symbol, and lab-code in average order excluding those labs not responding properly. In this order, all outliers and out-of-control results appear at the top or bottom of the list.

The last part is two bar chart displays showing frequency distributions of responding participants. The first chart places the known value at the center and a bar at each 0.2 unit of expected precision. The second chart places the mean of the reported measurements at the center and a bar at each 0.2 unit of standard deviation. In both cases, a bar includes those results within 0.1 unit up to the maximum of six. Any results more than six units from the center value are shown cumulatively by a shaded bar one past the sixth unit. If the central tendency of the known value distribution falls away from the center, an error in accuracy is indicated. If the distribution is broad, poor precision is indicated. The mean value distribution is similar but uses the average and standard deviation of reported results as its basis.

The Range Analysis($R + SR$) is calculated from the range, mean range and standard error of the range values. The range is the difference between the maximum and minimum results for the laboratory. The mean range is calculated by multiplying the expected precision by 1.693(for three results). The standard error of the range is calculated by multiplying the mean range by 2.575(for three results), subtracting the mean range from this product, and dividing the result by 3. If the range is greater than the mean range, then the range analysis is calculated by subtracting the mean range from the range, dividing the result by the standard error of the range and adding 1. If the mean range is greater than or equal to the range, then the range analysis is calculated by dividing the range by the mean range.

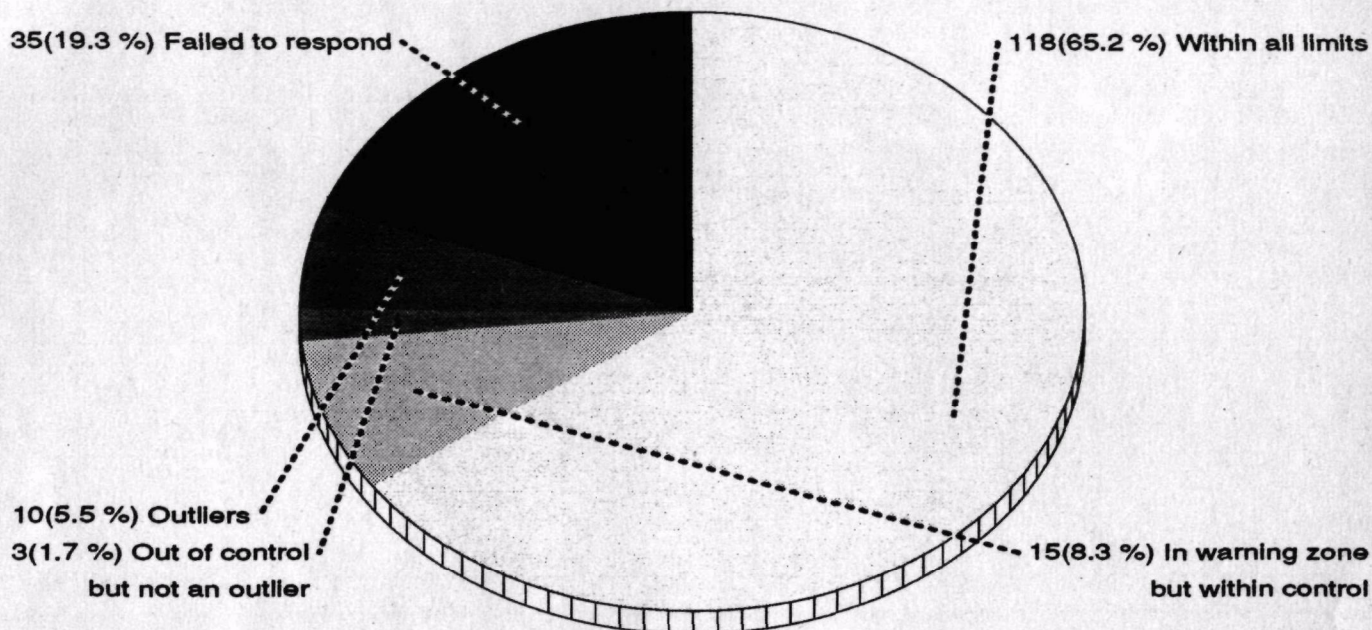
The normalized deviation of the mean from the grand average is calculated from the deviation of the mean from the grand average and the standard error of the mean values. The deviation of the mean from the grand average is calculated by subtracting the grand average from the average of the laboratory's three results. The standard error of the mean is calculated by dividing the expected precision by the square root of 3(the number of results). The normalized deviation of the mean from the grand average is calculated by dividing the deviation of the mean from the grand average by the standard error of the mean.

The normalized deviation of the mean from the known value is calculated from the deviation of the mean from the known value and the standard error of the mean values. The deviation of the mean from the known value is calculated by subtracting the known value from the average of the laboratory's three results. The standard error of the mean is calculated by dividing the expected precision by the square root of 3(the number of results). The normalized deviation of the mean from the known value is calculated by dividing the deviation of the mean from the known value by the standard error of the mean.

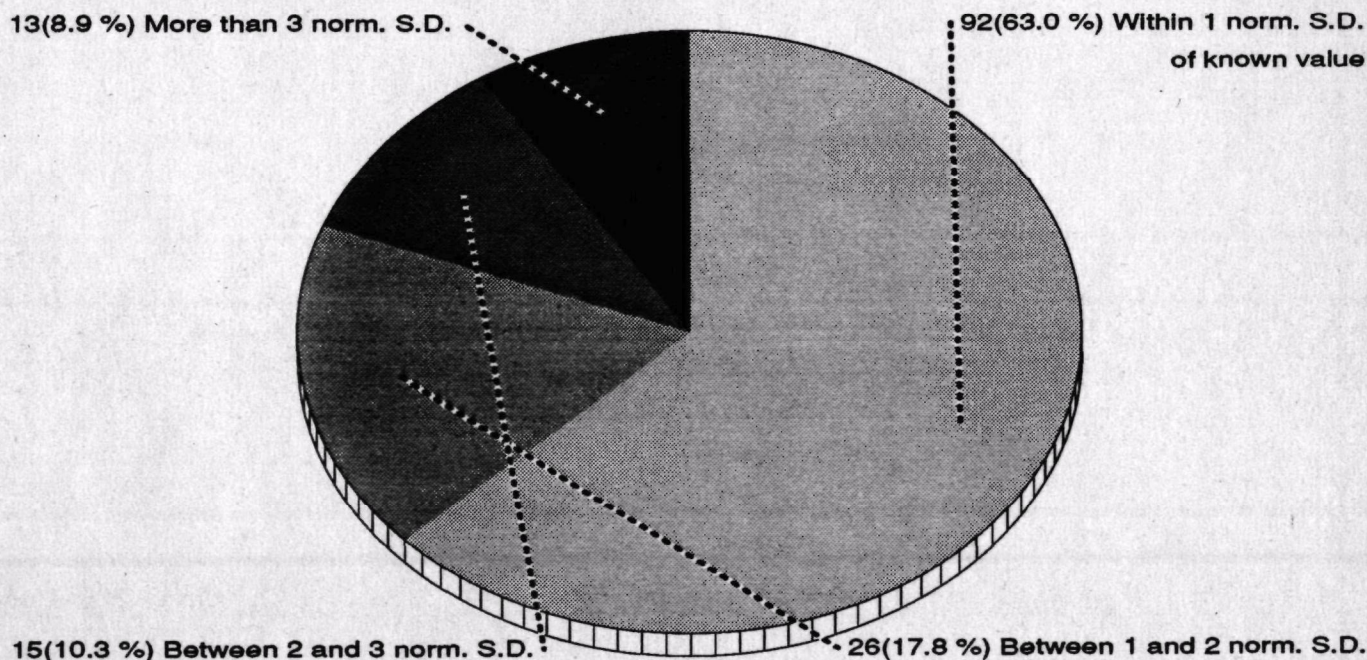
A complete explanation of the statistical calculations involved in the report may be found in the Environmental Radioactivity Performance Evaluation Studies Program information brochure [Draft Revision of EPA-600/4-81-004], available from Patricia Honsa, ESD-LV, 702/798-2141.

Tritium**Statistical Summary****181 Participants**

The known value of this nuclide is **11010 pCi/l** with an expected precision of **1101.0**; the control limits are 9099.8 to 12920.2; the warning regions are 9099.8 to 9735.5 and 12284.5 to 12920.2



Statistic	Respondents	Non-outliers
Mean	11027.12	Grand Avg 10868.16
Std. Dev.	3152.16	748.22
Variance	9936081.33	559828.38
% Coef. of Var.	28.59	6.88
% deviation of mean from known value	0.16	-1.29
Norm. dev. of mean from known value	0.01	-0.19
Median	10895.83	10895.83
% deviation of median from known value	-1.04	-1.04
Norm. dev. of median from known value	-0.04	-0.15



Tritium

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
A	10890.0	10840.0	10790.0	49.96	0.054	10840.00	-0.04	-0.27	
AE	10951.0	10815.0	10919.0	71.10	0.073	10895.00	0.04	-0.18	
AF	10925.0	11146.0	11019.0	110.90	0.119	11030.00	0.25	0.03	
AH	11100.0	11100.0	10800.0	173.21	0.161	11000.00	0.21	-0.02	
AI	12265.0	12150.0	12110.0	80.49	0.083	12175.00	2.06	1.83	
AJ	10820.0	10747.0	10788.0	36.64	0.039	10785.00	-0.13	-0.35	
AK	10966.0	10745.0	10686.0	147.62	0.150	10799.00	-0.11	-0.33	
AP									•
AU	10782.0	10947.0	10695.0	128.00	0.135	10808.00	-0.09	-0.32	
AW	11448.0	11200.0	11132.0	166.35	0.170	11260.00	0.62	0.39	
AY	10575.0	10564.0	10408.0	93.44	0.090	10515.67	-0.55	-0.78	
AZ	11289.0	10838.0	11062.0	225.51	0.242	11063.00	0.31	0.08	
BA	10607.0	10916.0	10682.0	161.19	0.166	10735.00	-0.21	-0.43	
BB	10329.0	10183.0	9428.0	483.59	0.483	9980.00	-1.40	-1.62	
BC	9760.0	10050.0	9730.0	176.72	0.172	9846.67	-1.61	-1.83	
BG	9887.0	10671.0	11720.0	919.69	0.983	10759.33	-0.17	-0.39	
BL	11083.0	11020.0	11214.0	98.93	0.104	11105.67	0.37	0.15	
BM	10990.0	10990.0	11040.0	28.80	0.027	11006.67	0.22	-0.01	
BO	10800.0	10800.0	11200.0	230.94	0.215	10933.33	0.10	-0.12	
BW	10900.0	10600.0	10200.0	351.20	0.376	10566.67	-0.47	-0.70	
C	10880.0	11060.0	11094.0	115.03	0.115	11011.33	0.23	0.00	
CA	11152.0	11276.0	11618.0	241.36	0.250	11348.67	0.76	0.53	
CC	10595.0	10720.0	10830.0	117.55	0.126	10715.00	-0.24	-0.46	
CE	11169.0	11538.0	11243.0	195.22	0.198	11316.67	0.71	0.48	
CG	10500.0	9700.0	9000.0	750.56	0.805	9733.33	-1.79	-2.01	
CJ	12000.0	12000.0	12000.0	0.00	0.000	12000.00	1.78	1.56	
CO	10300.0	10400.0	10200.0	100.04	0.107	10300.00	-0.89	-1.12	
CP	11093.0	11184.0	10864.0	164.90	0.172	11047.00	0.28	0.06	
CS	11400.0	11300.0	11400.0	57.80	0.054	11366.67	0.78	0.56	
CX	6854.0	7159.0	7544.0	345.77	0.370	7185.67	-5.79	-6.02	×
D	11143.0	10909.0	10987.0	119.17	0.126	11013.00	0.23	0.00	
DD	10800.0	11000.0	11100.0	152.78	0.161	10966.67	0.15	-0.07	
DE	10808.0	10853.0	10899.0	45.49	0.049	10853.33	-0.02	-0.25	
DI	14344.0	14252.0	14620.0	191.56	0.197	14405.33	5.56	5.34	×
DR	10923.0	10860.0	11241.0	204.24	0.204	11008.00	0.22	0.00	•
DT	11000.0	11000.0	10900.0	57.80	0.054	10966.67	0.15	-0.07	
E	11060.0	11035.0	11116.0	41.52	0.043	11070.33	0.32	0.09	
EA									•
EB	10524.0	10572.0	10531.0	25.84	0.026	10542.33	-0.51	-0.74	
EH	10500.0	10700.0	10300.0	200.02	0.215	10500.00	-0.58	-0.80	
EL	9180.0	9820.0	8890.0	475.85	0.499	9296.67	-2.47	-2.70	
EW									•
EX	12025.0	11974.0	12010.0	26.28	0.027	12003.00	1.79	1.56	
FE	10750.0	10700.0	10560.0	98.52	0.102	10670.00	-0.31	-0.53	

• = No data submitted

TAG SYMBOLS

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× = Determined to be an outlier

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Tritium

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known) Tag	
FJ	10.0	12.0	11.0	1.00	0.001	11.00	-17.08	-17.30 ×
FL	11001.0	10969.0	10940.0	30.63	0.033	10970.00	0.16	-0.06
GO								•
GQ	10200.0	9680.0	9700.0	294.63	0.279	9860.00	-1.59	-1.81
HI	10798.0	10869.0	10812.0	37.52	0.038	10826.33	-0.07	-0.29
HK	10357.0	10316.0	10780.0	256.88	0.249	10484.33	-0.60	-0.83
HP	8520.0	7830.0	8290.0	351.34	0.370	8213.33	-4.18	-4.40 ×
HR	12077.0	12009.0	12089.0	43.08	0.043	12058.33	1.87	1.65
I	10800.0	10860.0	10930.0	65.11	0.070	10863.33	-0.01	-0.23
IA								•
IU	10496.0	10209.0	10443.0	152.73	0.154	10382.67	-0.76	-0.99
J								•
JE	11298.0	11271.0	10924.0	208.57	0.201	11164.33	0.47	0.24
JK								•
JM	8968.0	9800.0	10438.0	737.13	0.789	9735.33	-1.78	-2.01
JN	13061.0	12888.0	13127.0	123.41	0.128	13025.33	3.39	3.17 ↑
JR								•
JS	12100.0	11600.0	11800.0	251.68	0.268	11833.33	1.52	1.30
JY	10500.0	11100.0	11100.0	346.42	0.322	10900.00	0.05	-0.17
K	10655.0	10433.0	10871.0	219.02	0.235	10653.00	-0.34	-0.56
KH	10928.0	11036.0	10798.0	119.19	0.128	10920.67	0.08	-0.14
KM	10191.0	10094.0	10953.0	470.45	0.461	10412.67	-0.72	-0.94
KX	11090.0	11370.0	11080.0	164.61	0.156	11180.00	0.49	0.27
L	10802.0	10893.0	10931.0	66.33	0.069	10875.33	0.01	-0.21
LE	9374.0	10007.0	9987.0	359.83	0.340	9789.33	-1.70	-1.92
LF	11000.0	11000.0	12000.0	577.35	0.536	11333.33	0.73	0.51
LR	10500.0	10270.0	10420.0	116.75	0.123	10396.67	-0.74	-0.96
LT	9050.0	9230.0	9350.0	151.00	0.161	9210.00	-2.61	-2.83
M	10600.0	10600.0	10700.0	57.80	0.054	10633.33	-0.37	-0.59
MN	10000.0	10300.0	10400.0	208.19	0.215	10233.33	-1.00	-1.22
MT	10422.0	10420.0	10437.0	8.93	0.009	10426.33	-0.70	-0.92
MV	10628.0	10569.0	10599.0	29.62	0.032	10598.67	-0.42	-0.65
N	10996.0	10915.0	10962.0	40.69	0.043	10957.67	0.14	-0.08
NB								•
NH	11161.0	11058.0	10884.0	140.00	0.149	11034.33	0.26	0.04
NJ	11190.0	11044.0	11060.0	80.06	0.078	11098.00	0.36	0.14
NK								•
NO	10500.0	11000.0	11500.0	500.00	0.536	11000.00	0.21	-0.02
NP	10147.0	10352.0	10300.0	106.58	0.110	10266.33	-0.95	-1.17
O	11021.0	10835.0	10816.0	113.30	0.110	10890.67	0.04	-0.19
OA	11200.0	10900.0	10700.0	251.66	0.268	10933.33	0.10	-0.12
OK	11342.0	11251.0	11369.0	61.83	0.063	11320.67	0.71	0.49
OM	12200.0	12600.0	12300.0	208.19	0.215	12366.67	2.36	2.13
OT	10900.0	10500.0	10800.0	208.17	0.215	10733.33	-0.21	-0.44
OX								•

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Tritium

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
PB	11201.0	11062.0	11124.0	69.67	0.075	11129.00	0.41	0.19	
PD	14627.0	13459.0	14015.0	584.23	0.627	14033.67	4.98	4.76	×
PE									•
PM	10919.0	10788.0	10878.0	66.99	0.070	10861.67	-0.01	-0.23	
PQ									•
Q	10658.0	10690.0	10702.0	22.61	0.024	10683.33	-0.29	-0.51	
QC									•
QD	11146.0	11050.0	11013.0	68.64	0.071	11069.67	0.32	0.09	
QI	10211.0	10290.0	9909.0	201.08	0.204	10136.67	-1.15	-1.37	
QM									•
QP	12335.0	12195.0	12188.0	82.94	0.079	12239.33	2.16	1.93	
QQ	12166.0	12369.0	12535.0	184.82	0.198	12356.67	2.34	2.12	
QT	12653.0	11880.0	11808.0	468.46	0.453	12113.67	1.96	1.74	
QU	10504.0	10110.0	10517.0	231.32	0.218	10377.00	-0.77	-1.00	
QW	10466.0	10617.0	10316.0	150.49	0.161	10466.33	-0.63	-0.86	
QX	11927.0	11793.0	11899.0	70.64	0.072	11873.00	1.58	1.36	
QZ	11500.0	11430.0	11240.0	134.56	0.139	11390.00	0.82	0.60	
R	10817.0	9849.0	10789.0	550.97	0.519	10485.00	-0.60	-0.83	
RB	9993.0	10458.0	10204.0	232.83	0.249	10218.33	-1.02	-1.25	
RF									•
RH									•
RK									•
RO	11437.0	11076.0	10602.0	418.77	0.448	11038.33	0.27	0.04	
RR	10945.0	11300.0	11468.0	267.01	0.281	11237.67	0.58	0.36	
RU									•
RX	17464.0	17463.0	16496.0	558.58	0.519	17141.00	9.87	9.65	×
S	10951.0	11065.0	10978.0	59.55	0.061	10998.00	0.20	-0.02	
SC	5078.0	5278.0	4785.0	247.96	0.264	5047.00	-9.16	-9.38	×
SD	9764.0	9638.0	9521.0	121.55	0.130	9641.00	-1.93	-2.15	
SF	11200.0	11400.0	11500.0	152.78	0.161	11366.67	0.78	0.56	
SI	10200.0	10200.0	10200.0	0.00	0.000	10200.00	-1.05	-1.27	
SM	9610.0	9500.0	9590.0	58.63	0.059	9566.67	-2.05	-2.27	
SN	9700.0	9800.0	9800.0	57.80	0.054	9766.67	-1.73	-1.96	
SS	11030.0	10950.0	10710.0	166.52	0.172	10896.67	0.04	-0.18	
SU	10011.0	9690.0	9968.0	174.25	0.172	9889.67	-1.54	-1.76	
SV	11496.0	10396.0	11381.0	604.62	0.590	11091.00	0.35	0.13	
SZ	11200.0	11100.0	11000.0	100.04	0.107	11100.00	0.36	0.14	
T	10302.0	10234.0	10452.0	111.56	0.117	10329.33	-0.85	-1.07	
TA									•
TC	10002.0	10049.0	10245.0	128.89	0.130	10098.67	-1.21	-1.43	
TD	12387.0	12374.0	12420.0	23.75	0.025	12393.67	2.40	2.18	
TF									•
TH									•
TL									•
TN	13882.0	13850.0	13922.0	35.99	0.039	13884.67	4.75	4.52	×

• ≡ No data submitted

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Tritium

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
TQ	11300.0	11000.0	10700.0	300.00	0.322	11000.00	0.21	-0.02	
TU	12902.0	12389.0	12509.0	268.33	0.275	12600.00	2.72	2.50	
TW									•
TX									•
U	11000.0	11400.0	11300.0	208.19	0.215	11233.33	0.57	0.35	
UC	37500.0	56000.0	39300.0	10201.14	18.000	44266.67	52.54	52.32	×
UI									•
UK	10900.0	10700.0	11000.0	152.75	0.161	10866.67	0.00	-0.23	
UP	8008.0	7380.0	7718.0	314.26	0.337	7701.33	-4.98	-5.21	×
UT	10770.0	10718.0	10504.0	140.97	0.143	10664.00	-0.32	-0.54	
UX	11800.0	11775.0	11194.0	342.88	0.325	11589.67	1.14	0.91	
UY	9433.0	9464.0	9482.0	24.90	0.026	9459.67	-2.22	-2.44	
VA	8387.0	9820.0	9073.0	716.72	0.769	9093.33	-2.79	-3.02	↓
VC	11158.0	11354.0	11176.0	108.32	0.105	11229.33	0.57	0.35	
VE	10985.0	10696.0	11001.0	171.66	0.164	10894.00	0.04	-0.18	
VI	9340.0	9160.0	9110.0	120.96	0.123	9203.33	-2.62	-2.84	
VM	11411.0	11189.0	11194.0	126.74	0.119	11264.67	0.62	0.40	
VN									•
VP	11118.0	11104.0	11369.0	149.14	0.142	11197.00	0.52	0.29	
VR	10484.0	11560.0	9178.0	1192.85	1.529	10407.33	-0.72	-0.95	
VW	8801.0	9405.0	8869.0	330.84	0.324	9025.00	-2.90	-3.12	↓
VZ	11747.0	12305.0	11188.0	558.50	0.599	11746.67	1.38	1.16	
W									•
WD									•
WH	12008.0	10292.0	11260.0	860.35	0.921	11186.67	0.50	0.28	
WJ	10685.0	10800.0	10705.0	61.40	0.062	10730.00	-0.22	-0.44	
WO									•
WP	12857.0	12702.0	12764.0	78.00	0.083	12774.33	3.00	2.78	
WR	11314.0	11652.0	11703.0	211.40	0.209	11556.33	1.08	0.86	
WS	11100.0	10800.0	11500.0	351.19	0.376	11133.33	0.42	0.19	
WT									•
WV	10100.0	10400.0	10200.0	152.78	0.161	10233.33	-1.00	-1.22	
WW	11022.0	11006.0	11085.0	41.85	0.042	11037.67	0.27	0.04	
WX	12000.0	12200.0	12200.0	115.47	0.107	12133.33	1.99	1.77	
WZ	10236.0	10236.0	10539.0	174.95	0.163	10337.00	-0.84	-1.06	
X	12600.0	11900.0	12600.0	404.16	0.376	12366.67	2.36	2.13	
XB	9668.0	9648.0	9827.0	98.10	0.096	9714.33	-1.82	-2.04	
XC	10721.0	10827.0	11001.0	141.35	0.150	10849.67	-0.03	-0.25	
XD	10570.0	10560.0	10610.0	26.38	0.027	10580.00	-0.45	-0.68	
XE									•
XF	11690.0	11352.0	11604.0	175.68	0.181	11548.67	1.07	0.85	
XG	10400.0	10400.0	10400.0	0.00	0.000	10400.00	-0.74	-0.96	
XH									•
XI	11000.0	11000.0	11000.0	0.00	0.000	11000.00	0.21	-0.02	
XK									•

• = No data submitted

TAG SYMBOLS

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Ø = Insufficient data

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Tritium

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known) Tag	
Y	10907.0	10823.0	10673.0	118.52	0.126	10801.00	-0.11	-0.33

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
11.00	×	FJ	10485.00		R	10998.00		S
5047.00	×	SC	10500.00		EH	11000.00		XI
7185.67	×	CX	10515.67		AY	11000.00		TQ
7701.33	×	UP	10542.33		EB	11000.00		NO
8213.33	×	HP	10566.67		BW	11000.00		AH
9025.00	↓	VW	10580.00		XD	11006.67		BM
9093.33	↓	VA	10598.67		MV	11008.00		DR
9203.33		VI	10633.33		M	11011.33		C
9210.00		LT	10653.00		K	11013.00		D
9296.67		EL	10664.00		UT	11030.00		AF
9459.67		UY	10670.00		FE	11034.33		NH
9566.67		SM	10683.33		Q	11037.67		WW
9641.00		SD	10715.00		CC	11038.33		RO
9714.33		XB	10730.00		WJ	11047.00		CP
9733.33		CG	10733.33		OT	11063.00		AZ
9735.33		JM	10735.00		BA	11069.67		QD
9766.67		SN	10759.33		BG	11070.33		E
9789.33		LE	10785.00		AJ	11091.00		SV
9846.67		BC	10799.00		AK	11098.00		NJ
9860.00		GQ	10801.00		Y	11100.00		SZ
9889.67		SU	10808.00		AU	11105.67		BL
9980.00		BB	10826.33		HI	11129.00		PB
10098.67		TC	10840.00		A	11133.33		WS
10136.67		QI	10849.67		XC	11164.33		JE
10200.00		SI	10853.33		DE	11180.00		KX
10218.33		RB	10861.67		PM	11186.67		WH
10233.33		WV	10863.33		I	11197.00		VP
10233.33		MN	10866.67		UK	11229.33		VC
10266.33		NP	10875.33		L	11233.33		U
10300.00		CO	10890.67		O	11237.67		RR
10329.33		T	10894.00		VE	11260.00		AW
10337.00		WZ	10895.00		AE	11264.67		VM
10377.00		QU	10896.67		SS	11316.67		CE
10382.67		IU	10900.00		JY	11320.67		OK
10396.67		LR	10920.67		KH	11333.33		LF
10400.00		XG	10933.33		OA	11348.67		CA
10407.33		VR	10933.33		BO	11366.67		SF
10412.67		KM	10957.67		N	11366.67		CS
10426.33		MT	10966.67		DT	11390.00		QZ
10466.33		QW	10966.67		DD	11548.67		XF
10484.33		HK	10970.00		FL	11556.33		WR

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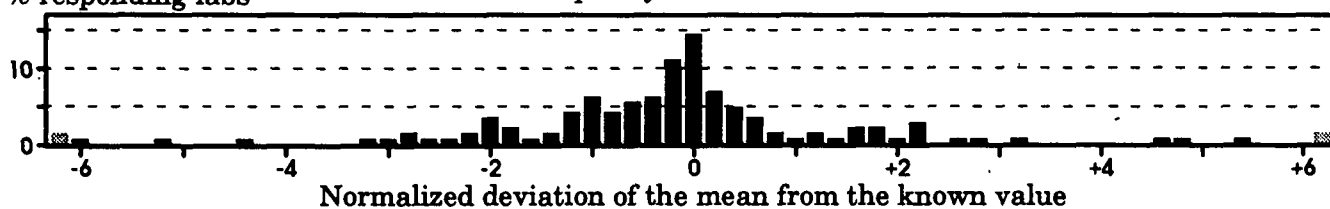
↓ = Below control limit

Tritium**Data sorted by Laboratory Average**

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
11589.67		UX	12113.67		QT	12600.00		TU
11746.67		VZ	12133.33		WX	12774.33		WP
11833.33		JS	12175.00		AI	13025.33	↑	JN
11873.00		QX	12239.33		QP	13884.67	×	TN
12000.00		CJ	12356.67		QQ	14033.67	×	PD
12003.00		EX	12366.67		X	14405.33	×	DH
12058.33		HR	12366.67		OM	17141.00	×	RX
			12393.67		TD	44266.67	×	UC

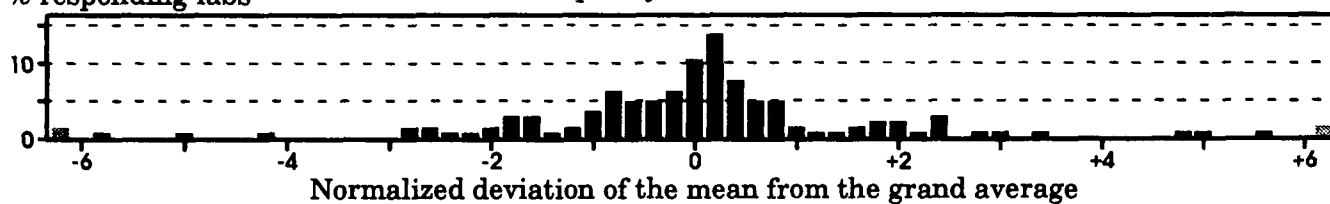
% responding labs

Frequency distribution



% responding labs

Frequency distribution



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