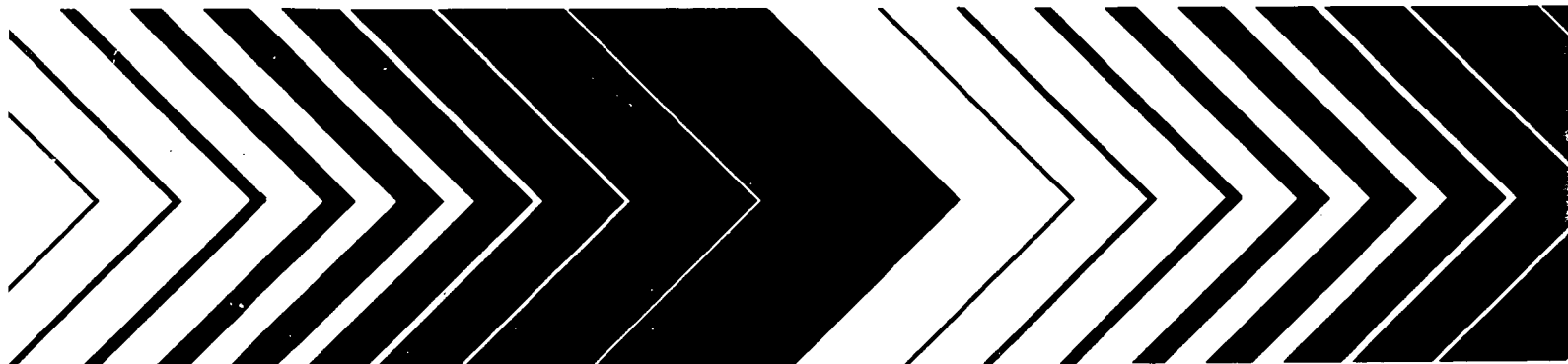


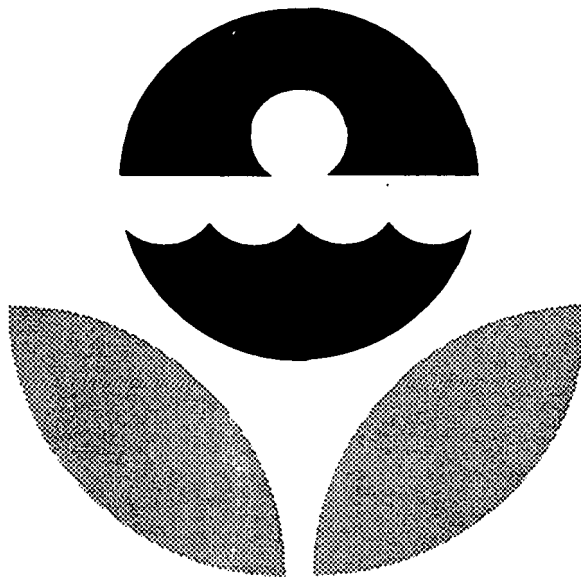


Radionuclides in Milk Intercomparison Study

A Statistical Evaluation of the April 24, 1992 Data



Radionuclides in Milk
Intercomparison Study
April 24, 1992



Environmental Protection Agency
Environmental Monitoring Systems Laboratory
Las Vegas, Nevada



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

Dear Participant,

Enclosed are the results of the Nuclear Radiation Assessment Division (EMSL-LV) Intercomparison Study for *Radionuclides in Milk*; April 24, 1992.

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 Frank Novielli at 702/798-2159 or Patricia Honsa at 702/798-2141.

Sincerely,

Frank Novielli
Frank Novielli
Senior Chemist
Radioanalysis Branch

Enclosure

NOTICE

This material has been funded wholly by the U.S. Environmental Protection Agency. It has been subject to the Agency's review, and it 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. 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. The eighth and ninth columns are the differences from the mean of all non-outliers and from the known value, respectively. 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.

Strontium-89

Statistical Summary

104 Participants

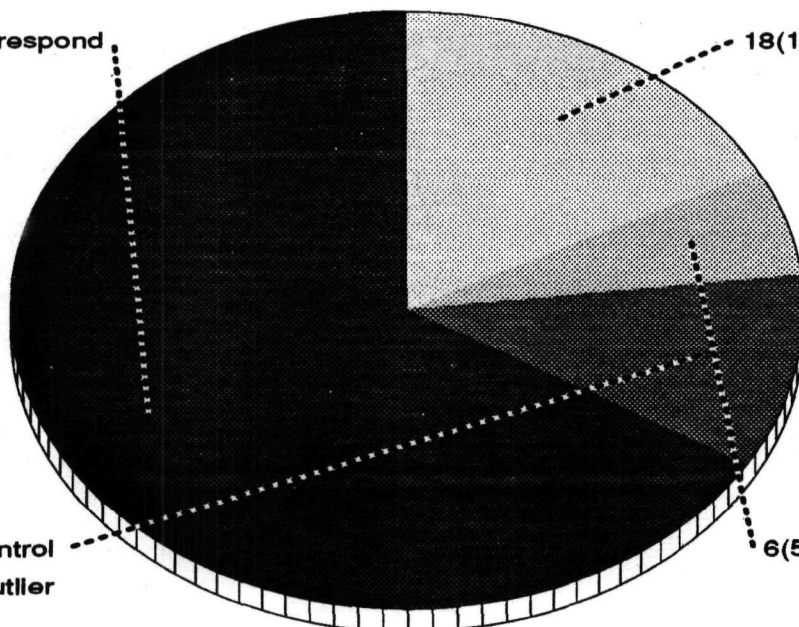
The known value of this nuclide is **38.0 pCi/l** with an expected precision of **5.0**; the control limits are 29.3 to 46.7; the warning regions are 29.3 to 32.2 and 43.8 to 46.7

69(66.3 %) Failed to respond

18(17.3 %) Within all limits

11(10.6 %) Out of control
but not an outlier

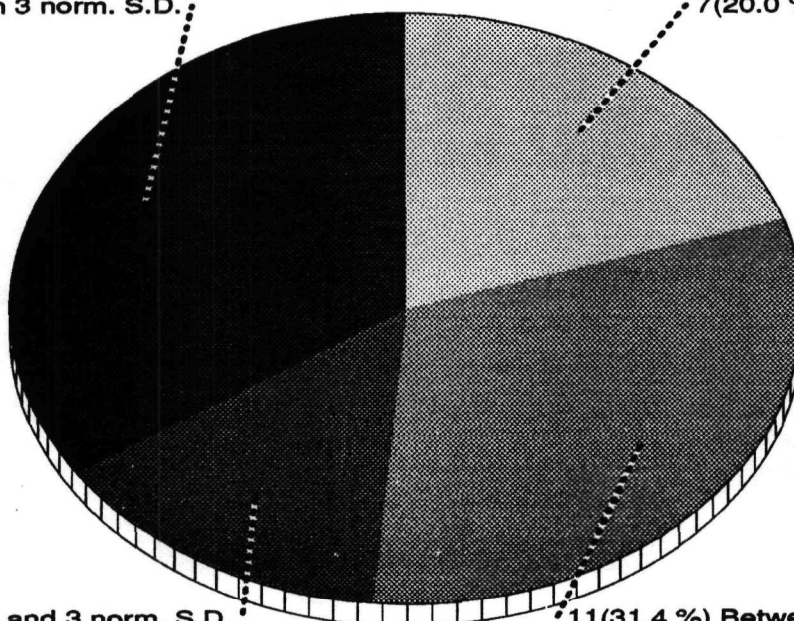
6(5.8 %) In warning zone
but within control



Statistic	Respondents	Non-outliers
Mean	31.02	Grand Avg 31.02
Std. Dev.	8.85	8.85
Variance	78.40	78.40
% Coef. of Var.	28.54	28.54
% deviation of mean from known value	-18.37	-18.37
Norm. dev. of mean from known value	-0.79	-0.79
Median	33.33	33.33
% deviation of median from known value	-12.28	-12.28
Norm. dev. of median from known value	-0.53	-0.53

12(34.3 %) More than 3 norm. S.D.

7(20.0 %) Within 1 norm. S.D.
of known value



5(14.3 %) Between 2 and 3 norm. S.D.

11(31.4 %) Between 1 and 2 norm. S.D.

Strontium-89

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
A	34.0	35.0	36.0	1.00	0.236	35.00	1.38	-1.04	
AA									•
AB									•
AE	30.0	37.0	36.0	3.79	0.827	34.33	1.15	-1.27	
AF									•
AH									•
AI	42.0	44.0	41.0	1.53	0.354	42.33	3.92	1.50	
AJ									•
AK	30.0	35.0	37.0	3.61	0.827	34.00	1.03	-1.39	
AL									•
AN									•
AP									•
AU	25.0	19.0	26.0	3.79	0.827	23.33	-2.66	-5.08	↓
AW									•
AY									•
AZ									•
BA									•
BC	16.0	15.0	19.0	2.08	0.473	16.67	-4.97	-7.39	↓
BG									•
BH	39.0	45.0	42.0	3.00	0.709	42.00	3.80	1.39	
BL	32.0	32.0	37.0	2.89	0.591	33.67	0.92	-1.50	
BM									•
BO	34.0	34.0	32.0	1.15	0.236	33.33	0.80	-1.62	
BW									•
C	32.0	33.0	33.0	0.58	0.118	32.67	0.57	-1.85	
CA	27.0	28.0	21.0	3.79	0.827	25.33	-1.97	-4.39	↓
CJ	41.0	32.0	35.0	4.58	1.120	36.00	1.73	-0.69	
CO									•
CP									•
CQ									•
D	33.0	31.0	31.0	1.15	0.236	31.67	0.22	-2.19	
DD									•
DE	12.0	13.0	13.0	0.58	0.118	12.67	-6.36	-8.78	↓
DL									•
DM									•
DT	29.0	30.0							∅
DY									•
E	36.0	43.0	38.0	3.61	0.827	39.00	2.76	0.35	
EA									•
EB									•
EH									•
EL	33.0	30.0	33.0	1.73	0.354	32.00	0.34	-2.08	
EX									•
FE	34.0	33.0	36.0	1.53	0.354	34.33	1.15	-1.27	
FL									•

• = No data submitted

TAG SYMBOLS

↑ = Above control limit

∅ = Insufficient data

× = Determined to be an outlier

↓ = Below control limit

Strontium-89

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
GE									•
HU									•
I									•
IC	39.0	47.0	38.0	4.93	1.120	41.33	3.57	1.15	
IU									•
J									•
JR									•
JS									•
K									•
KL									•
KX	44.0	34.0	37.0	5.13	1.345	38.33	2.53	0.12	
L									•
LE									•
LF									•
LM									•
LR									•
M									•
MA									•
ME	39.0	40.0	37.0	1.53	0.354	38.67	2.65	0.23	
ML									•
MP									•
MQ	33.0	28.0	30.0	2.52	0.591	30.33	-0.24	-2.66	
MS	30.0	30.0	27.0	1.73	0.354	29.00	-0.70	-3.12	↓
MV									•
N	36.0	32.0	40.0	4.00	0.945	36.00	1.73	-0.69	
NH									•
NJ									•
O									•
PB	35.0	35.0	35.0	0.00	0.000	35.00	1.38	-1.04	
PC									•
PM	33.0	28.0	27.0	3.21	0.709	29.33	-0.58	-3.00	
PP									•
PV									•
PW									•
PY									•
Q	30.0	32.0	32.0	1.15	0.236	31.33	0.11	-2.31	
QB									•
QK	10.0	9.0	11.0	1.00	0.236	10.00	-7.28	-9.70	↓
QL	40.0	46.0	48.0	4.16	0.945	44.67	4.73	2.31	
QX									•
QZ	19.0	17.0	19.0	1.15	0.236	18.33	-4.39	-6.81	↓
R	20.0	16.0	15.0	2.65	0.591	17.00	-4.86	-7.27	↓
RK									•
S									•
SD									•

• = No data submitted

TAG SYMBOLS

↑ = Above control limit

∅ = Insufficient data

× = Determined to be an outlier

↓ = Below control limit

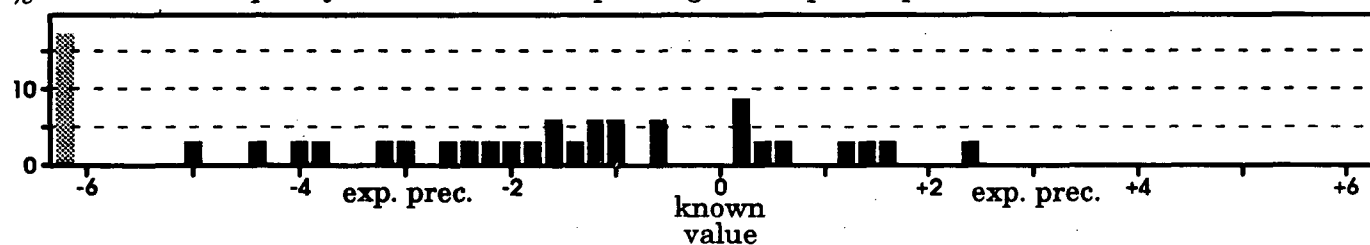
Strontium-89

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
SI									•
SK									•
SS	29.0	23.0	29.0	3.46	0.709	27.00	-1.39	-3.81	↓
T	28.0	28.0	24.0	2.31	0.473	26.67	-1.51	-3.93	↓
TA									•
TB									•
TE									•
TH									•
TI									•
TK									•
U	13.0	18.0	18.0	2.89	0.591	16.33	-5.09	-7.51	↓
W									•
Y	39.0	39.0	41.0	1.15	0.236	39.67	3.00	0.58	
Z	37.0	41.0	37.0	2.31	0.473	38.33	2.53	0.12	

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
10.00	↓	QK	29.33		PM	35.00		A
12.67	↓	DE	30.33		MQ	36.00		N
16.33	↓	U	31.33		Q	36.00		CJ
16.67	↓	BC	31.67		D	38.33		Z
17.00	↓	R	32.00		EL	38.33		KX
18.33	↓	QZ	32.67		C	38.67		ME
23.33	↓	AU	33.33		BO	39.00		E
25.33	↓	CA	33.67		BL	39.67		Y
26.67	↓	T	34.00		AK	41.33		IC
27.00	↓	SS	34.33		FE	42.00		BH
29.00	↓	MS	34.33		AE	42.33		AI
			35.00		PB	44.67		QL

% Frequency distribution of responding labs(expected prec. vs known value)



• = No data submitted

Ø = Insufficient data

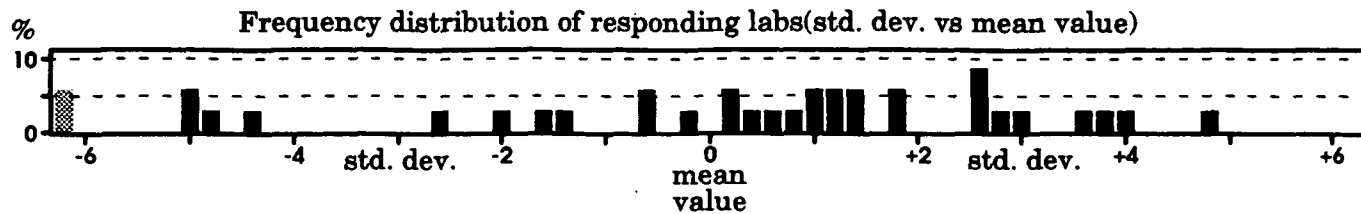
TAG SYMBOLS

× = Determined to be an outlier

↑ = Above control limit

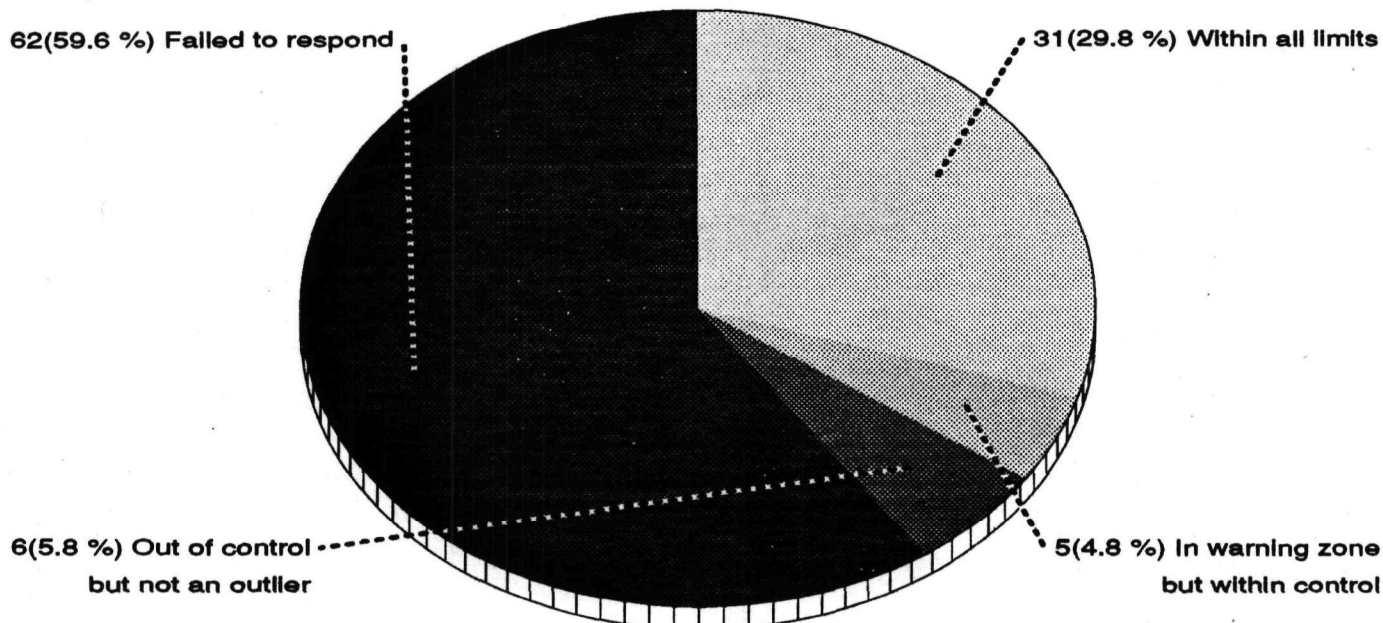
↓ = Below control limit

Strontium-89

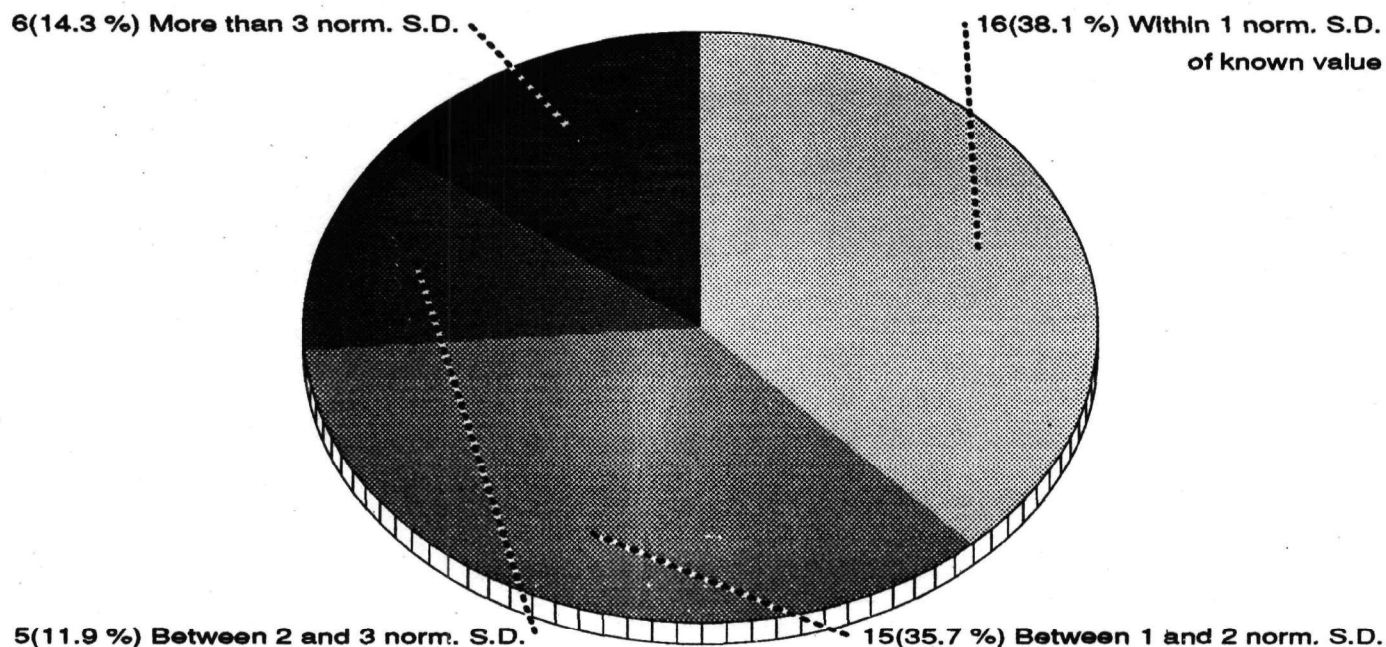


Strontium-90**Statistical Summary****104 Participants**

The known value of this nuclide is **29.0 pCi/l** with an expected precision of **5.0**; the control limits are 20.3 to 37.7; the warning regions are 20.3 to 23.2 and 34.8 to 37.7



Statistic	Respondents	Non-outliers
Mean	24.66	Grand Avg 24.66
Std. Dev.	5.43	5.43
Variance	29.49	29.49
% Coef. of Var.	22.02	22.02
% deviation of mean from known value	-14.97	-14.97
Norm. dev. of mean from known value	-0.80	-0.80
Median	25.67	25.67
% deviation of median from known value	-11.49	-11.49
Norm. dev. of median from known value	-0.61	-0.61



Strontium-90

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
A	24.0	25.0	28.0	2.08	0.473	25.67	0.35	-1.15	
AA	12.0	10.0	12.0	1.15	0.236	11.33	-4.62	-6.12	↓
AB									•
AE	23.0	26.0	27.0	2.08	0.473	25.33	0.23	-1.27	
AF	30.0	29.0	26.0	2.08	0.473	28.33	1.27	-0.23	
AH									•
AI	27.0	30.0	30.0	1.73	0.354	29.00	1.50	0.00	
AJ									•
AK	24.0	21.0	20.0	2.08	0.473	21.67	-1.04	-2.54	
AL	28.0	31.0	30.0	1.53	0.354	29.67	1.73	0.23	
AN									•
AP									•
AU	27.0	28.0	24.0	2.08	0.473	26.33	0.58	-0.92	
AW									•
AY	26.0	26.0	26.0	0.00	0.000	26.00	0.46	-1.04	
AZ	24.0	24.0	28.0	2.31	0.473	25.33	0.23	-1.27	
BA									•
BC	18.0	14.0	13.0	2.65	0.591	15.00	-3.35	-4.85	↓
BG									•
BH	25.0	28.0	24.0	2.08	0.473	25.67	0.35	-1.15	
BL	24.0	26.0	23.0	1.53	0.354	24.33	-0.11	-1.62	
BM									•
BO	24.0	24.0	23.0	0.58	0.118	23.67	-0.34	-1.85	
BW									•
C	25.0	26.0	24.0	1.00	0.236	25.00	0.12	-1.39	
CA	24.0	23.0	26.0	1.53	0.354	24.33	-0.11	-1.62	
CJ	26.0	26.0	26.0	0.00	0.000	26.00	0.46	-1.04	
CO	24.0	21.0	22.0	1.53	0.354	22.33	-0.81	-2.31	
CP									•
CQ									•
D	26.0	26.0	25.0	0.58	0.118	25.67	0.35	-1.15	
DD									•
DE	25.0	26.0	26.0	0.58	0.118	25.67	0.35	-1.15	
DL									•
DM									•
DT	23.0	24.0							∅
DY									•
E	28.0	30.0	30.0	1.15	0.236	29.33	1.62	0.12	
EA									•
EB									•
EH									•
EL	27.0	26.0	27.0	0.58	0.118	26.67	0.70	-0.81	
EX									•
FE	22.0	22.0	23.0	0.58	0.118	22.33	-0.81	-2.31	
FL									•

• ≡ No data submitted

TAG SYMBOLS

↑ ≡ Above control limit

∅ ≡ Insufficient data

× ≡ Determined to be an outlier

↓ ≡ Below control limit

Strontium-90

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
GE									•
HU									•
I									•
IC	31.0	33.0	32.0	1.00	0.236	32.00	2.54	1.04	
IU									•
J									•
JR									•
JS									•
K									•
KL									•
KX	22.0	25.0	24.0	1.53	0.354	23.67	-0.34	-1.85	
L									•
LE									•
LF									•
LM									•
LR									•
M									•
MA									•
ME	30.0	28.0	32.0	2.00	0.473	30.00	1.85	0.35	
ML									•
MP									•
MQ	26.0	28.0	28.0	1.15	0.236	27.33	0.93	-0.58	
MS	30.0	30.0	29.0	0.58	0.118	29.67	1.73	0.23	
MV									•
N	22.0	26.0	21.0	2.65	0.591	23.00	-0.57	-2.08	
NH									•
NJ									•
O									•
PB	31.0	30.0	30.0	0.58	0.118	30.33	1.97	0.46	
PC									•
PM	28.0	26.0	29.0	1.53	0.354	27.67	1.04	-0.46	
PP									•
PV	16.0	16.0	18.0	1.15	0.236	16.67	-2.77	-4.27	↓
PW									•
PY									•
Q	29.0	30.0	32.0	1.53	0.354	30.33	1.97	0.46	
QB									•
QK	11.0	9.0	9.0	1.15	0.236	9.67	-5.19	-6.70	↓
QL	29.0	27.0	26.0	1.53	0.354	27.33	0.93	-0.58	
QX									•
QZ	10.0	10.0	9.0	0.58	0.118	9.67	-5.19	-6.70	↓
R	27.0	33.0	34.0	3.79	0.827	31.33	2.31	0.81	
RK									•
S									•
SD									•

• = No data submitted

TAG SYMBOLS

↑ = Above control limit

∅ = Insufficient data

× = Determined to be an outlier

↓ = Below control limit

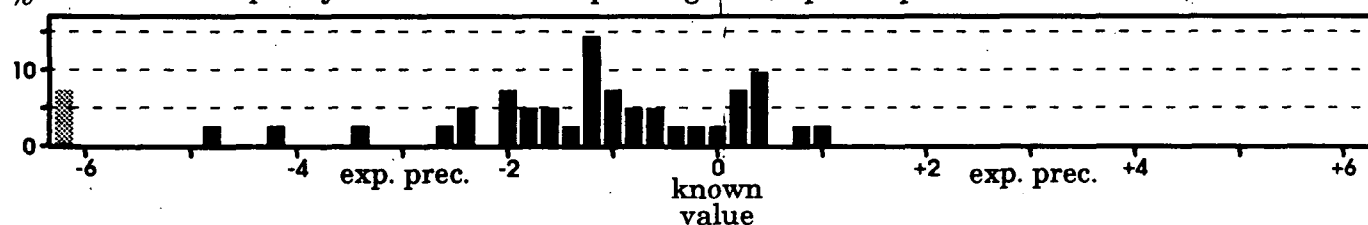
Strontium-90

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
SI									•
SK									•
SS	28.0	26.0	26.0	1.15	0.236	26.67	0.70	-0.81	
T	20.0	19.0	19.0	0.58	0.118	19.33	-1.84	-3.35	↓
TA									•
TB									•
TE									•
TH									•
TI									•
TK									•
U	25.0	21.0	23.0	2.00	0.473	23.00	-0.57	-2.08	
W									•
Y	24.0	23.0	23.0	0.58	0.118	23.33	-0.46	-1.96	
Z	28.0	33.0	29.0	2.65	0.591	30.00	1.85	0.35	

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
9.67	↓	QZ	24.33		CA	27.33		QL
9.67	↓	QK	24.33		BL	27.33		MQ
11.33	↓	AA	25.00		C	27.67		PM
15.00	↓	BC	25.33		AZ	28.33		AF
16.67	↓	PV	25.33		AE	29.00		AI
19.33	↓	T	25.67		DE	29.33		E
21.67		AK	25.67		D	29.67		MS
22.33		FE	25.67		BH	29.67		AL
22.33		CO	25.67		A	30.00		Z
23.00		U	26.00		CJ	30.00		ME
23.00		N	26.00		AY	30.33		Q
23.33		Y	26.33		AU	30.33		PB
23.67		KX	26.67		SS	31.33		R
23.67		BO	26.67		EL	32.00		IC

Frequency distribution of responding labs(expected prec. vs known value)



• = No data submitted

Ø = Insufficient data

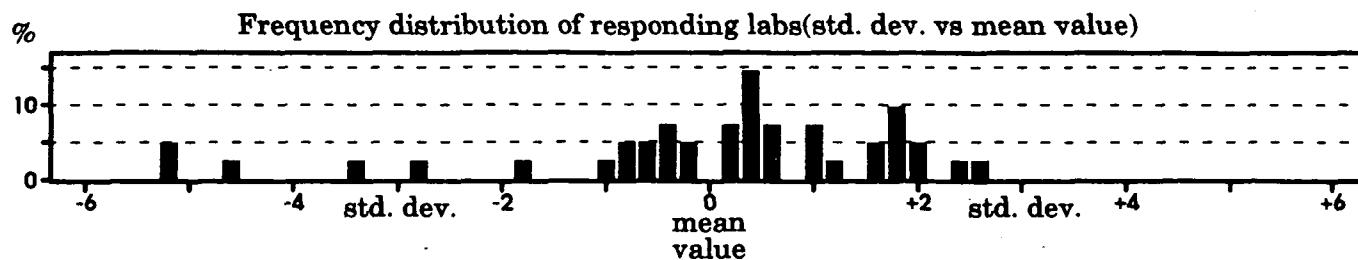
TAG SYMBOLS

× = Determined to be an outlier

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↓ = Below control limit

Strontium-90

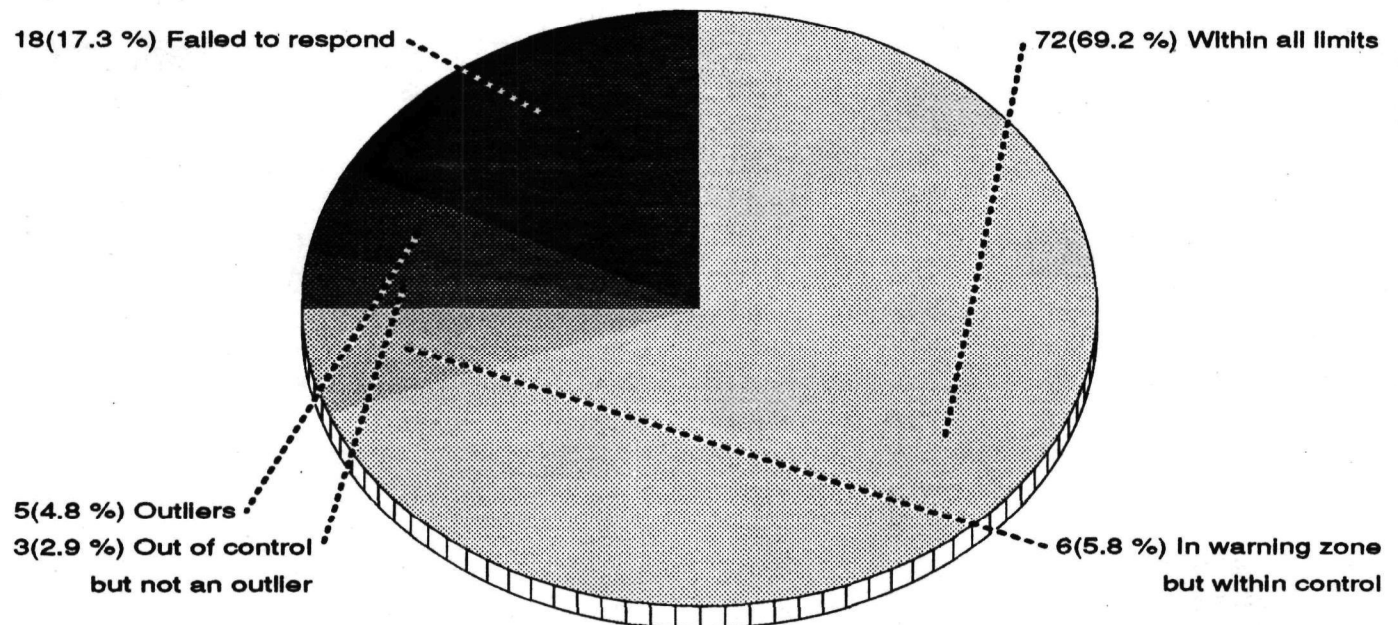


Iodine-131

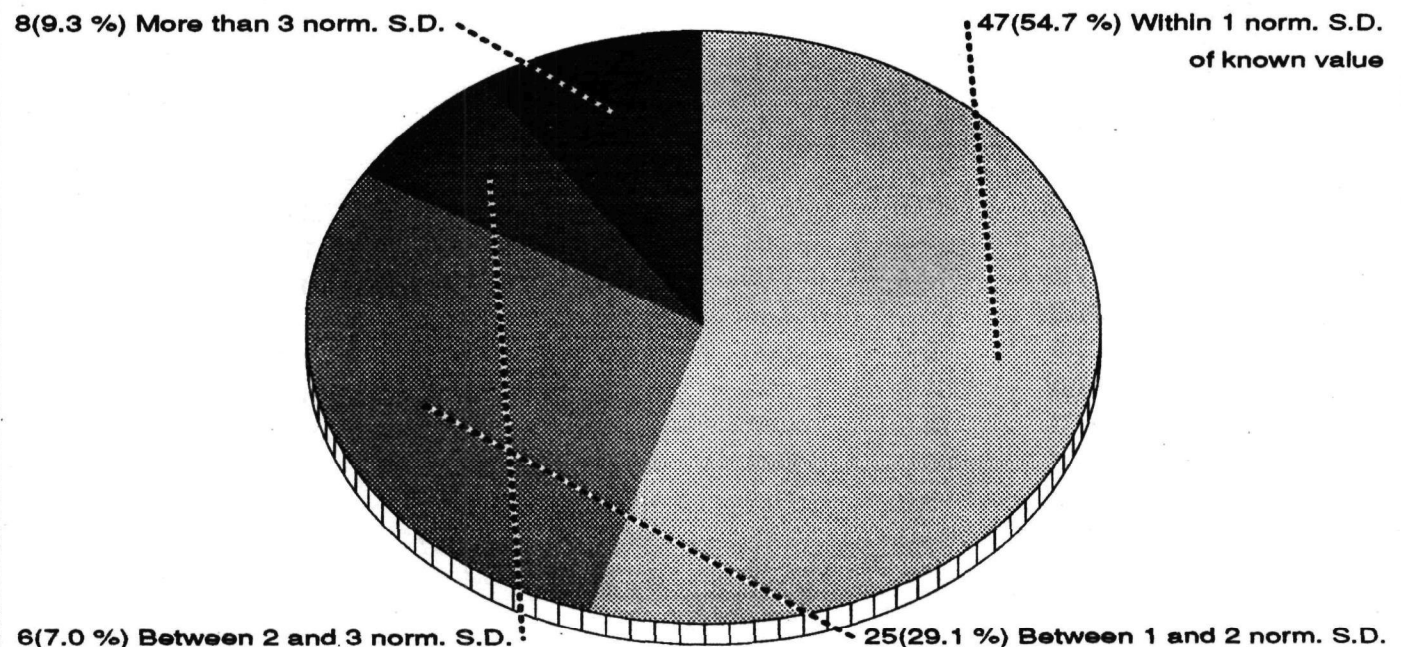
Statistical Summary

104 Participants

The known value of this nuclide is 78.0 pCi/l with an expected precision of 8.0; the control limits are 64.1 to 91.9; the warning regions are 64.1 to 68.7 and 87.3 to 91.9



Statistic	Respondents	Non-outliers
Mean	78.14	Grand Avg 78.45
Std. Dev.	10.10	6.07
Variance	101.99	36.88
% Coef. of Var.	12.93	7.74
% deviation of mean from known value	0.17	0.58
Norm. dev. of mean from known value	0.01	0.07
Median	78.17	78.33
% deviation of median from known value	0.21	0.43
Norm. dev. of median from known value	0.02	0.05



Iodine-131

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known) Tag	
A	82.0	75.0	82.0	4.04	0.517	79.67	0.26	0.36
AA	95.0	90.0	87.0	4.04	0.591	90.67	2.65	2.74
AB								•
AE	76.0	76.0	80.0	2.31	0.295	77.33	-0.24	-0.14
AF	84.0	81.0	82.0	1.53	0.222	82.33	0.84	0.94
AH	77.0	89.0	85.0	6.11	0.886	83.67	1.13	1.23
AI	82.0	68.0	83.0	8.39	1.205	77.67	-0.17	-0.07
AJ	79.0	76.0	79.0	1.73	0.222	78.00	-0.10	0.00
AK	77.0	78.0	76.0	1.00	0.148	77.00	-0.31	-0.22
AL	79.0	74.0	82.0	4.04	0.591	78.33	-0.02	0.07
AN	87.0	82.0	84.0	2.52	0.369	84.33	1.27	1.37
AP	39.0	34.0	35.0	2.65	0.369	36.00	-9.19	-9.09 x
AU	78.0	77.0	78.0	0.58	0.074	77.67	-0.17	-0.07
AW								•
AY	72.0	69.0	70.0	1.53	0.222	70.33	-1.76	-1.66
AZ	76.0	85.0	90.0	7.09	1.064	83.67	1.13	1.23
BA	84.0	88.0	83.0	2.65	0.369	85.00	1.42	1.52
BC	97.0	118.0	109.0	8.33	1.845	106.33	6.04	6.13 x
BG	51.0	55.0	57.0	3.06	0.443	54.33	-5.22	-5.12 x
BH	74.0	79.0	78.0	2.65	0.369	77.00	-0.31	-0.22
BL	84.0	84.0	79.0	2.89	0.369	82.33	0.84	0.94
BM	81.0	83.0	82.0	1.00	0.148	82.00	0.77	0.87
BO	78.0	76.0	80.0	2.00	0.295	78.00	-0.10	0.00
BW	92.0	106.0	68.0	19.22	4.439	88.67	2.21	2.31
C	82.0	83.0	80.0	1.53	0.222	81.67	0.70	0.79
CA	77.0	84.0	75.0	4.73	0.665	78.67	0.05	0.14
CJ	68.0	71.0	76.0	4.04	0.591	71.67	-1.47	-1.37
CO	83.0	71.0	78.0	6.03	0.886	77.33	-0.24	-0.14
CP	80.0	80.0	80.0	0.00	0.000	80.00	0.34	0.43
CQ	83.0	83.0	84.0	0.58	0.074	83.33	1.06	1.15
D	76.0	80.0	78.0	2.00	0.295	78.00	-0.10	0.00
DD	85.0	84.0	84.0	0.58	0.074	84.33	1.27	1.37
DE	71.0	71.0	71.0	0.00	0.000	71.00	-1.61	-1.52
DL	75.0	75.0	76.0	0.58	0.074	75.33	-0.67	-0.58
DM	78.0	78.0	80.0	1.15	0.148	78.67	0.05	0.14
DT	74.0	66.0	69.0	4.04	0.591	69.67	-1.90	-1.80
DY	78.0	77.0	76.0	1.00	0.148	77.00	-0.31	-0.22
E	84.0	87.0	81.0	3.00	0.443	84.00	1.20	1.30
EA	61.0	63.0	62.0	1.00	0.148	62.00	-3.56	-3.46
EB	78.0	81.0	81.0	1.73	0.222	80.00	0.34	0.43
EH	78.0	83.0	74.0	4.51	0.665	78.33	-0.02	0.07
EL	76.0	75.0	90.0	8.39	1.205	80.33	0.41	0.51
EX	96.0	82.0	93.0	7.37	1.064	90.33	2.57	2.67
FE	82.0	82.0	84.0	1.15	0.148	82.67	0.91	1.01
FL	85.0	85.0	88.0	1.73	0.222	86.00	1.63	1.73

• = No data submitted

TAG SYMBOLS

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Ø = Insufficient data

x = Determined to be an outlier

↓ = Below control limit

Iodine-131

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known) Tag	
GE	76.0	75.0	75.0	0.58	0.074	75.33	-0.67	-0.58
HU								•
I	79.0	77.0	80.0	1.53	0.222	78.67	0.05	0.14
IC	84.0	88.0	84.0	2.31	0.295	85.33	1.49	1.59
IU	78.0	76.0	70.0	4.16	0.591	74.67	-0.82	-0.72
J	83.0	86.0	83.0	1.73	0.222	84.00	1.20	1.30
JR	79.0	75.0	76.0	2.08	0.295	76.67	-0.39	-0.29
JS								•
K	74.0	76.0	79.0	2.52	0.369	76.33	-0.46	-0.36
KL	73.0	80.0	67.0	6.51	0.960	73.33	-1.11	-1.01
KX	74.0	74.0	80.0	3.46	0.443	76.00	-0.53	-0.43
L	74.0	74.0	76.0	1.15	0.148	74.67	-0.82	-0.72
LE	61.0	110.0	188.0	64.05	16.956	119.67	8.92	9.02 ×
LF	82.0	79.0	78.0	2.08	0.295	79.67	0.26	0.36
LM								•
LR	48.0	47.0	52.0	2.65	0.369	49.00	-6.38	-6.28 ×
M	73.0	75.0	76.0	1.53	0.222	74.67	-0.82	-0.72
MA	60.0	61.0	61.0	0.58	0.074	60.67	-3.85	-3.75 ↓
ME	72.0	75.0	77.0	2.52	0.369	74.67	-0.82	-0.72
ML								•
MP	76.0	71.0	66.0	5.00	0.738	71.00	-1.61	-1.52
MQ	81.0	76.0	84.0	4.04	0.591	80.33	0.41	0.51
MS	88.0	87.0	90.0	1.53	0.222	88.33	2.14	2.24
MV	80.0	79.0	74.0	3.21	0.443	77.67	-0.17	-0.07
N	78.0	78.0	76.0	1.15	0.148	77.33	-0.24	-0.14
NH	77.0	78.0	78.0	0.58	0.074	77.67	-0.17	-0.07
NJ	78.0	83.0	86.0	4.04	0.591	82.33	0.84	0.94
O	77.0	78.0	78.0	0.58	0.074	77.67	-0.17	-0.07
PB	85.0	84.0	80.0	2.65	0.369	83.00	0.99	1.08
PC								•
PM	80.0	65.0	73.0	7.51	1.205	72.67	-1.25	-1.15
PP								•
PV	53.0	56.0	71.0	9.64	1.627	60.00	-3.99	-3.90 ↓
PW	88.0	94.0	93.0	3.21	0.443	91.67	2.86	2.96
PY								•
Q	77.0	81.0	76.0	2.65	0.369	78.00	-0.10	0.00
QB								•
QK	82.0	81.0	87.0	3.21	0.443	83.33	1.06	1.15
QL	65.0	90.0	45.0	22.55	5.424	66.67	-2.55	-2.45
QX	77.0	89.0	83.0	6.00	0.886	83.00	0.99	1.08
QZ	68.0	75.0	70.0	3.61	0.517	71.00	-1.61	-1.52
R	80.0	80.0	78.0	1.15	0.148	79.33	0.19	0.29
RK								•
S								•
SD								•

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Iodine-131

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)	Tag
SI								•
SK								•
SS	83.0	78.0	83.0	2.89	0.369	81.33	0.62	0.72
T	80.0	79.0	82.0	1.53	0.222	80.33	0.41	0.51
TA	69.0	73.0	68.0	2.65	0.369	70.00	-1.83	-1.73
TB	66.0	76.0	80.0	7.21	1.064	74.00	-0.96	-0.87
TE								•
TH								•
TI	78.0	86.0	84.0	4.16	0.591	82.67	0.91	1.01
TK								•
U	76.0	74.0	84.0	5.29	0.738	78.00	-0.10	0.00
W	70.0	77.0	77.0	4.04	0.517	74.67	-0.82	-0.72
Y	78.0	77.0	82.0	2.65	0.369	79.00	0.12	0.22
Z	85.0	90.0	79.0	5.51	0.812	84.67	1.35	1.44

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
36.00	×	AP	77.00		BH	80.33		EL
49.00	×	LR	77.00		AK	81.33		SS
54.33	×	BG	77.33		N	81.67		C
60.00	↓	PV	77.33		CO	82.00		BM
60.67	↓	MA	77.33		AE	82.33		NJ
62.00	↓	EA	77.67		O	82.33		BL
66.67		QL	77.67		NH	82.33		AF
69.67		DT	77.67		MV	82.67		TI
70.00		TA	77.67		AU	82.67		FE
70.33		AY	77.67		AI	83.00		QX
71.00		QZ	78.00		U	83.00		PB
71.00		MP	78.00		Q	83.33		QK
71.00		DE	78.00		D	83.33		CQ
71.67		CJ	78.00		BO	83.67		AZ
72.67		PM	78.00		AJ	83.67		AH
73.33		KL	78.33		EH	84.00		J
74.00		TB	78.33		AL	84.00		E
74.67		W	78.67		I	84.33		DD
74.67		ME	78.67		DM	84.33		AN
74.67		M	78.67		CA	84.67		Z
74.67		L	79.00		Y	85.00		BA
74.67		IU	79.33		R	85.33		IC
75.33		GE	79.67		LF	86.00		FL
75.33		DL	79.67		A	88.33		MS
76.00		KX	80.00		EB	88.67		BW
76.33		K	80.00		CP	90.33		EX
76.67		JR	80.33		T	90.67		AA
77.00		DY	80.33		MQ	91.67		PW

• = No data submitted

TAG SYMBOLS

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∅ = Insufficient data

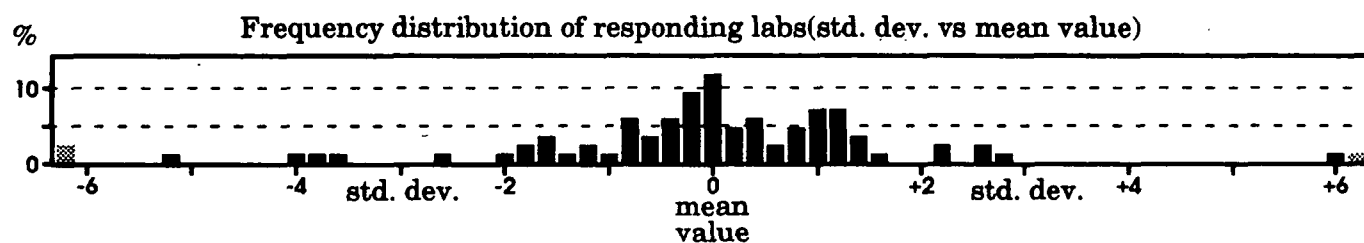
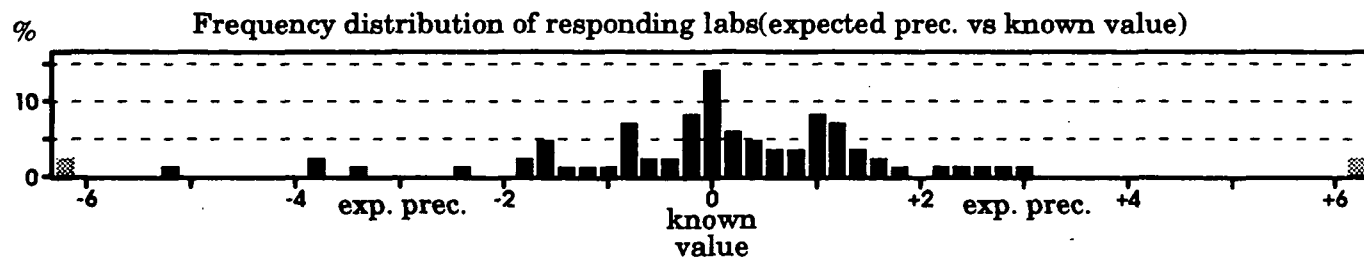
× = Determined to be an outlier

↓ = Below control limit

Iodine-131

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
			106.33	x	BC	119.67	x	LE



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Ø = Insufficient data

TAG SYMBOLS

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↑ = Above control limit

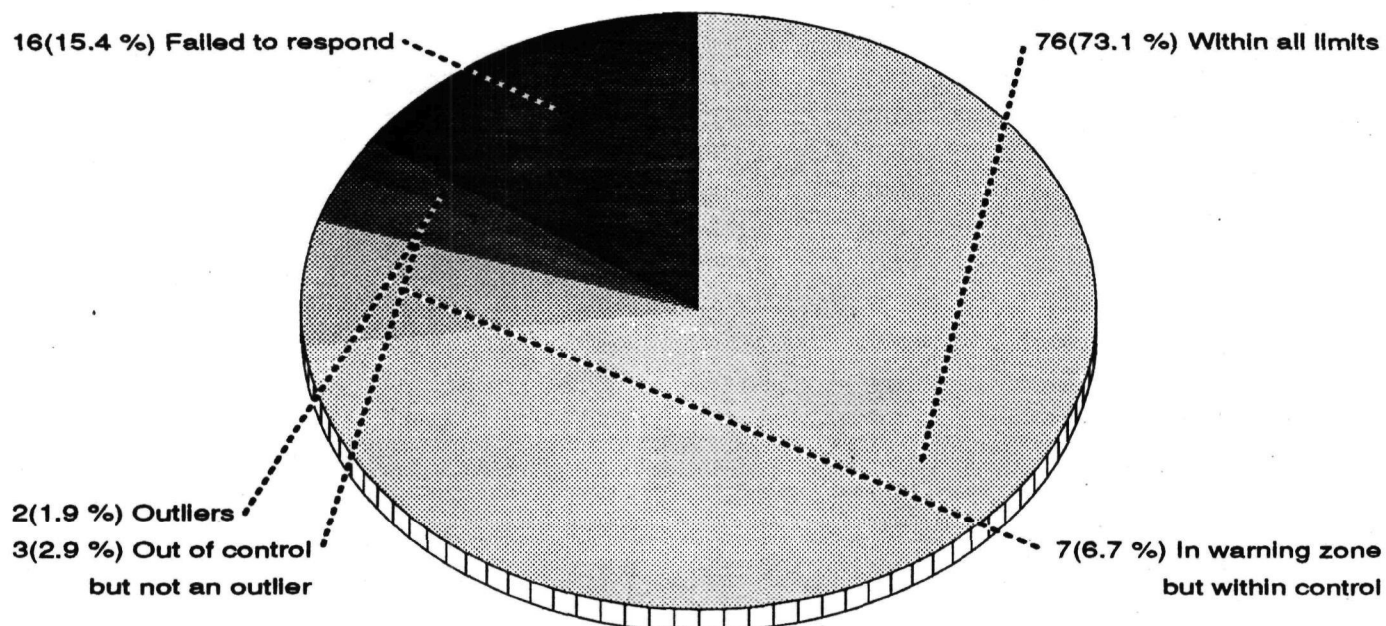
↓ = Below control limit

Cesium-137

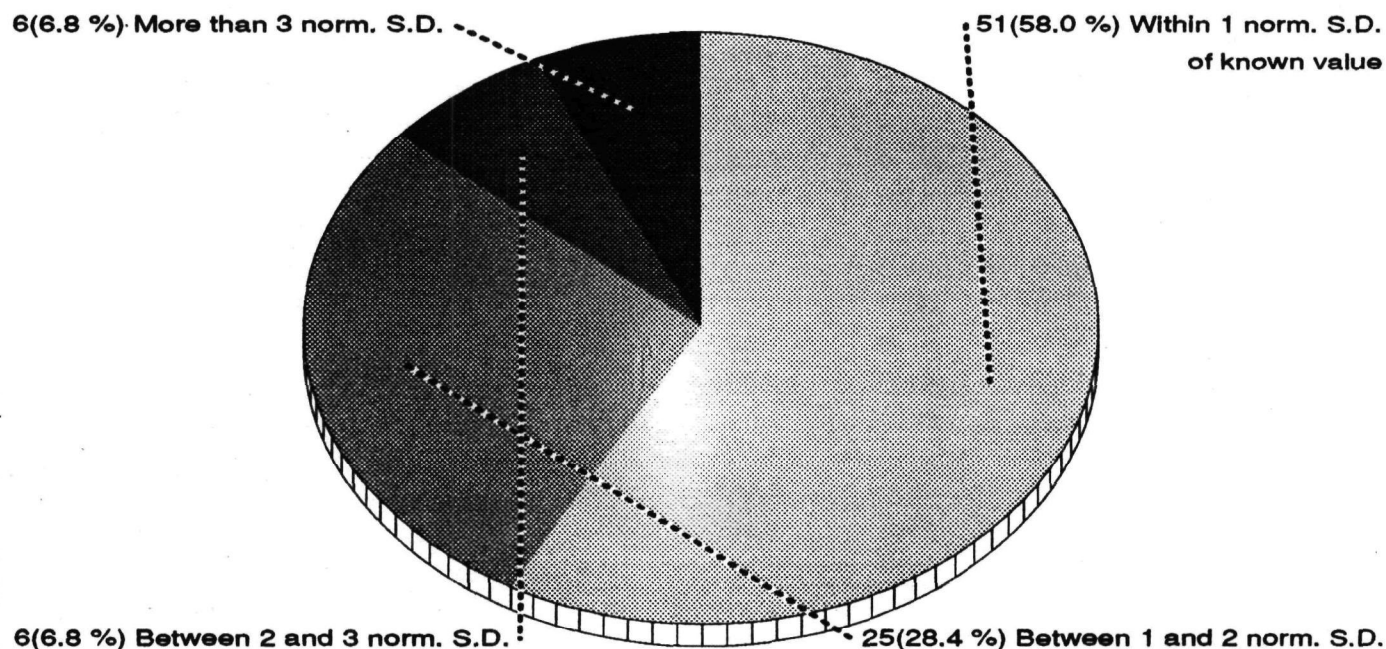
Statistical Summary

104 Participants

The known value of this nuclide is 39.0 pCi/l with an expected precision of 5.0; the control limits are 30.3 to 47.7; the warning regions are 30.3 to 33.2 and 44.8 to 47.7



Statistic	Respondents	Non-outliers
Mean	40.34	Grand Avg 40.32
Std. Dev.	4.09	3.59
Variance	16.72	12.92
% Coef. of Var.	10.14	8.91
% deviation of mean from known value	3.43	3.39
Norm. dev. of mean from known value	0.33	0.37
Median	40.17	40.17
% deviation of median from known value	2.99	2.99
Norm. dev. of median from known value	0.29	0.32



Cesium-137

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
A	40.0	39.0	39.0	0.58	0.118	39.33	-0.34	0.12	
AA	44.0	41.0	39.0	2.52	0.591	41.33	0.35	0.81	
AB									*
AE	45.0	47.0	46.0	1.00	0.236	46.00	1.97	2.42	
AF	42.0	39.0	41.0	1.53	0.354	40.67	0.12	0.58	
AH	40.0	42.0	40.0	1.15	0.236	40.67	0.12	0.58	
AI	41.0	34.0	40.0	3.79	0.827	38.33	-0.69	-0.23	
AJ	48.0	51.0	50.0	1.53	0.354	49.67	3.24	3.70	↑
AK	41.0	41.0	41.0	0.00	0.000	41.00	0.23	0.69	
AL	33.0	35.0	30.0	2.52	0.591	32.67	-2.65	-2.19	
AN	44.0	45.0	48.0	2.08	0.473	45.67	1.85	2.31	
AP	41.0	41.0	41.0	0.00	0.000	41.00	0.23	0.69	
AU	43.0	41.0	41.0	1.15	0.236	41.67	0.47	0.92	
AW									*
AY	31.0	33.0	36.0	2.52	0.591	33.33	-2.42	-1.96	
AZ	32.0	35.0	39.0	3.51	0.827	35.33	-1.73	-1.27	
BA	42.0	37.0	40.0	2.52	0.591	39.67	-0.23	0.23	
BC	48.0	45.0	47.0	1.53	0.354	46.67	2.20	2.66	
BG	28.0	27.0	28.0	0.58	0.118	27.67	-4.38	-3.93	×
BH	40.0	41.0	41.0	0.58	0.118	40.67	0.12	0.58	
BL	40.0	40.0	40.0	0.00	0.000	40.00	-0.11	0.35	
BM	43.0	41.0	43.0	1.15	0.236	42.33	0.70	1.15	
BO	40.0	41.0	43.0	1.53	0.354	41.33	0.35	0.81	
BW	35.0	30.0	38.0	4.04	0.945	34.33	-2.07	-1.62	
C	37.0	37.0	37.0	0.00	0.000	37.00	-1.15	-0.69	
CA	38.0	40.0	40.0	1.15	0.236	39.33	-0.34	0.12	
CJ	48.0	48.0	44.0	2.31	0.473	46.67	2.20	2.66	
CO	44.0	40.0	46.0	3.06	0.709	43.33	1.04	1.50	
CP	39.0	39.0	39.0	0.00	0.000	39.00	-0.46	0.00	
CQ	42.0	42.0	43.0	0.58	0.118	42.33	0.70	1.15	
D	39.0	40.0	40.0	0.58	0.118	39.67	-0.23	0.23	
DD	44.0	44.0	47.0	1.73	0.354	45.00	1.62	2.08	
DE	42.0	42.0	42.0	0.00	0.000	42.00	0.58	1.04	
DL	36.0	37.0	37.0	0.58	0.118	36.67	-1.27	-0.81	
DM	41.0	40.0	41.0	0.58	0.118	40.67	0.12	0.58	
DT	37.0	37.0	43.0	3.46	0.709	39.00	-0.46	0.00	
DY	39.0	39.0	39.0	0.00	0.000	39.00	-0.46	0.00	
E	42.0	40.0	38.0	2.00	0.473	40.00	-0.11	0.35	
EA	39.0	41.0	40.0	1.00	0.236	40.00	-0.11	0.35	
EB	41.0	41.0	41.0	0.00	0.000	41.00	0.23	0.69	
EH	40.0	41.0	38.0	1.53	0.354	39.67	-0.23	0.23	
EL	36.0	42.0	40.0	3.06	0.709	39.33	-0.34	0.12	
EX	37.0	43.0	45.0	4.16	0.945	41.67	0.47	0.92	
FE	40.0	44.0	44.0	2.31	0.473	42.67	0.81	1.27	
FL	45.0	44.0	44.0	0.58	0.118	44.33	1.39	1.85	

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Cesium-137

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
GE	37.0	37.0	36.0	0.58	0.118	36.67	-1.27	-0.81	
HU									•
I	42.0	39.0	39.0	1.73	0.354	40.00	-0.11	0.35	
IC	44.0	40.0	42.0	2.00	0.473	42.00	0.58	1.04	
IU	38.0	38.0	37.0	0.58	0.118	37.67	-0.92	-0.46	
J	41.0	40.0	40.0	0.58	0.118	40.33	0.00	0.46	
JR	51.0	50.0	50.0	0.58	0.118	50.33	3.47	3.93	↑
JS									•
K	35.0	35.0	36.0	0.58	0.118	35.33	-1.73	-1.27	
KL	37.0	35.0	36.0	1.00	0.236	36.00	-1.50	-1.04	
KX	38.0	38.0	40.0	1.15	0.236	38.67	-0.57	-0.12	
L	37.0	36.0	38.0	1.00	0.236	37.00	-1.15	-0.69	
LE	41.0	40.0	38.0	1.53	0.354	39.67	-0.23	0.23	
LF	42.0	41.0	43.0	1.00	0.236	42.00	0.58	1.04	
LM									•
LR	48.0	37.0	40.0	5.69	1.570	41.67	0.47	0.92	
M	38.0	37.0	37.0	0.58	0.118	37.33	-1.04	-0.58	
MA	35.0	35.0	34.0	0.58	0.118	34.67	-1.96	-1.50	
ME	39.0	41.0	44.0	2.52	0.591	41.33	0.35	0.81	
ML									•
MP	46.0	38.0	41.0	4.04	0.945	41.67	0.47	0.92	
MQ	38.0	43.0	42.0	2.65	0.591	41.00	0.23	0.69	
MS	40.0	44.0	42.0	2.00	0.473	42.00	0.58	1.04	
MV	43.0	45.0	42.0	1.53	0.354	43.33	1.04	1.50	
N	39.0	38.0	40.0	1.00	0.236	39.00	-0.46	0.00	
NH	48.0	55.0	44.0	5.57	1.570	49.00	3.01	3.46	↑
NJ	40.0	43.0	38.0	2.52	0.591	40.33	0.00	0.46	
O	38.0	38.0	38.0	0.00	0.000	38.00	-0.80	-0.35	
PB	36.0	35.0	35.0	0.58	0.118	35.33	-1.73	-1.27	
PC									•
PM	43.0	42.0	45.0	1.53	0.354	43.33	1.04	1.50	
PP	34.0	33.0	35.0	1.00	0.236	34.00	-2.19	-1.73	
PV	41.0	43.0	46.0	2.52	0.591	43.33	1.04	1.50	
PW	39.0	39.0	40.0	0.58	0.118	39.33	-0.34	0.12	
PY									•
Q	37.0	42.0	39.0	2.52	0.591	39.33	-0.34	0.12	
QB	46.0	42.0	43.0	2.08	0.473	43.67	1.16	1.62	
QK	36.0	35.0	33.0	1.53	0.354	34.67	-1.96	-1.50	
QL	38.0	45.0	32.0	6.51	2.020	38.33	-0.69	-0.23	
QX	48.0	47.0	48.0	0.58	0.118	47.67	2.54	3.00	
QZ	59.0	52.0	52.0	4.04	0.827	54.33	4.85	5.31	×
R	41.0	42.0	44.0	1.53	0.354	42.33	0.70	1.15	
RK									•
S									•
SD									•

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Cesium-137

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
SI									•
SK									•
SS	43.0	41.0	41.0	1.15	0.236	41.67	0.47	0.92	
T	41.0	42.0	40.0	1.00	0.236	41.00	0.23	0.69	
TA	34.0	40.0	35.0	3.21	0.709	36.33	-1.38	-0.92	
TB	33.0	33.0	36.0	1.73	0.354	34.00	-2.19	-1.73	
TE									•
TH									•
TI	39.0	42.0	49.0	5.13	1.345	43.33	1.04	1.50	
TK									•
U	37.0	37.0	41.0	2.31	0.473	38.33	-0.69	-0.23	
W	36.0	41.0	39.0	2.52	0.591	38.67	-0.57	-0.12	
Y	40.0	37.0	40.0	1.73	0.354	39.00	-0.46	0.00	
Z	40.0	37.0	40.0	1.73	0.354	39.00	-0.46	0.00	

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
27.67	×	BG	39.00		DY	41.33		BO
32.67		AL	39.00		DT	41.33		AA
33.33		AY	39.00		CP	41.67		SS
34.00		TB	39.33		Q	41.67		MP
34.00		PP	39.33		PW	41.67		LR
34.33		BW	39.33		EL	41.67		EX
34.67		QK	39.33		CA	41.67		AU
34.67		MA	39.33		A	42.00		MS
35.33		PB	39.67		LE	42.00		LF
35.33		K	39.67		EH	42.00		IC
35.33		AZ	39.67		D	42.00		DE
36.00		KL	39.67		BA	42.33		R
36.33		TA	40.00		I	42.33		CQ
36.67		GE	40.00		EA	42.33		BM
36.67		DL	40.00		E	42.67		FE
37.00		L	40.00		BL	43.33		TI
37.00		C	40.33		NJ	43.33		PV
37.33		M	40.33		J	43.33		PM
37.67		IU	40.67		DM	43.33		MV
38.00		O	40.67		BH	43.33		CO
38.33		U	40.67		AH	43.67		QB
38.33		QL	40.67		AF	44.33		FL
38.33		AI	41.00		T	45.00		DD
38.67		W	41.00		MQ	45.67		AN
38.67		KX	41.00		EB	46.00		AE
39.00		Z	41.00		AP	46.67		CJ
39.00		Y	41.00		AK	46.67		BC
39.00		N	41.33		ME	47.67		QX

• = No data submitted

TAG SYMBOLS

↑ = Above control limit

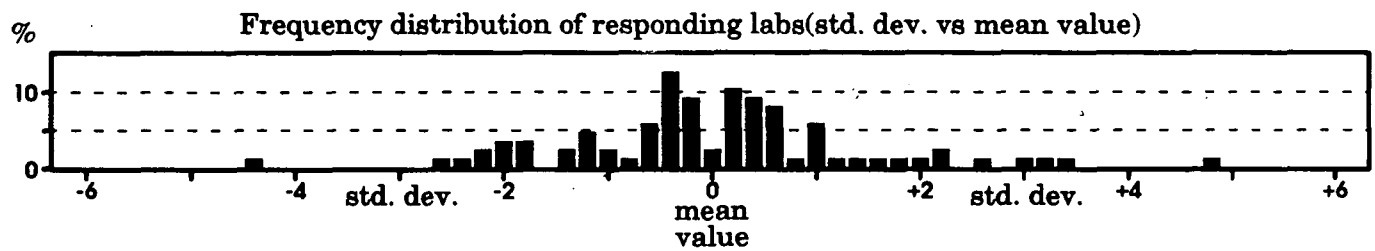
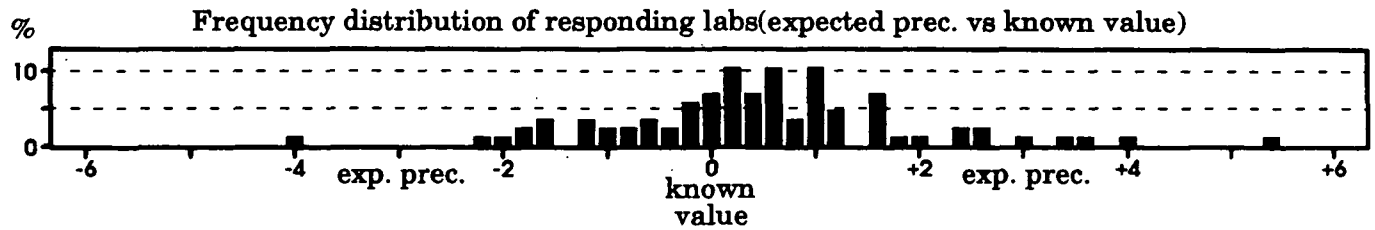
∅ = Insufficient data

× = Determined to be an outlier

↓ = Below control limit

Cesium-137**Data sorted by Laboratory Average**

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
49.00	↑	NH	49.67	↑	AJ	50.33	↑	JR
						54.33	×	QZ



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Ø = Insufficient data

TAG SYMBOLS

× = Determined to be an outlier

↑ = Above control limit

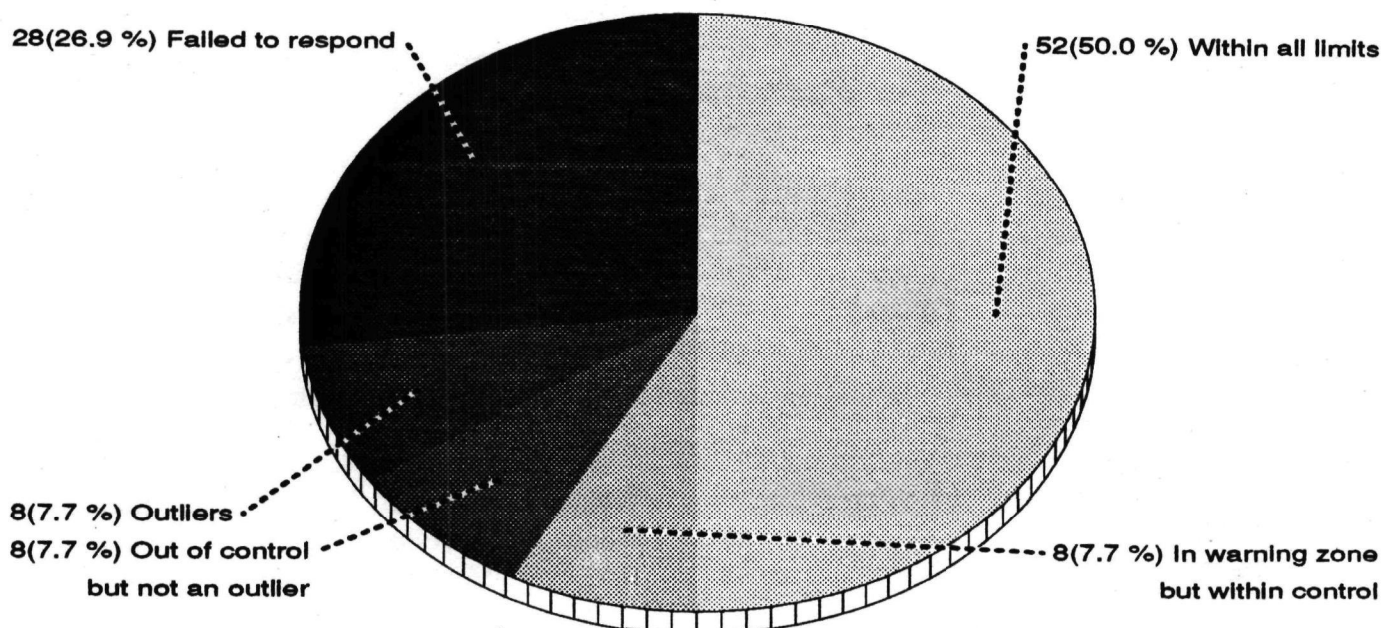
↓ = Below control limit

Total Potassium

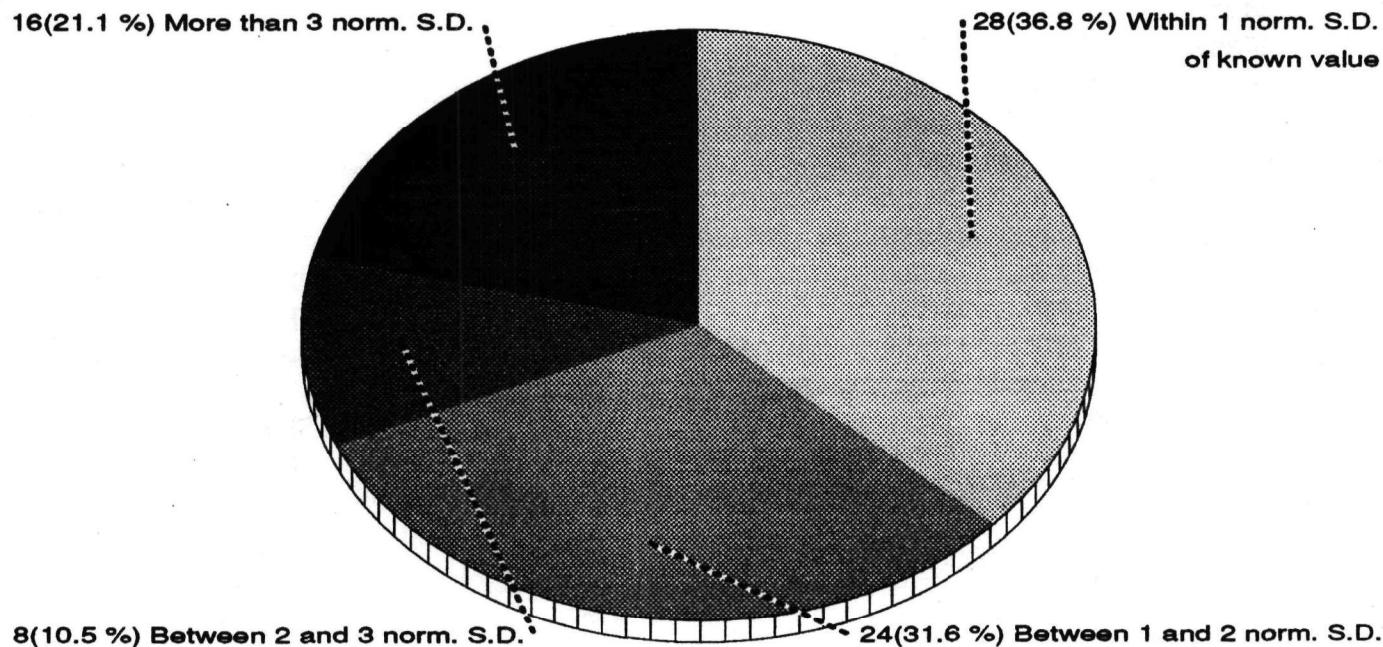
Statistical Summary

104 Participants

The known value of this nuclide is 1710.0 mg/l with an expected precision of 86.0; the control limits are 1560.8 to 1859.2; the warning regions are 1560.8 to 1610.4 and 1809.6 to 1859.2



Statistic	Respondents	Non-outliers
Mean	1707.92	Grand Avg 1704.01
Std. Dev.	329.56	105.51
Variance	108609.13	11131.94
% Coef. of Var.	19.30	6.19
% deviation of mean from known value	-0.12	-0.35
Norm. dev. of mean from known value	-0.01	-0.06
Median	1716.50	1712.00
% deviation of median from known value	0.38	0.12
Norm. dev. of median from known value	0.02	0.02



Total Potassium

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known) Tag	
A	1816.0	1670.0	1676.0	82.62	1.005	1720.67	0.34	0.21
AA	1759.0	1763.0	1731.0	17.44	0.220	1751.00	0.95	0.83
AB								•
AE								•
AF	1723.0	1649.0	1729.0	44.56	0.549	1700.33	-0.07	-0.19
AH	1777.0	1778.0	1775.0	1.53	0.021	1776.67	1.46	1.34
AI	1538.0	1666.0	1723.0	94.74	1.515	1642.33	-1.24	-1.36
AJ	1770.0	1770.0	1800.0	17.32	0.206	1780.00	1.53	1.41
AK	1644.0	1702.0	1630.0	38.18	0.495	1658.67	-0.91	-1.03
AL	1720.0	1780.0	1720.0	34.64	0.412	1740.00	0.72	0.60
AN	1890.0	1860.0	1810.0	40.41	0.549	1853.33	3.01	2.89
AP								•
AU	1700.0	1740.0	1750.0	26.46	0.343	1730.00	0.52	0.40
AW								•
AY	2204.0	2196.0	2227.0	16.09	0.213	2209.00	10.17	10.05 ×
AZ	1731.0	1568.0	1835.0	134.58	2.588	1711.33	0.15	0.03
BA	1540.0	1624.0	1612.0	45.43	0.577	1592.00	-2.26	-2.38
BC								•
BG								•
BH	1690.0	1740.0	1690.0	28.87	0.343	1706.67	0.05	-0.07
BL	1833.0	1749.0	1826.0	46.61	0.577	1802.67	1.99	1.87
BM	1810.0	1790.0	1810.0	11.55	0.137	1803.33	2.00	1.88
BO	1730.0	1688.0	1757.0	34.77	0.474	1725.00	0.42	0.30
BW	2990.0	2860.0	2040.0	482.32	11.523	2563.33	17.31	17.19 ×
C	1708.0	1693.0	1672.0	18.08	0.247	1691.00	-0.26	-0.38
CA	1570.0	1620.0	1640.0	36.06	0.481	1610.00	-1.89	-2.01
CJ	1600.0	1740.0	1700.0	72.11	0.962	1680.00	-0.48	-0.60
CO	1789.0	1769.0	1805.0	18.04	0.247	1787.67	1.68	1.56
CP								•
CQ	1478.0	1460.0	1432.0	23.18	0.316	1456.67	-4.98	-5.10 ↓
D	1730.0	1750.0	1790.0	30.55	0.412	1756.67	1.06	0.94
DD	1660.0	1640.0	1560.0	52.92	0.687	1620.00	-1.69	-1.81
DE	1932.0	1947.0	1956.0	12.12	0.165	1945.00	4.85	4.73 ↑
DL								•
DM	1786.0	1763.0	1741.0	22.50	0.309	1763.33	1.19	1.07
DT	1790.0	1700.0	1660.0	66.58	0.893	1716.67	0.25	0.13
DY	1644.0	1620.0	1620.0	13.86	0.165	1628.00	-1.53	-1.65
E	1777.0	1763.0	1763.0	8.08	0.096	1767.67	1.28	1.16
EA	1840.0	1820.0	1830.0	10.00	0.137	1830.00	2.54	2.42
EB								•
EH	1900.0	1880.0	1780.0	64.29	0.824	1853.33	3.01	2.89
EL	1690.0	1830.0	1800.0	73.71	0.962	1773.33	1.40	1.28
EX								•
FE	1860.0	1840.0	1830.0	15.28	0.206	1843.33	2.81	2.69
FL								•

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TAG SYMBOLS

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Total Potassium

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
GE									•
HU									•
I	1804.0	1806.0	1762.0	24.85	0.302	1790.67	1.75	1.62	
IC	2028.0	1896.0	2002.0	69.92	0.907	1975.33	5.46	5.34	↑
IU	1625.0	1720.0	1720.0	54.85	0.652	1688.33	-0.32	-0.44	
J	1739.0	1727.0	1765.0	19.43	0.261	1743.67	0.80	0.68	
JR	1710.0	1700.0	1670.0	20.82	0.275	1693.33	-0.22	-0.34	
JS									•
K	2229.0	2255.0	2219.0	18.58	0.247	2234.33	10.68	10.56	×
KL	1582.0	1570.0	1665.0	51.73	0.652	1605.67	-1.98	-2.10	
KX	1530.0	1570.0	1590.0	30.55	0.412	1563.33	-2.83	-2.95	
L	1630.0	1610.0	1690.0	41.63	0.549	1643.33	-1.22	-1.34	
LE	20.0	19.0	18.0	1.00	0.014	19.00	-33.94	-34.06	×
LF	1800.0	1600.0	1700.0	100.00	1.712	1700.00	-0.08	-0.20	
LM									•
LR	2416.0	2392.0	2153.0	145.41	2.536	2320.33	12.41	12.29	×
M	1630.0	1580.0	1650.0	36.06	0.481	1620.00	-1.69	-1.81	
MA	1549.0	1560.0	1543.0	8.62	0.117	1550.67	-3.09	-3.21	↓
ME	1729.0	1784.0	1912.0	93.90	1.489	1808.33	2.10	1.98	
ML									•
MP	1287.0	1576.0	1552.0	160.38	2.876	1471.67	-4.68	-4.80	↓
MQ	1796.0	1845.0	1750.0	47.51	0.652	1797.00	1.87	1.75	
MS	1370.0	1371.0	1451.0	46.48	0.556	1397.33	-6.18	-6.30	↓
MV	1776.0	1648.0	1824.0	90.98	1.398	1749.33	0.91	0.79	
N	1641.0	1705.0	1691.0	33.65	0.440	1679.00	-0.50	-0.62	
NH	2278.0	2290.0	2242.0	24.98	0.330	2270.00	11.40	11.28	×
NJ									•
O	1644.0	1655.0	1655.0	6.35	0.076	1651.33	-1.06	-1.18	
PB	1750.0	1745.0	1755.0	5.00	0.069	1750.00	0.93	0.81	
PC									•
PM	1780.0	1670.0	1710.0	55.68	0.756	1720.00	0.32	0.20	
PP	158.0	160.0	161.0	1.53	0.021	159.67	-31.10	-31.22	×
PV	1628.0	1691.0	1661.0	31.51	0.433	1660.00	-0.89	-1.01	
PW	1666.0	1649.0	1649.0	9.81	0.117	1654.67	-0.99	-1.11	
PY									•
Q	1585.0	1602.0	1690.0	56.36	0.721	1625.67	-1.58	-1.70	
QB	1800.0	1760.0	1680.0	61.10	0.824	1746.67	0.86	0.74	
QK	1690.0	1634.0	1627.0	34.53	0.433	1650.33	-1.08	-1.20	
QL	1420.0	1450.0	1440.0	15.28	0.206	1436.67	-5.38	-5.50	↓
QX	1682.0	1743.0	1713.0	30.50	0.419	1712.67	0.17	0.05	
QZ									•
R	1614.0	1606.0	1672.0	36.02	0.453	1630.67	-1.48	-1.60	
RK									•
S									•
SD									•

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Total Potassium

Lab	Res. 1	Res. 2	Res. 3	Exper. Sigma	Rng anal (R + SR)	Average	Normalized deviation (grand-avg) (known)		Tag
SI									•
SK									•
SS	1740.0	1640.0	1670.0	51.32	0.687	1683.33	-0.42	-0.54	
T	1610.0	1690.0	1720.0	56.86	0.756	1673.33	-0.62	-0.74	
TA	1840.0	1860.0	1900.0	30.55	0.412	1866.67	3.28	3.16	↑
TB	1600.0	1750.0	1570.0	96.44	1.450	1640.00	-1.29	-1.41	
TE									•
TH									•
TI	2140.0	1880.0	2440.0	280.24	6.421	2153.33	9.05	8.93	×
TK									•
U	1673.0	1685.0	1746.0	39.15	0.501	1701.33	-0.05	-0.17	
W	1692.0	1680.0	1847.0	93.15	1.280	1739.67	0.72	0.60	
Y	1750.0	1650.0	1760.0	60.83	0.756	1720.00	0.32	0.20	
Z	1725.0	1686.0	1738.0	27.06	0.357	1716.33	0.25	0.13	

Data sorted by Laboratory Average

Average	Tag	Lab	Average	Tag	Lab	Average	Tag	Lab
19.00	×	LE	1679.00		N	1751.00		AA
159.67	×	PP	1680.00		CJ	1756.67		D
1397.33	↓	MS	1683.33		SS	1763.33		DM
1436.67	↓	QL	1688.33		IU	1767.67		E
1456.67	↓	CQ	1691.00		C	1773.33		EL
1471.67	↓	MP	1693.33		JR	1776.67		AH
1550.67	↓	MA	1700.00		LF	1780.00		AJ
1563.33		KX	1700.33		AF	1787.67		CO
1592.00		BA	1701.33		U	1790.67		I
1605.67		KL	1706.67		BH	1797.00		MQ
1610.00		CA	1711.33		AZ	1802.67		BL
1620.00		M	1712.67		QX	1803.33		BM
1620.00		DD	1716.33		Z	1808.33		ME
1625.67		Q	1716.67		DT	1830.00		EA
1628.00		DY	1720.00		Y	1843.33		FE
1630.67		R	1720.00		PM	1853.33		EH
1640.00		TB	1720.67		A	1853.33		AN
1642.33		AI	1725.00		BO	1866.67	↑	TA
1643.33		L	1730.00		AU	1945.00	↑	DE
1650.33		QK	1739.67		W	1975.33	↑	IC
1651.33		O	1740.00		AL	2153.33	×	TI
1654.67		PW	1743.67		J	2209.00	×	AY
1658.67		AK	1746.67		QB	2234.33	×	K
1660.00		PV	1749.33		MV	2270.00	×	NH
1673.33		T	1750.00		PB	2320.33	×	LR
						2563.33	×	BW

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Total Potassium

