

Spreadsheet Formulas for the Wilcoxon Rank Sum Test and Power Calculation

Wilcoxon Rank Sum Test, per NUREG-1505

13.3 (For this calculation, LBGR = 3w for 2002 Igloo Background)

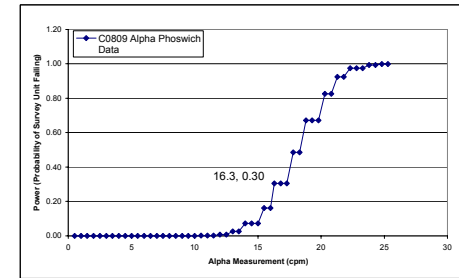
(Reference Dataset - 2002 Igloo Alpha Phoswich)

DATA	AREA	ADJUSTED DATA	RANKS	SURVEY AREA RANKS
13	R	13	166.5	C
17	R	17	175	C
12	R	12	164	C
4	R	4	133	C
18	R	18	176	C
9	R	9	159	C
8	R	8	156	C
16	R	16	173.5	C
4	R	4	133	C
7	R	7	153.5	C
4	R	4	133	C
9	R	9	159	C
14	R	14	168.5	C
5	R	5	143.5	C
14	R	14	168.5	C
12	R	12	164	C
16	R	16	173.5	C
11	R	11	161.5	C
15	R	15	171	C
6	R	6	151	C
5	R	5	143.5	C
4	R	4	133	C
1	R	1	59.5	C
9	R	9	159	C
12	R	12	164	C
15	R	15	171	C
6	R	6	151	C
11	R	11	161.5	C
8	R	8	156	C
3	R	3	114.5	C
3	R	3	114.5	C
3	R	3	114.5	C
4	R	4	133	C
6	R	6	151	C
11	R	11	161.5	C
5	R	5	143.5	C
5	R	5	143.5	C
3	R	3	114.5	C
2	R	2	86	C
3	R	3	114.5	C
4	R	4	133	C
4	R	4	133	C
5	R	5	143.5	C
3	R	3	114.5	C
5	R	5	143.5	C
2	R	2	86	C
2	R	2	86	C
5	R	5	143.5	C
2	R	2	86	C
5	R	5	143.5	C
5	R	5	143.5	C
3	R	3	114.5	C
2	R	2	86	C
5	R	5	143.5	C
8	R	8	156	C
2	R	2	86	C
3	R	3	114.5	C
86	R	86	179	C
2	R	2	86	C
1	R	1	59.5	C
5	R	5	143.5	C
3	R	3	114.5	C
1	R	1	59.5	C
2	R	2	86	C
0	R	0	38.5	C
0	R	0	38.5	C
2	R	2	86	C
1	R	1	59.5	C
2	R	2	86	C
3	R	3	114.5	C
1	R	1	59.5	C
0	R	0	38.5	C
0	R	0	38.5	C
0	R	0	38.5	C
2	R	2	86	C
0	R	0	38.5	C
1	R	1	59.5	C
0	R	0	38.5	C
1	R	1	59.5	C
0	R	0	38.5	C
0	R	0	38.5	C
3	R	3	114.5	C
1	R	1	59.5	C
2	R	2	86	C
1	R	1	59.5	C
13	R	13	166.5	C
3	R	3	114.5	C
2	R	2	86	C
1	R	1	59.5	C
2	R	2	86	C

Retrospective Power Curve Calculation

From Example in Section 10.5 of NUREG-1505

p1 and *p2* pull data from Table 10-3 sheet

[illegible]

Based on the number of measurements and the observed standard deviation, a survey unit with a median measurement equal to the background median plus the LBGR (16.3) will have a 0.30 probability that the survey unit will **correctly** fail (i.e., the null hypothesis that the difference between the survey unit median and the background median is less than the LBGR [i.e., the survey unit is indistinguishable from background] is rejected).

3	R	3	114.5	0
3	R	3	114.5	0
3	R	3	114.5	0
3	R	3	114.5	0
2	R	2	86	0
0	R	0	38.5	0
2	R	2	86	0
2	R	2	86	0
1	R	1	59.5	0
0	R	0	38.5	0
3	R	3	114.5	0
1	R	1	59.5	0
1	R	1	59.5	0
0	R	0	38.5	0
1	R	1	59.5	0
2	R	2	86	0
3	R	3	114.5	0
2	R	2	86	0
1	R	1	59.5	0
2	R	2	86	0
3	R	3	114.5	0
4	R	4	133	0
3	R	3	114.5	0
1	R	1	59.5	0
3	R	3	114.5	0
5	R	5	143.5	0
3	R	3	114.5	0
3	R	3	114.5	0
1	R	1	59.5	0
2	R	2	86	0
2	R	2	86	0
3	R	3	114.5	0
1	R	1	59.5	0
2	R	2	86	0
4	R	4	133	0
2	R	2	86	0
2	R	2	86	0
2	R	2	86	0
1	R	1	59.5	0
0	R	0	38.5	0
1	R	1	59.5	0
3	R	3	114.5	0
1	R	1	59.5	0
7	R	7	153.5	0
0	R	0	38.5	0
2	R	2	86	0
1	R	1	59.5	0
2	R	2	86	0
0	R	0	38.5	0
0	R	0	38.5	0
1	R	1	59.5	0
2	R	2	86	0
1	R	1	59.5	0
0	R	0	38.5	0
0	R	0	38.5	0
34	R	34	178	0
3	R	3	114.5	0
1	S	-12.3	13.5	13.5
2	S	-11.3	18.5	18.5
0	S	-13.3	5.5	5.5
2	S	-11.3	18.5	18.5
3	S	-10.3	23	23
8	S	-5.3	28.5	28.5
2	S	-11.3	18.5	18.5
3	S	-10.3	23	23
3	S	-10.3	23	23
0	S	-13.3	5.5	5.5
0	S	-13.3	5.5	5.5
8	S	-5.3	28.5	28.5
4	S	-9.3	26.5	26.5
3	S	-10.3	23	23
1	S	-12.3	13.5	13.5
1	S	-12.3	13.5	13.5
0	S	-13.3	5.5	5.5
2	S	-11.3	18.5	18.5
1	S	-12.3	13.5	13.5
0	S	-13.3	5.5	5.5
3	S	-10.3	23	23
0	S	-13.3	5.5	5.5
0	S	-13.3	5.5	5.5
1	S	-12.3	13.5	13.5
1	S	-12.3	13.5	13.5
4	S	-9.3	26.5	26.5
0	S	-13.3	5.5	5.5
0	S	-13.3	5.5	5.5
37	S	23.7	177	177
0	S	-13.3	5.5	5.5
Sum =			16290	612

* This spreadsheet is originally designed to work with a set of twenty measurements, 10 from the survey unit (S) and 10 from the background reference area (R).
If a different number of measurements have been performed, it is necessary to modify the spreadsheet to account for the change in the number of measurements.

of R: 150 *n*
of S: 30 *m*
Avg Rank R: 105
Avg Rank S: 20

For m or n greater than 20, the critical value (k) can be calculated for Scenario B from

$$\frac{m(n+m+1)}{2} + z \sqrt{\frac{nm(n+m+1)}{12}}$$

$z = 97.5\%$ percentile of standard normal distribution = 1.960

$k = 3225.6$

Since the sum of survey unit ranks is less than the critical value, the null hypothesis that the difference between the survey unit median and the background median is less than the LSGR (i.e., the survey unit is indistinguishable from background) is accepted and the survey unit passes Scenario B

Spreadsheet Formulas for the Wilcoxon Rank Sum Test and Power Calculation

Wilcoxon Rank Sum Test, per NUREG-1508

LBGR 40.5 (For this calculation, LBGR = 3w for 2002 Igloo Background)
(Reference Dataset - 2002 Igloo Beta Phoswich)

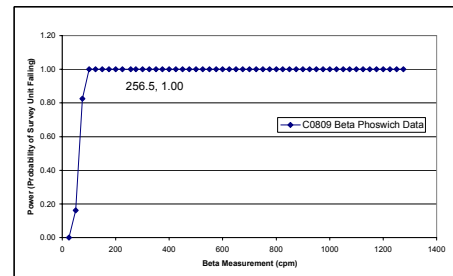
DATA	AREA	ADJUSTED DATA	RANKS	SURVEY AREA RANKS
234	R	234	131.5	0
255	R	255	152	0
272	R	272	161.5	0
206	R	206	90	0
283	R	283	168	0
199	R	199	75.5	0
235	R	235	133	0
202	R	202	81	0
220	R	220	107.5	0
215	R	215	100.5	0
183	R	183	55.5	0
225	R	225	115	0
213	R	213	97	0
243	R	243	139	0
203	R	203	83	0
252	R	252	149	0
197	R	197	70	0
226	R	226	116.5	0
220	R	220	107.5	0
181	R	181	51.5	0
222	R	222	110	0
231	R	231	125.5	0
241	R	241	137	0
228	R	228	119	0
277	R	277	165	0
260	R	260	157	0
387	R	387	178	0
216	R	216	103	0
596	R	596	180	0
163	R	163	29	0
155	R	155	22	0
171	R	171	41.5	0
228	R	228	119	0
196	R	196	67.5	0
237	R	237	135	0
172	R	172	43.5	0
253	R	253	150.5	0
216	R	216	103	0
191	R	191	66	0
231	R	231	125.5	0
204	R	204	85	0
231	R	231	125.5	0
162	R	162	27.5	0
171	R	171	41.5	0
197	R	197	70	0
246	R	246	142	0
166	R	166	31	0
198	R	198	73	0
169	R	169	36.5	0
162	R	162	27.5	0
256	R	256	153	0
233	R	233	129.5	0
179	R	179	46.5	0
260	R	260	157	0
248	R	248	144.5	0
212	R	212	96	0
211	R	211	95	0
229	R	229	121.5	0
430	R	430	179	0
134	R	134	13	0
334	R	334	175	0
168	R	168	33	0
205	R	205	87	0
170	R	170	38	0
210	R	210	94	0
274	R	274	163	0
243	R	243	139	0
229	R	229	121.5	0
159	R	159	26	0
187	R	187	58.5	0
202	R	202	81	0
224	R	224	114	0
168	R	168	33	0
185	R	185	57	0
173	R	173	45	0
233	R	233	129.5	0
169	R	169	36.5	0
182	R	182	53	0
200	R	200	70.5	0
168	R	168	33	0
240	R	240	136	0
215	R	215	100.5	0
181	R	181	51.5	0
197	R	197	70	0
214	R	214	98.5	0
216	R	216	103	0
199	R	199	75.5	0
249	R	249	146	0
209	R	209	93	0
138	R	138	14	0
199	R	199	75.5	0
189	R	189	64	0
246	R	246	144.5	0

Retrospective Power Curve Calculator

From Example in Section 10.5 of NUREG-1505

p1 and p2 pull data from Table 10-3 sheet

	C	Measurement	(C-LBGR)/SD	Rounded	p1	p2	E(Wmw)	Var(Wmw)	SD(Wmw)	z	Power
Count	Survey Unit Stats	25	-0.279	-0.300	0.416002	0.253419	1872.009	66909.18	258.6681	3.43346	0.00
SD		50	0.171	0.200	0.556231	0.391392	2503.04	68268.01	261.2815	0.983981	0.16
Median	Reference Stats	75	0.621	0.600	0.664313	0.513387	2989.409	60033.13	245.0166	-0.93574	0.83
Count		100	1.072	1.100	0.781662	0.622216	3517.479	42717.6	206.6824	-3.06429	1.00
SD		125	1.522	1.500	0.838901	0.741698	3775.055	31683.57	177.9988	-5.70183	1.00
Median		150	1.972	2.000	0.910445	0.848608	4097.003	16497.03	128.4408	-10.4084	1.00
		175	2.422	2.400	0.945062	0.908982	4266.279	8542.986	92.42827	-16.2953	1.00
		200	2.873	2.900	0.976143	0.956616	4392.644	3184.926	56.43515	-28.9271	1.00
		225	3.323	3.300	0.988174	0.977981	4446.783	1275.474	35.71378	-47.2268	1.00
		250	3.780	3.800	0.993336	0.98741	4470.012	597.8393	24.46075	-69.9314	1.00
		275	4.223	4.200	0.997861	0.995497	4489.475	149.3452	12.22069	-141.509	1.00
		300	4.674	4.700	0.997661	0.995497	4489.475	149.3452	12.22069	-141.509	1.00
		325	5.124	5.100	0.999796	0.999599	4499.082	6.616729	2.5723	-676.028	1.00
		350	5.574	5.600	0.999796	0.999599	4499.082	6.616729	2.5723	-676.028	1.00
		375	6.024	6.000	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		400	6.474	6.500	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		425	6.925	6.900	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		450	7.375	7.400	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		475	7.825	7.800	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		500	8.275	8.300	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		525	8.726	8.700	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		550	9.176	9.200	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		575	9.626	9.600	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		600	10.076	10.100	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		625	10.527	10.500	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		650	10.977	11.000	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		675	11.427	11.400	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		700	11.877	11.900	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		725	12.328	12.300	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		750	12.778	12.800	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		775	13.228	13.200	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		800	13.678	13.700	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		825	14.129	14.100	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		850	14.579	14.600	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		875	15.029	15.000	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		900	15.479	15.500	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		925	15.930	15.900	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		950	16.380	16.400	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		975	16.830	16.800	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1000	17.280	17.300	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1025	17.731	17.700	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1050	18.181	18.200	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1075	18.631	18.600	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1100	19.081	19.100	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1125	19.532	19.500	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1150	19.982	20.000	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1175	20.432	20.400	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1200	20.882	20.900	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1225	21.332	21.300	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1250	21.783	21.800	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00
		1275	22.233	22.200	0.999989	0.999978	4499.951	0.0494	0.222262	-7827.77	1.00



Based on the number of measurements and the observed standard deviation, a survey unit with a median measurement equal to the background median plus the LBGR (256.5) will have a 1.0 probability that the survey unit will correctly fail (i.e., the null hypothesis that the difference between the survey unit median and the background median is less than the LBGR [i.e., the survey unit is indistinguishable from background] is rejected).

317	R	317	173	0
337	R	337	176	0
281	R	281	167	0
222	R	222	110	0
199	R	199	75.5	0
187	R	187	58.5	0
232	R	232	128	0
188	R	188	60.5	0
246	R	246	142	0
204	R	204	85	0
286	R	286	169.5	0
189	R	189	64	0
264	R	264	160	0
206	R	206	90	0
204	R	204	85	0
202	R	202	81	0
188	R	188	60.5	0
280	R	280	166	0
226	R	226	116.5	0
196	R	196	67.5	0
259	R	259	155	0
234	R	234	131.5	0
183	R	183	55.5	0
272	R	272	161.5	0
369	R	369	177	0
286	R	286	169.5	0
223	R	223	112.5	0
206	R	206	90	0
206	R	206	90	0
251	R	251	148	0
111	R	111	5	0
253	R	253	150.5	0
222	R	222	110	0
230	R	230	123	0
276	R	276	164	0
246	R	246	142	0
260	R	260	157	0
228	R	228	119	0
236	R	236	134	0
164	R	164	30	0
223	R	223	112.5	0
179	R	179	46.5	0
218	R	218	105	0
189	R	189	64	0
200	R	200	78.5	0
172	R	172	43.5	0
156	R	156	23	0
243	R	243	139	0
257	R	257	154	0
214	R	214	98.5	0
250	R	250	147	0
231	R	231	125.5	0
219	R	219	106	0
206	R	206	90	0
180	R	180	49	0
299	R	299	172	0
129	R	129	12	0
337	S	296.5	171	171
302	S	261.5	159	159
223	S	182.5	54	54
186	S	145.5	15.5	15.5
186	S	145.5	15.5	15.5
229	S	188.5	62	62
238	S	197.5	72	72
194	S	153.5	19.5	19.5
195	S	154.5	21	21
198	S	157.5	24.5	24.5
190	S	149.5	18	18
220	S	179.5	48	48
152	S	111.5	6	6
209	S	168.5	35	35
168	S	127.5	11	11
221	S	180.5	50	50
163	S	122.5	9	9
165	S	124.5	10	10
199	S	118.5	7	7
161	S	120.5	8	8
198	S	157.5	24.5	24.5
211	S	170.5	39.5	39.5
118	S	77.5	1	1
211	S	170.5	39.5	39.5
141	S	100.5	3	3
189	S	148.5	17	17
126	S	85.5	2	2
194	S	153.5	19.5	19.5
358	S	317.5	174	174
144	S	103.5	4	4
Sum =		16290	1140	

* This spreadsheet is originally designed to work with a set of twenty measurements, 10 from the survey unit (S) and 10 from the background reference area (R). If a different number of measurements have been performed, it is necessary to modify the spreadsheet to account for the change in the number of measurements.

of R: 150 n
of S: 30 m
Avg Rank R: 101
Avg Rank S: 38

For m or n greater than 20, the critical value (k) can be calculated for Scenario B from

$$\frac{m(n+m+1)}{2} + z\sqrt{\frac{nm(n+m+1)}{12}}$$

z = 97.5% percentile of standard normal distribution = 1.960

$k = 3225.6$

Since the sum of survey unit ranks is less than the critical value, the null hypothesis that the difference between the survey unit median and the background median is less than the LSGR (i.e., the survey unit is indistinguishable from background) is accepted and the survey unit passes Scenario B

Quantile Test

per Section 7 of NUREG-1505

n (Survey)	30
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m (Ref)	150
alpha/2	0.025

From Table A.7

$$r = 6$$

k	4
α	0.025

If k of the r largest ranks are from the survey unit, the null hypott
(30,100) in Table A.7

Alpha Phoswich Ranks		Beta Phoswich Ranks	
Sorted Ranks	Location	Sorted Ranks	Location
5.5	S	1	S
5.5	S	2	S
5.5	S	3	S
5.5	S	4	S
5.5	S	5	R
5.5	S	6	S
5.5	S	7	S
5.5	S	8	S
5.5	S	9	S
5.5	S	10	S
13.5	S	11	S
13.5	S	12	R
13.5	S	13	R
13.5	S	14	R
13.5	S	15.5	S
13.5	S	15.5	S
18.5	S	17	S
18.5	S	18	S
18.5	S	19.5	S
18.5	S	19.5	S
23	S	21	S
23	S	22	R
23	S	23	R
23	S	24.5	S
23	S	24.5	S
26.5	S	26	R
26.5	S	27.5	R
28.5	S	27.5	R
28.5	S	29	R
38.5	R	30	R
38.5	R	31	R
38.5	R	33	R
38.5	R	33	R
38.5	R	33	R
38.5	R	35	S
38.5	R	36.5	R
38.5	R	36.5	R
38.5	R	38	R
38.5	R	39.5	S
38.5	R	39.5	S
38.5	R	41.5	R
38.5	R	41.5	R
38.5	R	43.5	R
38.5	R	43.5	R
38.5	R	45	R
38.5	R	46.5	R
38.5	R	46.5	R
59.5	R	48	S
59.5	R	49	R
59.5	R	50	S
59.5	R	51.5	R
59.5	R	51.5	R
59.5	R	53	R
59.5	R	54	S
59.5	R	55.5	R
59.5	R	55.5	R
59.5	R	57	R

C0809 Alpha-Beta Ph Quantile

59.5	R	58.5	R
59.5	R	58.5	R
59.5	R	60.5	R
59.5	R	60.5	R
59.5	R	62	S
59.5	R	64	R
59.5	R	64	R
59.5	R	64	R
59.5	R	66	R
59.5	R	67.5	R
59.5	R	67.5	R
59.5	R	70	R
59.5	R	70	R
59.5	R	70	R
86	R	72	S
86	R	73	R
86	R	75.5	R
86	R	75.5	R
86	R	75.5	R
86	R	75.5	R
86	R	78.5	R
86	R	78.5	R
86	R	81	R
86	R	81	R
86	R	81	R
86	R	83	R
86	R	85	R
86	R	85	R
86	R	85	R
86	R	87	R
86	R	90	R
86	R	90	R
86	R	90	R
86	R	90	R
86	R	93	R
86	R	94	R
86	R	95	R
86	R	96	R
86	R	97	R
86	R	98.5	R
86	R	98.5	R
86	R	100.5	R
114.5	R	100.5	R
114.5	R	103	R
114.5	R	103	R
114.5	R	103	R
114.5	R	105	R
114.5	R	106	R
114.5	R	107.5	R
114.5	R	107.5	R
114.5	R	110	R
114.5	R	110	R
114.5	R	110	R
114.5	R	112.5	R
114.5	R	112.5	R
114.5	R	114	R
114.5	R	115	R
114.5	R	116.5	R
114.5	R	116.5	R
114.5	R	119	R
114.5	R	119	R
114.5	R	119	R
114.5	R	121.5	R

C0809 Alpha-Beta Ph Quantile

114.5	R	121.5	R
114.5	R	123	R
114.5	R	125.5	R
114.5	R	125.5	R
114.5	R	125.5	R
114.5	R	125.5	R
114.5	R	128	R
133	R	129.5	R
133	R	129.5	R
133	R	131.5	R
133	R	131.5	R
133	R	133	R
133	R	134	R
133	R	135	R
133	R	136	R
133	R	137	R
143.5	R	139	R
143.5	R	139	R
143.5	R	139	R
143.5	R	142	R
143.5	R	142	R
143.5	R	142	R
143.5	R	144.5	R
143.5	R	144.5	R
143.5	R	146	R
143.5	R	147	R
143.5	R	148	R
143.5	R	149	R
151	R	150.5	R
151	R	150.5	R
151	R	152	R
153.5	R	153	R
153.5	R	154	R
156	R	155	R
156	R	157	R
156	R	157	R
159	R	157	R
159	R	159	S
159	R	160	R
161.5	R	161.5	R
161.5	R	161.5	R
164	R	163	R
164	R	164	R
164	R	165	R
166.5	R	166	R
166.5	R	167	R
168.5	R	168	R
168.5	R	169.5	R
171	R	169.5	R
171	R	171	S
171	R	172	R
173.5	R	173	R
173.5	R	174	S

175	R	175	R
176	R	176	R
177	S	177	R
178	R	178	R
179	R	179	R
180	R	180	R

1 of top 6 from S

0 of top 6 from S

thesis is rejected.

Reproduction of Table 10-3 from NUREG-1505

(C-LBGR)/SD	p1	p2
-6.0	0.00001	0
-5.0	0.000204	0.00001
-4.0	0.002339	0.000174
-3.5	0.006664	0.000738
-3.0	0.016947	0.00269
-2.5	0.03855	0.008465
-2.0	0.07865	0.023066
-1.9	0.089555	0.027714
-1.8	0.101546	0.033114
-1.7	0.114666	0.039348
-1.6	0.12895	0.046501
-1.5	0.144422	0.054656
-1.4	0.161099	0.063897
-1.3	0.178985	0.074301
-1.2	0.198072	0.085944
-1.1	0.218338	0.098892
-1.0	0.23975	0.113202
-0.9	0.262259	0.12892
-0.8	0.285804	0.146077
-0.7	0.310309	0.164691
-0.6	0.335687	0.18476
-0.5	0.361837	0.206266
-0.4	0.388649	0.229172
-0.3	0.416002	0.253419
-0.2	0.443769	0.27893
-0.1	0.471814	0.305606
0.0	0.5	0.333333
0.1	0.528186	0.361978
0.2	0.556231	0.391392
0.3	0.583998	0.421415
0.4	0.611351	0.451875
0.5	0.638163	0.482593
0.6	0.664313	0.513387
0.7	0.689691	0.544073
0.8	0.714196	0.574469
0.9	0.737741	0.604402
1.0	0.76025	0.633702
1.1	0.781662	0.662216
1.2	0.801928	0.6898
1.3	0.821015	0.716331
1.4	0.838901	0.741698
1.5	0.855578	0.765812
1.6	0.87105	0.788602
1.7	0.885334	0.810016
1.8	0.898454	0.830022
1.9	0.910445	0.848605
2.0	0.92135	0.865767
2.1	0.931218	0.881527
2.2	0.940103	0.895917
2.3	0.948062	0.908982
2.4	0.955157	0.920777
2.5	0.96145	0.931365
2.6	0.967004	0.940817
2.7	0.971881	0.949208
2.8	0.976143	0.956616
2.9	0.979848	0.963118
3.0	0.983053	0.968795
3.1	0.985811	0.973725
3.2	0.988174	0.977981
3.3	0.990188	0.981636
3.4	0.991895	0.984758
3.5	0.993336	0.98741
4.0	0.997661	0.995497
5.0	0.999796	0.999599
6.0	0.999989	0.999978