

Hematite Decommissioning Project	Procedure: HDP-PR-FSS-701, Final Status Survey Plan Development		
		Revision: 10	Appendix P-4, Page 1 of 1

**APPENDIX P-4**

**FSS SAMPLE & MEASUREMENT LOCATIONS & COORDINATES**

<b>Survey Area:</b>	BSA 05	<b>Description:</b>	Class 1 Structure inside LSA 05-02
<b>Survey Unit:</b>	02	<b>Description:</b>	Former Tile Barn Foundation
<b>Survey Type:</b>	FSS	<b>Classification:</b>	Class 1

Measurement or Sample ID	Surface or CSM	Type	Start * Elevation	End * Elevation	Location ID	Remarks / Notes
B05-01-01-S-O-S-00	O	S	NA	NA	Foundation location #1	Spring House Foundation
B05-01-02-S-O-S-00	O	S	NA	NA	Foundation location #2	Spring House Foundation
B05-01-03-S-O-S-00	O	S	NA	NA	Foundation location #3	Spring House Foundation
B05-01-04-S-O-S-00	O	S	NA	NA	Foundation location #4	Spring House Foundation
B05-01-05-S-O-S-00	O	S	NA	NA	Foundation location #5	Spring House Foundation
B05-01-06-S-O-S-00	O	S	NA	NA	Foundation location #6	Spring House Foundation
B05-01-07-S-O-S-00	O	S	NA	NA	Foundation location #7	Spring House Foundation
B05-01-08-S-O-S-00	O	S	NA	NA	Foundation location #8	Spring House Foundation
B05-01-09-S-O-S-00	O	S	NA	NA	Foundation location #9	Spring House Foundation
B05-01-10-S-O-S-00	O	S	NA	NA	Foundation location #10	Spring House Foundation
B05-01-11-S-O-S-00	O	S	NA	NA	Foundation location #11	Spring House Foundation
B05-01-12-S-O-S-00	O	S	NA	NA	Foundation location #12	Spring House Foundation
B05-01-13-S-O-S-00	O	S	NA	NA	Foundation location #13	Spring House Foundation
B05-01-14-S-O-S-00	O	S	NA	NA	Foundation location #14	Spring House Foundation
B05-01-15-S-O-S-00	O	S	NA	NA	Foundation location #15	Spring House Foundation
B05-01-16-S-O-S-00	O	S	NA	NA	Foundation location #16	Spring House Foundation
B05-01-17-S-O-S-00	O	S	NA	NA	Foundation location #17	Spring House Foundation
B05-01-18-S-O-S-00	O	S	NA	NA	Foundation location #18	Spring House Foundation
B05-01-19-S-O-S-00	O	S	NA	NA	Foundation location #19	Spring House Foundation
B05-01-20-S-O-S-00	O	S	NA	NA	Foundation location #20	Spring House Foundation
B05-01-21-S-O-S-00	O	S	NA	NA	Foundation location #21	Spring House Foundation
B05-01-22-S-O-S-00	O	S	NA	NA	Foundation location #22	Spring House Foundation
B05-01-23-S-O-S-00	O	S	NA	NA	Foundation location #23	Spring House Foundation
B05-01-24-S-O-S-00	O	S	NA	NA	Foundation location #24	Spring House Foundation
B05-01-25-S-O-S-00	O	S	NA	NA	Foundation location #25	Spring House Foundation
B05-01-26-S-O-S-00	O	S	NA	NA	Foundation location #26	Spring House Foundation
B05-01-27-S-O-S-00	O	S	NA	NA	Foundation location #27	Spring House Foundation
B05-01-28-S-O-S-00	O	S	NA	NA	Foundation location #28	Spring House Foundation
B05-01-29-S-O-S-00	O	S	NA	NA	Foundation location #29	Spring House Foundation
B05-01-30-S-O-S-00	O	S	NA	NA	Foundation location #30	Spring House Foundation
B05-01-31-S-O-S-00	O	S	NA	NA	Foundation location #31	Spring House Foundation
B05-01-32-S-O-S-00	O	S	NA	NA	Foundation location #32	Spring House Foundation
B05-01-33-S-O-S-00	O	S	NA	NA	Foundation location #33	Spring House Foundation
B05-01-34-S-O-S-00	O	S	NA	NA	Foundation location #34	Spring House Foundation
B05-01-35-S-O-S-00	O	S	NA	NA	Foundation location #35	Spring House Foundation
B05-01-36-S-O-S-00	O	S	NA	NA	Foundation location #36	Spring House Foundation
B05-01-37-S-O-S-00	O	S	NA	NA	Foundation location #37	Spring House Foundation
B05-01-38-S-O-S-00	O	S	NA	NA	Foundation location #38	Spring House Foundation
B05-01-39-S-O-S-00	O	S	NA	NA	Foundation location #39	Spring House Foundation
B05-01-40-S-O-S-00	O	S	NA	NA	Foundation location #40	Spring House Foundation
B05-01-41-S-O-S-00	O	S	NA	NA	Foundation location #41	Spring House Foundation
B05-01-42-S-O-S-00	O	S	NA	NA	Foundation location #42	Spring House Foundation
B05-01-43-S-O-S-00	O	S	NA	NA	Foundation location #43	Spring House Foundation
B05-01-44-S-O-S-00	O	S	NA	NA	Foundation location #44	Spring House Foundation
B05-01-45-S-O-S-00	O	S	NA	NA	Foundation location #45	Spring House Foundation
B05-01-46-S-O-S-00	O	S	NA	NA	Foundation location #46	Spring House Foundation
B05-01-47-S-O-S-00	O	S	NA	NA	Foundation location #47	Spring House Foundation
B05-01-48-S-O-S-00	O	S	NA	NA	Foundation location #48	Spring House Foundation
B05-01-49-S-O-S-00	O	S	NA	NA	Foundation location #49	Spring House Foundation
B05-01-50-S-O-S-00	O	S	NA	NA	Foundation location #50	Spring House Foundation
B05-01-51-S-O-S-00	O	S	NA	NA	Foundation location #51	Spring House Foundation
B05-01-52-S-O-S-00	O	S	NA	NA	Foundation location #52	Spring House Foundation
B05-01-53-S-O-S-00	O	S	NA	NA	Foundation location #53	Spring House Foundation
B05-01-54-S-O-S-00	O	S	NA	NA	Foundation location #54	Spring House Foundation
B05-01-55-S-O-S-00	O	S	NA	NA	Foundation location #55	Spring House Foundation
B05-01-56-S-O-S-00	O	S	NA	NA	Foundation location #56	Spring House Foundation
B05-01-57-S-O-B-00	O	S	NA	NA	Biased location measurements #1	Biased loc. Section 42
B05-01-58-S-O-B-00	O	S	NA	NA	Biased location post sample measurement	Biased loc. Section 42

\*X and Y coordinates originate from lower left or southwest corner of structural surface. Each structural surface has it's own origin (0,0) point.

Surface: Floor = F; Wall = W; Ceiling = C; Roof = R; O = Other

CSM: Three-Layer (Surface-Root-Deep) or Uniform

Type: Systematic = S, Biased = B; QC =Q; Investigation = I

Quality Record

Ludlum 2360 248161	Ludlum 43-68 B	Active Probe Area 125 cm <sup>2</sup>	$\alpha$ HDP Efficiency 29.1%	$\alpha$ Cal. Efficiency N/A	$\beta$ HDP Efficiency 13.6%	$\beta$ Cal. Efficiency N/A
-----------------------	-------------------	--	----------------------------------	---------------------------------	---------------------------------	--------------------------------

### TOTAL WEIGHTED INSTRUMENT EFFICIENCY CALCULATION

Radionuclide	Radiation	Maximum Energy (MeV)	Instrument Efficiency ( $\epsilon_i$ )	Surface Efficiency ( $\epsilon_s$ )	Yield 100%	Activity Fraction	Weighted Efficiency
Am-241	Alpha	5.6	0.2910	0.25	1.00	2.682E-03	1.95E-04
Np-237	Alpha	5.0	0.2910	0.25	1.00	5.573E-05	4.05E-06
Pu-239	Alpha	5.2	0.2910	0.25	1.00	2.027E-06	1.47E-07
Tc-99	Beta	0.294	0.1360	0.25	1.00	2.829E-03	9.62E-05
Th-232	Alpha	4.1	0.2910	0.25	1.00	3.214E-03	2.34E-04
Ra-228	Beta	0.046	0.1360	0.00	1.00	3.214E-03	0.00E+00
Ac-228	Beta	2.13	0.1360	0.50	1.00	3.214E-03	2.19E-04
Th-228	Alpha	5.5	0.2910	0.25	1.00	3.214E-03	2.34E-04
Ra-224	Alpha	5.8	0.2910	0.25	1.00	3.214E-03	2.34E-04
U-234	Alpha	4.9	0.2910	0.25	1.00	8.270E-01	6.02E-02
U-235	Alpha	4.7	0.2910	0.25	1.00	3.720E-02	2.71E-03
Th-231	Beta	0.390	0.1360	0.25	1.00	3.720E-02	1.26E-03
U-238	Alpha	4.3	0.2910	0.25	1.00	1.270E-01	9.24E-03
Th-234	Beta	0.270	0.1360	0.25	1.00	1.270E-01	4.32E-03
Pa-234m	Beta	2.20	0.1360	0.50	1.00	1.270E-01	8.64E-03

Total Weighted Instrument Efficiency =  $\Sigma$  Weighted Instrument Efficiency for all Nuclides of Concern

$\Sigma =$

8.75%

Weighted Instrument Efficiency =  $\epsilon_i * \epsilon_s * \text{Yield} * \text{Activity Fraction}$

$\epsilon_i$  = 2 Pi Instrument Efficiency for Nuclide of Concern

$\epsilon_s$  = Surface Efficiency for Nuclide of Concern

Meter

43-89

HDP-PR-FSS-721 Final Status Survey Data Evaluation  
Preliminary Data Review and Determination of Sum-of-Fractions (SOF)

				Step 8.3.2				Corrected Net dpm/100cm <sup>2</sup>	Fraction of DCGL
MEASUREMENT ID	MEASUREMENT LOCATION	DATE MEAS	MEASUREMENT	GROSS cpm (α+β)	BKG cpm (a+b)	Net cpm (α + β)	Combined Net dpm/100 cm <sup>2</sup> (α+β)		
B05-01-01-S-O-S-00	Foundation location #1	08/29/2013	alpha + beta TSC	256	247	9	82	82	0%
B05-01-02-S-O-S-00	Foundation location #2	08/29/2013	alpha + beta TSC	228	247	-21	-192	0	0%
B05-01-03-S-O-S-00	Foundation location #3	08/29/2013	alpha + beta TSC	257	247	10	91	91	0%
B05-01-04-S-O-S-00	Foundation location #4	08/29/2013	alpha + beta TSC	269	247	22	201	201	1%
B05-01-05-S-O-S-00	Foundation location #5	08/29/2013	alpha + beta TSC	274	247	27	247	247	1%
B05-01-06-S-O-S-00	Foundation location #6	08/29/2013	alpha + beta TSC	301	247	54	494	494	3%
B05-01-07-S-O-S-00	Foundation location #7	08/29/2013	alpha + beta TSC	299	247	52	475	475	3%
B05-01-08-S-O-S-00	Foundation location #8	08/29/2013	alpha + beta TSC	259	247	12	110	110	1%
B05-01-09-S-O-S-00	Foundation location #9	08/29/2013	alpha + beta TSC	275	247	28	256	256	1%
B05-01-10-S-O-S-00	Foundation location #10	08/29/2013	alpha + beta TSC	313	247	66	603	603	3%
B05-01-11-S-O-S-00	Foundation location #11	08/29/2013	alpha + beta TSC	273	247	26	238	238	1%
B05-01-12-S-O-S-00	Foundation location #12	08/29/2013	alpha + beta TSC	240	247	-7	-64	0	0%
B05-01-13-S-O-S-00	Foundation location #13	08/29/2013	alpha + beta TSC	274	247	27	247	247	1%
B05-01-14-S-O-S-00	Foundation location #14	08/29/2013	alpha + beta TSC	291	247	44	402	402	2%
B05-01-15-S-O-S-00	Foundation location #15	08/29/2013	alpha + beta TSC	319	247	72	658	658	3%
B05-01-16-S-O-S-00	Foundation location #16	08/29/2013	alpha + beta TSC	301	247	54	494	494	3%
B05-01-17-S-O-S-00	Foundation location #17	08/29/2013	alpha + beta TSC	259	247	12	110	110	1%
B05-01-18-S-O-S-00	Foundation location #18	08/29/2013	alpha + beta TSC	276	247	29	265	265	1%
B05-01-19-S-O-S-00	Foundation location #19	08/29/2013	alpha + beta TSC	278	247	31	283	283	1%
B05-01-20-S-O-S-00	Foundation location #20	08/29/2013	alpha + beta TSC	312	247	65	594	594	3%
B05-01-21-S-O-S-00	Foundation location #21	08/29/2013	alpha + beta TSC	269	247	22	201	201	1%
B05-01-22-S-O-S-00	Foundation location #22	08/29/2013	alpha + beta TSC	279	247	32	293	293	2%
B05-01-23-S-O-S-00	Foundation location #23	08/29/2013	alpha + beta TSC	271	247	24	219	219	1%
B05-01-24-S-O-S-00	Foundation location #24	08/29/2013	alpha + beta TSC	344	247	97	887	887	5%
B05-01-25-S-O-S-00	Foundation location #25	08/29/2013	alpha + beta TSC	300	247	53	485	485	3%
B05-01-26-S-O-S-00	Foundation location #26	08/29/2013	alpha + beta TSC	266	247	19	174	174	1%
B05-01-27-S-O-S-00	Foundation location #27	08/29/2013	alpha + beta TSC	246	247	-1	-9	0	0%
B05-01-28-S-O-S-00	Foundation location #28	08/29/2013	alpha + beta TSC	246	247	-1	-9	0	0%
B05-01-29-S-O-S-00	Foundation location #29	08/29/2013	alpha + beta TSC	294	247	47	430	430	2%
B05-01-30-S-O-S-00	Foundation location #30	08/29/2013	alpha + beta TSC	234	247	-13	-119	0	0%
B05-01-31-S-O-S-00	Foundation location #31	08/29/2013	alpha + beta TSC	228	247	-19	-174	0	0%
B05-01-32-S-O-S-00	Foundation location #32	08/29/2013	alpha + beta TSC	252	247	5	46	46	0%
B05-01-33-S-O-S-00	Foundation location #33	08/29/2013	alpha + beta TSC	250	247	3	27	27	0%
B05-01-34-S-O-S-00	Foundation location #34	08/29/2013	alpha + beta TSC	236	247	-11	-101	0	0%
B05-01-35-S-O-S-00	Foundation location #35	08/29/2013	alpha + beta TSC	266	247	19	174	174	1%
B05-01-36-S-O-S-00	Foundation location #36	08/29/2013	alpha + beta TSC	258	247	11	101	101	1%
B05-01-37-S-O-S-00	Foundation location #37	08/29/2013	alpha + beta TSC	230	247	-17	-155	0	0%
B05-01-38-S-O-S-00	Foundation location #38	08/29/2013	alpha + beta TSC	253	247	6	55	55	0%
B05-01-39-S-O-S-00	Foundation location #39	08/29/2013	alpha + beta TSC	266	247	19	174	174	1%
B05-01-40-S-O-S-00	Foundation location #40	08/29/2013	alpha + beta TSC	243	247	-4	-37	0	0%
B05-01-41-S-O-S-00	Foundation location #41	08/29/2013	alpha + beta TSC	263	247	16	146	146	1%
B05-01-42-S-O-S-00	Foundation location #42	08/29/2013	alpha + beta TSC	383	247	136	1243	1243	7%
B05-01-43-S-O-S-00	Foundation location #43	08/29/2013	alpha + beta TSC	290	247	43	393	393	2%
B05-01-44-S-O-S-00	Foundation location #44	08/29/2013	alpha + beta TSC	296	247	49	448	448	2%
B05-01-45-S-O-S-00	Foundation location #45	08/29/2013	alpha + beta TSC	283	247	36	329	329	2%
B05-01-46-S-O-S-00	Foundation location #46	08/29/2013	alpha + beta TSC	309	247	62	567	567	3%
B05-01-47-S-O-S-00	Foundation location #47	08/29/2013	alpha + beta TSC	271	247	24	219	219	1%
B05-01-48-S-O-S-00	Foundation location #48	08/29/2013	alpha + beta TSC	261	247	14	128	128	1%
B05-01-49-S-O-S-00	Foundation location #49	08/29/2013	alpha + beta TSC	267	247	20	183	183	1%
B05-01-50-S-O-S-00	Foundation location #50	08/29/2013	alpha + beta TSC	271	247	24	219	219	1%
B05-01-51-S-O-S-00	Foundation location #51	08/29/2013	alpha + beta TSC	266	247	19	174	174	1%
B05-01-52-S-O-S-00	Foundation location #52	08/29/2013	alpha + beta TSC	262	247	15	137	137	1%
B05-01-53-S-O-S-00	Foundation location #53	08/29/2013	alpha + beta TSC	300	247	53	485	485	3%
B05-01-54-S-O-S-00	Foundation location #54	08/29/2013	alpha + beta TSC	309	247	62	567	567	3%
B05-01-55-S-O-S-00	Foundation location #55	08/29/2013	alpha + beta TSC	294	247	47	430	430	2%
B05-01-56-S-O-S-00	Foundation location #56	08/29/2013	alpha + beta TSC	302	247	55	503	503	3%
B05-01-57-S-O-B-00	Biased location measurements #1	08/29/2013	alpha + beta TSC	495	247	248	2267	2267	12%
B05-01-58-S-O-B-00	Biased location post sample measurement	08/29/2013	alpha + beta TSC	278	247	31	283	283	1%

\*NOTE: Differences from documented survey results are due to rounding in Excel

Min	0	1%	Average Fraction Step 8.4.5.g
Max	2267		
Mean	308	DCGL <sub>50</sub>	mrem SU Dose Contribution Step 8.4.6
Median	219	0.25	
Stdev	357.0	mrem	

Instrument used for FSS Static Measurements:

08/29/2013				Survey # 3298 130829			
Ludlum 2360/43-89 "B"							
Detector Area (A) =	125	cm <sup>2</sup>	ave. ambient bkg =	247	cpm	weighted eff (ε <sub>w</sub> )=	0.08750
(α + β)							
TSC (dpm/100cm <sup>2</sup> ) = (gcpm-bkg) / (ε <sub>w</sub> * (A <sub>det</sub> /100 cm <sup>2</sup> ))							
DCGL (structures) = 18,925 dpm/100 cm <sup>2</sup>							

**HDP-PR-HP-314 *Unrestricted Release of Materials and Equipment***  
**Removable Data Evaluation**

All removable alpha measurements less than MDA, max beta removable measurement 37.2 dpm/100 cm2, see FSS Survey Documentation for results.

HDP-PR-FSS-721 Final Status Survey Data Evaluation  
Performance of Statistical Tests

Sign Test					
SAMPLE ID	SAMPLE ID	Gross TSC Step 8.5.4.a	Gross TSC / Adj. Gross DCGL (W <sub>s</sub> ) Step 8.5.4.b	Difference (1-W <sub>s</sub> ) Step 8.5.4.d	Corrected Difference Step 8.5.4.e
B05-01-01-S-O-S-00	Foundation location #1	82	0.004	0.996	0.996
B05-01-02-S-O-S-00	Foundation location #2	0	0.000	1.000	1.000
B05-01-03-S-O-S-00	Foundation location #3	91	0.005	0.995	0.995
B05-01-04-S-O-S-00	Foundation location #4	201	0.011	0.989	0.989
B05-01-05-S-O-S-00	Foundation location #5	247	0.013	0.987	0.987
B05-01-06-S-O-S-00	Foundation location #6	494	0.026	0.974	0.974
B05-01-07-S-O-S-00	Foundation location #7	475	0.025	0.975	0.975
B05-01-08-S-O-S-00	Foundation location #8	110	0.006	0.994	0.994
B05-01-09-S-O-S-00	Foundation location #9	256	0.014	0.986	0.986
B05-01-10-S-O-S-00	Foundation location #10	603	0.032	0.968	0.968
B05-01-11-S-O-S-00	Foundation location #11	238	0.013	0.987	0.987
B05-01-12-S-O-S-00	Foundation location #12	0	0.000	1.000	1.000
B05-01-13-S-O-S-00	Foundation location #13	247	0.013	0.987	0.987
B05-01-14-S-O-S-00	Foundation location #14	402	0.021	0.979	0.979
B05-01-15-S-O-S-00	Foundation location #15	658	0.035	0.965	0.965
B05-01-16-S-O-S-00	Foundation location #16	494	0.026	0.974	0.974
B05-01-17-S-O-S-00	Foundation location #17	110	0.006	0.994	0.994
B05-01-18-S-O-S-00	Foundation location #18	265	0.014	0.986	0.986
B05-01-19-S-O-S-00	Foundation location #19	283	0.015	0.985	0.985
B05-01-20-S-O-S-00	Foundation location #20	594	0.031	0.969	0.969
B05-01-21-S-O-S-00	Foundation location #21	201	0.011	0.989	0.989
B05-01-22-S-O-S-00	Foundation location #22	293	0.015	0.985	0.985
B05-01-23-S-O-S-00	Foundation location #23	219	0.012	0.988	0.988
B05-01-24-S-O-S-00	Foundation location #24	887	0.047	0.953	0.953
B05-01-25-S-O-S-00	Foundation location #25	485	0.026	0.974	0.974
B05-01-26-S-O-S-00	Foundation location #26	174	0.009	0.991	0.991
B05-01-27-S-O-S-00	Foundation location #27	0	0.000	1.000	1.000
B05-01-28-S-O-S-00	Foundation location #28	0	0.000	1.000	1.000
B05-01-29-S-O-S-00	Foundation location #29	430	0.023	0.977	0.977
B05-01-30-S-O-S-00	Foundation location #30	0	0.000	1.000	1.000
B05-01-31-S-O-S-00	Foundation location #31	0	0.000	1.000	1.000
B05-01-32-S-O-S-00	Foundation location #32	46	0.002	0.998	0.998
B05-01-33-S-O-S-00	Foundation location #33	27	0.001	0.999	0.999
B05-01-34-S-O-S-00	Foundation location #34	0	0.000	1.000	1.000
B05-01-35-S-O-S-00	Foundation location #35	174	0.009	0.991	0.991
B05-01-36-S-O-S-00	Foundation location #36	101	0.005	0.995	0.995
B05-01-37-S-O-S-00	Foundation location #37	0	0.000	1.000	1.000
B05-01-38-S-O-S-00	Foundation location #38	55	0.003	0.997	0.997
B05-01-39-S-O-S-00	Foundation location #39	174	0.009	0.991	0.991
B05-01-40-S-O-S-00	Foundation location #40	0	0.000	1.000	1.000
B05-01-41-S-O-S-00	Foundation location #41	146	0.008	0.992	0.992
B05-01-42-S-O-S-00	Foundation location #42	1243	0.066	0.934	0.934
B05-01-43-S-O-S-00	Foundation location #43	393	0.021	0.979	0.979
B05-01-44-S-O-S-00	Foundation location #44	448	0.024	0.976	0.976
B05-01-45-S-O-S-00	Foundation location #45	329	0.017	0.983	0.983
B05-01-46-S-O-S-00	Foundation location #46	567	0.030	0.970	0.970
B05-01-47-S-O-S-00	Foundation location #47	219	0.012	0.988	0.988
B05-01-48-S-O-S-00	Foundation location #48	128	0.007	0.993	0.993
B05-01-49-S-O-S-00	Foundation location #49	183	0.010	0.990	0.990
B05-01-50-S-O-S-00	Foundation location #50	219	0.012	0.988	0.988
B05-01-51-S-O-S-00	Foundation location #51	174	0.009	0.991	0.991
B05-01-52-S-O-S-00	Foundation location #52	137	0.007	0.993	0.993
B05-01-53-S-O-S-00	Foundation location #53	485	0.026	0.974	0.974
B05-01-54-S-O-S-00	Foundation location #54	567	0.030	0.970	0.970
B05-01-55-S-O-S-00	Foundation location #55	430	0.023	0.977	0.977
B05-01-56-S-O-S-00	Foundation location #56	503	0.027	0.973	0.973
Number of Positive Differences (S+)					56
Sign Test Critical Value (MARSSIM Table I-3)					34

TEST: PASS

If every measurement in the systematic sample population is <= the DCGL, a statistical test is not required.

MARSSIM Table I-3 Critical Values for the Sign Test Statistic S+	
N	Alpha = 0.05
4	4
5	4
6	5
7	6
8	6
9	7
10	8
11	8
12	9
13	9
14	10
15	11
16	11
17	12
18	12
19	13
20	14
21	14
22	15
23	15
24	16
25	17
26	17
27	18
28	18
29	19
30	19
31	20
32	21
33	21
34	22
35	22
36	23
37	23
38	24
39	25
40	25
41	26
42	26
43	27
44	27
45	28
46	29
47	29
48	30
49	30
50	31

For N greater than 50 use:

$$\frac{N}{2} + \frac{z}{2} \sqrt{N}$$

Where z = 1.645 (for α = 0.05)