**APPENDIX P-4**

**FSS SAMPLE & MEASUREMENT LOCATIONS & COORDINATES**

**Survey Area:** BSA 05 **Description:** Class 1 Structure inside LSA 05-02

**Survey Unit:** 02 **Description:** Former Tile Barn Foundation

**Survey Type:** FSS **Classification:** Class 1

| Measurement or Sample ID | Surface or CSM | Type | Start * Elevation | End * Elevation | Location ID | Remarks / Notes |
|---|---|---|---|---|---|---|
| B05-02-01-S-O-S-00 | O | S | NA | NA | Footer Section 1 | Former Barn Footer |
| B05-02-02-S-O-S-00 | O | S | NA | NA | Footer Section 2 | Former Barn Footer |
| B05-02-03-S-O-S-00 | O | S | NA | NA | Footer Section 3 | Former Barn Footer |
| B05-02-04-S-O-S-00 | O | S | NA | NA | Footer Section 4 | Former Barn Footer |
| B05-02-05-S-O-S-00 | O | S | NA | NA | Footer Section 5 | Former Barn Footer |
| B05-02-06-S-O-S-00 | O | S | NA | NA | Footer Section 6 | Former Barn Footer |
| B05-02-07-S-O-S-00 | O | S | NA | NA | Footer Section 7 | Former Barn Footer |
| B05-02-08-S-O-S-00 | O | S | NA | NA | Footer Section 8 | Former Barn Footer |
| B05-02-09-S-O-S-00 | O | S | NA | NA | Footer Section 9 | Former Barn Footer |
| B05-02-10-S-O-S-00 | O | S | NA | NA | Footer Section 10 | Former Barn Footer |
| B05-02-11-S-O-S-00 | O | S | NA | NA | Footer Section 11 | Former Barn Footer |
| B05-02-12-S-O-S-00 | O | S | NA | NA | Footer Section 12 | Former Barn Footer |
| B05-02-13-S-O-S-00 | O | S | NA | NA | Footer Section 13 | Former Barn Footer |
| B05-02-14-S-O-S-00 | O | S | NA | NA | Footer Section 14 | Former Barn Footer |
| B05-02-15-S-O-S-00 | O | S | NA | NA | Footer Section 15 | Former Barn Footer |
| B05-02-16-S-O-S-00 | O | S | NA | NA | Footer Section 16 | Former Barn Footer |
| B05-02-17-S-O-S-00 | O | S | NA | NA | Footer Section 17 | Former Barn Footer |
| B05-02-18-S-O-S-00 | O | S | NA | NA | Footer Section 18 | Former Barn Footer |
| B05-02-19-S-O-S-00 | O | S | NA | NA | Footer Section 19 | Former Barn Footer |
| B05-02-20-S-O-S-00 | O | S | NA | NA | Footer Section 20 | Former Barn Footer |
| B05-02-21-S-O-S-00 | O | S | NA | NA | Footer Section 21 | Former Barn Footer |
| B05-02-22-S-O-S-00 | O | S | NA | NA | Footer Section 22 | Former Barn Footer |
| B05-02-23-S-O-S-00 | O | S | NA | NA | Footer Section 23 | Former Barn Footer |
| B05-02-24-S-O-S-00 | O | S | NA | NA | Footer Section 24 | Former Barn Footer |
| B05-02-25-S-O-S-00 | O | S | NA | NA | Footer Section 25 | Former Barn Footer |
| B05-02-26-S-O-S-00 | O | S | NA | NA | Footer Section 26 | Former Barn Footer |
| B05-02-27-S-O-S-00 | O | S | NA | NA | Footer Section 27 | Former Barn Footer |
| B05-02-28-S-O-S-00 | O | S | NA | NA | Footer Section 28 | Former Barn Footer |
| B05-02-29-S-O-S-00 | O | S | NA | NA | Footer Section 29 | Former Barn Footer |
| B05-02-30-S-O-S-00 | O | S | NA | NA | Footer Section 30 | Former Barn Footer |
| B05-02-31-S-O-S-00 | O | S | NA | NA | Ramp Footer Section 1 | Former Ramp Footer |
| B05-02-32-S-O-S-00 | O | S | NA | NA | Ramp Footer Section 2 | Former Ramp Footer |
| B05-02-33-S-O-S-00 | O | S | NA | NA | Ramp Footer Section 3 | Former Ramp Footer |
| B05-02-34-S-O-S-00 | O | S | NA | NA | Ramp Footer Section 4 | Former Ramp Footer |
| B05-02-35-S-O-S-00 | O | S | NA | NA | Ramp Footer Section 5 | Former Ramp Footer |
| B05-02-36-S-O-S-00 | O | S | NA | NA | Ramp Footer Section 6 | Former Ramp Footer |
| B05-02-37-S-O-S-00 | O | S | NA | NA | Ramp Footer Section 7 | Former Ramp Footer |
| B05-02-38-S-O-S-00 | O | S | NA | NA | Drain Basin Section 1 | Remaining Drain Basin |
| B05-02-39-S-O-S-00 | O | S | NA | NA | Drain Basin Section 2 | Remaining Drain Basin |
| B05-02-40-S-O-S-00 | O | S | NA | NA | Drain Basin Section 3 | Remaining Drain Basin |
| B05-02-41-S-O-S-00 | O | S | NA | NA | Drain Basin Section 4 | Remaining Drain Basin |
| B05-02-42-S-O-S-00 | O | S | NA | NA | Drain Basin Section 5 | Remaining Drain Basin |
| B05-02-43-S-O-S-00 | O | S | NA | NA | Small Junction Box | Remaining Drain Basin |
| B05-02-44-S-O-S-00 | O | S | NA | NA | Metal Storm Drain Pipe Ext 1 | Remaining Drain Basin |
| B05-02-45-S-O-S-00 | O | S | NA | NA | Metal Storm Drain Pipe Ext 2 | Remaining Drain Basin |
| B05-02-46-S-O-S-00 | O | S | NA | NA | Metal Storm Drain Pipe Ext 3 | Remaining Drain Basin |
| B05-02-47-S-O-S-00 | O | S | NA | NA | Metal Storm Drain Pipe Ext 4 | Remaining Drain Basin |
| B05-02-48-S-O-S-00 | O | S | NA | NA | Metal Storm Drain Pipe Int. | Remaining Drain Basin |

*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

| Ludlum 2360 | Ludlum 43-68 | Active Probe Area | α HDP Efficiency | α Cal. Efficiency | ß HDP Efficiency | ß Cal. Efficiency |
|---|---|---|---|---|---|---|
| 276928 | D | 125 $cm^2$ | **26.0%** | N/A | **13.8%** | N/A |

**TOTAL WEIGHTED INSTRUMENT EFFICIENCY CALCULATION**

| Radionuclide | Radiation | Maximum Energy (MeV) | Instrument Efficiency ($\varepsilon_i$) | Surface Efficiency ($\varepsilon_s$) | Yield 100% | Activity Fraction | Weighted Efficiency |
|---|---|---|---|---|---|---|---|
| **Am-241** | Alpha | 5.6 | 0.2600 | 0.25 | 1.00 | 2.682E-03 | 1.74E-04 |
| **Np-237** | Alpha | 5.0 | 0.2600 | 0.25 | 1.00 | 5.573E-05 | 3.62E-06 |
| **Pu-239** | Alpha | 5.2 | 0.2600 | 0.25 | 1.00 | 2.027E-06 | 1.32E-07 |
| **Tc-99** | Beta | 0.294 | 0.1380 | 0.25 | 1.00 | 2.829E-03 | 9.76E-05 |
| **Th-232** | Alpha | 4.1 | 0.2600 | 0.25 | 1.00 | 3.214E-03 | 2.09E-04 |
| **Ra-228** | Beta | 0.046 | 0.1380 | 0.00 | 1.00 | 3.214E-03 | 0.00E+00 |
| **Ac-228** | Beta | 2.13 | 0.1380 | 0.50 | 1.00 | 3.214E-03 | 2.22E-04 |
| **Th-228** | Alpha | 5.5 | 0.2600 | 0.25 | 1.00 | 3.214E-03 | 2.09E-04 |
| **Ra-224** | Alpha | 5.8 | 0.2600 | 0.25 | 1.00 | 3.214E-03 | 2.09E-04 |
| **U-234** | Alpha | 4.9 | 0.2600 | 0.25 | 1.00 | 8.270E-01 | 5.38E-02 |
| **U-235** | Alpha | 4.7 | 0.2600 | 0.25 | 1.00 | 3.720E-02 | 2.42E-03 |
| **Th-231** | Beta | 0.390 | 0.1380 | 0.25 | 1.00 | 3.720E-02 | 1.28E-03 |
| **U-238** | Alpha | 4.3 | 0.2600 | 0.25 | 1.00 | 1.270E-01 | 8.26E-03 |
| **Th-234** | Beta | 0.270 | 0.1380 | 0.25 | 1.00 | 1.270E-01 | 4.38E-03 |
| **Pa-234m** | Beta | 2.20 | 0.1380 | 0.50 | 1.00 | 1.270E-01 | 8.76E-03 |

**Total Weighted Instrument Efficiency = Σ Weighted Instrument Efficiency for all Nuclides of Concern** **Σ=** **8.00%**

**Weighted Instrument Efficiency = $\varepsilon_i$ * $\varepsilon_s$ * Yield * Activity Fraction**

**$\varepsilon_i$ = 2 Pi Instrument Efficiency for Nuclide of Concern**

**$\varepsilon_s$ = Surface Efficiency for Nuclide of Concern**

Meter
**43-89**

| Ludlum 2360 | Ludlum 43-68 | Active Probe Area | α HDP Efficiency | α Cal. Efficiency | ß HDP Efficiency | ß Cal. Efficiency |
|---|---|---|---|---|---|---|
| 248161 | B | 125 $cm^2$ | **29.1%** | N/A | **13.6%** | N/A |

**TOTAL WEIGHTED INSTRUMENT EFFICIENCY CALCULATION**

| Radionuclide | Radiation | Maximum Energy (MeV) | Instrument Efficiency ($\varepsilon_i$) | Surface Efficiency ($\varepsilon_s$) | 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 = Σ Weighted Instrument Efficiency for all Nuclides of Concern** **Σ=** **8.75%**

**Weighted Instrument Efficiency = $\varepsilon_i$ * $\varepsilon_s$ * Yield * Activity Fraction**

**$\varepsilon_i$ = 2 Pi Instrument Efficiency for Nuclide of Concern**

**$\varepsilon_s$ = Surface Efficiency for Nuclide of Concern**

Meter
**43-89**

| | | | | Step 8.3.2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MEASUREMENT ID | MEASUREMENT LOCATION | DATE MEAS | MEASUREMENT | GROSS cpm (α+β) | BKG cpm (a+b) | Net cpm (α + β) | Combined Net dpm/100 cm$^2$ (α+β) | Corrected Net dpm/100cm$^2$ | Fraction of DCGL Step 8.4.3 |
| B05-02-01-S-O-S-00 | Footer Section 1 | 08/14/2013 | alpha + beta TSC | 338 | 253 | 85 | 850 | 850 | 4% |
| B05-02-02-S-O-S-00 | Footer Section 2 | 08/14/2013 | alpha + beta TSC | 328 | 253 | 75 | 750 | 750 | 4% |
| B05-02-03-S-O-S-00 | Footer Section 3 | 08/14/2013 | alpha + beta TSC | 318 | 253 | 65 | 650 | 650 | 3% |
| B05-02-04-S-O-S-00 | Footer Section 4 | 08/14/2013 | alpha + beta TSC | 380 | 253 | 127 | 1270 | 1270 | 7% |
| B05-02-05-S-O-S-00 | Footer Section 5 | 08/14/2013 | alpha + beta TSC | 332 | 253 | 79 | 790 | 790 | 4% |
| B05-02-06-S-O-S-00 | Footer Section 6 | 08/14/2013 | alpha + beta TSC | 358 | 253 | 105 | 1050 | 1050 | 6% |
| B05-02-07-S-O-S-00 | Footer Section 7 | 08/14/2013 | alpha + beta TSC | 329 | 253 | 76 | 760 | 760 | 4% |
| B05-02-08-S-O-S-00 | Footer Section 8 | 08/14/2013 | alpha + beta TSC | 381 | 253 | 128 | 1280 | 1280 | 7% |
| B05-02-09-S-O-S-00 | Footer Section 9 | 08/14/2013 | alpha + beta TSC | 350 | 253 | 97 | 970 | 970 | 5% |
| B05-02-10-S-O-S-00 | Footer Section 10 | 08/14/2013 | alpha + beta TSC | 364 | 253 | 111 | 1110 | 1110 | 6% |
| B05-02-11-S-O-S-00 | Footer Section 11 | 08/14/2013 | alpha + beta TSC | 355 | 253 | 102 | 1020 | 1020 | 5% |
| B05-02-12-S-O-S-00 | Footer Section 12 | 08/14/2013 | alpha + beta TSC | 352 | 253 | 99 | 990 | 990 | 5% |
| B05-02-13-S-O-S-00 | Footer Section 13 | 08/14/2013 | alpha + beta TSC | 347 | 253 | 94 | 940 | 940 | 5% |
| B05-02-14-S-O-S-00 | Footer Section 14 | 08/14/2013 | alpha + beta TSC | 355 | 253 | 102 | 1020 | 1020 | 5% |
| B05-02-15-S-O-S-00 | Footer Section 15 | 08/14/2013 | alpha + beta TSC | 372 | 253 | 119 | 1190 | 1190 | 6% |
| B05-02-16-S-O-S-00 | Footer Section 16 | 08/14/2013 | alpha + beta TSC | 241 | 250 | -9 | -82 | 0 | 0% |
| B05-02-17-S-O-S-00 | Footer Section 17 | 08/14/2013 | alpha + beta TSC | 230 | 250 | -20 | -183 | 0 | 0% |
| B05-02-18-S-O-S-00 | Footer Section 18 | 08/14/2013 | alpha + beta TSC | 256 | 250 | 6 | 55 | 55 | 0% |
| B05-02-19-S-O-S-00 | Footer Section 19 | 08/14/2013 | alpha + beta TSC | 266 | 250 | 16 | 146 | 146 | 1% |
| B05-02-20-S-O-S-00 | Footer Section 20 | 08/14/2013 | alpha + beta TSC | 259 | 250 | 9 | 82 | 82 | 0% |
| B05-02-21-S-O-S-00 | Footer Section 21 | 08/14/2013 | alpha + beta TSC | 264 | 250 | 14 | 128 | 128 | 1% |
| B05-02-22-S-O-S-00 | Footer Section 22 | 08/14/2013 | alpha + beta TSC | 271 | 250 | 21 | 192 | 192 | 1% |
| B05-02-23-S-O-S-00 | Footer Section 23 | 08/14/2013 | alpha + beta TSC | 268 | 250 | 18 | 165 | 165 | 1% |
| B05-02-24-S-O-S-00 | Footer Section 24 | 08/14/2013 | alpha + beta TSC | 293 | 250 | 43 | 393 | 393 | 2% |
| B05-02-25-S-O-S-00 | Footer Section 25 | 08/14/2013 | alpha + beta TSC | 233 | 250 | -17 | -155 | 0 | 0% |
| B05-02-26-S-O-S-00 | Footer Section 26 | 08/14/2013 | alpha + beta TSC | 252 | 250 | 2 | 18 | 18 | 0% |
| B05-02-27-S-O-S-00 | Footer Section 27 | 08/14/2013 | alpha + beta TSC | 233 | 250 | -17 | -155 | 0 | 0% |
| B05-02-28-S-O-S-00 | Footer Section 28 | 08/14/2013 | alpha + beta TSC | 281 | 250 | 31 | 283 | 283 | 1% |
| B05-02-29-S-O-S-00 | Footer Section 29 | 08/14/2013 | alpha + beta TSC | 271 | 250 | 21 | 192 | 192 | 1% |
| B05-02-30-S-O-S-00 | Footer Section 30 | 08/14/2013 | alpha + beta TSC | 272 | 250 | 22 | 201 | 201 | 1% |
| B05-02-31-S-O-S-00 | Ramp Footer Section 1 | 08/14/2013 | alpha + beta TSC | 468 | 354 | 114 | 1140 | 1140 | 6% |
| B05-02-32-S-O-S-00 | Ramp Footer Section 2 | 08/14/2013 | alpha + beta TSC | 430 | 354 | 76 | 760 | 760 | 4% |
| B05-02-33-S-O-S-00 | Ramp Footer Section 3 | 08/14/2013 | alpha + beta TSC | 352 | 354 | -2 | -20 | 0 | 0% |
| B05-02-34-S-O-S-00 | Ramp Footer Section 4 | 08/14/2013 | alpha + beta TSC | 370 | 354 | 16 | 160 | 160 | 1% |
| B05-02-35-S-O-S-00 | Ramp Footer Section 5 | 08/14/2013 | alpha + beta TSC | 386 | 354 | 32 | 320 | 320 | 2% |
| B05-02-36-S-O-S-00 | Ramp Footer Section 6 | 08/14/2013 | alpha + beta TSC | 391 | 354 | 37 | 370 | 370 | 2% |
| B05-02-37-S-O-S-00 | Ramp Footer Section 7 | 08/14/2013 | alpha + beta TSC | 445 | 354 | 91 | 910 | 910 | 5% |
| B05-02-38-S-O-S-00 | Drain Basin Section 1 | 08/14/2013 | alpha + beta TSC | 387 | 354 | 33 | 330 | 330 | 2% |
| B05-02-39-S-O-S-00 | Drain Basin Section 2 | 08/14/2013 | alpha + beta TSC | 390 | 354 | 36 | 360 | 360 | 2% |
| B05-02-40-S-O-S-00 | Drain Basin Section 3 | 08/14/2013 | alpha + beta TSC | 350 | 354 | -4 | -40 | 0 | 0% |
| B05-02-41-S-O-S-00 | Drain Basin Section 4 | 08/14/2013 | alpha + beta TSC | 372 | 354 | 18 | 180 | 180 | 1% |
| B05-02-42-S-O-S-00 | Drain Basin Section 5 | 08/14/2013 | alpha + beta TSC | 354 | 354 | 0 | 0 | 0 | 0% |
| B05-02-43-S-O-S-00 | Small Junction Box | 08/14/2013 | alpha + beta TSC | 359 | 379 | -20 | -200 | 0 | 0% |
| B05-02-44-S-O-S-00 | Metal Storm Drain Pipe Ext 1 | 08/14/2013 | alpha + beta TSC | 403 | 354 | 49 | 490 | 490 | 3% |
| B05-02-45-S-O-S-00 | Metal Storm Drain Pipe Ext 2 | 08/14/2013 | alpha + beta TSC | 400 | 354 | 46 | 460 | 460 | 2% |
| B05-02-46-S-O-S-00 | Metal Storm Drain Pipe Ext 3 | 08/14/2013 | alpha + beta TSC | 424 | 354 | 70 | 700 | 700 | 4% |
| B05-02-47-S-O-S-00 | Metal Storm Drain Pipe Ext 4 | 08/14/2013 | alpha + beta TSC | 384 | 354 | 30 | 300 | 300 | 2% |
| B05-02-48-S-O-S-00 | Metal Storm Drain Pipe Int. | 08/14/2013 | alpha + beta TSC | 400 | 354 | 46 | 460 | 460 | 2% |
| | | | | | | | Min | 0 | |
| | | | | | | | Max | 1280 | |
| | | | | | | | Mean | 488 | |
| | | | | | | | Median | 365 | |
| | | | | | | | Stdev | 419.3 | |

| | |
|---|---|
| **3%** | Average Fraction Step 8.4.5.g |
| **DCGL$_{SO}$** | |
| **0.7** | mrem SU Dose Contribution Step 8.4.6 |
| **mrem** | |

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

Instrument used for FSS Static Measurements:

| | | | | | |
|---|---|---|---|---|---|
| | | 08/14/2013 | | Survey # 3063 C 130814 | |
| Ludlum 2360/43-89 "D" | | | | | |
| Detector Area (A) = | 125 $cm^2$ | ave. ambient bkg = ($\alpha + \beta$) | 253 cpm | weighted eff ($\varepsilon_w$)= | 0.08000 |
| Ludlum 2360/43-89 "B" | | | | | |
| Detector Area (A) = | 125 $cm^2$ | ave. ambient bkg = ($\alpha + \beta$) | 250 cpm | weighted eff ($\varepsilon_w$)= | 0.08750 |
| | | 08/14/2013 | | Survey # 3064 C 130814 | |
| Ludlum 2360/43-89 "D" | | | | | |
| Detector Area (A) = | 125 $cm^2$ | ave. ambient bkg = ($\alpha + \beta$) | 354 cpm | weighted eff ($\varepsilon_w$)= | 0.08000 |
| | | 08/14/2013 | | Survey # 3065 C 130814 | |
| Ludlum 2360/43-89 "D" | | | | | |
| Detector Area (A) = | 125 $cm^2$ | ave. ambient bkg = ($\alpha + \beta$) | 354 cpm | weighted eff ($\varepsilon_w$)= | 0.08000 |
| | | 08/14/2013 | | Survey # 3066 C 130814 | |
| Ludlum 2360/43-89 "D" | | | | | |
| Detector Area (A) = | 125 $cm^2$ | ave. ambient bkg = ($\alpha + \beta$) | 379 cpm | weighted eff ($\varepsilon_w$)= | 0.08000 |
| | | 08/14/2013 | | Survey # 3084 C 130814 | |
| Ludlum 2360/43-89 "D" | | | | | |
| Detector Area (A) = | 125 $cm^2$ | ave. ambient bkg = ($\alpha + \beta$) | 354 cpm | weighted eff ($\varepsilon_w$)= | 0.08000 |
| TSC ($dpm/100cm^2$) = | (gcpm-bkg) / ($\varepsilon_w$ * ($A_{det}$/100 $cm^2$)) | | | | |
| DCGL (structures) = | 18,925 $dpm/100\ cm^2$ | | | | |

## Removable Data Evaluation

All removable measurements less than MDA, see FSS Survey Documentation for results.

| Sign Test | | | | | |
|---|---|---|---|---|---|
| **SAMPLE ID** | **SAMPLE ID** | **Gross TSC Step 8.5.4.a** | **Gross TSC / Adj. Gross DCGL ($W_s$) Step 8.5.4.b** | **Difference (1-$W_s$) Step 8.5.4.d** | **Corrected Difference Step 8.5.4.e** |
| B05-02-01-S-O-S-00 | Footer Section 1 | 850 | 0.045 | 0.955 | 0.955 |
| B05-02-02-S-O-S-00 | Footer Section 2 | 750 | 0.040 | 0.960 | 0.960 |
| B05-02-03-S-O-S-00 | Footer Section 3 | 650 | 0.034 | 0.966 | 0.966 |
| B05-02-04-S-O-S-00 | Footer Section 4 | 1270 | 0.067 | 0.933 | 0.933 |
| B05-02-05-S-O-S-00 | Footer Section 5 | 790 | 0.042 | 0.958 | 0.958 |
| B05-02-06-S-O-S-00 | Footer Section 6 | 1050 | 0.055 | 0.945 | 0.945 |
| B05-02-07-S-O-S-00 | Footer Section 7 | 760 | 0.040 | 0.960 | 0.960 |
| B05-02-08-S-O-S-00 | Footer Section 8 | 1280 | 0.068 | 0.932 | 0.932 |
| B05-02-09-S-O-S-00 | Footer Section 9 | 970 | 0.051 | 0.949 | 0.949 |
| B05-02-10-S-O-S-00 | Footer Section 10 | 1110 | 0.059 | 0.941 | 0.941 |
| B05-02-11-S-O-S-00 | Footer Section 11 | 1020 | 0.054 | 0.946 | 0.946 |
| B05-02-12-S-O-S-00 | Footer Section 12 | 990 | 0.052 | 0.948 | 0.948 |
| B05-02-13-S-O-S-00 | Footer Section 13 | 940 | 0.050 | 0.950 | 0.950 |
| B05-02-14-S-O-S-00 | Footer Section 14 | 1020 | 0.054 | 0.946 | 0.946 |
| B05-02-15-S-O-S-00 | Footer Section 15 | 1190 | 0.063 | 0.937 | 0.937 |
| B05-02-16-S-O-S-00 | Footer Section 16 | 0 | 0.000 | 1.000 | 1.000 |
| B05-02-17-S-O-S-00 | Footer Section 17 | 0 | 0.000 | 1.000 | 1.000 |
| B05-02-18-S-O-S-00 | Footer Section 18 | 55 | 0.003 | 0.997 | 0.997 |
| B05-02-19-S-O-S-00 | Footer Section 19 | 146 | 0.008 | 0.992 | 0.992 |
| B05-02-20-S-O-S-00 | Footer Section 20 | 82 | 0.004 | 0.996 | 0.996 |
| B05-02-21-S-O-S-00 | Footer Section 21 | 128 | 0.007 | 0.993 | 0.993 |
| B05-02-22-S-O-S-00 | Footer Section 22 | 192 | 0.010 | 0.990 | 0.990 |
| B05-02-23-S-O-S-00 | Footer Section 23 | 165 | 0.009 | 0.991 | 0.991 |
| B05-02-24-S-O-S-00 | Footer Section 24 | 393 | 0.021 | 0.979 | 0.979 |
| B05-02-25-S-O-S-00 | Footer Section 25 | 0 | 0.000 | 1.000 | 1.000 |
| B05-02-26-S-O-S-00 | Footer Section 26 | 18 | 0.001 | 0.999 | 0.999 |
| B05-02-27-S-O-S-00 | Footer Section 27 | 0 | 0.000 | 1.000 | 1.000 |
| B05-02-28-S-O-S-00 | Footer Section 28 | 283 | 0.015 | 0.985 | 0.985 |
| B05-02-29-S-O-S-00 | Footer Section 29 | 192 | 0.010 | 0.990 | 0.990 |
| B05-02-30-S-O-S-00 | Footer Section 30 | 201 | 0.011 | 0.989 | 0.989 |
| B05-02-31-S-O-S-00 | Ramp Footer Section 1 | 1140 | 0.060 | 0.940 | 0.940 |
| B05-02-32-S-O-S-00 | Ramp Footer Section 2 | 760 | 0.040 | 0.960 | 0.960 |
| B05-02-33-S-O-S-00 | Ramp Footer Section 3 | 0 | 0.000 | 1.000 | 1.000 |
| B05-02-34-S-O-S-00 | Ramp Footer Section 4 | 160 | 0.008 | 0.992 | 0.992 |
| B05-02-35-S-O-S-00 | Ramp Footer Section 5 | 320 | 0.017 | 0.983 | 0.983 |
| B05-02-36-S-O-S-00 | Ramp Footer Section 6 | 370 | 0.020 | 0.980 | 0.980 |
| B05-02-37-S-O-S-00 | Ramp Footer Section 7 | 910 | 0.048 | 0.952 | 0.952 |
| B05-02-38-S-O-S-00 | Drain Basin Section 1 | 330 | 0.017 | 0.983 | 0.983 |
| B05-02-39-S-O-S-00 | Drain Basin Section 2 | 360 | 0.019 | 0.981 | 0.981 |
| B05-02-40-S-O-S-00 | Drain Basin Section 3 | 0 | 0.000 | 1.000 | 1.000 |
| B05-02-41-S-O-S-00 | Drain Basin Section 4 | 180 | 0.010 | 0.990 | 0.990 |
| B05-02-42-S-O-S-00 | Drain Basin Section 5 | 0 | 0.000 | 1.000 | 1.000 |
| B05-02-43-S-O-S-00 | Small Junction Box | 0 | 0.000 | 1.000 | 1.000 |
| B05-02-44-S-O-S-00 | Metal Storm Drain Pipe Ext 1 | 490 | 0.026 | 0.974 | 0.974 |
| B05-02-45-S-O-S-00 | Metal Storm Drain Pipe Ext 2 | 460 | 0.024 | 0.976 | 0.976 |
| B05-02-46-S-O-S-00 | Metal Storm Drain Pipe Ext 3 | 700 | 0.037 | 0.963 | 0.963 |
| B05-02-47-S-O-S-00 | Metal Storm Drain Pipe Ext 4 | 300 | 0.016 | 0.984 | 0.984 |
| B05-02-48-S-O-S-00 | Metal Storm Drain Pipe Int. | 460 | 0.024 | 0.976 | 0.976 |
| | | | | **Number of Positive Differences (S+)** | 48 |
| | | | | **Sign Test Critical Value (MARSSIM Table I-3)** | **18** |

**TEST:** **PASS**

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

$\alpha = 0.05$

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