Appendix C

Unistrut Result Assessment

FirstEnergy

SNEC CALCULATION COVER SHEET

CALCULATION DESCRIPTION

Calculation Number	Revision Number	Effective Date	Page Number
E900-05-029	0	5/16/05	1 of 4

Subject

Assessment of CV Tunnel Unistrut

Question 1 - Is this calculation defined as "In QA Scope"? Refer to definition 3.5. Yes ☒ No ☐

Question 2 - Is this calculation defined as a "Design Calculation"? Refer to definitions 3.2 and 3.3. Yes ☐ No ☒

NOTES: If a "Yes" answer is obtained for Question 1, the calculation must meet the requirements of the SNEC Facility Decommissioning Quality Assurance Plan. If a "Yes" answer is obtained for Question 2, the Calculation Originator's immediate supervisor should not review the calculation as the Technical Reviewer.

DESCRIPTION OF REVISION

APPROVAL SIGNATURES

Calculation Originator	B. Brosey/ B. Brosey	Date	5/11/05
Technical Reviewer	W. Cooper/	Date	5/16/05
SRO Review	A. Paynter/	Date	16 May 2005
Additional Review		Date	
		Date	

1.0 PURPOSE

1.1 The purpose of this calculation is to review results from the CV Tunnel Unistrut survey work. This Class 1 structural material survey design is found in SNEC calculation E900-04-004 (**Reference 3.1**). Static measurement survey results were collected and summarized under SR-0115 (**Reference 3.2**) (see survey summary in **Attachment 1-1** to **1-4**). These results were originally assessed by SNEC personnel and reviewed by SNEC contractor "CoPhysics" via e-mail transmittal (see **Attachment 2-1**). However, the original assessment was not written up in the form of a calculation IAW the requirements of the SNEC LTP. This calculation serves to more properly complete the documentation of this survey work.

2.0 SUMMARY OF RESULTS

2.1 Data Quality Objectives/Design Parameters for Survey Unit SS22-5 (CV Tunnel Unistrut)

DQO and other survey parameters are provided in Table 1 below.

Table 1, DQO/Design Parameters/Results

CV Tunnel Section	North Wall	South Wall	Ceiling
Design Calculation No. (SD)	E900-04-004	E900-04-004	E900-04-004
Survey Unit Classification	Class 1	Class 1	Class 1
Survey Coverage	100% (static coverage)	100% (static coverage)	100% (static coverage)
Total Length of Unistrut (feet)	~70.5 linear feet (N. Wall, S. Wall & Ceiling combined)		
Survey Unit Area (m^2)	~6.1 square meters (all three surface areas combined)		
Statistical Test	NR	NR	NR
Decision Error	N/A	N/A	N/A
LBGR	N/A	N/A	N/A
Relative Shift	N/A	N/A	N/A
Maximum dpm/100 cm^2 (Cs-137)	3,430	5,980	4,410
No. of Static Measurements	27*	32*	20*
Gross Activity DCGLw (dpm/100 cm^2)	27,479 (27,250 - Cs-137)		
Admin. G.A. Limit DCGLw (dpm/100 cm^2)	20,609 (20,438 - Cs-137)		
Cs-137 % of Total Mix	99.2%		
Estimate of Static MDC (Cs-137 dpm/100 cm^2)	SD estimate = 2,215 (assumed 132 cpm bkgnd & CF of 176,080 cpm/mR/h – see SD)		
Actual Static MDC (Cs-137 dpm/100 cm^2)	1,916 (using actual bkgnd of 91 cpm & CF of 209,862 cpm/mR/h)		
Background Count Time (min.)	10 minutes		
Static Point Count Time (min.)	2 minutes		
Survey Instrument Type	L2350-1 with 44-10 NaI (w)	L2350-1 with 44-10 NaI (w)	L2350-1 with 44-10 NaI (w)
Survey Instrument(s) S/N & (cpm/mR/h)	117566/185852 (209,862)	117566/185852 (209,862)	117566/185852 (209,862)
Survey Request No.	SR-0115	SR-0115	SR-0115

*Over-lap between measurement points resulted in more measurements than the total number of linear feet of Unistrut.

2.1.1 Actual background values measured in the CV Tunnel are provided in Table 2. These values are lower then the original SD planning value used, and therefore provide a lower MDCstatic value when combined with the actual NaI survey instrument conversion efficiency of 209,862 cpm/mR/h (see **Attachment 3-1** to **3-2**). See also **Attachment 4-1** to **4-2** and **Reference 3.1**.

Table 2, CV Tunnel Background Values

Static Measurement Designation	Location	Measurement Results (cpm)	Ten (10) Minute Count
BKG 1	North Wall	85.4	854
BKG 2	North Wall	91.4	914
BKG 3	North Wall	101.2	1012
	MEAN=>	***92.7***	
	STDEV=>	***8.0***	
BKG 4	South Wall	88.8	888
BKG 5	South Wall	96.7	967
BKG 6	South Wall	88.4	884
	MEAN=>	***91.3***	
	STDEV=>	***4.7***	
BKG 7	Ceiling	100.8	1008
BKG 8	Ceiling	89.2	892
BKG 9	Ceiling	87.5	875
	MEAN=>	***92.5***	
	STDEV=>	***7.2***	

2.1.2 Another small change to the original calculated values is provided by using the non build-up value from the original MicroShield computer code output (**Reference 3.1**). Even though this is a conservative change, it may not be the appropriate value if most of the activity is on the exterior exposed surface of each one foot section of Unistrut where there is no attenuation impact. However, using this value provides an upper bounding limit for this estimate.

2.2 Conclusion

Measurements and smear sampling efforts indicate that surface concentrations in dpm/100 cm^2 when averaged over one foot lengths of Unistrut, are well below the allowable limit for this survey unit (see **Attachment 1-1** to **1-4** for smear results). Static measurement results are calculated and presented in **Attachment 5-1** through **5-3**. A worst case scenario is prepared by comparing the 2 sigma plus the mean concentration to the actual DCGLw value. These percent of DCGLw values are listed in the last column of each data sheet (**Attachment 5-1** to **5-3**). The maximum concentration calculated for each of the three surfaces is provided in Table 1. No statistical testing is required since all results are well below the effective DCGLw.

3.0 REFERENCES

3.1 SNEC Calculation No. E900-04-004, "CV Tunnel Unistrut Survey Design", 4/15/04.

3.2 Survey Request SR-0115, "CV Tunnel Unistrut", 4/27/04.

3.3 MicroShield, Computer Radiation Shielding Code, Version 5.05-00121, Grove Engineering.

3.4 Plan SNEC Facility License Termination Plan.

3.5 SNEC Procedure E900-IMP-4500.59, "Final Site Survey Planning and DQA".

3.6 NUREG-1507, "Minimum Detectable Concentrations With Typical Radiation Survey Instruments for Various Contaminants and Field Conditions," June 1998.

3.7 NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual", August, 2000.

3.8 Microsoft Excel 97, Microsoft Corporation Inc., SR-2, 1985-1997.

4.0 ASSUMPTIONS AND BASIC DATA

4.1 For purposes of this calculation, it is assumed each Unistrut section is one foot in length and essentially free of concrete fill materials.

4.2 For purposes of this calculation, it is assumed that the contamination is uniformly spread through the volume provided by one foot segments of Unistrut.

4.3 All planning calculations are provided in the SD **(Reference 3.1)**.

5.0 CALCULATIONS

5.1 All calculations are performed internal to applicable computer codes or within an Excel spreadsheet.

6.0 APPENDICES

6.1 **Attachment 1-1** to **1-4**, is a copy of the SR-0115 close-out/summary results for the CV Tunnel Unistrut measurements.

6.2 **Attachment 2-1**, is the response from CoPhysics corporation regarding the math accuracy and appropriateness of the Attachment 5-1 to 5-3 data assessment.

6.3 **Attachment 3-1** to **3-2**, is the calibration sheets for the actual instrument used for these measurements.

6.4 **Attachment 4-1** to **4-2**, is a re-calculation of the Static MDC using a more correct set of input values.

6.5 **Attachment 5-1** to **5-3**, is the calculated results for one foot sections of Unistrut.

6.6 **Attachment 6-1** to **6-7**, is the spreadsheet data from Attachment 5 and Table 2 with exposed formulas, hidden columns and rows.

SURVEY REQUEST CONTINUATION SHEET			
SR NUMBER	SR-115	AREA/LOCATION	CV Tunnel Uni-strut
SPECIFIC SAMPLING / SURVEY INSTRUCTIONS OR COMMENTS			

RESULTS SUMMARY FOR SR-115

SR-115 was issued to perform FSS of the embedded uni-strut in the CV Tunnel. There is approx. 70.5 linear feet of uni-strut. The survey unit covered under this SR is SS22-5. The SR required the following radiological measurements:

- Static Measurements Using a Sodium Iodide Detector – perform both a group of background counts (10-minute) and static measurements on the uni-strut spaced in 1-foot increments. These measurements shall be taken at a distance of 2 inches for 2 minutes.
- Loose Surface Contamination (Smear Survey) – obtain at least one smear sample from each section of uni-strut following the static measurement.
- QC Repeat Measurements – as a minimum, 5% of all measurements and sampling will be re-performed and analyzed using identical methodology and IAW E900-IMP-4520.04.

1. Summary of Static Measurements

A. Background Measurements

Nine background static measurements were obtained (three measurements on both North and South Walls and the Ceiling).

Results: The background measurements ranged from 85.4 to 101.2 cpm. The following table lists the static measurement results:

Static Measurement Designation	Location	Measurement Results (cpm)
BKG 1	North Wall	85.4
BKG 2	North Wall	91.4
BKG 3	North Wall	101.2
BKG 4	South Wall	88.8
BKG 5	South Wall	96.7
BKG 6	South Wall	88.4
BKG 7	Ceiling	100.8
BKG 8	Ceiling	89.2
BKG 9	Ceiling	87.5
MEAN		92.2
2 SIGMA		11.8
MAX		101.2
MIN		85.4
MEDIAN		89.2

ATTACHMENT 1 . 1

SURVEY REQUEST CONTINUATION SHEET			
SR NUMBER	SR-115	AREA/LOCATION	CV Tunnel Uni-strut
SPECIFIC SAMPLING / SURVEY INSTRUCTIONS OR COMMENTS			

B. Uni-strut Measurements

Eighty-one static measurements were obtained throughout the tunnel.

Results: The static measurements ranged from 92.5 to 172 cpm.

The following table lists the static measurement results:

Static Measurement Designation	Location	Measurement Results (cpm)	Static Measurement Designation	Location	Measurement Results (cpm)
FP-1	North Wall - Lower	120	FP-42	South Wall	136
FP-2	North Wall - Lower	103	FP-43	South Wall	155
FP-3	North Wall - Upper	106	FP-44	South Wall	129
FP-4	North Wall - Upper	107	FP-45	South Wall	129
FP-5	North Wall - Lower	125	FP-46	South Wall	148
FP-6	North Wall - Lower	125	FP-47	South Wall	147
FP-7	North Wall - Upper	108	FP-48	South Wall	142
FP-8	North Wall - Lower	116	FP-49	South Wall	151
FP-9	North Wall - Lower	127	FP-50	South Wall	135
FP-10	North Wall - Upper	117	FP-51	South Wall	136
FP-11	North Wall - Upper	139	FP-52	South Wall	172
FP-12	North Wall - Lower	126	FP-53	South Wall	157
FP-13	North Wall - Lower	118	FP-54	South Wall	166
FP-14	North Wall - Upper	119	FP-55	South Wall	141
FP-15	North Wall - Upper	135	FP-56	South Wall	150
FP-16	North Wall - Lower	134	FP-57	South Wall	171
FP-17	North Wall - Lower	116	FP-58	South Wall	150
FP-18	North Wall - Upper	119	FP-59	South Wall	147
FP-19	North Wall - Upper	114	FP-60	Ceiling	131
FP-20	North Wall - Lower	139	FP-61	Ceiling	126
FP-21	North Wall - Lower	122	FP-62	Ceiling	117
FP-22	North Wall - Upper	118	FP-63	Ceiling	122
FP-23	North Wall - Upper	110	FP-64	Ceiling	139
FP-24	North Wall - Lower	119	FP-65	Ceiling	146
FP-25	North Wall - Lower	126	FP-66	Ceiling	143
FP-26	North Wall - Upper	105	FP-67	Ceiling	152
FP-27	North Wall - Upper	110	FP-68	Ceiling	97
FP-28	South Wall	150	FP-69	Ceiling	106
FP-29	South Wall	132	FP-70	Ceiling	110
FP-30	South Wall	135	FP-71	Ceiling	98
FP-31	South Wall	130	FP-72	Ceiling	115
FP-32	South Wall	157	FP-73	Ceiling	97
FP-33	South Wall	127	FP-74	Ceiling	97

ATTACHMENT 1 . 2

SURVEY REQUEST CONTINUATION SHEET			
SR NUMBER	SR-115	AREA/LOCATION	CV Tunnel Uni-strut
SPECIFIC SAMPLING / SURVEY INSTRUCTIONS OR COMMENTS			

FP-34	South Wall	135	FP-75	Ceiling	102
FP-35	South Wall	130	FP-76	Ceiling	128
FP-36	South Wall	121	FP-77	Ceiling	115
FP-37	South Wall	143	FP-78	Ceiling	121
FP-38	South Wall	153	FP-79	Ceiling	120
FP-39	South Wall	136	FP-80	North Wall - Upper	97.5
FP-40	South Wall	142	FP-81	South Wall	92.5
FP-41	South Wall	130			
MEAN		127.9			
2 SIGMA		36.4			
MAX		172			
MIN		92.5			
MEDIAN		127			

2. Smear Survey

Twenty-six smears were taken of various sections of uni-strut throughout the CV Tunnel.

Results: All smears indicated activity <MDC (dpm), (Beta-gamma-159 dpm and Alpha-11.0 dpm).

3. Quality Control (QC) Measurements and Comparisons

- **Repeat Static Measurement/Smear Sampling** was performed and met the applicable acceptance criteria established in Section 4.6 of E900-IMP-4520.04

4. Exceptions and Discrepancies: none

David Sarge (GRCS) _____ Date 5/6/04

ATTACHMENT 1 . 3

EXHIBIT 10

SURVEY DATA VERIFICATION AND VALIDATION FORM

Survey Unit Number	SS22-5	SR Number	115

Check the appropriate answer for each question below.	Yes	No	N/A
1. Was each radiological instrument capable of detecting the radiation of interest at or below the investigation level? If not, acceptable compensatory measures have been taken.	X		
2. Did each radiological instrument have a current calibration and were radioactive sources used for calibration traceable to recognized standards or calibration organizations?	X		
3. Was each radiological instrument source checked daily (before and, where required, after use)?	X		
4. Were survey team personnel properly trained in the applicable survey techniques, and was the training adequately documented?	X		
5. Were the MDCs and the assumptions used to develop them appropriate for the instruments and survey methods used to collect the data?	X		
6. Were the survey methods appropriate for the media and types of radiation being measured?	X		
7. If special measurement methods were used to collect data, were they properly documented in accordance with approved site procedures?			X
8. Were the samples adequately tracked from their collection point (Field Sample Collection Sheet) and through the analysis process in accordance with the SNEC Sample Chain of Custody Program?	X		
9. Were the data collected in accordance with the Survey Design Package and Survey Request?	X		
10. Were the data representative of current site conditions?	X		
11. If Survey Request investigation levels were exceeded, was appropriate action taken?			X
12. Were at least 5% of all survey and/or sample points randomly re-sampled and/or re-surveyed using identical methodology contained in the Survey Request per Section 4.6.2?	X		
13. Were the samples analyzed in accordance with requirements contained in the Survey Request Sample Analysis Sheet?	X		
14. Did all sample analyses meet the MDA requirements contained in the Survey Request Sample Analysis Sheet and Step 4.5.2 (10% of the applicable DCGLs)?			X
15. Were at least 5% of FSS samples obtained under the Survey Request re-analyzed? Were replicate analysis calculations performed per Section 4.6.3?	X		
16. Were documented investigations performed for all survey and/or sample QA/QC non-agreements (Questions 12 & 15 above) and were corrective actions implemented as necessary?			X
17. Has the GRCS summary of surveying/sampling results been completed per Step 4.7.3?	X		

NOTES: If the question does not apply to the survey package, check the N/A (not applicable) box. If a "No" answer is obtained above, the GRCS should initiate corrective action in accordance with site procedures. Document actions taken and/or justifications in the "Comments" section below. Attach additional sheets as necessary.

GRCS (print/sign)	D. Sarge /	Date	5/6/04

ATTACHMENT 1 . 4

CoPhysics Corporation
1242 Route 208, Monroe, NY 10950
845-783-4402 800-641-7444
Facsimile: 845-783-7191
www.cophysics.com

May 18, 2004

Mr. Barry Brosey
GPU Nuclear Corp.
Three Mile Island
Rt 441 South
Middletown, Pa. 17057

Subject: Review of Unistrut Calculations

Dear Barry:

I have reviewed your calculations contained in the spreadsheet you sent via email on 5/14/04. All calculations and methods are correct. I see in the column labeled "Estimated 2s Uncertainty" that an extra 10% uncertainty was added. I assume this was for calibration, geometry and other uncertainties. Perhaps this should be footnoted. Also, in the column labeled "Max % of Limit", I recommend that additional description be added so that the reader understands that this is the result plus 2-sigma. Perhaps: "Max % of Limit at 2-sigma". Or, add a footnote to that effect.

If you want to discuss the calculations further, please call me anytime.

Best regards,

Theodore E Rahon

Theodore E. Rahon, Ph.D., CHP
President

encl.

FINAL NOTE: Suggested changes as noted above incorporated into previous results 5/20/04 by BHB.

ATTACHMENT 2.1

0 **Duratek**™

ORIGINAL

CALIBRATION CERTIFICATE

Duratek Instrument Services
628 Gallaher Road
Kingston, TN 37763
Phone: (865) 376-8337
Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CUSTOMER INFORMATION		INSTRUMENT INFORMATION	
Customer Name: Duratek Inc. - Instrument Services Facility		Manufacturer: Ludlum	
Address: 628 Gallaher Road, Kingston, TN 37763		Model: 2350-1	Serial Number: 117566
Contact Name: Thomas Scott		Probe: N/A	Serial Number: N/A
Customer Purchase Order Number: N/A	Work Order Number: 2004-01573	Calibration Method: Electronic and Source	

INSTRUMENT CALIBRATION INFORMATION

Instrument Range (CPM)	Calibration Standard Value (CPM)	Instrument Response		Comments
		Before Calibration	After Calibration	Calibrated in accordance with IN-WI-239 Rev 0
400	400	400	400	Pulser: 101500 Cal Due: 09/18/04
4,000	4,000	4,001	4,001	D-814: 2525 Cal Due: 10/22/04
40,000	40,000	40,038	40,038	Psychron: 7480 Cal Due: 02/10/05
400,000	400,000	403,874	403,874	EPPROM Version: 37122N21
HV Cal Values (M2350 HV Entry)	Desired HV (Voltmeter) (VDC)	As Found (VDC)	As Left (VDC)	
600	600	605	605	Temp: 22.6°C
1,200	1,200	1,202	1,202	Pressure: 739 mmHg
1,800	1,800	1,796	1,796	Humidity: 40%
Parameter	Tolerance (±10%)	As Found	As Left	
Threshold T = 100	10 ± (9 to 11) mVDC	11.7	10.6	Geotropism: SAT ACK/Scroll: SAT
Threshold T = 500	50 ± (45 to 55) mVDC	52.3	46	BAT>4.5: SAT Volume: SAT
Threshold T =1000	100 ± (90 to 110) mVDC	105	95	Count: SAT Audio Divide: SAT
Window Width W = 100	10 ± (9 to 11) mVDC	9.4	9	Alarms: SAT Lamp: SAT
Display-to-mV ratio:	100 to 10 mV (using 10ft cable)			Overload Test: SAT

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated By: Mike Paul	Reviewed By: Thomas F. Scott	Date: 4-9-04
Calibration Date: 04/09/04	Calibration Due: 04/09/05	

ATTACHMENT 3 . 1

ORIGINAL

LUDLUM MODEL 44-10 HIGH VOLTAGE PLATEAU DATA SHEET

Serial Number: 185852

HIGH VOLTAGE	SOURCE (6 second count)
688	11,166
689	13,937
690	15,989
691	16,900
692	18,020
693 (SET)	18,537
694	18,302
695	17,261
696	16,207
697	15,508

Detector plateau performed using Cs137 #019454 5uCi nominal value button source

Detector Parameters for Peaking

Parameter	Setting	Setting
Threshold (10mV/100)	642	612
Window (On)	40	100
High Voltage	**693V**	**693V**
CPM/mR/Hr	115,106	209,862
Background CPM	39	76

CPM/mR/Hr conversion performed using Cs137 #049711 Certification Date: 04/09/04

FWHM values performed with Cs137 #019454 (Threshold = 642 and Window = 40)

FWHM = $\frac{678 - 590}{662} \times 100\%$	13.3%

Detector peaked for Cs^{137} using Ludlum peaking procedure and threshold setting of 642 and window setting of 40. As left threshold setting is 612 and window at 100 as requested by John Duskin. 2350-1 #117566 calibration due 04/09/05 used for peaking 44-10 detector.

Performed By: Mike Paul Date: 4/13/04

Reviewed By: [illegible] Date: 4-13-04

ATTACHMENT 3.2

Nal Static Measurement MDC Calculation [redacted]

Use when Background Count Time ≠ Sample Count Time

$B := 913$ $\quad T_{SB} := 2$ $\quad T_B := 10$ $\quad MSO := 9.296 \cdot 10^{0}$ $\quad CF := 209862$

$Ci := 5.64 \cdot 10^{-4}$

$K := CF \cdot \frac{MSO}{\left(Ci \cdot 2.22 \cdot 10^{12}\right)}$ $\quad K = 1.558 \cdot 10^{-3}$ $\quad Mass := 998.83$

$Area := 866$

$R_B := \frac{B}{T_B}$ *Background counting rate*

$L_C := 2.33 \cdot \sqrt{B}$ *Calculation of critical level (page 6-34 of MARSSIM)*

$L_C = 70.4$ *Critical level*

$L_C + B = 983.4$ *Any count above this value should be regarded at being greater than background (page 6-37 of MARSSIM).*

$L_D := 3 + 4.65 \cdot \sqrt{B}$

$L_D = 143.504$ *Detection limit*

$$MDC := \frac{\left[3 + 3.29 \cdot \sqrt{R_B \cdot T_{SB} \cdot \left(1 + \frac{T_{SB}}{T_B}\right)}\right]}{K \cdot T_{SB}}$$

$MDC = 1.659 \cdot 10^{4}$ *dpm* $\quad \frac{MDC \cdot 100}{Area} = 1.916 \cdot 10^{3}$ $\frac{dpm}{100}\, cm^{2}$

$\frac{MDC}{2.22} = 7.473 \cdot 10^{3}$ *Results in pCi* $\quad \frac{\left(\frac{MDC}{2.22}\right)}{Mass} = 7.482$ $\frac{pCi}{g}$

ATTACHMENT 4.1

where:

Area = area in square centimeters
B = background count in time T_B (counts)
CF = conversion factor for instrument calibration (cpm/mR/h)
K = instrument efficiency and other correction factors used to convert to appropriate units
L_C = critical level (counts)
L_D = detection limit (counts)
Mass = modeled volume in grams
MDC = minimum detectable concentration (dpm or pCi)
MSO = MicroShield output in mR/h per uCi/cc or uCi/cm^2
R_B = background count rate (cpm)
T_{SB} = sample count time (in minutes)
T_B = background count time (in minutes)

LIMIT FOR CV TUNNEL = 20,438 dpm/100 cm^2 (Cs-137 A.L.)

Modeling Uncertainty Assumed to be ± 10%

Instrument Conversion Efficiency=>	209,862	cpm/mR/h

Curies In Model=>	5.64E-04

	ID No.	Location	cpm	ncpm		Uncertainty ncpm	Uncertainty as %	mR/h	Curies	pCi	pCi/g	dpm	dpm/100 cm^2		Estimated 2σ Uncertainty	Max % of Limit @ 2σ
1	FP-28	South Wall	150	58.7	±	9.2	15.6%	2.80E-04	1.70E-08	1.70E+04	1.70E+01	3.77E+04	4.35E+03	±	37.1%	29%
2	FP-29	South Wall	132	40.2	±	8.7	21.5%	1.92E-04	1.16E-08	1.16E+04	1.16E+01	2.58E+04	2.98E+03	±	47.5%	21%
3	FP-30	South Wall	135	43.7	±	8.8	20.0%	2.08E-04	1.26E-08	1.26E+04	1.26E+01	2.80E+04	3.24E+03	±	44.8%	23%
4	FP-31	South Wall	130	38.7	±	8.6	22.2%	1.84E-04	1.12E-08	1.12E+04	1.12E+01	2.48E+04	2.87E+03	±	48.8%	21%
5	FP-32	South Wall	157	65.7	±	9.4	14.2%	3.13E-04	1.90E-08	1.90E+04	1.90E+01	4.22E+04	4.87E+03	±	34.8%	32%
6	FP-33	South Wall	127	35.7	±	8.5	23.9%	1.70E-04	1.03E-08	1.03E+04	1.03E+01	2.29E+04	2.65E+03	±	51.8%	20%
7	FP-34	South Wall	135	43.2	±	8.7	20.2%	2.06E-04	1.25E-08	1.25E+04	1.25E+01	2.77E+04	3.20E+03	±	45.1%	23%
8	FP-35	South Wall	130	38.2	±	8.6	22.5%	1.82E-04	1.10E-08	1.10E+04	1.11E+01	2.45E+04	2.83E+03	±	49.2%	21%
9	FP-36	South Wall	121	29.2	±	8.3	28.5%	1.39E-04	8.44E-09	8.44E+03	8.45E+00	1.87E+04	2.16E+03	±	60.5%	17%
10	FP-37	South Wall	143	51.7	±	9.0	17.4%	2.46E-04	1.49E-08	1.49E+04	1.50E+01	3.32E+04	3.83E+03	±	40.1%	26%
11	FP-38	South Wall	153	61.7	±	9.3	15.0%	2.94E-04	1.78E-08	1.78E+04	1.79E+01	3.96E+04	4.57E+03	±	36.1%	30%
12	FP-39	South Wall	136	44.7	±	8.8	19.6%	2.13E-04	1.29E-08	1.29E+04	1.29E+01	2.87E+04	3.31E+03	±	44.1%	23%
13	FP-40	South Wall	142	50.2	±	8.9	17.8%	2.39E-04	1.45E-08	1.45E+04	1.45E+01	3.22E+04	3.72E+03	±	40.8%	26%
14	FP-41	South Wall	130	38.7	±	8.6	22.2%	1.84E-04	1.12E-08	1.12E+04	1.12E+01	2.48E+04	2.87E+03	±	48.8%	21%
15	FP-42	South Wall	136	44.7	±	8.8	19.6%	2.13E-04	1.29E-08	1.29E+04	1.29E+01	2.87E+04	3.31E+03	±	44.1%	23%
16	FP-43	South Wall	155	63.2	±	9.3	14.7%	3.01E-04	1.83E-08	1.83E+04	1.83E+01	4.06E+04	4.68E+03	±	35.6%	31%
17	FP-44	South Wall	129	37.2	±	8.6	23.0%	1.77E-04	1.08E-08	1.08E+04	1.08E+01	2.39E+04	2.76E+03	±	50.2%	20%
18	FP-45	South Wall	129	37.2	±	8.6	23.0%	1.77E-04	1.08E-08	1.08E+04	1.08E+01	2.39E+04	2.76E+03	±	50.2%	20%
19	FP-46	South Wall	148	56.2	±	9.1	16.2%	2.68E-04	1.62E-08	1.62E+04	1.63E+01	3.61E+04	4.17E+03	±	38.1%	28%
20	FP-47	South Wall	147	55.2	±	9.1	16.4%	2.63E-04	1.60E-08	1.60E+04	1.60E+01	3.54E+04	4.09E+03	±	38.5%	28%
21	FP-48	South Wall	142	50.2	±	8.9	17.8%	2.39E-04	1.45E-08	1.45E+04	1.45E+01	3.22E+04	3.72E+03	±	40.8%	26%
22	FP-49	South Wall	151	59.7	±	9.2	15.4%	2.84E-04	1.73E-08	1.73E+04	1.73E+01	3.83E+04	4.42E+03	±	36.7%	30%
23	FP-50	South Wall	135	43.7	±	8.8	20.0%	2.08E-04	1.26E-08	1.26E+04	1.26E+01	2.80E+04	3.24E+03	±	44.8%	23%
24	FP-51	South Wall	136	44.7	±	8.8	19.6%	2.13E-04	1.29E-08	1.29E+04	1.29E+01	2.87E+04	3.31E+03	±	44.1%	23%
25	FP-52	South Wall	172	80.7	±	9.8	12.1%	3.85E-04	2.33E-08	2.33E+04	2.34E+01	5.18E+04	5.98E+03	±	31.4%	38%
26	FP-53	South Wall	157	65.2	±	9.3	14.3%	3.11E-04	1.88E-08	1.88E+04	1.89E+01	4.18E+04	4.83E+03	±	35.0%	32%
27	FP-54	South Wall	166	74.2	±	9.6	12.9%	3.54E-04	2.15E-08	2.15E+04	2.15E+01	4.76E+04	5.50E+03	±	32.7%	36%
28	FP-55	South Wall	141	49.7	±	8.9	18.0%	2.37E-04	1.44E-08	1.44E+04	1.44E+01	3.19E+04	3.68E+03	±	41.1%	25%
29	FP-56	South Wall	150	58.7	±	9.2	15.6%	2.80E-04	1.70E-08	1.70E+04	1.70E+01	3.77E+04	4.35E+03	±	37.1%	29%
30	FP-57	South Wall	171	79.2	±	9.7	12.3%	3.77E-04	2.29E-08	2.29E+04	2.29E+01	5.08E+04	5.87E+03	±	31.7%	38%
31	FP-58	South Wall	150	58.7	±	9.2	15.6%	2.80E-04	1.70E-08	1.70E+04	1.70E+01	3.77E+04	4.35E+03	±	37.1%	29%
32	FP-59	South Wall	147	55.2	±	9.1	16.4%	2.63E-04	1.60E-08	1.60E+04	1.60E+01	3.54E+04	4.09E+03	±	38.5%	28%

NOTE: Max % of Limit Assumes Upper 95% C.L. Is Correct Value.

ATTACHMENT 5.1

LIMIT FOR CV TUNNEL = 20,438 dpm/100 cm^2 (Cs-137 A.L.)

Modeling Uncertainty Assumed to be ± 10%

mR/h Output of Model=>	9.30E+00

	ID No.	Location	cpm	ncpm		Uncertainty ncpm	Uncertainty as %	mR/h	pCi	dpm	dpm/100 cm^2		Estimated 2σ Uncertainty	Max % of Limit @ 2σ
1	FP-1	North Wall - Lower	120	26.8	±	4.8	17.7%	1.28E-04	7.76E+03	1.72E+04	1.99E+03	±	40.7%	14%
2	FP-2	North Wall - Lower	103	10.3	±	3.8	36.8%	4.92E-05	2.99E+03	6.63E+03	7.66E+02	±	76.2%	7%
3	FP-3	North Wall - Upper	106	13.3	±	4.0	29.9%	6.35E-05	3.85E+03	8.56E+03	9.88E+02	±	63.1%	8%
4	FP-4	North Wall - Upper	107	13.8	±	4.0	29.1%	6.59E-05	4.00E+03	8.88E+03	1.03E+03	±	61.5%	8%
5	FP-5	North Wall - Lower	125	32.3	±	5.0	15.6%	1.54E-04	9.35E+03	2.08E+04	2.40E+03	±	37.1%	16%
6	FP-6	North Wall - Lower	125	31.8	±	5.0	15.8%	1.52E-04	9.20E+03	2.04E+04	2.36E+03	±	37.3%	16%
7	FP-7	North Wall - Upper	108	14.8	±	4.1	27.5%	7.07E-05	4.29E+03	9.52E+03	1.10E+03	±	58.6%	9%
8	FP-8	North Wall - Lower	116	23.3	±	4.6	19.6%	1.11E-04	6.75E+03	1.50E+04	1.73E+03	±	44.0%	12%
9	FP-9	North Wall - Lower	127	33.8	±	5.1	15.1%	1.61E-04	9.78E+03	2.17E+04	2.51E+03	±	36.3%	17%
10	FP-10	North Wall - Upper	117	23.8	±	4.6	19.3%	1.14E-04	6.89E+03	1.53E+04	1.77E+03	±	43.5%	12%
11	FP-11	North Wall - Upper	139	46.3	±	5.7	12.3%	2.21E-04	1.34E+04	2.97E+04	3.43E+03	±	31.7%	22%
12	FP-12	North Wall - Lower	126	33.3	±	5.1	15.3%	1.59E-04	9.64E+03	2.14E+04	2.47E+03	±	36.5%	17%
13	FP-13	North Wall - Lower	118	24.8	±	4.7	18.8%	1.18E-04	7.18E+03	1.59E+04	1.84E+03	±	42.5%	13%
14	FP-14	North Wall - Upper	119	26.3	±	4.7	18.0%	1.25E-04	7.61E+03	1.69E+04	1.95E+03	±	41.2%	13%
15	FP-15	North Wall - Upper	135	41.8	±	5.5	13.1%	1.99E-04	1.21E+04	2.68E+04	3.10E+03	±	33.0%	20%
16	FP-16	North Wall - Lower	134	40.8	±	5.4	13.3%	1.95E-04	1.18E+04	2.62E+04	3.03E+03	±	33.3%	20%
17	FP-17	North Wall - Lower	116	22.8	±	4.5	19.9%	1.09E-04	6.60E+03	1.47E+04	1.69E+03	±	44.6%	12%
18	FP-18	North Wall - Upper	119	26.3	±	4.7	18.0%	1.25E-04	7.61E+03	1.69E+04	1.95E+03	±	41.2%	13%
19	FP-19	North Wall - Upper	114	21.3	±	4.5	20.9%	1.02E-04	6.17E+03	1.37E+04	1.58E+03	±	46.4%	11%
20	FP-20	North Wall - Lower	139	45.8	±	5.7	12.4%	2.18E-04	1.33E+04	2.94E+04	3.40E+03	±	31.8%	22%
21	FP-21	North Wall - Lower	122	28.8	±	4.9	16.9%	1.37E-04	8.34E+03	1.85E+04	2.14E+03	±	39.2%	15%
22	FP-22	North Wall - Upper	118	25.3	±	4.7	18.5%	1.21E-04	7.32E+03	1.63E+04	1.88E+03	±	42.0%	13%
23	FP-23	North Wall - Upper	110	16.8	±	4.2	25.0%	8.02E-05	4.87E+03	1.08E+04	1.25E+03	±	53.8%	9%
24	FP-24	North Wall - Lower	119	26.3	±	4.7	18.0%	1.25E-04	7.61E+03	1.69E+04	1.95E+03	±	41.2%	13%
25	FP-25	North Wall - Lower	126	33.3	±	5.1	15.3%	1.59E-04	9.64E+03	2.14E+04	2.47E+03	±	36.5%	17%
26	FP-26	North Wall - Upper	105	11.8	±	3.9	32.9%	5.64E-05	3.42E+03	7.59E+03	8.77E+02	±	68.8%	7%
27	FP-27	North Wall - Upper	110	17.3	±	4.2	24.4%	8.26E-05	5.01E+03	1.11E+04	1.28E+03	±	52.8%	10%

NOTE: Max % of Limit Assumes Upper 95% C.L. is Correct Value.

ATTACHMENT 5.2

LIMIT FOR CV TUNNEL = 20,438 dpm/100 cm^2 (Cs-137 A.L.)

Modeling Uncertainty Assumed to be ± 10%

Surface of 1' of Unsitrut (cm^2)=>	8.66E+02

	ID No.	Location	cpm	ncpm		Uncertainty ncpm	Uncertainty as %	mR/h	pCi	dpm	dpm/100 cm^2		Estimated 2σ Uncertainty	Max % of Limit @ 2σ
1	FP-60	Ceiling	131	38.0	±	5.3	14.0%	1.81E-04	1.10E+04	2.44E+04	2.82E+03	±	34.4%	18.5%
2	FP-61	Ceiling	126	33.5	±	5.1	15.2%	1.60E-04	9.68E+03	2.15E+04	2.48E+03	±	36.4%	16.6%
3	FP-62	Ceiling	117	24.0	±	4.6	19.2%	1.14E-04	6.94E+03	1.54E+04	1.78E+03	±	43.3%	12.5%
4	FP-63	Ceiling	122	29.0	±	4.9	16.8%	1.38E-04	8.38E+03	1.86E+04	2.15E+03	±	39.1%	14.6%
5	FP-64	Ceiling	139	46.5	±	5.7	12.3%	2.22E-04	1.34E+04	2.98E+04	3.45E+03	±	31.6%	22.2%
6	FP-65	Ceiling	146	53.5	±	6.0	11.2%	2.55E-04	1.55E+04	3.43E+04	3.96E+03	±	30.1%	25.2%
7	FP-66	Ceiling	143	50.5	±	5.9	11.6%	2.41E-04	1.46E+04	3.24E+04	3.74E+03	±	30.7%	23.9%
8	FP-67	Ceiling	152	59.5	±	6.2	10.5%	2.84E-04	1.72E+04	3.82E+04	4.41E+03	±	29.0%	27.8%
9	FP-68	Ceiling	97	4.0	±	3.4	83.9%	1.91E-05	1.16E+03	2.57E+03	2.96E+02	±	168.9%	3.9%
10	FP-69	Ceiling	106	13.5	±	4.0	29.6%	6.43E-05	3.90E+03	8.66E+03	1.00E+03	±	62.5%	8.0%
11	FP-70	Ceiling	110	17.5	±	4.2	24.2%	8.34E-05	5.06E+03	1.12E+04	1.30E+03	±	52.5%	9.7%
12	FP-71	Ceiling	98	5.0	±	3.4	68.6%	2.38E-05	1.45E+03	3.21E+03	3.71E+02	±	138.6%	4.3%
13	FP-72	Ceiling	115	22.5	±	4.5	20.1%	1.07E-04	6.50E+03	1.44E+04	1.67E+03	±	44.9%	11.8%
14	FP-73	Ceiling	97	4.5	±	3.4	75.4%	2.14E-05	1.30E+03	2.89E+03	3.34E+02	±	152.0%	4.1%
15	FP-74	Ceiling	97	4.5	±	3.4	75.4%	2.14E-05	1.30E+03	2.89E+03	3.34E+02	±	152.0%	4.1%
16	FP-75	Ceiling	102	9.0	±	3.7	41.2%	4.29E-05	2.60E+03	5.78E+03	6.67E+02	±	84.8%	6.0%
17	FP-76	Ceiling	128	35.0	±	5.2	14.8%	1.67E-04	1.01E+04	2.25E+04	2.59E+03	±	35.7%	17.2%
18	FP-77	Ceiling	115	22.5	±	4.5	20.1%	1.07E-04	6.50E+03	1.44E+04	1.67E+03	±	44.9%	11.8%
19	FP-78	Ceiling	121	28.0	±	4.8	17.2%	1.33E-04	8.09E+03	1.80E+04	2.08E+03	±	39.8%	14.2%
20	FP-79	Ceiling	120	27.5	±	4.8	17.4%	1.31E-04	7.95E+03	1.76E+04	2.04E+03	±	40.2%	14.0%

NOTE: Max % of Limit Assumes Upper 95% C.L. Is Correct Value.

RAW DATA

	A	B	C	D
1	Static Measurement Designation	Location	Measurement Results (cpm)	Ten (10) Minute Count
2	BKG 1	North Wall	85.4	=C2*10
3	BKG 2	North Wall	91.4	=C3*10
4	BKG 3	North Wall	101.2	=C4*10
5		*MEAN=>*	*=AVERAGE(C2:C4)*	
6		*STDEV=>*	*=STDEV(C2:C4)*	
7	BKG 4	South Wall	88.8	=C7*10
8	BKG 5	South Wall	96.7	=C8*10
9	BKG 6	South Wall	88.4	=C9*10
10		*MEAN=>*	*=AVERAGE(C7:C9)*	
11		*STDEV=>*	*=STDEV(C7:C9)*	
12	BKG 7	Ceiling	100.8	=C12*10
13	BKG 8	Ceiling	89.2	=C13*10
14	BKG 9	Ceiling	87.5	=C14*10
15		*MEAN=>*	*=AVERAGE(C12:C14)*	
16		*STDEV=>*	*=STDEV(C12:C14)*	

ATTACHMENT 6 - 1

	A	B	C	D	E	F	G	H
1								
2				Weight of 1' of Unistrut (g)=>	=2.202*453.6			
3		**LIMIT FOR CV TUNNEL = 20,438 dpm/100 cm^2 (Cs-137 A.L.)**						
4		Modeling Uncertainty Assumed to be ± 10%						
5					Instrument Conversion Efficiency=>	209862		cpm/mR/h
6								
7							Uncertainty	
8		ID No.	Location	cpm	ncpm		ncpm	as %
9	1	FP-28	South Wall	150	=D9-('Raw Data'!$C$10)	±	=(((D9*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G9/E9
10	2	FP-29	South Wall	131.5	=D10-('Raw Data'!$C$10)	±	=(((D10*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G10/E10
11	3	FP-30	South Wall	135	=D11-('Raw Data'!$C$10)	±	=(((D11*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G11/E11
12	4	FP-31	South Wall	130	=D12-('Raw Data'!$C$10)	±	=(((D12*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G12/E12
13	5	FP-32	South Wall	157	=D13-('Raw Data'!$C$10)	±	=(((D13*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G13/E13
14	6	FP-33	South Wall	127	=D14-('Raw Data'!$C$10)	±	=(((D14*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G14/E14
15	7	FP-34	South Wall	134.5	=D15-('Raw Data'!$C$10)	±	=(((D15*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G15/E15
16	8	FP-35	South Wall	129.5	=D16-('Raw Data'!$C$10)	±	=(((D16*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G16/E16
17	9	FP-36	South Wall	120.5	=D17-('Raw Data'!$C$10)	±	=(((D17*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G17/E17
18	10	FP-37	South Wall	143	=D18-('Raw Data'!$C$10)	±	=(((D18*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G18/E18
19	11	FP-38	South Wall	153	=D19-('Raw Data'!$C$10)	±	=(((D19*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G19/E19
20	12	FP-39	South Wall	136	=D20-('Raw Data'!$C$10)	±	=(((D20*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G20/E20
21	13	FP-40	South Wall	141.5	=D21-('Raw Data'!$C$10)	±	=(((D21*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G21/E21
22	14	FP-41	South Wall	130	=D22-('Raw Data'!$C$10)	±	=(((D22*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G22/E22
23	15	FP-42	South Wall	136	=D23-('Raw Data'!$C$10)	±	=(((D23*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G23/E23
24	16	FP-43	South Wall	154.5	=D24-('Raw Data'!$C$10)	±	=(((D24*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G24/E24
25	17	FP-44	South Wall	128.5	=D25-('Raw Data'!$C$10)	±	=(((D25*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G25/E25
26	18	FP-45	South Wall	128.5	=D26-('Raw Data'!$C$10)	±	=(((D26*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G26/E26
27	19	FP-46	South Wall	147.5	=D27-('Raw Data'!$C$10)	±	=(((D27*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G27/E27
28	20	FP-47	South Wall	146.5	=D28-('Raw Data'!$C$10)	±	=(((D28*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G28/E28
29	21	FP-48	South Wall	141.5	=D29-('Raw Data'!$C$10)	±	=(((D29*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G29/E29
30	22	FP-49	South Wall	151	=D30-('Raw Data'!$C$10)	±	=(((D30*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G30/E30
31	23	FP-50	South Wall	135	=D31-('Raw Data'!$C$10)	±	=(((D31*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G31/E31
32	24	FP-51	South Wall	136	=D32-('Raw Data'!$C$10)	±	=(((D32*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G32/E32
33	25	FP-52	South Wall	172	=D33-('Raw Data'!$C$10)	±	=(((D33*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G33/E33
34	26	FP-53	South Wall	156.5	=D34-('Raw Data'!$C$10)	±	=(((D34*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G34/E34
35	27	FP-54	South Wall	165.5	=D35-('Raw Data'!$C$10)	±	=(((D35*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G35/E35
36	28	FP-55	South Wall	141	=D36-('Raw Data'!$C$10)	±	=(((D36*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G36/E36
37	29	FP-56	South Wall	150	=D37-('Raw Data'!$C$10)	±	=(((D37*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G37/E37
38	30	FP-57	South Wall	170.5	=D38-('Raw Data'!$C$10)	±	=(((D38*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G38/E38
39	31	FP-58	South Wall	150	=D39-('Raw Data'!$C$10)	±	=(((D39*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G39/E39
40	32	FP-59	South Wall	146.5	=D40-('Raw Data'!$C$10)	±	=(((D40*2)/2^2)+(((('Raw Data'!$C$10)*10)/10^2))^0.5	=G40/E40
41		NOTE: Max % of Limit Assumes Upper 95% C.L. Is Correct Value.						
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CV TUNNEL - UNISTRUT

	I	J	K	L	M	N	O	P	Q
1									
2									
3									
4									
5					Curies In Model=>	0.000564			
6									
7								Estimated 2σ	Max
8	mR/h	Curies	pCi	pCi/g	dpm	dpm/100 cm^2		Uncertainty	% of Limit @ 2σ
9	=E9/$F$5	=($N$5/$V$5)*I9	=J9*1000000000000	=K9/$D$2	=2.22*K9	=(M9/$AM$5)*100	±	=(((H9^2+0.1^2)^0.5)*2)	=(N9*(1+P9))/20438
10	=E10/$F$5	=($N$5/$V$5)*I10	=J10*1000000000000	=K10/$D$2	=2.22*K10	=(M10/$AM$5)*100	±	=(((H10^2+0.1^2)^0.5)*2)	=(N10*(1+P10))/20438
11	=E11/$F$5	=($N$5/$V$5)*I11	=J11*1000000000000	=K11/$D$2	=2.22*K11	=(M11/$AM$5)*100	±	=(((H11^2+0.1^2)^0.5)*2)	=(N11*(1+P11))/20438
12	=E12/$F$5	=($N$5/$V$5)*I12	=J12*1000000000000	=K12/$D$2	=2.22*K12	=(M12/$AM$5)*100	±	=(((H12^2+0.1^2)^0.5)*2)	=(N12*(1+P12))/20438
13	=E13/$F$5	=($N$5/$V$5)*I13	=J13*1000000000000	=K13/$D$2	=2.22*K13	=(M13/$AM$5)*100	±	=(((H13^2+0.1^2)^0.5)*2)	=(N13*(1+P13))/20438
14	=E14/$F$5	=($N$5/$V$5)*I14	=J14*1000000000000	=K14/$D$2	=2.22*K14	=(M14/$AM$5)*100	±	=(((H14^2+0.1^2)^0.5)*2)	=(N14*(1+P14))/20438
15	=E15/$F$5	=($N$5/$V$5)*I15	=J15*1000000000000	=K15/$D$2	=2.22*K15	=(M15/$AM$5)*100	±	=(((H15^2+0.1^2)^0.5)*2)	=(N15*(1+P15))/20438
16	=E16/$F$5	=($N$5/$V$5)*I16	=J16*1000000000000	=K16/$D$2	=2.22*K16	=(M16/$AM$5)*100	±	=(((H16^2+0.1^2)^0.5)*2)	=(N16*(1+P16))/20438
17	=E17/$F$5	=($N$5/$V$5)*I17	=J17*1000000000000	=K17/$D$2	=2.22*K17	=(M17/$AM$5)*100	±	=(((H17^2+0.1^2)^0.5)*2)	=(N17*(1+P17))/20438
18	=E18/$F$5	=($N$5/$V$5)*I18	=J18*1000000000000	=K18/$D$2	=2.22*K18	=(M18/$AM$5)*100	±	=(((H18^2+0.1^2)^0.5)*2)	=(N18*(1+P18))/20438
19	=E19/$F$5	=($N$5/$V$5)*I19	=J19*1000000000000	=K19/$D$2	=2.22*K19	=(M19/$AM$5)*100	±	=(((H19^2+0.1^2)^0.5)*2)	=(N19*(1+P19))/20438
20	=E20/$F$5	=($N$5/$V$5)*I20	=J20*1000000000000	=K20/$D$2	=2.22*K20	=(M20/$AM$5)*100	±	=(((H20^2+0.1^2)^0.5)*2)	=(N20*(1+P20))/20438
21	=E21/$F$5	=($N$5/$V$5)*I21	=J21*1000000000000	=K21/$D$2	=2.22*K21	=(M21/$AM$5)*100	±	=(((H21^2+0.1^2)^0.5)*2)	=(N21*(1+P21))/20438
22	=E22/$F$5	=($N$5/$V$5)*I22	=J22*1000000000000	=K22/$D$2	=2.22*K22	=(M22/$AM$5)*100	±	=(((H22^2+0.1^2)^0.5)*2)	=(N22*(1+P22))/20438
23	=E23/$F$5	=($N$5/$V$5)*I23	=J23*1000000000000	=K23/$D$2	=2.22*K23	=(M23/$AM$5)*100	±	=(((H23^2+0.1^2)^0.5)*2)	=(N23*(1+P23))/20438
24	=E24/$F$5	=($N$5/$V$5)*I24	=J24*1000000000000	=K24/$D$2	=2.22*K24	=(M24/$AM$5)*100	±	=(((H24^2+0.1^2)^0.5)*2)	=(N24*(1+P24))/20438
25	=E25/$F$5	=($N$5/$V$5)*I25	=J25*1000000000000	=K25/$D$2	=2.22*K25	=(M25/$AM$5)*100	±	=(((H25^2+0.1^2)^0.5)*2)	=(N25*(1+P25))/20438
26	=E26/$F$5	=($N$5/$V$5)*I26	=J26*1000000000000	=K26/$D$2	=2.22*K26	=(M26/$AM$5)*100	±	=(((H26^2+0.1^2)^0.5)*2)	=(N26*(1+P26))/20438
27	=E27/$F$5	=($N$5/$V$5)*I27	=J27*1000000000000	=K27/$D$2	=2.22*K27	=(M27/$AM$5)*100	±	=(((H27^2+0.1^2)^0.5)*2)	=(N27*(1+P27))/20438
28	=E28/$F$5	=($N$5/$V$5)*I28	=J28*1000000000000	=K28/$D$2	=2.22*K28	=(M28/$AM$5)*100	±	=(((H28^2+0.1^2)^0.5)*2)	=(N28*(1+P28))/20438
29	=E29/$F$5	=($N$5/$V$5)*I29	=J29*1000000000000	=K29/$D$2	=2.22*K29	=(M29/$AM$5)*100	±	=(((H29^2+0.1^2)^0.5)*2)	=(N29*(1+P29))/20438
30	=E30/$F$5	=($N$5/$V$5)*I30	=J30*1000000000000	=K30/$D$2	=2.22*K30	=(M30/$AM$5)*100	±	=(((H30^2+0.1^2)^0.5)*2)	=(N30*(1+P30))/20438
31	=E31/$F$5	=($N$5/$V$5)*I31	=J31*1000000000000	=K31/$D$2	=2.22*K31	=(M31/$AM$5)*100	±	=(((H31^2+0.1^2)^0.5)*2)	=(N31*(1+P31))/20438
32	=E32/$F$5	=($N$5/$V$5)*I32	=J32*1000000000000	=K32/$D$2	=2.22*K32	=(M32/$AM$5)*100	±	=(((H32^2+0.1^2)^0.5)*2)	=(N32*(1+P32))/20438
33	=E33/$F$5	=($N$5/$V$5)*I33	=J33*1000000000000	=K33/$D$2	=2.22*K33	=(M33/$AM$5)*100	±	=(((H33^2+0.1^2)^0.5)*2)	=(N33*(1+P33))/20438
34	=E34/$F$5	=($N$5/$V$5)*I34	=J34*1000000000000	=K34/$D$2	=2.22*K34	=(M34/$AM$5)*100	±	=(((H34^2+0.1^2)^0.5)*2)	=(N34*(1+P34))/20438
35	=E35/$F$5	=($N$5/$V$5)*I35	=J35*1000000000000	=K35/$D$2	=2.22*K35	=(M35/$AM$5)*100	±	=(((H35^2+0.1^2)^0.5)*2)	=(N35*(1+P35))/20438
36	=E36/$F$5	=($N$5/$V$5)*I36	=J36*1000000000000	=K36/$D$2	=2.22*K36	=(M36/$AM$5)*100	±	=(((H36^2+0.1^2)^0.5)*2)	=(N36*(1+P36))/20438
37	=E37/$F$5	=($N$5/$V$5)*I37	=J37*1000000000000	=K37/$D$2	=2.22*K37	=(M37/$AM$5)*100	±	=(((H37^2+0.1^2)^0.5)*2)	=(N37*(1+P37))/20438
38	=E38/$F$5	=($N$5/$V$5)*I38	=J38*1000000000000	=K38/$D$2	=2.22*K38	=(M38/$AM$5)*100	±	=(((H38^2+0.1^2)^0.5)*2)	=(N38*(1+P38))/20438
39	=E39/$F$5	=($N$5/$V$5)*I39	=J39*1000000000000	=K39/$D$2	=2.22*K39	=(M39/$AM$5)*100	±	=(((H39^2+0.1^2)^0.5)*2)	=(N39*(1+P39))/20438
40	=E40/$F$5	=($N$5/$V$5)*I40	=J40*1000000000000	=K40/$D$2	=2.22*K40	=(M40/$AM$5)*100	±	=(((H40^2+0.1^2)^0.5)*2)	=(N40*(1+P40))/20438
41									
42									

LIMIT FOR CV TUNNEL = 20,438 dpm/100 cm^2 (Cs-137 A.L.)

Modeling Uncertainty Assumed to be ± 10%

mR/h per uCi/cc Output of Model=> 9.296

	R	S	T	U	V	W	X	Y
							Uncertainty	
		ID No.	*Location*	*cpm*	*ncpm*		*ncpm*	*as %*
9	1	FP-1	North Wall - Lower	119.5	=U9-('Raw Data'!$C$5)	±	=(((V9*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X9/V9
10	2	FP-2	North Wall - Lower	103	=U10-('Raw Data'!$C$5)	±	=(((V10*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X10/V10
11	3	FP-3	North Wall - Upper	108	=U11-('Raw Data'!$C$5)	±	=(((V11*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X11/V11
12	4	FP-4	North Wall - Upper	106.5	=U12-('Raw Data'!$C$5)	±	=(((V12*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X12/V12
13	5	FP-5	North Wall - Lower	125	=U13-('Raw Data'!$C$5)	±	=(((V13*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X13/V13
14	6	FP-6	North Wall - Lower	124.5	=U14-('Raw Data'!$C$5)	±	=(((V14*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X14/V14
15	7	FP-7	North Wall - Upper	107.5	=U15-('Raw Data'!$C$5)	±	=(((V15*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X15/V15
16	8	FP-8	North Wall - Lower	116	=U16-('Raw Data'!$C$5)	±	=(((V16*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X16/V16
17	9	FP-9	North Wall - Lower	126.5	=U17-('Raw Data'!$C$5)	±	=(((V17*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X17/V17
18	10	FP-10	North Wall - Upper	116.5	=U18-('Raw Data'!$C$5)	±	=(((V18*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X18/V18
19	11	FP-11	North Wall - Upper	139	=U19-('Raw Data'!$C$5)	±	=(((V19*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X19/V19
20	12	FP-12	North Wall - Lower	126	=U20-('Raw Data'!$C$5)	±	=(((V20*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X20/V20
21	13	FP-13	North Wall - Lower	117.5	=U21-('Raw Data'!$C$5)	±	=(((V21*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X21/V21
22	14	FP-14	North Wall - Upper	119	=U22-('Raw Data'!$C$5)	±	=(((V22*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X22/V22
23	15	FP-15	North Wall - Upper	134.5	=U23-('Raw Data'!$C$5)	±	=(((V23*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X23/V23
24	16	FP-16	North Wall - Lower	133.5	=U24-('Raw Data'!$C$5)	±	=(((V24*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X24/V24
25	17	FP-17	North Wall - Lower	115.5	=U25-('Raw Data'!$C$5)	±	=(((V25*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X25/V25
26	18	FP-18	North Wall - Upper	119	=U26-('Raw Data'!$C$5)	±	=(((V26*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X26/V26
27	19	FP-19	North Wall - Upper	114	=U27-('Raw Data'!$C$5)	±	=(((V27*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X27/V27
28	20	FP-20	North Wall - Lower	138.5	=U28-('Raw Data'!$C$5)	±	=(((V28*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X28/V28
29	21	FP-21	North Wall - Lower	121.5	=U29-('Raw Data'!$C$5)	±	=(((V29*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X29/V29
30	22	FP-22	North Wall - Upper	118	=U30-('Raw Data'!$C$5)	±	=(((V30*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X30/V30
31	23	FP-23	North Wall - Upper	109.5	=U31-('Raw Data'!$C$5)	±	=(((V31*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X31/V31
32	24	FP-24	North Wall - Lower	119	=U32-('Raw Data'!$C$5)	±	=(((V32*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X32/V32
33	25	FP-25	North Wall - Lower	126	=U33-('Raw Data'!$C$5)	±	=(((V33*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X33/V33
34	26	FP-26	North Wall - Upper	104.5	=U34-('Raw Data'!$C$5)	±	=(((V34*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X34/V34
35	27	FP-27	North Wall - Upper	110	=U35-('Raw Data'!$C$5)	±	=(((V35*2)/2^2)+(((Raw Data'!$C$5)*10)/10^2))^0.5	=X35/V35

NOTE: Max % of Limit Assumes Upper 95% C.L. Is Correct Value.

CV TUNNEL - UNISTRUT

	Z	AA	AB	AC	AD	AE	AF	AG	AH
1									
2									
3									
4									
5									
6									
7								Estimated 2σ	Max
8	mR/h	Curies	pCi	pCi/g	dpm	dpm/100 cm^2		Uncertainty	% of Limit @ 2σ
9	=V9/$F$5	=($N$5/$V$5)*Z9	=AA9*1000000000000	=AB9/$D$2	=AB9*2.22	=(AD9/$AM$5)*100	±	=(((Y9^2+0.1^2)^0.5)*2)	=(AE9*(1+AG9))/20438
10	=V10/$F$5	=($N$5/$V$5)*Z10	=AA10*1000000000000	=AB10/$D$2	=AB10*2.22	=(AD10/$AM$5)*100	±	=(((Y10^2+0.1^2)^0.5)*2)	=(AE10*(1+AG10))/20438
11	=V11/$F$5	=($N$5/$V$5)*Z11	=AA11*1000000000000	=AB11/$D$2	=AB11*2.22	=(AD11/$AM$5)*100	±	=(((Y11^2+0.1^2)^0.5)*2)	=(AE11*(1+AG11))/20438
12	=V12/$F$5	=($N$5/$V$5)*Z12	=AA12*1000000000000	=AB12/$D$2	=AB12*2.22	=(AD12/$AM$5)*100	±	=(((Y12^2+0.1^2)^0.5)*2)	=(AE12*(1+AG12))/20438
13	=V13/$F$5	=($N$5/$V$5)*Z13	=AA13*1000000000000	=AB13/$D$2	=AB13*2.22	=(AD13/$AM$5)*100	±	=(((Y13^2+0.1^2)^0.5)*2)	=(AE13*(1+AG13))/20438
14	=V14/$F$5	=($N$5/$V$5)*Z14	=AA14*1000000000000	=AB14/$D$2	=AB14*2.22	=(AD14/$AM$5)*100	±	=(((Y14^2+0.1^2)^0.5)*2)	=(AE14*(1+AG14))/20438
15	=V15/$F$5	=($N$5/$V$5)*Z15	=AA15*1000000000000	=AB15/$D$2	=AB15*2.22	=(AD15/$AM$5)*100	±	=(((Y15^2+0.1^2)^0.5)*2)	=(AE15*(1+AG15))/20438
16	=V16/$F$5	=($N$5/$V$5)*Z16	=AA16*1000000000000	=AB16/$D$2	=AB16*2.22	=(AD16/$AM$5)*100	±	=(((Y16^2+0.1^2)^0.5)*2)	=(AE16*(1+AG16))/20438
17	=V17/$F$5	=($N$5/$V$5)*Z17	=AA17*1000000000000	=AB17/$D$2	=AB17*2.22	=(AD17/$AM$5)*100	±	=(((Y17^2+0.1^2)^0.5)*2)	=(AE17*(1+AG17))/20438
18	=V18/$F$5	=($N$5/$V$5)*Z18	=AA18*1000000000000	=AB18/$D$2	=AB18*2.22	=(AD18/$AM$5)*100	±	=(((Y18^2+0.1^2)^0.5)*2)	=(AE18*(1+AG18))/20438
19	=V19/$F$5	=($N$5/$V$5)*Z19	=AA19*1000000000000	=AB19/$D$2	=AB19*2.22	=(AD19/$AM$5)*100	±	=(((Y19^2+0.1^2)^0.5)*2)	=(AE19*(1+AG19))/20438
20	=V20/$F$5	=($N$5/$V$5)*Z20	=AA20*1000000000000	=AB20/$D$2	=AB20*2.22	=(AD20/$AM$5)*100	±	=(((Y20^2+0.1^2)^0.5)*2)	=(AE20*(1+AG20))/20438
21	=V21/$F$5	=($N$5/$V$5)*Z21	=AA21*1000000000000	=AB21/$D$2	=AB21*2.22	=(AD21/$AM$5)*100	±	=(((Y21^2+0.1^2)^0.5)*2)	=(AE21*(1+AG21))/20438
22	=V22/$F$5	=($N$5/$V$5)*Z22	=AA22*1000000000000	=AB22/$D$2	=AB22*2.22	=(AD22/$AM$5)*100	±	=(((Y22^2+0.1^2)^0.5)*2)	=(AE22*(1+AG22))/20438
23	=V23/$F$5	=($N$5/$V$5)*Z23	=AA23*1000000000000	=AB23/$D$2	=AB23*2.22	=(AD23/$AM$5)*100	±	=(((Y23^2+0.1^2)^0.5)*2)	=(AE23*(1+AG23))/20438
24	=V24/$F$5	=($N$5/$V$5)*Z24	=AA24*1000000000000	=AB24/$D$2	=AB24*2.22	=(AD24/$AM$5)*100	±	=(((Y24^2+0.1^2)^0.5)*2)	=(AE24*(1+AG24))/20438
25	=V25/$F$5	=($N$5/$V$5)*Z25	=AA25*1000000000000	=AB25/$D$2	=AB25*2.22	=(AD25/$AM$5)*100	±	=(((Y25^2+0.1^2)^0.5)*2)	=(AE25*(1+AG25))/20438
26	=V26/$F$5	=($N$5/$V$5)*Z26	=AA26*1000000000000	=AB26/$D$2	=AB26*2.22	=(AD26/$AM$5)*100	±	=(((Y26^2+0.1^2)^0.5)*2)	=(AE26*(1+AG26))/20438
27	=V27/$F$5	=($N$5/$V$5)*Z27	=AA27*1000000000000	=AB27/$D$2	=AB27*2.22	=(AD27/$AM$5)*100	±	=(((Y27^2+0.1^2)^0.5)*2)	=(AE27*(1+AG27))/20438
28	=V28/$F$5	=($N$5/$V$5)*Z28	=AA28*1000000000000	=AB28/$D$2	=AB28*2.22	=(AD28/$AM$5)*100	±	=(((Y28^2+0.1^2)^0.5)*2)	=(AE28*(1+AG28))/20438
29	=V29/$F$5	=($N$5/$V$5)*Z29	=AA29*1000000000000	=AB29/$D$2	=AB29*2.22	=(AD29/$AM$5)*100	±	=(((Y29^2+0.1^2)^0.5)*2)	=(AE29*(1+AG29))/20438
30	=V30/$F$5	=($N$5/$V$5)*Z30	=AA30*1000000000000	=AB30/$D$2	=AB30*2.22	=(AD30/$AM$5)*100	±	=(((Y30^2+0.1^2)^0.5)*2)	=(AE30*(1+AG30))/20438
31	=V31/$F$5	=($N$5/$V$5)*Z31	=AA31*1000000000000	=AB31/$D$2	=AB31*2.22	=(AD31/$AM$5)*100	±	=(((Y31^2+0.1^2)^0.5)*2)	=(AE31*(1+AG31))/20438
32	=V32/$F$5	=($N$5/$V$5)*Z32	=AA32*1000000000000	=AB32/$D$2	=AB32*2.22	=(AD32/$AM$5)*100	±	=(((Y32^2+0.1^2)^0.5)*2)	=(AE32*(1+AG32))/20438
33	=V33/$F$5	=($N$5/$V$5)*Z33	=AA33*1000000000000	=AB33/$D$2	=AB33*2.22	=(AD33/$AM$5)*100	±	=(((Y33^2+0.1^2)^0.5)*2)	=(AE33*(1+AG33))/20438
34	=V34/$F$5	=($N$5/$V$5)*Z34	=AA34*1000000000000	=AB34/$D$2	=AB34*2.22	=(AD34/$AM$5)*100	±	=(((Y34^2+0.1^2)^0.5)*2)	=(AE34*(1+AG34))/20438
35	=V35/$F$5	=($N$5/$V$5)*Z35	=AA35*1000000000000	=AB35/$D$2	=AB35*2.22	=(AD35/$AM$5)*100	±	=(((Y35^2+0.1^2)^0.5)*2)	=(AE35*(1+AG35))/20438
36									
37									
38									
39									
40									
41									
42									

LIMIT FOR CV TUNNEL = 20,438 dpm/100 cm^2 (Cs-137 A.L.)

Modeling Uncertainty Assumed to be ± 10%

							Uncertainty	
	AI	AJ	AK	AL	AM	AN	AO	AP
		ID No.	Location	cpm	ncpm		ncpm	as %
		Surface of 1' of Unistrut (cm^2)=>			866			
9	1	FP-60	Ceiling	130.5	=AL9-('Raw Data'!$C$15)	±	=(((AM9*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO9/AM9
10	2	FP-61	Ceiling	126	=AL10-('Raw Data'!$C$15)	±	=(((AM10*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO10/AM10
11	3	FP-62	Ceiling	116.5	=AL11-('Raw Data'!$C$15)	±	=(((AM11*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO11/AM11
12	4	FP-63	Ceiling	121.5	=AL12-('Raw Data'!$C$15)	±	=(((AM12*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO12/AM12
13	5	FP-64	Ceiling	139	=AL13-('Raw Data'!$C$15)	±	=(((AM13*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO13/AM13
14	6	FP-65	Ceiling	146	=AL14-('Raw Data'!$C$15)	±	=(((AM14*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO14/AM14
15	7	FP-66	Ceiling	143	=AL15-('Raw Data'!$C$15)	±	=(((AM15*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO15/AM15
16	8	FP-67	Ceiling	152	=AL16-('Raw Data'!$C$15)	±	=(((AM16*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO16/AM16
17	9	FP-68	Ceiling	96.5	=AL17-('Raw Data'!$C$15)	±	=(((AM17*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO17/AM17
18	10	FP-69	Ceiling	106	=AL18-('Raw Data'!$C$15)	±	=(((AM18*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO18/AM18
19	11	FP-70	Ceiling	110	=AL19-('Raw Data'!$C$15)	±	=(((AM19*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO19/AM19
20	12	FP-71	Ceiling	97.5	=AL20-('Raw Data'!$C$15)	±	=(((AM20*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO20/AM20
21	13	FP-72	Ceiling	115	=AL21-('Raw Data'!$C$15)	±	=(((AM21*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO21/AM21
22	14	FP-73	Ceiling	97	=AL22-('Raw Data'!$C$15)	±	=(((AM22*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO22/AM22
23	15	FP-74	Ceiling	97	=AL23-('Raw Data'!$C$15)	±	=(((AM23*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO23/AM23
24	16	FP-75	Ceiling	101.5	=AL24-('Raw Data'!$C$15)	±	=(((AM24*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO24/AM24
25	17	FP-76	Ceiling	127.5	=AL25-('Raw Data'!$C$15)	±	=(((AM25*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO25/AM25
26	18	FP-77	Ceiling	115	=AL26-('Raw Data'!$C$15)	±	=(((AM26*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO26/AM26
27	19	FP-78	Ceiling	120.5	=AL27-('Raw Data'!$C$15)	±	=(((AM27*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO27/AM27
28	20	FP-79	Ceiling	120	=AL28-('Raw Data'!$C$15)	±	=(((AM28*2)/2^2)+(('Raw Data'!$C$15)*10)/10^2))^0.5	=AO28/AM28

NOTE: Max % of Limit Assumes Upper 95% C.L. Is Correct Value.

CV TUNNEL - UNISTRUT

	AQ	AR	AS	AT	AU	AV	AW	AX	AY
1									
2									
3									
4									
5									
6									
7								Estimated 2σ	Max
8	Curies	mR/h	pCi	pCi/g	dpm	dpm/100 cm^2		Uncertainty	% of Limit @ 2σ
9	=($N$5/$V$5)*AR9	=AM9/$F$5	=AQ9*1000000000000	=AS9/$D$2	=AS9*2.22	=(AU9/$AM$5)*100	±	=(((AP9^2+0.1^2)^0.5)*2)	=(AV9*(1+AX9))/20438
10	=($N$5/$V$5)*AR10	=AM10/$F$5	=AQ10*1000000000000	=AS10/$D$2	=AS10*2.22	=(AU10/$AM$5)*100	±	=(((AP10^2+0.1^2)^0.5)*2)	=(AV10*(1+AX10))/20438
11	=($N$5/$V$5)*AR11	=AM11/$F$5	=AQ11*1000000000000	=AS11/$D$2	=AS11*2.22	=(AU11/$AM$5)*100	±	=(((AP11^2+0.1^2)^0.5)*2)	=(AV11*(1+AX11))/20438
12	=($N$5/$V$5)*AR12	=AM12/$F$5	=AQ12*1000000000000	=AS12/$D$2	=AS12*2.22	=(AU12/$AM$5)*100	±	=(((AP12^2+0.1^2)^0.5)*2)	=(AV12*(1+AX12))/20438
13	=($N$5/$V$5)*AR13	=AM13/$F$5	=AQ13*1000000000000	=AS13/$D$2	=AS13*2.22	=(AU13/$AM$5)*100	±	=(((AP13^2+0.1^2)^0.5)*2)	=(AV13*(1+AX13))/20438
14	=($N$5/$V$5)*AR14	=AM14/$F$5	=AQ14*1000000000000	=AS14/$D$2	=AS14*2.22	=(AU14/$AM$5)*100	±	=(((AP14^2+0.1^2)^0.5)*2)	=(AV14*(1+AX14))/20438
15	=($N$5/$V$5)*AR15	=AM15/$F$5	=AQ15*1000000000000	=AS15/$D$2	=AS15*2.22	=(AU15/$AM$5)*100	±	=(((AP15^2+0.1^2)^0.5)*2)	=(AV15*(1+AX15))/20438
16	=($N$5/$V$5)*AR16	=AM16/$F$5	=AQ16*1000000000000	=AS16/$D$2	=AS16*2.22	=(AU16/$AM$5)*100	±	=(((AP16^2+0.1^2)^0.5)*2)	=(AV16*(1+AX16))/20438
17	=($N$5/$V$5)*AR17	=AM17/$F$5	=AQ17*1000000000000	=AS17/$D$2	=AS17*2.22	=(AU17/$AM$5)*100	±	=(((AP17^2+0.1^2)^0.5)*2)	=(AV17*(1+AX17))/20438
18	=($N$5/$V$5)*AR18	=AM18/$F$5	=AQ18*1000000000000	=AS18/$D$2	=AS18*2.22	=(AU18/$AM$5)*100	±	=(((AP18^2+0.1^2)^0.5)*2)	=(AV18*(1+AX18))/20438
19	=($N$5/$V$5)*AR19	=AM19/$F$5	=AQ19*1000000000000	=AS19/$D$2	=AS19*2.22	=(AU19/$AM$5)*100	±	=(((AP19^2+0.1^2)^0.5)*2)	=(AV19*(1+AX19))/20438
20	=($N$5/$V$5)*AR20	=AM20/$F$5	=AQ20*1000000000000	=AS20/$D$2	=AS20*2.22	=(AU20/$AM$5)*100	±	=(((AP20^2+0.1^2)^0.5)*2)	=(AV20*(1+AX20))/20438
21	=($N$5/$V$5)*AR21	=AM21/$F$5	=AQ21*1000000000000	=AS21/$D$2	=AS21*2.22	=(AU21/$AM$5)*100	±	=(((AP21^2+0.1^2)^0.5)*2)	=(AV21*(1+AX21))/20438
22	=($N$5/$V$5)*AR22	=AM22/$F$5	=AQ22*1000000000000	=AS22/$D$2	=AS22*2.22	=(AU22/$AM$5)*100	±	=(((AP22^2+0.1^2)^0.5)*2)	=(AV22*(1+AX22))/20438
23	=($N$5/$V$5)*AR23	=AM23/$F$5	=AQ23*1000000000000	=AS23/$D$2	=AS23*2.22	=(AU23/$AM$5)*100	±	=(((AP23^2+0.1^2)^0.5)*2)	=(AV23*(1+AX23))/20438
24	=($N$5/$V$5)*AR24	=AM24/$F$5	=AQ24*1000000000000	=AS24/$D$2	=AS24*2.22	=(AU24/$AM$5)*100	±	=(((AP24^2+0.1^2)^0.5)*2)	=(AV24*(1+AX24))/20438
25	=($N$5/$V$5)*AR25	=AM25/$F$5	=AQ25*1000000000000	=AS25/$D$2	=AS25*2.22	=(AU25/$AM$5)*100	±	=(((AP25^2+0.1^2)^0.5)*2)	=(AV25*(1+AX25))/20438
26	=($N$5/$V$5)*AR26	=AM26/$F$5	=AQ26*1000000000000	=AS26/$D$2	=AS26*2.22	=(AU26/$AM$5)*100	±	=(((AP26^2+0.1^2)^0.5)*2)	=(AV26*(1+AX26))/20438
27	=($N$5/$V$5)*AR27	=AM27/$F$5	=AQ27*1000000000000	=AS27/$D$2	=AS27*2.22	=(AU27/$AM$5)*100	±	=(((AP27^2+0.1^2)^0.5)*2)	=(AV27*(1+AX27))/20438
28	=($N$5/$V$5)*AR28	=AM28/$F$5	=AQ28*1000000000000	=AS28/$D$2	=AS28*2.22	=(AU28/$AM$5)*100	±	=(((AP28^2+0.1^2)^0.5)*2)	=(AV28*(1+AX28))/20438
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