



NUCLEAR CONSULTING SERVICES, INC.

P. O. Box 29151 Columbus, Ohio 43229

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TWX 810-337-2007

IODINE-131 REMOVAL
EFFICIENCY DETERMINATION
OF ADSORBENT SAMPLES

PERFORMED FOR:

METROPOLITAN EDISON COMPANY
THREE MILE ISLAND NUCLEAR STATION UNIT 4
MIDDLETOWN PENNSYLVANIA, 17057

P. O. NO. 54767

DISTRIBUTION:

EXTERNAL

(5) R. DUBIEL, TMI (2) B. Rusche, TMI
(5) J. COLLINS, NRC (2) J. McConnell, TMI

INTERNAL

(1) PROJECT MASTER FILE
(1) LAB FILE -I
(1) IODINE TEST FILE

NUCON 6MT311/1

• May 1979

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50-320 P

THESE REPORT SHEETS CONTAIN THE IODINE FISSION PRODUCT TEST
DATA OBTAINED FROM ADSORBENT SAMPLES TESTED BY NUCON.

COUNTING WAS PERFORMED AT 0.364 MEV GAMMA LEVEL, IN A 4.0"
THALLIUM ACTIVATED SODIUM IODIDE WELL CRYSTAL. CALIBRATION
OF THE COUNTING CRYSTAL HAS BEEN PERFORMED BY THE USE OF AN
NBS TRACEABLE 131 I STANDARD.

COUNTING DATA FOR SAMPLE S/N 76217 UNIT 1 SPARE

AIR COUNT DATA *PRE-LOADING*

CPM -	324.875	, STD DEV -	5.393
COUNTER EFFICIENCY -	1.000		
DPM -	324.875	, STD DEV -	5.632

POST-LOADING

CPM -	338.625	, STD DEV -	2.200
COUNTER EFFICIENCY -	1.000		
DPM -	338.625	, STD DEV -	2.776

TB1 COUNT DATA *PRE-LOADING*

CPM -	348.625	, STD DEV -	6.219
COUNTER EFFICIENCY -	.610		
DPM -	571.516	, STD DEV -	11.219
DPM-AIR -	246.641	, STD DEV -	12.553

POST-LOADING

CPM -	2,366,222.500	, STD DEV -	1,250.919
COUNTER EFFICIENCY -	.498		
DPM -	4,751,450.803	, STD DEV -	47,771.413
DPM-AIR -	4,751,112.178	, STD DEV -	47,771.413

NET

NET DPM -	4,750,865.537	, STD DEV -	47,771.415
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GB1 COUNT DATA *PRE-LOADING*

CPM -	379.500	, STD DEV -	3.960
COUNTER EFFICIENCY -	.610		
DPM -	622.131	, STD DEV -	8.255
DPM-AIR -	297.256	, STD DEV -	9.993

POST-LOADING

CPM -	362,735.000	, STD DEV -	79.492
COUNTER EFFICIENCY -	.589		
DPM -	615,848.896	, STD DEV -	5,229.660
DPM-AIR -	615,510.271	, STD DEV -	5,229.661

NET

NET DPM -	615,213.015	, STD DEV -	5,229.671
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GB2 COUNT DATA *PRE-LOADING*

CPM -	387.250	, STD DEV -	5.177
COUNTER EFFICIENCY -	.610		
DPM -	634.836	, STD DEV -	9.955
DPM-AIR -	309.961	, STD DEV -	11.438

POST-LOADING

CPM -	792.625	, STD DEV -	6.774
COUNTER EFFICIENCY -	.610		
DPM -	1,299.385	, STD DEV -	15.386
DPM-AIR -	960.760	, STD DEV -	15.634

NET

NET DPM -	650.799	, STD DEV -	19.371
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TEST REPORT: METHYL IODIDE DATE PERFORMED: 19 APRIL 1979

CLIENT: METROPOLITAN EDISON COMPANY
THREE MILE ISLAND NUCLEAR STATION UNIT 1

SAMPLE: S/N 76217 UNIT 1 SPARE

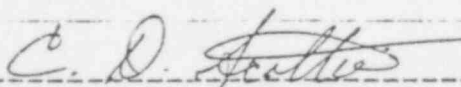
P. O. NO.: 54767

TEST CONDITIONS:

BED DEPTH-	5.08 CM. (2 INCHES)
BED DIAMETER-	5.08 CM. (2 INCHES)
TEMPERATURE-	25 C. (77 F.)
RELATIVE HUMIDITY-	95%
FACE VELOCITY-	20.3 CM./S. (40 FPM)
MEI LOADING-	2.30 MG./CU.M.
DURATION OF LOADING-	2 HOURS
POST SWEEP-	2 HOURS
PRE-EQUILIBRATION-	16 HOURS
MEI-131 CONTENT-	2.42 MICROCURIES
PRESSURE-	1 ATM.
EFFICIENCY-	1ST BED: 88.52 % (STD. DEV.= .08 %)

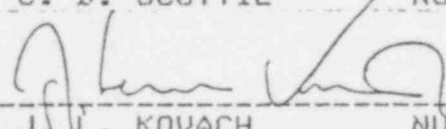
THE RESULTS ARE THE BEST OBTAINABLE UNDER CURRENT EXPERIMENTAL
TECHNIQUES AND ACCORDING TO OUR BEST KNOWLEDGE.

PERFORMED BY


C. D. SCOTTIE

NUCLEAR CONSULTING SERVICES INC.

APPROVED BY


J. L. KOVACH

NUCLEAR CONSULTING SERVICES INC.

COUNTING DATA FOR SAMPLE S/N 250 UNIT 1 FROM INSTALLED CELLS

AIR COUNT DATA *PRE-LOADING*

CPM -	320.000	, STD DEV -	3.480
COUNTER EFFICIENCY -	1.000		
DPM -	320.000	, STD DEV -	3.830

POST-LOADING

CPM -	339.125	, STD DEV -	3.917
COUNTER EFFICIENCY -	1.000		
DPM -	339.125	, STD DEV -	4.268

TB1 COUNT DATA *PRE-LOADING*

CPM -	2,505,848.750	, STD DEV -	221.186
COUNTER EFFICIENCY -	.492		
DPM -	5,093,188.516	, STD DEV -	51,819.524
DPM-AIR -	5,092,868.516	, STD DEV -	51,819.524

POST-LOADING

CPM -	7,727,715.000	, STD DEV -	8,013.402
COUNTER EFFICIENCY -	.592		
DPM -	13,053,572.635	, STD DEV -	111,077.625
DPM-AIR -	13,053,233.510	, STD DEV -	111,077.625

NET

NET DPM -	7,960,364.994	, STD DEV -	122,570.395
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GB1 COUNT DATA *PRE-LOADING*

CPM -	7,031.625	, STD DEV -	23.961
COUNTER EFFICIENCY -	.605		
DPM -	11,622.520	, STD DEV -	103.899
DPM-AIR -	11,302.520	, STD DEV -	103.970

POST-LOADING

CPM -	3,542,852.500	, STD DEV -	1,732.614
COUNTER EFFICIENCY -	.450		
DPM -	7,873,005.555	, STD DEV -	87,562.531
DPM-AIR -	7,872,666.430	, STD DEV -	87,562.531

NET

NET DPM -	7,861,363.910	, STD DEV -	87,562.593
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GB2 COUNT DATA *PRE-LOADING*

CPM -	461.000	, STD DEV -	4.910
COUNTER EFFICIENCY -	.610		
DPM -	755.737	, STD DEV -	10.157
DPM-AIR -	435.737	, STD DEV -	10.855

POST-LOADING

CPM -	765.625	, STD DEV -	4.571
COUNTER EFFICIENCY -	.610		
DPM -	1,255.122	, STD DEV -	12.727
DPM-AIR -	915.997	, STD DEV -	13.424

NET

NET DPM -	480.260	, STD DEV -	17.264
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TEST REPORT: METHYL IODIDE DATE PERFORMED: 20 APRIL 1979

CLIENT: METROPOLITAN EDISON COMPANY
THREE MILE ISLAND NUCLEAR STATION UNIT 1

SAMPLE: S/N 250 UNIT 1 FROM INSTALLED CELLS

P. O. NO.: 54767

TEST CONDITIONS:

BED DEPTH-	5.08 CM. (2 INCHES)
BED DIAMETER-	5.08 CM. (2 INCHES)
TEMPERATURE-	25 C. (77 F.)
RELATIVE HUMIDITY-	95%
FACE VELOCITY-	20.3 CM./S. (40 FPM)
ME LOADING-	2.30 MG./CU. M.
DURATION OF LOADING-	2 HOURS
POT SWEEP-	2 HOURS
PRE-EQUILIBRATION-	16 HOURS
MEI-131 CONTENT-	7.13 MICROCURIES
PRESSURE-	1 ATM.
EFFICIENCY-	1ST BED: 50.31 % (STD. DEV.= .01 %)

THE RESULTS ARE THE BEST OBTAINABLE UNDER CURRENT EXPERIMENTAL
TECHNIQUES AND ACCORDING TO OUR BEST KNOWLEDGE.

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