

BOOK 119R

Notes:

on front:

“BK #1 U Slabs 58-59-60”

“U-Slabs Bk 1”

“Book #1, U²³⁵ Billets”

on spine:

“Bk #1 U slabs 58-59-60”

Blank pages: inside front cover, page opposite page 1, 2-5, 115, 194, 196, 206, 212, 245, inside back cover

pages 55 and 116 each have a big sheet taped
pages 229 and 286 each have small sheet taped

Scanned by:

Sheila Finch

RSICC /Oak Ridge National Lab.

May 11, 2001

E-7



Standard Blank Book

No. 38

Journals Double \$ and Cts. no Units

S. E. Ledgers " " "

D. E. Ledgers Full Page Form "

Records with Margin Line

In 150, 200 and 300 Pages

Made in U. S. A.

**TO REORDER THIS BOOK, SPECIFY
NUMBER, RULING AND THICKNESS
AS INDICATED ON BACKBONE OF BOOK**

A BOORUM & PEASE PRODUCT

24.5 Kg U Billets (1" x 8" x ~10")

3x3x3 Array

Exp. 1 12" Spacing in 36" Plexiglas Vault (1" Thick) p. 23

2 Removed 1" Plexiglas wall p. 45

3 Repeat part of 1st Exp. p. 46

3x3x5 Array

1 12" Spacing - 1" Plexiglas Vault (3' x 3' x 5') p. 55

2 " - added 3" of Reflector (4" Thick Vault) p. 71
(1" Plexiglas + 3" Paraf.)

3x3x3 ARRAY

(1" Internal Plexiglas Moderator in
1" Plexiglas Vault p. 85

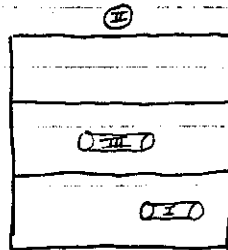
1" Plexiglas Vault + 1" Plexiglas Moderator
+ Styrofoam p. 99

6

12/15/58

Multiplication With Single 25 Kg Billet

12/15/58

Counter Information
positionCounter # 2 half of its active portion
see the same directly

Top View

Hornyak Button #4
1" Above central billet

Counter	Gain	Voltage	Discriminator	Rise Time
I	2	1600	30	.2 μ s
II	4	1800	15	.2
III	2	1600	25	.2
IV	4	1000	25	.2

Background without source

MULTIPLICATION

Scaler	5 min			
1	256 X 0	+	60	
2	0		12	
3	0		8	
4	0		0	

Background with Pu-Bc Source

Scaler	5			
1	256 X 353	+	208 =	90,576
	353	+	175 =	90,543
2	164	+	177 =	42,161
	162	+	253 =	41,725
3	174	+	192 =	
	414	+	0 =	
4	421	+	60 =	

C/min

18,112

8,388

14,089

21,382

#

1

2

3

4

Tuballoy in center position
MULTIPLICATION

Scaler	5	min	CC	min	Mult	T/M
356X	275	276	230	128		
	277	277	82	60		
	162	163	195	149		
2	164	164	1	239		
	193	193	202	137		
3	193	193	123	170		
	358	319	69	54		
4	270	316	203	215		
	372	307		153		

Central plastic
pin of south side
will add
Plastic Removd
No change
observed

Discriminator setting on Button changed to 35

Tuballoy
MULTIPLICATION

Scaler	5	min	CC	min	Mult	T/M
	277	275	24	252		
1	273	274	127	254	= 565,387	
	164	165	100	69		
2	164	163	67	170	336,089	
	193	195	87	118		
3	195	194	191	40	397,456	
	242	244	26	128		
4	238		170			

Counts/min #
14,135 1
8,402 2
9,936 3

Discriminator setting on Button changed to 50

MULTIPLICATION

Scaler	5	min	CC	min	Mult	T/M
4	158		108			
4	159		93			
4	159		104			
4	143		156			
4	141		83	195,104		7804 cpm

tin
ly

1
2
3
4

With Regular 235 Bullet in center
with Plastic Cover

Scaler 5 min

$$4 \quad 256 \times 203 + 169 =$$

$$1 \quad " \quad 172 + 24 =$$

$$1 \quad " \quad 205 + 147 =$$

$$2 \quad " \quad 383 + 179 =$$

$$3 \quad " \quad 383 + 160 =$$

$$3 \quad " \quad 383 + 78 =$$

$$2 \quad " \quad 207 + 87 =$$

$$3 \quad " \quad 206 + 133 =$$

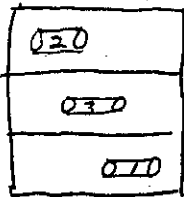
$$3 \quad " \quad 282 + 93 =$$

$$2 \quad " \quad 282 + 49 =$$

$$2 \quad " \quad 283 + 57 =$$

Scaler #	Scale	Registers	Totals	c/min	M.
1	256	385 + 239			
		383 + 179			
	5 min	383 + 160			
		383 + 78	393,360	19,668	1.391
2	256	208 + 153			
		207 + 87			
	5 min	206 + 133			
		206 + 73	212,158	10,608	1.2625
3	256	282 + 15			
		282 + 93			
	5 min	282 + 49			1.455
		283 + 57	289,241	14,462	
4	256	203 + 169			
		205 + 147			
	5 min	172 + 24			
		145 + 156	186,096	9,305	

Multiplication of counter # 2 low since it is seeing the source directly. Counter # 2 in shield on top of assembly



Discriminator setting on Button at 100

Tuballoy in position in plastic bag

Scaler Scale Register Total cpm

M. 1 254 276+154
 277+66 355,083 14,203
 5 min 278+48
 277+254
 277+1

1.391

2 256 136+214
 138+221 176,260 7,050
 5 min 137+29
 138+243
 137+57

1.2625

3 256 194+29
 193+148
 5 min 195+89 249,276 9,971
 195+209
 194+225

1.455

4. 256 57+169
 5 min 59+213
 57+193
 56+23
 54+45

0.5

Σ_{123} 780,619

1 Oralley billet in position

Billet in plastic bag

Scaler	Scale	Registers	Total	Cpm	Multiplication
1	256	582 + 127			
		380 + 73	489,728		
	5 MIN	583 + 208			1.3792
		585 + 57			
		583 + 2			

2	256	191 + 107			
		189 + 244			
	5 MIN	191 + 39	243,757		1.383
		190 + 96			
		189 + 69			

3	256	282 + 10			
		281 + 126			
	5 MIN	279 + 109	358,656		1.4388
		281 + 34			
		278 + 24			

4	256	54 + 231			
		62 + 200			
	5 MIN	74 + 183			
		78 + 245			
		78 + 90			

$$\sum_{1,2,3} = 1,092,141 \quad 1.399$$

12/15/58

1 Or alloy billet in Al Foil

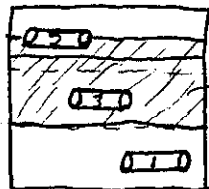
Scaler	Scale	Registers	Total	CPM	Multiplication
1	64	1553 + 34			
		1542 + 34			
	5 MIN	1549 + 3	495,548		1.3956
		1550 + 60			
		1546 + 57			
2	64	763 + 16			
		770 + 20			
	5 MIN	768 + 14	246,079		1.396
		766 + 38			
		776 + 39			
3	64	1117 + 43			
		1122 + 5	359,085		1.4405
	5 MIN	1123 + 4			
		1128 + 53			
		1119 + 6			
4	64	310 + 16			
	5 MIN	222 + 10			
		102 + 47			$A_v - 1.41$

Pu Be Source		MULTIPLICATION	
Scaler	Scale	Registers	Total
1	64	1426 + 30	
2		639 + 29	
3		721 + 36	
4	55	1848	55

12/16/58 Button now using the linear amplifier + scaler of #1
 Counter #1 now using scaler + amplifier #4

Scaler Counter	Gain	Voltage	Discriminator	Rise Time	Hornyak Button
1	8	900	40	.2 μ c	
2	4	1800	15	.2 μ s	
3	2	1600	25	.2 μ s	
4	2	1600	25	.2 μ s	

Position



Button in same position

Cd sheet on talk top of assembly

Cd wrapped around counter 3 (3) Cd.

Cd wrapped around counter 2 (2) Cd.

Pu-Bc Source in place

Scaler Counter	Scale	Registers	Total	CPM
1	256 5 min	115 + 44 116 + 130		
2	256 5 min	153 + 146 153 + 105		
3	256 5 min	168 + 233 169 + 110		
4	256 5 min	372 + 33 375 + 88		

1 Tuballoy billet 239 Kg in plastic bag in center position
Pu-Be Source.

Scaler	Scale	Registers	Total	CPM
1	256	87 + 242		
		88 + 49		
	5 min	87 + 201	101,872	
		87 + 48	102,516	
		88 + 104	112,516	

2	256	136 + 245		
		138 + 63		
	5 min	135 + 107	175,597	
		138 + 15		
		137 + 53		

3		184 + 15		
	5 min	184 + 203	235,878	
		185 + 119		
		182 + 257		
		184 + 44		

4				
	5 min	291 + 215		
		295 + 139		
		292 + 5	575,742	
		293 + 209		
		294 + 134		

$$\sum_{1,2,3,4} \text{Count} = 899,733$$

$$\sum_{123} = 523,991$$

1 Tuballoy Billet 23.9 Kg with plastic Cover and $\frac{1}{16}$ plastic on Top of Billet
Pu-Be Source

Scaler	Scale	Registers	Total Counts	CPM
#1	256	87 +170 87 +217 86 +170 87 +186 87 +243	112,090	4,484
#2	256	136 +48 135 +12 134 +221 136 +60 135 +58 182 +117 729 +53	173,455	6,938
#3	64 256	182 +99 181 +43 181 +169 181 +79	232,699	9,308
#4	256	287 +27 284 +160 256 +14 275 +95 288 +66	356,202	14,248

$$\sum_{1,2,3} = 518244$$

f. Billet
n. Top

1 U²³⁵ Billet, Plastic Cover, Pu-Re Source.

Scaler	Scale	Registers	Total Counts	com	M
# 1	256	124 + 206 123 + 225			
5 min		125 + 208 127 + 49 124 + 187	160,363		1.425
# 2	256	187 + 230 187 + 220			
5 min		189 + 110 188 + 250 189 + 47	241,497		1.375
# 3	256	264 + 73 263 + 40			
5 min		263 + 9 264 + 173 262 + 224	337,415		1.4304
# 4	256	409 + 255 411 + 185			
5 min		411 + 247 410 + 22 415 + 1	527,046		1.4026
		$\sum_{1,2,3,4}$ counts =	1,266,321		1.4074
		$\sum_{1,2,3}$	739,275		1.4108

1 U²³⁵ Billet, Plastic cover, 1/8" Plexiglas sheet, Pu-Be Source

Scaler #	Scale	Registers	Total Counts	CPM	m.
# 1	256	127 + 45	160,944		1.436
		125 + 150			
		126 + 20			
		124 + 212			
		125 + 27			
5 min					
# 2	256	189 + 6	240,147		1.3845
		186 + 210			
		187 + 60			
		187 + 5			
		187 + 244			
5 min					
# 3	256	263 + 168	338,397		1.4542
		265 + 45			
		265 + 85			
		264 + 29			
		263 + 152			
5 min					
# 3	256	410 + 200			
# 4	256	409 + 121	524,960		? 1.47 ?
		410 + 48			
		409 + 13			
		411 + 34			
		5 min.			
			$\sum_{123} = 739,488$		1.4269

1 U^{235} B.ilet, ~~FE~~ Al Fil Cover. Pu Be Source

Scaler #	Scale	Registers	Total Counts	CPM	M
#1	256	126 + 106	159,924		1.421
		125 + 12			
		125 + 16			
		125 + 70			
		122 + 232			
#2	256	187 + 229	239,963		1.3665
		182 + 57			
		186 + 152			
		182 + 124			
		188 + 61			
#3	256	260 + 117	334,935		1.420
		261 + 51			
		262 + 4			
		262 + 98			
		262 + 73			
#4	256	410 + 222	531,501		1.414
		414 + 172			
		412 + 216			
		415 + 215			
		415 + 244			
		\sum_{1254}	1,266,323		1.4074
		\sum_{125}	734,822		1.4023

Summary of Results obtained 12/16/58

Counter	In Plastic Bag	Multiplication	
		In Plastic bag with $\frac{1}{16}$ " Plex on outside	In Al Foil
1 Hornyak Button	1.425	1.436	1.421
2	1.375	1.384	1.3665
3	1.4304	1.454	1.42
4	1.402		1.414
Σ 1,2,3,4	1.407		1.407
Σ 1,2,3	1.411	1.427	1.402

Counts # Pu-Be Source in Place (No Bilet)

Scaler #	Scale	Registers	Total Counts	CPM
# 1	16 101	1049 +3	84,041	1,681 - 12
		1054 +15		
		1051 +3		
		1053 +4		
		1044 +0		
10 min	101		8,404	1669
# 2	16	776 +0	62,547	7 ₅
		781 +9		
		787 +14		
		790 +15		
		772 +13		
10 min				1,251 - 17
# 3	16	392 +3	31,257	625 - 2
		384 +1		
		394		
		390 +13		
		392 +8		
10 min				1,234
# 4	16	1392 +13	112,351	2,247
		1405 +4		
		1405 +6		
		1406 +14		
		1411 +10		
10 min				623

1 Tuballoy Billet in Plastic bag Pu-Be Source
in Position 222

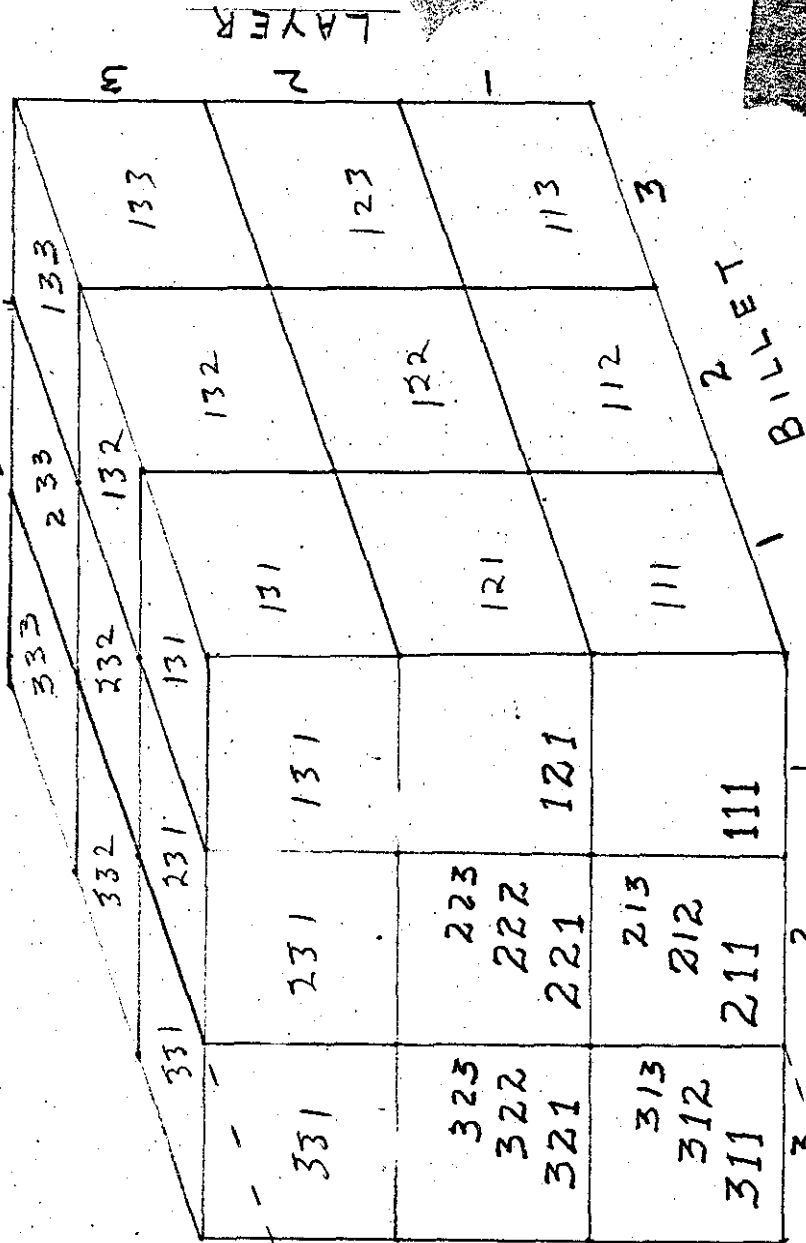
Scaler	Scale	Registers	Total Counts	CPM	
# 1	16	1576	10	152,149	1690-12
		1589	5		
		1585	5		
		1587	10		
		1595	10		
15 Min		1524	13		1678
# 2	16	1127	3	107,919	1,199-17
		1120	7		
		1132	12		
		1133	3		
		1113	8		
15 Min		1117	14		1,182
# 3	16	555	14	53,545	595-2
		563	3		
		563	6		
		556	4		
		546	8		
15 Min		561	2		593
# 4	16	1607	13	155616	1,729
		1630	11		
		1614	3		
		1649	10		
		1609	4		
15 Min		1620	7		

1 Oralley Billet 9.5" 23.6 Kg in 222
in Plastic Bag Pu-Bc Source

Scaler	Scale	Registers	Total Counts	CPM
1		1390 + 6		
10 min		1397 + 1	66,928	
		1395 + 9		
2		1040 "		
10 min		1040 7	49,779	
		1030 1		
3		488 + 1		
10 min		494 5	23,645	
		495 7		
4		1478 15		
10 min		1458 8	70,672	
		1481 3		

12/19/58.

Start of Assembly of a 3x3x3 array on 12" spacing.



1st digit indicator - Row
 2nd " " - Layer
 3rd " " - Billet

Counter Information

Counter	Gain	Voltage	Discriminator	Rise time
1	2	1600	30	.2 μ sec
2	4	1800	15	.2
3	4	1600	25	.2
4	8	1600 900	35	.2

Linear Amplifier in 3 Questionable ?

1 Orally Billet in Position 222

Scaler	Scale	Registers	Total Counts	CPM	M	1/m
1	16	Registers				
		1382 5		2,227-12		
10 min		1394 13	66,721			
		1393 1	+66,928	2215	1.32	.757
2	16	1043 3				
		1036 8	49,803	1659-17	1.389	.720
10 min		1033	+49,779	1642	1.331	.751
3	16	607 14				
		609 1				
10 min		606 5	23,722	787	1.738	.757
4	16	1476 12				
		1468 7	71,066			
10 min		1496 1	+70,672	2,362	1.366	.732

Av .7467

7405

1.214 .7472

Added in 322

9.5" Oralloy

Scaler	Scale	Registers	Total Counts	CPM	M	1/M
1	16	1409 16 1447 9 1418 11 1415 10 1420 15	113,799	2276 -12 2264	13564	.737
2	16	1070 8 1063 5 1065 5 1061 11 1064 15	85,180	1704 -17 1687	13564	.7008
3	16	626 +3 623 +6 620 +5 631 7 617 8	49,901	998	13564	.732
4	16	1473 15 1472 7 1490 4 1480 4 1512 1	119,055	2381	1377	.726

1/m

.757

.720

.751

.757

732

7467

7472

Removed 322 Added 232

Scaler	Scale	Registers	Total Counts	CPM
1	10	1308 3 1316 14	42001	
↳ min				
2	10	900 900 + 10	28810	
↳ min				
3	10	631 4 624 + 5	20,089	
↳ min				
4	10	1497 1507 0	48,064	
↳ min				

12/22/58 Same situation as ^{above} p 25

Scaler	Scale	Registers	Total Counts	CPM	M.	1/M ₀
1	10	1369 8 1331 + 13 1354 + 4	64,569	2131 2118	1.262	.792
↳ min						
2	10	915 14 886 2 870 8	43,170	1440 1420	1.301	.832
↳ min						
3	10	627 621 614	29,824	798	1.365	.733
↳ min						
4	10	1566 8 1545 2 1553 8 1544 8	99354	2457	1.421	.704
↳ min						
					A _v	.765
					A _v (123)	.786

Background Count Pu-Bc Source in Vault.

Scaler	Scale	Register	Total Counts	CPM.
1	10	16 ¹⁴	270	13
20 min				
2	10	25 ⁷	407	20
20 min				
3	10	3 ⁷	55	2
20 min				
4	10	0	0	0
20 min				

Added 322 222 252

Scaler	Scale	Register	Total Counts	CPM	M ₀	1/M ₀
1	10	1559 ¹¹	21755	2175		
2		920 ⁶	14822	1482		
3		631 ⁷	10,103	1010		
4		1548 ¹⁴	24,782	2478		

1/M₀

.792

.832

.733

.704

.765

.786

Removed 322

Added 212

Points 212, 222, 232 original

Scaler	Scale	Registers	Total Counts	CPM	M ₀
1	16	1386 ¹² 1404 ¹⁵ 1423 ¹⁰ 1390 ⁵ 1400 ⁸	113,098	2242 <u>2229</u>	1.330 .7485
10 mm					
2	16	940 ⁶ 913 ⁰ 927 925 ² 931 ⁹	74,193	1484 1464	1.255 .797
10 mm					
3	16	651 ⁹ 668 ² 652 ³ 662 ¹⁵ 664 ¹⁴	52,793	1056 1052	1.444 .6925
10 mm					
4	16	1548 ⁷ 1550 ¹¹ 1559 ⁵ 1550 ⁷ 1571 ⁵	124,483	2489	1.4395 .6946
10 mm					

Av - .733

H₀(123) .746

Added 522

Position Occupied 212, 222, 252, 522

Scaler	Scale	Registers	Total Counts	CPM	M.	1/M.
1485		1422 8	114347	2287	1.355	.738
		1427 14				
		1440 9				
		1446 7				
		1439 5				
797		959 9	76095	1522	1.271	.7868
		946 3				
		945 14				
		950 3				
		954 2				
6925		667 9	53380	1066	1.455	.6873
		660 12				
		661 4				
		670 15				
		669 4				
				$\frac{1}{M_x} = .9155$		
6946		1570 15	125,792	2,516	1.455	.6873
		1571 4				
		1559 2				
		1575 12				
		1584 15				
				$\frac{1}{M_x} = .958$		

Au .725

A (123) .757

- .733

33) .746

Add 122

Positions occupied . 212, 222, 232, 122, 322

Scaler	Scale	Registers	Total Counts	CPM	M ₀	1/M ₀
1	16	1462 ¹³ 1457 ¹⁴ 1449 ⁶ 1461 1470 ¹	116,904	2338 2325	1.385	.722

2	16	990 ¹⁵ 981 ["] 972 ⁷ 993 ² 975 ¹	78,644	1573 -2 1553	1.314	.761
---	----	---	--------	--------------------	-------	------

3	16	683 ⁸ 682 ¹² 690 ⁹ 692 ⁷ 675 ¹³	54,805	1096 -13 1083	1.48	.674
			$1/M_x = .897$			

4	16	1590 ¹ 1577 ¹² 1578 ¹⁴ 1592 ¹² 1595 ¹⁵	126,854	2539	1.471	.680
			$1/M_x = .930$			

Av .709

Av(125) .719

Add'd 223

Positions occupied 212, 222, 232, 122, 322, 223

$\frac{1}{m}$	Scaler	Scale	Registers	Total Counts	CPM	M.	$\frac{1}{m}$
.722	1	16	1527 ⁶ 1518 ¹⁰ 1528 ⁷ 1515 ⁵ 1524 ¹	121,781	2436 2423		.6925
.761	2		1031 ² 1020 ¹⁰ 1025 ¹⁰ 1027 ² 1031 ⁶	82,270	1645 1625		.7274
.674	3		716 717 ¹ 704 ¹³ 706 ¹³ 706 ¹³	56,856	1137 1135		.644
.680	4		1515 ⁴ 1592 ¹³ 1587 ¹⁰ 1579 ³ 1590 ¹	127,439	2549		.678

Av .685

Av (121) 688

.719

Added 321

Positions Occupied 212 222 232 122 322 223
221

Scaler	Scale	Registers	Total Counts	CPM	M ₀	Y/M ₀
1		1555 7				
	10 min	1556 14	99,280	2482		.679
		1541 5		-13		
		1552 1		2469		

2		1053 1				
	10 min	1050 13	67,764	1694		.697
		1064 8		1624		.706
		1066 14				

3		724 7				
	10 min	727 13	46338	1158		.6312
		720 2				
		721 12				

4.		1605 3				
	10 min	1599 5	102,678	2567		.673
		1598 1				
		1614 "				

A₁ .682

A₀ (122) 672

12/23/58

7

33

Repeat of Previous Page To check counters.

Scaler	Scale	Register	Total Counts	CPM	1/m.
1	16	1570			
10 min		1571 ⁹ 1576 ¹³	75,430	2514 2511	.668
2	16	1071			
10 min		1083 ⁶ 1061 ¹⁴	51,460	1715 1695	.697
3	16	719			
10 min		713 ⁸ 711 ¹⁵	34,311	1143	.639
4	16	1550 ⁵			
10 min		1561 ⁵ 1576 ⁴	25,006	2500	.692
					Av .674

Counter Information

Counter	Gain	Voltage	Discriminator	Rise Time
1	2	1600	30	.2 μ s
2	4	1800	15	.2
3	4	1600	25	.2
4	8	900	35	.2

677
706

73

672

672

Add. 332, ¹¹²~~122~~

Positions Occupied 212, 222 232 122 322 223
 221 332 122

Scaler	Scale	Registers	Total Counts	CPM	M.	1/M
1	16	1326 ⁵ 1337 ⁵ 1331 ³ 1335 ¹ 1328	106,526	2663 2650		.6332
2	16	921 ⁷ 920 ¹³ 908 ⁵ 912 ³ 901 ¹⁵	73,035	1826 1806		.654
3	16	568 ¹⁰ 567 ¹⁰ 577 ¹¹ 567 ⁷ 586 ⁴	45,882	1147 1145		.638
4	16	1234 ¹⁵ 1252 ¹³ 1276 1259 ¹³ 1255 ²	100,459	2511		.688 Av .653 Av(123) .641
Background	16					
1			98	12		
2	8 min		169	21		
3						
4			21	7		

Added 312, 132

Position Occupied 212, 222 232 122 322 223

221 332 112 312 132

Scaler	Scale	Register	Total Counts	CPM	M ₀	1/M ₀
1	16	1372 ¹⁰ 1388 ¹² 1384 ⁵ 1376 ¹⁰ 1385 ²	110635	2765 2752		.6097
8 mm						
2	16	972 ¹² 980 ¹¹ 964 ¹³ 985 ² 979 ¹³	78099	1952 1932		.6118
8 mm						
3	16	596 ¹¹ 604 ¹⁰ 597 ⁹ 614 ³ 620 ³	48532	1213 1211		.6036
8 mm						
4	16	1260 ¹² 1248 ⁶ 1251 ¹ 1256 ¹⁴ 1255 ⁵	100358	2508		.689
8 mm						

1/M₀
6332

654

638

688

653

641

Add 323 , 121

Position Occupied 212 222 232 122 322 223
 221 332 122³¹² 323 121

Scaler	Scale	Position	Total Counts	CPM	M.	1/M ₀
1	16	1265 ⁸ 1246 ⁵ 1252 ³ 1265 ¹¹ 1264 ¹⁴	100,715	2877 2863		.5861

2	16	888 ⁹ 891 ¹⁵ 887 ³ 895 ¹ 889 ²	71,262	2036 2016		.5863
---	----	---	--------	--------------	--	-------

3	16	544 ⁸ 551 ³ 554 ⁷ 546 ¹⁵ 543 ¹⁰	43,851	1253 1251		.5843
---	----	--	--------	--------------	--	-------

4	16	1101 ⁵ 1091 ⁵ 1089 ¹⁰ 1099 ¹⁵ 1089 ⁴	87,543	2561		.691
---	----	---	--------	------	--	------

Add 321 123

Positions Occupied

212	222	232	122	322	223
221	332	112	312	132	323
121	321	123			

1/100
Scaler Scale Register Total Counts CPM M. 1/M.

1 10
1320 3
1302 1
7 min 1287 12 104250 2978
1303 10 15
5861 1502 1 2965 .566

2 10
941 15
938 11
5863 7 min 930 5 74927 2141
942 6 20
922 10 2121 .557

5 10
564 9
5843 7 min 569 9 45235 1292
565 13 1290
556 15
520 5

4 16
1091 4
1115 15
691 7 min 1086 0 88,080 2517
1102 5 687
1109 8

Add. 211 235

Positions Occupied 212 222 252 122 322 225
 221 352 112 312 152 323 621
 521 123 211 235

Scaler	Scale	Register	Total Counts	CPM	M.	1/M.
1	16	1367 2	111,077	3124		.531
		1397 8				
		1414				
		1590				
7 min		1375 11				

2	16	1016 4	80,884	2311		.516
		1002 5				
		1004				
		1024 6				
		1007 11				
7 min						

3	16	622 4	48,582	1388		.527
		612 5				
		600 12				
		602 6				
		578 13				
7 min						

4	16	1122 4	89,649	2561		.675
		1118 2				
		1115 11				
		1120 13				
		1125 9				
7 min						

Added 213 231

Position	Oxygenated	212	222	232	122	322	225
		221	332	112	312	132, 323, 121	
		321	123	211	235	213	231

$\frac{1}{M_0}$	Scaler	Scale	Registers	Total Count	CPM	M.	$\frac{1}{M_0}$
.531	1 6 min	14	1256 ⁸ 1269 ⁴ 1264 ¹¹ 1255 ⁵ 1253 ⁸	100756	3358 3345		.5014
.516	2 6 min	16	925 ⁸ 936 ⁷ 937 ⁵ 939 ⁵ 947 ⁵	74,972	2499 2479		.477
.527	3 6 min	16	548 ¹² 560 553 ¹⁵ 542 ² 553 ²	44,127	1471		.497
.675	4 6 min	16	986 ¹ 975 ⁰ 984 ¹⁰ 989 ¹⁵ 985 ⁴	78,734	2624		.659

Add 331, 113

Scaler	Scale	Registers	Total Counts	CPM	M ₀	1/M ₀
		Positions Occupied	212 222 232 122 322 223			
			221 332 112 312 132 523			
			121 321 123 211 233 213 231			
			331 113			
1	6	Registers				
		1319 4				
		1335 3				
6 min		1325 9	106,390	3546		.475
		1330 1		3533		
		1339 5				
2		Registers				
		992 12				
		998 2				
6 min		985 5	79372	2646		.4501
		987 6		-20		
		999 8		2626		
3		Registers				
		572 11				
		587 14				
6 min		588 11	46,538	1551		.472
		574 7		1549		
		584 15				
4		Registers				
		975 15				
		990 12				
6 min		963 5	78,010	2601		.665
		972 10				
		978 7				

12/24/58

Counter information same as p 33

INSTRUMENT CHECK						
Time	8:45	AM	Source	Y		
Range	Channel					
	A	B	C	D	E	
	10/1000	Op	10 ⁻¹⁰	10/1000	9070	
Source Dist.	1 1/2"			1/2"	~12"	
% F.S. Trip	100 ⁺	42	100	1000	100 ⁺	

Bg	Scale	Register	CPM
1	16	4 12 4 12	~13
.6 min			
2	16	6 15 7	~19
.6 min			
3	16	1 5 1 5	~3
.6 min			
4			

Same Configuration as p 40

Scaler	Scale	Register	Total Counts	CPM	1/m
1	16	1332 14 1322 1 1313 7	63495	3527 -17 3514	.477
.6 min					
2	16	1019 15 1004 15 1008 0	48591	2699 20 2679	.441
.6 min					
3	16	569 10 581 12 575 7	27691	27691 1535 -2 1533	.427
.6 min					
4	16	925 7 915 14 924 8	44253	2458	.703
.6 min					

Add 131, 313

Positions Occupied 212, 222, 232, 122, 322, 223, 111, 332, 112, 312, 132, 323, 224, 324, 123, 313, 233, 213, 231, 331, 113, 131, 313

Scale	Scale	Register	Total Counts	CPM	1/m.
1	14	1413 11	111,724	3724	.452
		1392 11			
		1404 10			
6 min		1384 4			
		1387 8			
				<u>5711</u>	

2	14	1057 11	87,437	2814	.423
		1054 5			
		1060 11			
6 min		1047 3			
		1057 9			
				<u>2794</u>	

3	14	608 5	48,375	1613	.454
		607 15			
		602 14			
6 min		610 3			
		601 2			
				<u>1611</u>	

4	14	976 2	70,458	2549	.678
		951 11			
		957 8			
6 min		955 4			
		958 1			

Added 133 311

Positions Occupied 212, 222, 232, 122, 322, 223, 221
332, 112, 312, 132, 323, 121, 321
123, 211, 233, 213, 231, 331, 113
131, 313, 133, 311

23, 221
123, 211

1/m.

452	Scale	Scale	Register	Total Counts	CPM	1/m.
	1		1470 9			
	6 min		1459 2			
			1459 13	116698	3880	.433
			1449 9		-13	
			1454 7		3877	
423						
	2		1121 15			
	6 min		1114 7	89,230	2975	.40
			1108 6		20	
			1112 9		2955	
			1119 15			
454						
	3		636 11			
	6 min		622 9	50,349	1678	.436
			621 10		-	
			631 1		1676	
			634 4			
678						
	4		956 6			
			960 2	77,025	2567	.674
			964 10			
			968 5			
			964 11			

Add. 333 , 111
 Printer occupied complete 3x3x3

Scaler	Scale	Registers	Total Counts	CPM	1/M ₀
1	64	381 ²⁰			
6 min		379 ⁴¹			
		375 ⁵⁹	121,365	4045	
		379 ³⁵		13	
		379 ⁵⁷		4032	0.416
2	16	1186			
6 min		1172 ¹³			
		1185 ²	94,108	3137	
		1163 ¹⁴		-20	0.379
		1173 ¹⁵		3117	
3	16	656 ³			
6 min		656 ⁷			
		656 ¹²	52,284	1745	
		650 ⁴		-2	0.420
		648 ²		1741	
4	16	973 ¹¹			
6 min		978 ¹⁵			
		963 ²	77606	2587	
		970 ¹⁴			0.668
		963 ¹²			

Revised 1" Plymeter of East - West Wall

No	Scaler	Scale	Registers	Total Counts	CPM	1/m.
16	1	64	342 20	109,304	3,673	
			342 41			
			339 24			
			341 52			
			341 59			
379	2	16	1003 8	79,017	2,634	
			983 8			
			985 6			
			982 6			
			985 13			
420	3	16	596 13	47,184	1,573	
			589 1			
			594 14			
			584 6			
			586 14			
668	4	16	951 3	61,159	2,547	
			951			
			955 6			
			954 14			

- 13
3,630

~~78~~ 79,017
2,634
- 20
2,614

1,573
- 2
1,571

2,547

46

Begin 3 X 3 X 3 Array - 1" Plexiglas Walls
12" Centers

12-31-58 Counter Background - No Source

Scaler	Scale	Time	Registers	Total Counts	CPM
# 1	16	12 min	14 +2	226	19
# 2	"	"	5 +5	85	7
# 3	"	"	2 +11	43	4
# 4	"	"	0 +0	0	0

#2 - Removed 1 1/2" block of Paraffin from beneath.

#4 - Hornyak button located at center of south side. ~18" from Source. Horizontal Pos.

Scaler	Gain	Voltage	Discriminator	Rise Time
# 1	2	1600	30	.2 μ s
# 2	4	1800	15	"
# 3	4	1600	25	"
# 4	8	1000	15	"

Pu-Be Source in place - ~ 3 in. above ^{Pos. 222}

No Billet

Scaler	#1	#2	#3	#4	Time
	718 +5	1221 +2	303 +15	237 +2	6 min
Scale 16	704 +9	1225 +1	306 +12	237 +5	"
	714 +11	1215 +12	302 +7	241 +6 478 +4	"
	716 +0	1216 +3	304 +13	223 +9	"
	708 +5	1204 +8	300 +1	236 +8	"
Total Counts	56,990	97,332	22,773	18,814	
CPM	1,900	3,244	759	627	

1 Tuballoy Billet in Center Pos. [222] - Pu. Be Source

Scaler	# 1	# 2	# 3	# 4	Time
Scale	16	16	16	16	6 min
	748 ⁺¹⁴	1311 ⁺¹⁵	318 ⁺²	246 ⁺¹³	"
	750 ⁺⁸	1321 ⁺¹³	321 ⁺⁸	245 ⁺⁵	"
	743 ⁺¹	1318 ⁺⁴	314 ⁺⁸	243 ⁺¹⁰	"
	747 ⁺¹⁰	1313 ⁺¹³	319 ⁺⁰	251 ⁺²	"
	751 ⁺¹⁰	1322 ⁺⁶	313 ¹⁵	254 ⁺¹⁵	"
Total counts	59,867	105,413	25,393	19,869	
CPM	1,995	3,514	846	662	

portal Pos.
from Source

1 Tuballoy Billet in Position 232

Scaler	# 1	# 2	# 3	# 4	Time
Scale	16	16	16	16	6 min.
	617 ⁺¹¹	954 ⁺¹¹	306 ⁺¹	243 ⁺¹³	"
	613 ⁺¹⁰	958 ⁺⁹	293 ⁺¹³	240 ⁺¹⁵	"
	612 ⁺⁷	964 ⁺³	294 ⁺²	245 ⁺¹⁵	"
	601 ⁺¹⁴	965 ⁺¹⁵	294 ⁺⁴	250 ⁺⁸	"
	616 ⁺¹⁵	970 ⁺⁰	303 ⁺⁰	246 ⁺¹¹	"
Total Counts	49,002	77,014	23,880	19,646	
CPM	1,633	2,567	796	655	

Pos.
232

Time.
6 min
"
"
"
"

1 Oralley Billet - 232

Scaler Scale	#1	#2	#3	#4	Time
	16	16	16	16	6 min
	651 ⁺¹	1057 ⁺³	320 ⁺¹⁰	245 ⁺¹²	"
	638 ⁺⁶	1049 ^{+"}	317 ⁺¹	245 ⁺⁴	"
	649 ⁺⁰	1053 ^{+"}	313 ⁺¹⁵	245 ⁺⁸	"
	655 ⁺⁰	1045 ^{+"}	313 ⁺⁷	250 ⁺¹	"
	634 ⁺¹²	1043 ⁺¹	314 ⁺⁶	248 ⁺⁸	"
Total Counts	51,651	83,987	25,271	19,771	
CPM	1,722	2,806	842	659	
M	1.054	1.091	1.057	1.006	
1/m	.948	.917	.945	.993	.937

2 Oralley Billets - 232 + 222

Scaler Scale	#1	#2	#3	#4	Time
	16	16	16	16	6 min
	761 ⁺²	1258 ⁺⁴	364 ⁺⁸	273 ⁺³	"
	751 ⁺¹⁰	1258 ⁺¹²	364 ⁺¹⁰	269 ⁺¹⁴	"
	751 ⁺³	1256 ⁺¹²	372 ⁺⁸	279 ⁺¹	"
	761 ^{+"}	1248 ⁺²	375 ⁺¹⁴	270 ⁺¹²	"
	761 ⁺⁸	1238 ⁺³	382 ⁺¹	275 ⁺²	"
Total Counts	60,594	100,161	29,753	21,889	
CPM	2,020	3,338	991	729	
M	1.236	1.300	1.244	1.113	
1/m	.808	.769	.803	.898	

3 Oratloy Billets, - 212, 222, + 232

Scaler Scale	# 1	# 2	# 3	# 4	Time
	16	16	16	16	6 min.
	770 +14	1270 +13	384 +16	273 +2	"
	775 +6	1255 +13	381 +8	—	"
	774 +10	1254 +10	381 +11	281 +15	"
	37,134	60,500	18371		
	2,063	3341	1020		
M	1.263	3341	1010		
1/m	.792	.765	.783	Av. .780	

1/2/59

1 - 2 - 59

Same as above

	# 1	# 2	# 3	# 4	Time
	815 +2	1298 +4	380 +6	286 +7	6 min.
	793 +13	1269 +5	381 +11	291 +13	"
	788 +9	1270 +3	382 +13	282 +11	"
	784 +13	1282 +5	378 +12	284 +1	"
Total counts	50,869	98,003	42,748	27,201	
C.P.M	2,120	3,095	1,018	755	

1.298
.770

~~5 Oratloy Billets - 122, 212, 222, 232 + 322~~

817 +6	1349 +10	394 +8	133 +12
836 +5	1320 +4	390 +15	138 +1

M	1.283	1.321	1.279	1.153
1/m	.779	.757	.781	.867

Scaler Scale	5 Oralloy Billets - <u>122, 212, 222, 232</u> + <u>322</u>				Time 6 min
	#1	#2	#3	#4	
	817 ⁺⁶	1349 ⁺¹⁰	394 ⁺⁸	133 ⁺¹²	"
	836 ⁺¹⁵	1350 ⁺⁴	380 ⁺⁵	138 ⁺¹	"
	820 ⁺⁵	1363 ⁺⁷	397 ⁺¹	135 ⁺⁴	"
	823 ⁺¹²	1336 ⁺⁶	398 ⁺²	134 ⁺⁰	"
	828 ⁺¹¹	1342 ⁺¹	399 ⁺³	138 ⁺⁰	"
Total Counts	66,033	107,868	31,666	10,865	
CPM	2,201	3,596	1,056	362	
M	1.348	1.401	1.327	1.000	
1/M	.741	.714	.754	1.000	

Scaler Scale	7 Oralloy Billets - <u>122, 212, 222, 232</u> , ^{added} <u>221, 223</u> + <u>322</u>				Time 6 min
	#1	#2	#3	#4	
	892 ⁺⁷	1470 ⁺⁶	424 ⁺¹⁴	143 ⁺¹²	"
	896 ⁺¹	1483 ⁺⁸	417 ⁺⁷	144 ⁺¹⁰	"
	894 ⁺¹⁵	1473 ⁺¹⁴	425 ⁺⁶	150 ⁺¹³	"
	882 ⁺³	1477 ⁺⁵	423 ⁺²	146 ⁺⁶	"
	888 ⁺⁴	1453 ⁺³	428 ⁺⁶	141 ⁺⁷	"
Total Counts	71,252	117,732	33,907	11,632	
CPM	2,375	3,924	1,130	388	
M	1.454	1.529	1.420	1.072	
1/M	.688	.654	.704	.932	

9 - Orally Billets $\frac{112+122}{212, 222, 232, 221+223}$ 51
 $322 + 332$

Scaler	#1	#2	#3	#4	Time
Scale	16	16	16	16	6 min
"	922 ⁺¹	1579 ⁺⁹	439 ⁺¹	158 ⁺¹⁵	"
"	932 ⁺¹³	1546 ⁺²	440 ⁺¹⁵	162 ⁺¹⁰	"
"	924 ⁺¹	1554 ⁺¹⁴	447 ⁺⁵	165 ⁺⁹	"
"	922 ⁺¹¹	1557 ⁺⁰	443 ⁺⁶	160 ⁺¹⁰	"
"	907 ⁺⁹	1568 ⁺⁷	434 ⁺³	162 ⁺²	"
Total Counts	73,747	124,899	35,280	12,958	
CPM	2,449	4,163	1,176	432	
M	1.500	1.622	1.477	1.190	
1/M	.667	.616	.677	.840	

11 - Orally Billets -

$\frac{112, 122 + 132}{212, 222, 232, 221 + 223}$
 $312, 322 + 332$

Scaler	#1	#2	#3	#4	Time
Scale	16	16	16	16	6 min
"	975⁺²	1643	472 ⁺	179 ⁺⁹	"
"	975 ⁺²	1693 ⁺¹	457 ⁺⁶	185 ⁺¹⁰	"
"	980 ⁺⁶	1657 ⁺²	461 ⁺⁸	185 ⁺¹⁵	"
"	981 ⁺³	1648 ⁺¹³	467 ⁺⁷	187 ⁺⁷	"
"	966 ⁺¹²	1642 ⁺⁷	447 ⁺¹⁵	181 ⁺⁷	"
"	980 ⁺¹²	1661 ⁺¹			"
Total Counts	78,147	132,040	36,900	14,720	
CPM	2,605	4,401	1,230	491	
M	1.595	1.714	1.545	1.323	
1/M	.627	.583	.647	.737	

52

15 - Oralley Billets -

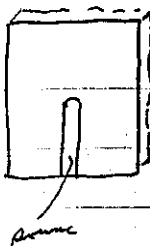
112, 122, 132, 121 + 123
 212, 222, 232, 221 + 223
 312, 322, 332, 321 + 323

Scaler	# 1	# 2	# 3	# 4	Time
Scale	16	16	16	16	6 min
	1052 ⁺¹⁰	1822 ⁺⁶	506 ⁺⁸	204 ⁺⁵	"
	1076 ⁺²	1831 ⁺³	504 ⁺³	206 ⁺⁷	"
	1059 ⁺²	1814 ⁺⁸	499 ⁺⁵	206 ⁺¹³	"
	1059 ⁺⁷	1802 ⁺¹⁰	496 ⁺¹³	201 ⁺¹	"
	1054 ⁺⁵	1791 ⁺¹¹	501 ⁺¹²	204 ⁺¹	"
Total Counts	84,746	144,998	40,137	16,363	
CPM	2,825	4,833	1,338	545	
M	1.730	1.883	1.681	1.505	
1/M	.578	.531	.594	.664	

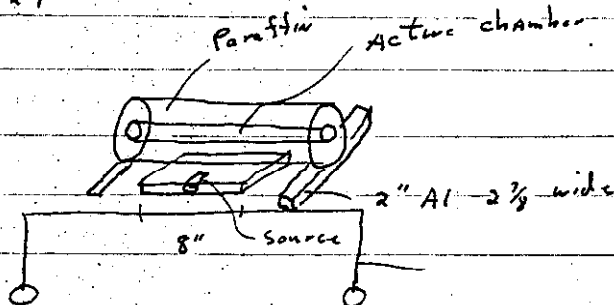
1/5/59

Multiplication Experiments with One Billet & Source PoBe internal

I



1 Tuballoy Billet.



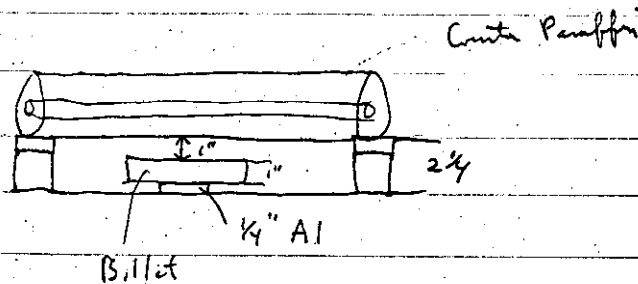
Scale	Scale	Registers	Total Counts	CPM	M
2	64	607 ⁺	117,085	13,809	
3 min		615 609 ¹⁷			

1 Ovalloy Billet

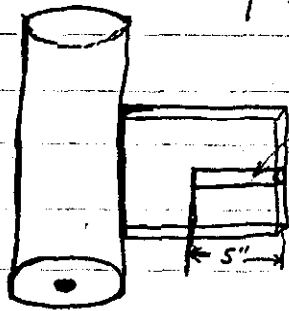
2	64	1036 ⁴⁸	201,011	23,334	1.717
3 min	256	262 ¹⁰⁰			
	256	260 ⁹⁹			

Background no source

2	256	39	13	Reflection from center into slab increased the multiplication
3 min				



II

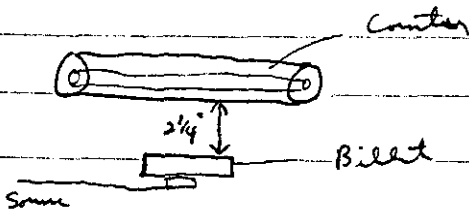


1 Tuballoy Billet 1 to Counter
Midplane as Shown

	Registers	Total Counts	CPM	M
Scaler # 2	135 + 34			
Scale 64	135 + 35	43411	1447	
6 min	137 + 29			
	134			
	135 43			1.642

1 Oralloy Billet	221 + 19			
Scaler # 2	224 + 36	71281	2376	
Scale 64	222 + 46			
6 min	220 + 58			
	224 18			

III



	Registers	Total Counts	CPM	M
1 Tuballoy Billet				
Scaler # 2	607 ²⁰			
Scale 64 6 min	302 ²²	97569	6505	
3 min	307 ³¹			
	307 ¹⁴			1.4837
1 Oralloy Billet	452 + 43			
	456 + 39			
3 min	451 + 62	144,777	9,652	
	451 + 59			
	448 + 63			

1st Digit Indicates Row

2nd Digit

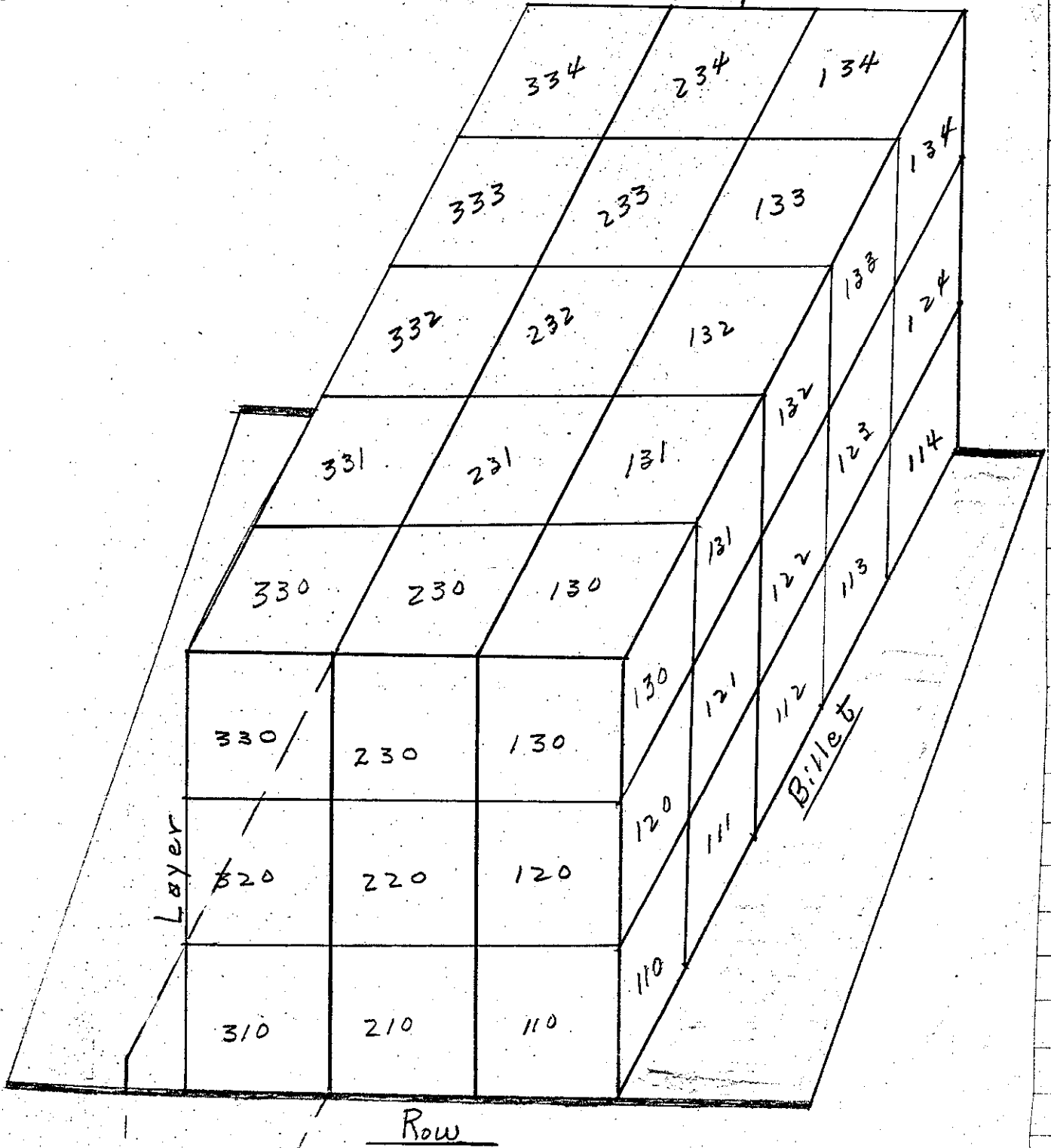
3rd Digit

"

"

Layer

Billet



M

1.642

M

1.4837

1-6-59

Assembly of A 3x3x5 billet Array
1" Plexiglas vault.

Counter	Gain	Voltage	Discriminator	Rise time
1	2	1600	30	0.2 μ s
2	4	1800	15	.2
3	4	1600	25	.2
4	8	1000	15	.2

Counter 1, 2, 3 position same as before

Pu-Be Source position $\sim \frac{1}{2}$ " Below Billet in position 232

Pu-Be Source.

Scaler	Scale	Registers	Total Counts	CPM
1 6 min	16	791	"	
		793	"	
		781	"	
2	16	1650	13	
		1659	7	
		1646	"	
3	16	350	3	
		350	"	
		351	"	
4	16	596	13	
		578	2	
		583	"	

Scaler Scale Registers Total Counts CPM

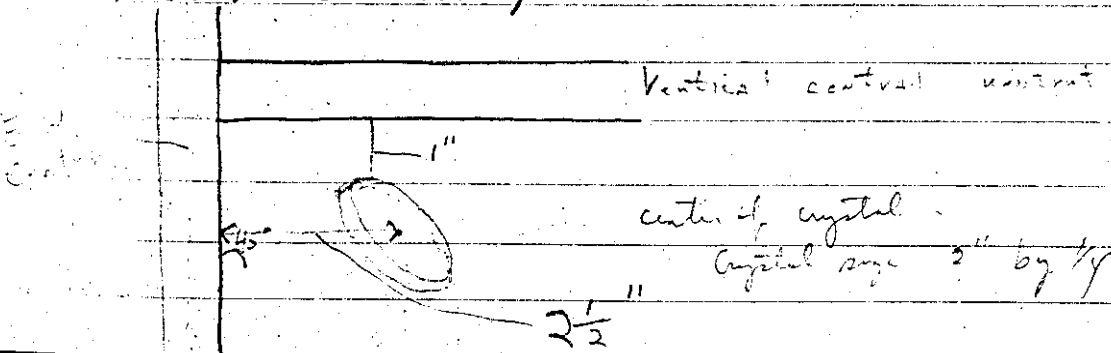
#1 16 755 +3
764 +7
762 14 85,012 2024
768 1 -11
745 +12 2013
756 +10

#2 16 1578 +9
1581 +5
1583 1583 1599 10 177,072 4216
1575 5 -8
1580 +9 4208
1568 +0

#3 16 318 +6
314 " 323 +13
322 2 55,734 851
318 3 4
319 +3 847
312 +2

#4 16 635 +4
634 +7
649 +11
644 +12
644 +14
636 +1
643 9

Position of Hornyak Butte



Ventria: central vent

center of crystal

crystal size 2" by 1/4"

2 1/2"

Scaler	Scale	Register	Total Counts	CPM
1	16	788 ¹²	41654	1157
		764 ⁹		
		793 ⁸		
		787 ¹⁰		
		791 ¹⁵		
		799 ¹⁰		
6 min	16	778 ²	41654	1157
		1128 ⁶		
		1146 ¹⁴		
		1150 ¹¹		
		1151 ¹		
		1156 ¹		
5	16	1136 ⁷	41654	1157
		1149 ⁸		
		1153 ⁹		
		1155 ⁴		
		1158 ⁸		
		1157 ⁶		
4	16	441 ⁵	41654	1157
		455 ¹⁶		
		458 ¹⁰		
		422 ¹⁵		
		431 ¹		
		434 ⁵		
6 min	16	441 ⁵	41654	1157
		455 ¹⁶		
		458 ¹⁰		
		422 ¹⁵		
		431 ¹		
		434 ⁵		

Background - No Source, No Billets

Scaler	# 1	# 2	# 3	# 4	CPM
Scale of 16	4 ⁺¹⁰ = 74	3 ⁺¹ = 49	1 ⁺⁸ = 24	0 ⁺⁰ = 0	
6 min.	4 ⁺¹ = 65	2 ⁺⁶ = 38	1 ⁺¹⁰ = 26	0 ⁺² = 2	
	4 ⁺² = 66	2 ⁺⁰ = 32	1 ⁺² = 18	0 ⁺⁰ = 0	
	4 ⁺³ = 69	2 ⁺⁹ = 41	1 ⁺³ = 19	0 ⁺¹ = 1	
Total Counts	274	160	87	0	
CPM	11	8	4	0	

Scaler #	Scale	Registers	Total Counts	CPM	1/m.
#1	16	982 ¹⁴	95222	2645	.764
		1001 ¹²		-11	
		994 ⁶			
		993 ¹⁴			
		989 ⁰		2634	
6 min		989 ⁸			
#2	16	2116 ²	203,175	5643	.747
		2127 ⁵		-8	
		2120 ⁹			
		2119 ⁷			
		2094 ⁴		5635	
		2120 ¹⁰			
#3	16	415 ¹⁴	40,424	1123	.757
		423 ¹²		-7	
		415 ⁷			
		430 ⁷			
		423 ⁷		1119	
		420 ¹			
#4	16	743 ¹⁰	72836	2023	
		770 ⁷			
		764 ⁷			
		758 ⁵			
		756 ⁹			
		758 ¹⁴			
6 min					

Scaler	Scale	Register	Total Counts	CPM	Yield
1	64	258 24	99,633	2768	.7299
		259 48			
		259 24			
		259 43			
		261 58			
257 44					
				<u>2758</u>	
2	64	564 60	215,746	5993	.7031
		559 31			
		565 40			
		565 25			
		559 31			
557 63					
				<u>5985</u>	
3	64	108 37	42,328	1177	.722
		108 34 47			
		111 35			
		110 53			
		111 30			
111					
				<u>1175</u>	
4	64	203 8	78,247	2187	.529
		204 "			
		204 30			
		208 "			
		205 48			
204 58					

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1/4 m.	Scale	1	2	3	4
7299	Scale	64	64	64	64
27	Time	6 min	6	6	6
		259 ¹¹	565 ⁶	110	206 ¹⁷
		262 ¹⁹	564 ²⁰	110 ³	207 ⁶³
		260 ⁴⁰	558 ⁴⁹	110 ³⁷	209 ¹³
		258 ⁴	564 ²¹	110 ⁵⁰	207 ¹
7031		261 ⁷³	563 ⁶⁵	109 ⁵³	209 ⁵⁵

Total Counts	83,317	180,255	35281	66708
CPM	2777-10 2767	$\frac{6008}{6000}$	$\frac{1175}{1172}$	2224
1/4 m.	.7275	.7013	.723	.5202

722

5 Oralley Billits 252, 222, 212, 122, 321

Scale	1	2	3	4
Scale	64	64	16	64
Time	6	6	6	6
	273 ¹⁹	592 ⁴¹	465 ⁸	217 ¹⁰
	272 ⁷	590 ³⁷	466 ¹²	215 ⁴⁵

529

1/7/59

214 ⁵⁰	1120 ⁰	2296 ²	460 ¹
277 ¹⁵	602 ⁵²	114 ⁴⁹	212 ⁶¹
278 ⁴²	595 ⁴¹	114 ⁵⁰	213 ³⁷
276 ⁵⁴	595 ⁵²	116 ⁵	215 ¹⁵

Total Counts	106,121	227,297	44397	82,410
CPM	2948 -16 2932	$\frac{6314}{6000}$ -7 6307	$\frac{1233}{1230}$	2289
1/4 m.	.6865	.667	.689	.505

1/7/59

Background with 5 Billets in position

Scaler	1	2	3	4
Scale	16	16	16	16
Time	6 min	6	6	6
Registers	6 ¹⁵	2 ⁹	1 ⁶	2
	6	2 ¹¹	1	6
	5-3	2 ⁴	1 ¹	5
	6 ⁴	2 ¹⁰	1 ³	6
CPM	16	7	3	1

7 Orallyy Billets 252 222 212 122 122

 221 223

Scaler	1	2	3	4
Scale	64	64	64	64
Time	6 min			
Registers	291 ²⁵	623 ⁴⁵	122 ⁴⁸	227 ²⁶
	292 ⁴⁶	627 ¹⁵	120 ⁴³	228
	293 ¹⁵	618 ⁵²	123 ³⁷	226 ⁵
	295 ³⁶	602 ³⁸	122 ⁶	227 ⁹
	289 ⁴³	617 ⁴⁸	119 ⁴¹	222 ⁰

Total Count	95925	199,915	38959	72,360
CPM	3131	6664	7299	2412
	<u> -16</u>	<u> -7</u>	<u> -3</u>	
	3115	6657	7296	

1/m	.6462	.632	.653	.479
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9 O'ralloy Billits 252, 222, 212, 122, 322
221, 223, 132, 312

Sealer	1	2	3	4
Sale	64	64	64	64
Time	5	5	5	5
Registrars	249 ⁵⁸	540 ⁴³	106 ⁵	191 ³⁸
	255 ⁺⁰	548 ⁺⁴	106 ⁺³¹	192 ⁺¹⁸
	252 ⁺³⁵	549 ⁺⁴¹	104 ⁺⁹	195 ⁺⁹
	254 ⁺¹¹	543 ⁺⁵¹	104 ⁺⁴⁴	194 ⁺³⁹
	251 ⁺¹⁰	544 ⁺⁵²	104 ⁺¹⁸	196 ⁺²⁷
Total Cents	80,838	174,527	33,643	62,083
CPM	3,234	6,981	1,346	2,483
- By	- 16	- 7	- 3	- 1
CPM	3,218	6,974	1,343	2,482
1/m	.625	.603	.631	.466

11 O'ralloy Billits - 232, 222, 212, 122, 322, 221, 223,
132, 312, 112, 332

262 ⁴³	564 ⁵²	108 ¹	198 ⁵⁶
258 ⁺⁵⁶	562 ⁺²⁴	108 ⁺⁴	198 ⁴³
262 ⁶	561 ¹⁸	107 ³⁵	195 ²⁵
260 ¹⁴	560 ⁶¹	108 ¹⁰	200 ²⁹
267 ⁺¹⁷	564 ⁺²⁸	110 ⁺⁴⁰	195 ⁺³⁶
83,528	180,121	34714	63419
3341	7205	1388	2537
<u>3325</u>	<u>7198</u>	<u>1385</u>	2536
.605	.585	.612	.456

Background with South wing at 10^{-2} on Lg N.

Scaler	1	2	3	4
Time	5	5	5	5
Count	233	101	66	15
	245	97	66	13
	268	89	79	11
CPM	450	19	14	3

Background with South wing down

16	7	3	1
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15 Oralley Billets Added 321 323 121 123

Scaler time	1	2	3	4
	285 ¹²	610 ⁰	114 ²⁹	205 ⁴³
	281 ²⁵	606 ⁶¹	115 ²⁵	206
	284 ⁵²	606 ⁴	117 ¹⁴	205 ²⁷
	282 ¹⁰	604 ³¹	118 ²⁷	204 ⁵²
	282 ⁵³	604 ⁴⁵	114 ⁵⁶	202 ⁵⁴
	90,521	194,061	37,263	65,328
	3621	7762	1490	2614
	<u> -10</u>	<u> -7</u>	<u> -3</u>	<u> -5</u>
	5605	7755	1487	2613
	.558	.543	.570	.443

Scaler	1	2	3	4
Time	4 min	4	4	4
Registers	245 ⁺⁵⁰ 245 ⁵⁷ 245 ⁵⁷ 246 ["] 250 ["]	519 ⁺⁶⁰ 532 ["] 529 ["] 527 ["] 527 ¹⁵	100 ⁺¹² 101 ["] 102 ⁺⁴⁰ 101 ⁵⁰ 100 ["]	176 ⁺²¹ 175 ⁶³ 170 ²⁹ 175 ² 173 ³³
Total Cnts	78922	168,690	32,400	55764
CPM	3270	8,4345	1620	2788
-By	<u>-10</u>	<u>-7</u>	<u>-3</u>	-
CPM	3220	8427	1617	2787
1/m	.514	.499	.623 .524	.415

21 Oralley Billets, Added 220 + 224

Scaler	1	2	3	4
Scale 64	253 ⁺¹⁷	536 ⁺⁴⁹	103 ⁺¹⁹	178 ⁺⁴⁵
Time 4 min	257 ⁺¹⁷	535 ⁺⁸	101 ⁺³⁷	175 ⁺⁴¹
	256 ⁺⁴⁴	538 ⁺⁴⁴	101 ⁺¹⁵	175 ⁺⁶²
	254 ⁺¹⁹	538 ⁺⁵⁸	103 ⁺²³	174 ⁺⁵⁴
	251 ⁺²⁴	539 ⁺⁶²	104 ⁺²⁹	179 ⁺²⁵
	81,465	147,125	32891	56,111
CPM	4073	8606	1645	2831
	<u>-10</u>	<u>-7</u>	<u>-3</u>	
	4057	8599	1642	2830
1/m	.496	.489	.516	.401

66

25 Orvalloy B.illots

Add-d

313
111333
131

Scaler	1	2	3	4
Scale	64	64	64	64
Time	4	4	4	4

	269 ⁵⁵	571 ²²	109 ²⁰	183 ⁶⁰
	271 ³⁷	569 ³⁸	102 ⁴⁷	186 ⁴⁵
	272 ³⁸	570 ¹⁷	109 ⁴⁵	183 ⁵⁴
	272 ⁴	570 ⁴⁹	107 ¹¹	184 ²²
	273 ⁵¹	567 ¹	108 ²⁹	182 ²⁰
Total Cnts	87033	182,355	34971	58,959
CPM	4352	9117	1748	2948
- By	<u>-10</u>	-7	-3	
CPM	4332	9110	1745	2947
1/mo	.465	.462	.485	.393

29 Orvalloy B.illots

Add-d

113, 133, 311, 331

Scaler	1	2	3	4
	290 ⁵	604 ⁵	116 ⁴⁰	190 ¹¹
	288 ⁵²	611 ⁵	115 ³²	194 ¹⁴
	299 ³	601 ⁴¹	116 ¹⁹	192 ¹¹
	290 ³²	604 ²³	116 ²²	190 ⁵⁰
	286 ⁵¹	605 ¹⁷	117 ¹⁰	192 ⁵³
	92,495	193,693	57,255	61451
CPM	4625	9685	1,863	3073
	<u>-10</u>	-7		
	4609	9677	1860	3072
1/m	.457	.435	.455	.377

33 Oralley B. Tickets Add. 210 244 250, 254 67

301 4	625 ²⁰	122 ¹³	196 ⁴⁵
288 30	625 ²⁵	121 ⁴⁹	194
302 40	625 ⁷	120 ²²	195 30
275 1	630 ³⁸	125 ²⁷	194 1
300 52	618 ⁵⁰	119 ³²	191 21
95815 + 08, 113	198,884	58845	61887
4791 5431	9,994	1942	
-15 5415	- 7987	1939	3094
YM .421 372	.421	.437	.374
By 4 min			
65	49	61	5

37 Oralley B. Tickets Add. 120 124, 320, 324

1, 331

1/8/59

INSTRUMENT CHECK				
Time 8:30	AM			Y
				Pu Be on D
	A	B		E
Range	$\frac{10}{1000}$	open	10^{-10}	$\frac{10}{1000}$ 900V
Source Dist.	0"	0"	14"	3" 7"
% F.S. Trip	95	OK	100	80 100
Counters	1, 2, 3 + 4			

Background. Some in Vault.

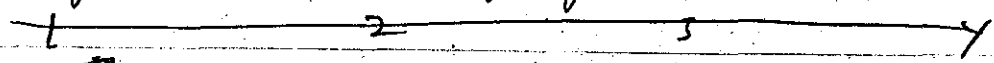
Scaler	1	2	3	4
Time	4	4	4	4
Counts	55	17	18	12
	64	24	9	5
CPM	15	5	3	2

37 Orallay B. 11.6 Add. 120 124 320 324

Scale	1	2	3	4
Time	4	4	4	4
Register ⁶⁹	325 ³⁰	660 ⁴²	122 ⁵⁹	198 ⁵⁵
	323 ⁶²	657 ⁵⁵	126 ⁴⁷	189 ⁹
	324 ⁵⁸	658 ⁶¹	125 ¹	200 ²⁰
	322 ²⁹	655 ⁴⁴	124 ³⁷	199 ³⁷

Total Counts	82,867	16852	51,824	51,064
CPM	5179	10,557	1989	3,191
- Bx	- 15	- 10		
CPM	5164	10527	1986	3187
1/M.	.389	.3996	.426	.363

~~Backyard with South wing up~~



Scale 64
10mm

	1	2	3	4
41 Orally B. Hets				
Added			114, 134,	310, 330
Scale	1	2	3	4
Time	4	4	4	4
Scale	64	64	64	64
Regimen	330 ⁶	683 ⁵²	132 ²⁰	203 ³⁰
	332 ²²	680 ⁷	133 ¹⁹	204 ¹²
	333 ⁴⁷	681 ⁴⁰	133 ³¹	201 ²⁷
	340 ¹⁷	620 ³⁴	134 ⁴	204 ¹¹

324 Total Counts	65,052	86,748	174,219	34,138	52,054
CPM	4065	5422	10,889	2,133	3253
-Bg	53	20	-	-	-
CPM	4012	5420	10,885	2130	3251
1/mo	.288	.371	.386	.397	.355

Bg

10mm	1	2	5	7
	8 ²⁵	2 ³⁰	1 ²²	29 counts
CPM	53	16	9	3

45 Overall. Billets

Add. 110, 130
314, 334

	1	2	3	4
Scaler				
Time	4	4	4	4
Scale	64	64	64	64
Registers	20 354 ³¹ 352 ⁴⁵ 359 ⁵⁵ 356 ⁴² 351 ²³	700 ⁶¹ 707 ³⁸ 702 ³ 708 ⁵⁴ 709 ⁵⁰	137 ³¹ 141 ⁵¹ 140 ³² 138 ¹³ 137 ["]	207 ²⁴ 210 ¹⁰ 205 ³ 208 ¹⁵ 206 ²⁹
Total Costs	113,408	226,240	44,500	66,390
CPM	5,670	11,312	2,225	3,319
- By	53	10		
CPM	5617	11,296	2216	3310
1/m.	.358	.373	.382	.349

Background

	1	2	3	4
20 min	8 ⁵²	3 ⁴⁰	1 ⁵⁹	1 ¹³
	28			

Began Adding Reflector

45 Oralley Billets - 3 X 3 X 5 Array

Added 3" thick Reflector to $\frac{1}{2}$ back of
movable table. [3" X 18" X 60"]

Scaler	1	2	3	4	
Time	4	4	4	4	
Scale	64	64	64	64	
Registers	345 + 58	723 + 0	138 + 22	213 + 59	
4" on $\frac{1}{2}$ N.	348 + 49	729 + 61	135 + 21	218 + 58	214 + 57
1" on Remainder		92989	17515	27701	
CPM		11623	2,187	3463	
		11,607	2,180	3455	
$\frac{1}{m}$.		.362	.388	.335	

Additional paraffin shielded neutron reflecting off floor to counter # 1

4" on N Added 3" Reflector to $\frac{1}{2}$ back of movable table

4" on $\frac{1}{2}$ S $\frac{1}{2}$ " " Fixed table

1" on Remainder 4" Reflector on Back of movable table

348 ³²	791 ²¹	134 ⁵²	232 ⁴²
	792 ⁴	157 ¹³	234 ⁴²
		29,908	
		3,738	
		3,729	
		.31	

Added 3" to $\frac{1}{2}$ of Fixed table, 3" to $\frac{1}{2}$ of East

4" on N side and 3" to $\frac{1}{2}$ of West side.

4" on S	409 ⁸	717 ³⁰	154 ⁴⁷	265 ³
4" on $\frac{1}{2}$ E	411	921	155	265 ³⁴
4" on $\frac{1}{2}$ W				33829
1" on Remainder				4229
				4220
$\frac{1}{m}$.				.273

added 3" Reflector $\frac{1}{2}$ of East, $\frac{1}{2}$ of West and
to moveable table top.

4" except top of Fixed Table

Scale	1	2	3	4
Scale	64	256	64	64
Time	4	4	4	4
Registers	393 ⁺⁴¹	247 ⁺⁷¹	124 ⁺¹²	314 ⁺¹⁹
	398 ⁺⁰	245 ⁺⁷⁵	124 ⁺³⁸	318 ⁺⁹

4" except on top
3 fixed table
1" on top

40,476

5,060

5,057

.229 $\frac{1}{M}$

4.371 M

Log N .000185

27-2

1/9/59

INSTRUMENT CHECK					
Time	8:25	AM	Source	X	
			Channel		
			A	B	C
Range	$\frac{10}{1000}$	0.1	10^{-10}	$\frac{100}{1000}$	900V
Source Dist.	95 1/2"	0"	3"	6"	13"
% P.S. Tap	95	OK	100	65	100%
Counters	1, 2, 3 & 4				

Log N .00027

Beginning for Reflected Multiplication Curve

4" Reflector (1" Plex 3" Par) on top + 4 sides
45 Billots

1/4 M

Scaler	1	2	3	4
4 min scale 64				
Register	261 ³⁰	468 ³¹	93 ¹⁰	315 ³⁵
	260 ⁷⁴	464 ³³	93 ³⁸	315 ⁴
	255 ⁶¹	470 ⁴⁶	90 ⁵⁹	316 ⁹
	261 ¹⁷	465 ¹⁷	93 ⁷	312 ³⁵
	258 ³²	465 ⁵⁰	91 ⁴⁵	317 ⁷
	257 ⁶¹	462 ⁴⁵	93 ³³	317 ⁴
Total Counts	99,563	179,043	35,584	121,178
- Background	4,148	7,460	1,483	5,049
CPM	$\frac{95,415}{4}$ = 23,854	7,454	1,479	5,049

Background

Scale 64	1 + 22 = 86	0 + 31	0 + 12	0 + 1
4 min.	1 + 33 = 97	0 + 16	0 + 20	0
	0 + 53 = 53	0 + 22	0 + 2	0
CPM	20	6	4	0

* \longrightarrow Add-d $1\frac{1}{2}$ " on top + N+S sides.
 $5\frac{1}{2}$ " " " " " " "
 4" " " " " " " " E+W "

Scaler	1	2	3	4
Scale ⁶⁴				
4mm				
	175 ¹²	4x70 ¹⁶⁴	62 ⁴⁶	320 ⁹
	175 ⁴⁷	282 ⁸	60 ⁶¹	317 ⁵
	175 ⁵⁵	286 ¹⁸	62 ⁵⁵	325 ⁴²
	176 ³³	7 255 ⁶²	62 ⁵	317 ⁵⁴
	175 ¹⁴	278 ⁶⁰	61 ³⁰	318 ⁶
	176 ⁹	247 ⁷⁶	60 ⁶⁰	322 ⁵⁰
	177 ²	275 ⁶	61 ⁴⁷	321 ⁵¹
	176 ¹⁵	261 ⁴⁰	59 ⁵²	318 ³⁴
Total Counts	89,858	125,172		
CPM	2808	4,470		
	-16	-7		
CPM	2792	4,463		

Background

4min Scale 66

	5 ¹⁰	1 ¹²	1 ⁵	0 ⁴
	59	1 ¹²	1 ²	0 ⁷
20 m	75 ⁸	9 ¹⁴	5 ¹⁰	0 ⁸
CPM	13	8	5	1

Remand Reflector

4" on top & 4 sides

Remand 110, 114, 130, 134, 310, 314 330
334

Scaler	1	2	3	4
Scale 64 4 min				
Register	185 ¹⁷	355 ¹⁶	66 ²⁰	250 ¹³
	180 ¹⁰	354 ⁵⁷	65 ³	255 ¹¹
	180 ⁶⁰	354 ⁶	66 ¹⁹	253 ⁶
	179 ⁰	351 ⁰	64 ⁴⁷	252 ²¹
	180 ³⁴	353 ²	65 ²	251 ³⁵
	180 ²⁵	353 ⁷	67 ³³	248 ⁵⁶
	181 ⁴⁴	349 ⁴¹	67 ²⁶	251 ²³
Total Gate	81,150	158,145	29,593	112,805
CPM	2898	5,648	1,057	4,029
- By	-15	-8	-5	
CPM	2883	5,640	1,052	4,028
1/M.				

76

Remmed 124 120 , 324, 320

33 B.11ets

Scaler	1	2	3	4
Time	4	4	4	4
Scale	64	64	64	64
Registers	161	315 ⁶¹	59 ³⁷	227 ¹⁹
	156 ⁵⁷	315 ³⁴	59 ¹⁸	229 ³⁰
	163 ⁴	315 ¹⁹	60 ³⁴	224 ³⁸
	160 ⁸	315 ¹⁵	61	229 ¹⁴
	159 ³⁴	314 ⁵⁵	59 ⁶	230 ³⁵
	160 ⁺²	312 ⁴⁵	60 ⁵⁷	227 ¹²
	157 ³¹	315 ²⁴	59 ¹³	230 ⁹
	158 ⁷	309 ³³	59 ⁵⁰	229 ¹²
Total Counts	81,707	160,782	30,935	116,991
CPM	2,553 2,043	5,024 4,020	967 773	3,655 2,925
- By	- 15	- 8	- 5	0
CPM	2,538	4,012 5,016	962 768	3,655 2,925

B

Background

Sum result

	1	43 cts	27 cts	9
CPM	18	8	5	2

1-12-59

77

Counter Background 5 min. # 1 2 3 4

Scale 64

$2^{+3} = 131$ $0^{+60} = 60$ $0^{+20} = 20$ $0^{+4} = 4$

$1^{+12} = 76$ $0^{+31} = 31$ $0^{+24} = 24$ $0^{+2} = 2$

$1^{+34} = 98$ $0^{+21} = 21$ $0^{+20} = 20$ $0^{+2} = 2$

CPM 20 8 4 .5

27 Billets - 3 X 3 X 3 Array

- 4" Paraffin + Plexiglas Vault 3' X 3' X 5'

Scaler

1

2

3

4

Scale 64

171^{+51}

349^{+55}

59^{+38}

259^{+63}

Time 5 min

170^{+9}

345^{+38}

61^{+36}

262^{+19}

170^{+6}

351^{+48}

61^{+10}

257^{+24}

169^{+44}

342^{+53}

61^{+29}

258^{+45}

169^{+41}

346^{+31}

60^{+30}

257^{+48}

167^{+62}

346^{+56}

61^{+1}

262^{+5}

170^{+9}

342^{+53}

61^{+3}

263^{+57}

170^{+22}

340^{+1}

62^{+1}

259^{+4}

87,028

177,037

31,288

135,193

2,175

4,426

782

3,329

- 20

- 8

- 4

CPM

2,155

4,418

778

3,329

19 B. llets

Remmed 111 113 131 135
311 315 331 335

132 ³²	275 ³⁰	49 ¹⁵	217 ²⁵
127 ⁴⁸	271 ⁰	48 ¹⁹	217 ⁶²
130 ²²	275 ²⁰	49 ¹¹	210 ⁶¹
129 ¹¹	209 ³⁷	49 ⁵	212 ⁵⁰
128 ⁵⁹	209 ⁵²	49 ²⁴	217 ⁴⁰
129 ²¹	271 ⁵⁵	48 ⁵⁹	215 ⁴⁹
129 ⁵	275 ²⁵	48 ¹⁷	217 ³⁷
129 ⁵⁴	275 ³²	48 ⁴⁶	217 ³⁵
66,550	24 139, 136	24,832	110,589
1,659	3,478	621	2,765
- 2 -			
CPM	1,639	3,470	617
			2,765

Basijunt Beton 15-11 Bulle

7 min
mali 64

BPM	211	66	42	10
CPM	30	10	8	1

	15 Billets	Removed	211	213	231	233
			121	123	321	323
Scaler	1	2	3	4		
Time	7	7	7	7		
Scale cc	64	64	64	64		
Registers	158 ¹³	340 ¹⁷	50 ⁹	276 ¹⁷		
	156 ¹⁰	335 ²⁹	60 ⁴⁵	278 ⁴⁰		
	159 ⁴³	333 ⁷⁰	58 ⁵⁵	275 ⁵⁹		
	161 ²²	337 ³	58 ³³	271 ¹¹		
	158 ⁶⁰	336 ¹⁹	61 ⁴⁶	277 ¹⁹		
Total Cnts	50,886	107,682	19,196	88,254		
CPM	1,454	3,077	548	2,521		
-By	-25	-8	-8	-1		
CPM	1,429	3,069	540	2,520		

	11 Billets	Removed	121	123	321	323
Registers	139 ⁺⁴	298 ⁺⁵⁸	59 ⁺³⁵	254 ⁺³		
Scale by	139 ⁺⁵	300 ⁺²⁸	57 ⁺³⁹	258 ⁺³⁹		
7 min.	142 ⁺¹²	294 ⁺⁵⁴	52 ⁺¹⁹	256 ⁺⁵³		
	139 ⁺²¹	300 ⁺⁴⁰	52 ⁺²²	256 ⁺²⁴		
	137 ⁺⁵⁸	299 ⁺¹⁰	54 ⁺³	257 ⁺²⁶		
	140 ⁺¹⁴	298 ⁺¹	52 ⁺²⁹	256 ⁺¹⁴		
Total Cnts	53,617	114,687	20,531	98,527		
CPM	1,277	2,731	489	2,346		
-By	-25	-8	-8	-1		
CPM	1,252	2,723	481	2,345		

80

8 Billets - Removed 112, 122, + 132

Scaler	#1	#2	#3	#4
Scale 64	127 ⁺⁷	271 ⁺³⁷	49 ⁺¹⁸	238 ⁺⁴⁰
Time 7min	130 ⁺²⁶	272 ⁺²⁷	50 ⁺⁴⁷	237 ⁺¹³
	129 ⁺³⁰	274 ⁺³⁴	49 ⁺³⁸	235 ⁺⁵²
	132 ⁺¹⁶	272 ⁺¹⁵	50 ⁺²³	237 ⁺²⁴
	129 ⁺²	275 ⁺¹³	50 ⁺²⁹	232 ⁺⁶²
	128 ⁺⁷	272 ⁺⁴	47 ⁺⁵⁷	234 ⁺⁸
	127 ⁺⁰	270 ⁺²⁷	50 ⁺¹⁷	232 ⁺³⁰
Total Counts	57,816	122,165	22,080	105,509
CPM	1,180	2,493	451	2,153
- Bgd	-25	-9	-8	
	1,155	2,484	443	2,152

3 Billets - Removed 221, 223, 312, 322 + 332

Scale 64				
Time 7min	110 ⁺²²	235 ⁺⁶⁰	43 ⁺⁴⁶	208 ⁺⁵⁵
	110 ⁺⁴⁷	234 ⁺³²	44 ⁺²¹	207 ⁺⁹

1/15/58

Barhyd

7min

30CPM
~~203~~ cts14CPM
96J
21Y
4

3 Billets Cml'd

112 ⁺²³	244 ⁺⁶³	42 ⁺¹³	204 ⁺³⁹
110 ⁺⁶³	240 ⁺¹⁶	42 ⁺⁵⁸	206 ⁺³¹
111 ⁺²³	239 ⁺¹⁴	41 ⁺³⁶	202 ⁺⁶⁰
109 ^{2c}	236 ¹⁵	43 ¹⁷	207 ⁺⁶⁰
110 ⁺²³	237 ⁺⁵³	41 ⁺⁴⁶	—

	1	2	3	4
Total Count	49,635	107,580	19,181	79,230
CPM	1,013	2,196	391	1,886
- By	- 30	- 14	- 3	- 0
CPM	983	2,182	388	1,886
1/m.				

1 Beets 222

Scaler	1	2	3	4
Time 10 min				
Scale 64				
Register	148 ⁺⁷	325 ⁺²⁵	56 ⁺³⁹	234 ⁺⁶
	144 ⁺⁶⁰	322 ⁺³³	54 ⁺⁵⁰	236 ⁺⁶²
	148 ⁺¹⁶	316 ⁺³⁰	56 ⁺⁴⁸	237 ⁺⁴²
	144 ⁺²	321 ⁺⁴¹	54 ⁺⁴⁵	232 ⁺⁴⁰
	143 ⁺³³	318 ⁺¹⁸	55 ⁺⁵⁸	235 ⁺¹²
	143 ⁺⁴⁵	318 ⁺³	56 ⁺⁷	236 ⁺²⁶
Total Count	55,843	123,030	21,470	90,428
CPM	931	2,050	357	1,507
- By	- 30	- 14	- 3	
CPM	901	2,036	354	1,507

82

1 Tuballoy in 232

Scaler #	1	2	3	4
Time 10 min				
Scale 64				
Register	115 ⁵¹	238 ["]	45 ⁴⁴	194 ⁴⁵
	118 ⁴⁴	240 ²⁴	45 ⁴⁷	201 ²⁹
	116 ¹¹	239 ⁴	47 ¹⁵	193 ⁵²
	116 ³⁹	237 ⁶³	47 ¹²	199 ²
	119 ⁹	236 ⁴	47 ⁴⁰	197 ⁴¹
	119 ⁶⁵	237 ³	46 ²	198 ¹⁵
	117 ¹²	236 ⁶²	47 ⁵²	195 ⁺¹⁴
Total Counts	52,669	106,592	20,954	88,321
CPM	752	1522	85 299	1262
- Bg	-46	-12	-14	
CPM	702	1506	285	1,262

1 Tuballoy in 222

Register	135 ¹	318 ["]	56 ⁴⁵	134 ¹
	136 ⁵⁸	317	56	135 ⁵⁸
	135 ⁵	318	56	135 ⁵
	131 ²⁴	317 ⁺³⁵	57	134 ³⁵
				137 ²⁰
Total Counts				43,317
CPM				866
- Bg				
CPM				866

Background

Scale	1	2	3	4
5 min scale 64				
Rytm	3 39	1 11	1 9	0 42
	3 52	1 9	1 14	0 2
	3 15	0 59	1 12	0
B _g after	3 52	1 34	1 11	0 2
	3 32	1 20	0 57	0
CPM	46	16	14	

Background Before Tuballoy in 222

5 min scale 64	1 10	0 17	0 20
	0 61	0 22	0 26

1 Tuballoy in 252

5 1/2" on Tip + N+S side

7 min scale 64

52 48	106 18	21 34
54 56	108 17	20 48
54 55	106 21	21 48
56 10	108 17	21 57
58 16	106 22	21 46
57 33	107 48	20 60
55 42	105 56	22 70
55 18	106 9	

1/15/59

Counter Information

Counter 1, 2, 3 still the same

Honeywell Button replaced by a U^{235} gas
flow chamber.

Counter	Voltage	Gain	Disc	Rise time
1	1600	2	30	.2ms
2	1800	4	15	.2
3	1600	4	25	.2
4		8	15	.8ms

Multiplication Measures with 1" 85
 Plexiglass internal Moderation 1" Vault.

Background

Scaler	1	2	3	4
Scale 16	4 ⁺¹⁴	2 ⁺¹	+16	+7
Time 5 min	4 ⁺¹²	2 ⁺¹	+14	+6
	4 ¹³	2 ["]	16	+7
	4 ¹¹	2 ["]	+15	+10
	4	2	0	

1 Tuballoy in Position 232

Scale 64	1	2	3	4
5 min	137	352 ²³	54 ¹	330 ⁸

Discriminate setting changed on counter # 4 to 30 and 1 1/2"
 paraffin Placed under counter # 2.

Scale 16				1019 ⁺²
12 min	1283 ⁺⁶	1648 ⁺³	504 ⁺¹¹	
	1260 ⁺¹	1613 ⁺¹¹	502 ⁸	967 ¹⁴
	1267 ⁺⁷	1508 ⁺¹¹	510 ⁺⁷	958 ¹³
	1303	1547	527 ["]	
	1298 ⁺¹⁴	1551 ⁺¹¹	512 ⁺¹³	879 ⁺¹
	1271 ⁺⁷	1415 ⁺¹¹	509 ⁺¹⁴	860 ⁺⁹
	1278 ²	1407 ¹	510 ⁺¹	860
	1261 ¹	1425 ¹	507 ¹³	834 ⁸
	1273	1396	505 ⁸	825 ¹⁴

Counter II + IV Malfunctioning.

Gain on Counter 4 changed to 10 with rise time .2 μ s

1/16/59

36" - Unit 1 Plexiglas.
 Internal Moderation - 1" Plexiglas on 12" Centers.

87

Background. Some in result.

Scale	1	2	3	4
Scale 14	1	9	1	0 +2
Time 5 min	4 +4	0 10	1 8	0 8
6m	5 +4	1 3	1 7	0
	5	1 8	1 7	0

Tuballoy in 232

Scale 16	1287 +11	1662 +2	513 +4	338 +6
Time 12 min	1298 +15		515 +1	355 +5
	1278 +8	1609 +12	504 +5	350 +12
	1284 10	1623 6	513 7	350 8
	1279 6	1614 13	511 12	350 1
	1275 4	1635 15	507 3	340 10

Total Cnts	123,238	130,304	49,072	
CPM	1,712	1810 180,978 2172	681	
-Bg	-15	-4	-4	0
CPM	1,697	1806 2,168	677	

Tuballoy in 222

Time 12m Scale 16	1390	1910	592	160 6
	1379 14	1884 10	592 4	152 8
	1377 4	1874 13	585 4	100
	1343 9	1890 15	593 8	163 6
				157 1
				160
				<u>15,253</u>

CPM

212

1 Oralloy in Position 272

Scaler	1	2	3	4
Scale 67	238 ²²	306 ⁵¹	96 ⁹	55 ³¹
Time 6min	234 ⁴⁸	306 ¹⁵	95 ⁶⁸	55 ⁴⁰
	231 ³¹	304 ^T	92 ²⁴	54 ⁹
	236 ²⁸	308 ⁵⁷	98 ⁵¹	51 ⁵⁷
	235 ⁵⁵	308 ¹⁸	93 ⁵⁷	51 ³⁴
T C	75,318	98,196	30,340	17,201
CPM	2,511	3,273	1011	573
- B _g	- 15	- 4	- 4	
CPM	2,496	3,269	1007	573
1/M	.68	.663	.672	

2 Oralloy bullets

Add 372

Scale 67	257 ⁴⁴	331 ³¹	601 ²²	57 ¹⁸
Time 6	260 ⁶⁰	338 ⁶	102 ⁴³	58 ⁶²
	258 ⁵⁴	334 ¹	601 ³⁴	58 ³¹
	261 ¹³	335 ⁶²	103 ³	58 ³⁵
	258 ⁵⁹	330 ⁵²	101 ⁴⁰	54 ²⁷
	83,050	106,826	32,660	
	2768	3563	1089	
	- 15	- 4		
	2,753	3559	1085	
	.616	.609	.624	

5 Oralley B.illts Added 222

89

Scale

1 2 3 4

Scale 64

Time 5

233 ²⁴	298 ¹⁰	91 ⁵⁴	23 ⁹
231 ⁵³	295 ³⁵	92 ²⁰	25 ²
234 ⁵⁸	297 ⁶³	92 ²⁸	23 ⁸
235	297 ¹⁴	94 ¹⁷	23 ¹¹
234 ⁶⁰	296 ⁶	90 ⁷⁹	23 ⁵³
234 ⁸	296 ⁴⁰	92 ²¹	22 ⁶²
89,824	114,070	35,449	8,913
2994	3801	1182	297
- 15	- 4	- 4	
2979	3797	1178	297
.570	.571	.575	.714

5 B.illts Added 322 212

Scale 64
Time 5

248 ⁶¹	311 ⁵⁰	99	24 ⁶
248 ¹¹	308 ³⁰	98 ⁵⁴	25 ⁵³
249 ⁴²	313 ⁵⁰	98 ⁴⁸	27 ⁵²
251 ²	309 ⁵¹	99 ⁷⁰	25 ⁵³
254 ²⁰	312 ⁵⁰	98 ⁵⁵	25 ²⁴
252 ³⁷	309 ²¹	97 ²⁰	
96,307	119,552	37,883	7,912
3210	3,978	1,263	316
- 15	- 4	- 4	- 0
3195	3,974	1259	316
.531	.545	.537	.671

90

8 Orally Billots

Add

512

112

122

Scale

1

2

3

4

Scale 64

Time 5

266 ³⁵	330 ⁵⁷	106 ³⁰	25 ⁴¹
269 ["]	324 ⁵²	106 ⁵⁵	26 ¹⁶
269 ¹⁰	322 ²⁸	107 ²³	24 ⁶¹
267 ⁴¹	329 ²⁴	109 ²⁵	26 ⁹
268 ³⁰	324 ³	106 ⁵⁹	24 ⁴⁵
85,821	104,420	34,308	8,172
12 0	4,177	1325	327
3,433	-4	-4	
<u>-15</u>	4,173	1371	327
3,418			
1/m. .496	.52	.494	.648

12 Orally Billots

Added

323

321

225

132

343 ¹³	406 ¹⁰	132 ³	34 ¹¹
345 ³¹	406 ["]	134 ⁶⁰	34 ¹²
345 ⁵²	402 ³⁸	136 ["]	32 ¹⁹
345 ⁷⁰	405 ²⁰	134 ⁴⁰	32 ⁷
340 ³¹	405 ⁶⁰	134 ⁵⁶	33 ³²
109,987	129,814	43,312	10,641
4,399	5192	1732	426
<u>-15</u>	-4	-4	
4384	5188	1728	426
.387	.418	.392	.498

14 Oralley Billboards, Added 221 + 121 91

Scaler	#1	#2	#3	#4
Scale 67	385 ⁵³	445 ⁴⁷	146 ⁵⁰	38 ⁶
5 min	385 ²⁵	443 ⁴⁵	146 ⁵⁹	36 ²²
	385 ⁷	445 ⁶¹	147 ⁵²	37 ²²
	387 ²³	444 ⁵	149 ⁹	36 ¹⁹
	388 ²	441 ²⁸	147 ¹	36 ⁵⁹

Total Counts	123,630	142,138	47,211	16,838
CPM	4,945	5,685	1,888	474
- Sqd	-15	-4	-7	-0
CPM $\frac{1}{m}$	4,950	5,681	1,882	474
$\frac{1}{m}$	.344	.3816	.360	.447

5,132

1/19/59

INSTRUMENT CHECK						
Time: 8:30	AM	Source: Pu Be				
		Channel:				
		A	B	C	D	E
Range		$\frac{10}{1000}$	opt	10^{-10}	$\frac{10}{1000}$	900V
Source Dist		13"	0"	15"	3"	0"
% F.S. Trip		85	OK	100	80	100%

15 Billets

All-d 125

Scaler	1	2	3	4
Scale 64				
Time 5 min	411 ³⁰	475 ⁵⁵	154 ³⁰	28 ³⁵
	412 ⁴⁵	470 ²⁴	155 ³¹	27 ³⁵
	408 ⁶²	464 ¹⁵	159 ³¹	28 ⁴¹
	404 ¹⁷	467 ²⁴	154 ⁵⁸	28 ¹¹
	104,804	120,058	39,904	7550 ?
	5,240	6005	1998	
	-15	-4	-4	
	5,225	5999	1994	
$\frac{1}{m}$	.3248	.361	.339	

?

17 Billets

Add

251, 215

Scale

1

2

3

4

Scale 64

Time 5

482 ⁴⁸	546 ⁵	188 ⁸	32 ⁴⁰
488 ³¹	551 ¹²	182 ⁵⁵	34 ⁵⁴
484 ⁵⁵	548 ¹⁶	185 ⁸⁹	31 ¹⁷
484 ⁵⁴	540 ⁵⁵	187 ⁴⁵	30 ⁵⁹
124,220	139,958	47,655	
6211	6997	2383	
-15	-4	-4	
5,196	6995	2579	
Y/M .274	.310	.285	

19 Billets

Add

211, 255

Scale 64

Time 4 min

482 ¹⁴	522 ¹⁹	184 ⁶²	35 ²¹
478 ¹⁷	520 ⁴⁹	184 ⁵⁶	31 ⁵⁹
476 ⁴⁵	518 ²⁵	188 ¹⁴	31 ⁵⁴
475 ⁴⁰	524 ⁴⁴	185 ¹⁰	32 ²⁴
122,490	133,585	47,566	
7656	8336	2973	
-15	-4		
7641	8352		
Y/M .222	.2602	.228	

94

21 Bills

Added

111 - 555

Scale	1	2	5	7
Time 3				
Scale 64	407 ⁴⁷	433 ³⁸	155 ⁹	26 ³¹
	405 ¹⁷	457 ⁴⁶	160 ³⁶	35 ⁶
	406 ¹⁶	434 ⁵³	158 ⁶	25 ³⁴
	408 ³⁴	455 ²⁵	155 ⁴⁴	25 ¹⁵
	104,178	111,290	40,267	
	8682	9274		
	<u>- 15</u>			
	8667	9270	3351	
Y/m	.196	.234	.202	

23 Bills

Added

133

511

Scale	1	2	5	7
Time 3				
Scale 64	466 ⁴³	498 ²⁰	181	28 ⁴³
	466 ²	495 ⁴	183 ⁶	28 ³⁸
	469 ⁴⁸	494 ³⁹	180 ⁴⁴	31 ¹⁷
	468 ⁵³	496 ⁴⁰	182 ⁶⁰	30 ⁴⁶
	119,762	127,015	46,544	
	9980	10,585	3,879	
	<u>- 15</u>			
	9965		3,825	
Y/m	.170	.205	.175	

Scaler	# 1	# 2	# 3	# 4
Time 3	550 ⁰	564 ⁴⁵	213 ³⁹	36 ²²
Scale 64	551 ⁴⁸	564 ³³	210 ⁵⁴	37 ²⁵
	550 ¹⁸	563 ⁵⁹	209 ¹⁰	34 ¹³
	548 ⁴⁷	571 ¹⁹	210 ⁻	33 ⁺³⁴
	140,721	144,924	53,991	
	11,726	12,077	4499	
	- 15			
	11,711	179	4495	
1/m	.145	.179	.151	

27 B. 11. 1/2, Add. 2

Time 3	Scale 64	Scale 256	1/m
	667 ¹⁵	624 ²⁹	41 ¹³
	664 ⁵³	650 ⁵⁸	41 ⁵⁵
	666 ³⁵	646 ⁵⁰	41 ⁵⁰
	165 ²⁰⁹	165 ⁹⁷	40 ⁵⁹
	165 ²⁰⁰	166 ¹⁹²	72 ⁴⁴
	212,800	213,056	
	14,187	14,203	
	- 15		
	14,172	14,199	
1/m	.120	.152	.126

96

29 Added 220 , 224

1 2 3 4

Scale 256

Time 3

198 ⁶²	194 ¹²⁷	75 ¹⁹²	44 ⁵⁵
201 ¹²²	194 ²⁴⁷	76 ²⁹	48 ⁴⁷
198 ⁴⁵	195 ⁷⁹	75 ⁴⁰	46 ¹⁷
198 ²⁰	196 ⁷¹	76 ¹²⁰	46 ⁵⁰

203,817	199,948	77,689
- 16,984	16,662	6475
- 15		

169 69

Ym

.100

.130

.105

9 Billits

212 222 232 221 223

322 122 112 332

Scale 64

Time 5 min

303 ⁴⁹	312 ⁴³	117 ⁵⁴	18 ⁺¹⁸
307 ⁵⁶	359 ⁵⁰	120 ⁵⁸	17 ⁺²⁹
302 ⁵⁵	360 ["]	119 ⁶³	18 ⁺⁴¹
302 ¹⁴	359 ³⁸	122 ²⁸	18 ⁺⁰
301 ["]	363 ²⁰	120 ⁴⁶	18 ⁺⁹

97,145	112,354	30,844 38,272
3,880	4,494	+234 1531
- 15		

3871

1527

.438

.485

.443

.467

Scale
Time
Scale

Scale
Time

Total

7 Billets Row 2 112 332

Scale	1	2	3	4
Time 5	274 ⁵⁴	326 ³⁵	109 ²⁸	17 ⁵⁹
Scale 64	273 ¹⁵	330 ²	109 ²⁵	17 ⁵¹
	265 ⁵³	327 ²⁰	107 ⁴⁵	18 ⁴³
	270 ¹⁰	327 ³⁶	111 ²⁹	15 ⁴⁷
	221 ⁴³	328 ²³	107 ⁵⁵	15 ²⁷
	86,267		36,226	
	3471	4,198	1,449	
	-15			
	3456			
YM	.491	.516	.467	

9 Billets 112 122 132 212 222 232
 Row 2 Full - 5x3 312 332 332

Scale 64	1	2	3	4
Time 5	313 ¹⁶	380 ⁴⁸	128 ⁵⁶	19 ¹⁸
	309 ⁵⁹	372 ³⁸	127 ⁴⁴	19 ⁵⁶
	308 ⁵⁵	370 ⁴	128 ⁵⁴	18 ⁵⁹
	315 ⁵³	372 ²⁵	127	20 ³¹
	312 ⁴⁰	376 ⁶²	129 ⁷	20 ⁰

Total Counts	99,861	120,239	41,057
CPM	3,994	4,809	1,642
- Bgd	-15		
YM	3,979		
YM	.426	.451	.412

112 212 312
 122 222 322
 132 232 332

9 Billets

~~112~~ ~~212~~ ~~312~~
~~122~~ ~~222~~ ~~322~~
~~132~~ ~~232~~ ~~332~~

Scale	1	2	3	4
Scale 64	297 +30	362 +12	120 +3	17 +41
Time 5	292 +8	361 +8	121 +54	15 +62
	293 +20	358 +12	118 +43	16 +21
	295 +15	363 +3	121 +24	16 +58
	299 +22	359 +29	120 +36	17 +62
Total Counts	94,303	115,451	38,560	
CPM	3,758	4,618	1,542	
- Bgd	- 15	- 4		
	3,743	4,614	1,538	
1/M	.453	.469	.439	

9 Billets

131 231 331
 132 232 332
 133 233 333

Scale 64	1	2	3	4
Scale 64	347 +53	420 +4	137 +63	35 +6
Time 5 min.	348 +16	426 +27	136 +35	34 +35
	339 +15	428 +56	134 +53	37 +16
	345 +1	365 +18	137 +40	34 +58
	344 +45	327 +24	136 +45	34 +63
	110,402	81,433	43,756	
	4,416	5,429	1,750	
	- 15	- 4	- 4	
	4,401	5,425	1,746	
1/M	.385	.400	.388	
M _r	1.763	1.659	1.7338	

Assembly of Array 3x3x3 with
 1" Plex Vault
 1" Plex Internal + Sty.

1/20/59

Background

	#1	#2	#3	#4
Scale	4 ⁴	2 ³ = 131	1	1
Time 5 min	3 ⁷	1 ⁶ = 70	1 ⁵	0 ⁵
CPM	12	6	4	

Ornalloid in 252

Scale 16	Time 5	Scale 64	Scale 256	Scale 1024
803 ⁶	4x263 ²⁵	331 ¹¹	117	
203 ²⁷	262 ³¹	82 ³⁰	28 ¹⁵	
199 ⁵⁹	264 ²²	85 ³⁵	29 ³	
202 ⁴²	263	83 ²⁷	26 ⁶¹	
199 ⁶¹	258 ⁶³	82 ¹		
64579	93,981	26,555		
2,583	3359	1062		
-12	-6	-4		
CPM 1,571	3353	1,058		

4 Drally

Add-D

222, 212, 322

Scale	1	2	3	4
Time 5	227 ⁴¹	290 ²⁶	96 ¹³	64 ⁶⁰
Scale 44	227 ⁴¹	289 ⁵⁵	94 ⁵⁸	15 ⁵⁶
	225 ²⁰	290 ³	95 ²	14 ⁵²
	227 ³	286 ³⁶	93 ²⁷	15 ⁵³
	231 ⁸	287 ⁴¹	95 ⁴⁰	—
Total Cmts	72,881	92,429	30,382	
CPM	2915	3,697	1,215	
- Bg	-12	-6	-4	
CPM	2903	3,691	1,211	
1/mx	.886	.908	.877	

7 Drally

Billets

Add-D

122, 225, 221

Scale	7	Billets	Add-D	122, 225, 221
Scale 64	263 ³⁶	326 ³¹	110 ³	17 ²⁶
Time 5	265 ⁵⁷	322 ⁶	107 ²⁶	17 ⁵²
	265 ¹⁹	330 ³⁵	105 ⁵⁷	18 ³⁹
	264 ²⁶	327 ¹¹	108 ⁴⁰	18 ⁴³
	261 ⁶¹	321 ⁵⁵	108 ³	18 ²¹
Total Cmts	84,551	104,202	54,558	
Bgd	3,382	4168	1582	
	-12	-8	-4	
	3,370	4162	1578	
1/mx	.763	.805	.768	

11 Drilling Billets Added 312 112 101
132 332

Scaler	# 1	2	3	4
Time 5	339 ²	414 ¹⁴	136 ¹⁴	22 ⁴¹
Scale 64	342 ¹⁸	408 ⁵⁹	133 ¹⁷	22 ⁴²
	339 ⁶³	403 ⁵³	136 ³¹	23 ²
	343 ³⁰	408 ⁴	136 ²⁹	22 ⁶³
	337 ²⁵	409 ³⁵	136 ²⁹	21 ¹³
Total Counts	108,928	130,855	43,448	
CPM	4,357	5,235	1,733	
-Bg	-12	-6	-4	
CPM	4,345	5,229	1,733	
1/mx	.591	.641	.610	

21

	15 Drilling	Billets	Added	121	123
Scale 64	405 ⁺³	468 ⁺²⁵	164 ⁺⁶	321	323
Time 5 min.	415 ⁺¹⁸	464 ⁺⁸	163 ⁺²⁸	25 ⁺²⁵	
	408 ⁺¹⁸	467 ⁺⁴⁹	163 ⁺⁴³	26 ⁺⁰	
	409 ⁺⁶³	457 ⁺⁵⁹	161 ⁺⁵¹	24 ⁺⁰	
	412 ⁺¹⁹	465 ⁺⁵⁹	161 ⁺⁴⁴	24 ⁺⁴⁸	
Total Counts	131,257	148,744	52,140		
CPM	5,250	5950	2086		
-Bg	-12	-	-4		
CPM	5,238	5944	2084		
1/mx	.491	.564	.505		

102

19 Oralloy Billets

Added 211 213
231 233

Scaler	1	2	3	4
Scal 64	496 ⁺⁶²	535 ⁺¹⁹	193 ⁺³⁰	31 ⁺³
Time 4	494 ⁺¹⁰	540 ⁺⁶¹	195 ⁺³¹	29 ⁺³⁴
	495 ⁺²	541 ⁺⁴	195 ⁺⁵⁵	29 ⁺⁵⁹
	493 ⁺⁵⁷	548 ⁺⁵⁰	197 ⁺¹⁴	30 ⁺⁴²
Total Cnts	126,720	138,118	50,050	
CPM	7,920	8,632	3,128	
-By	-12	-6	-4	
CPM	7,908	8,626	3,124	
1/mx	.325	.388	.338	

25 Oralloy Billets

Added 116 333
113 331

Scaler	1	2	3	4
Scal 64	672 ⁺⁴²	701 ⁺³⁶	263 ⁺⁵¹	40 ⁺⁰
Time 4	672 ⁺⁴³	798 ⁺³¹	265 ⁺¹	39 ⁺³²
	675 ⁺⁴³	703 ⁺¹⁸	268 ⁺⁸	37 ⁺⁶²
Total Cnts	129,344	134,615	50,812	
CPM	10,778	11,218	4,254	
-By	-12	-6	-4	
CPM	10,766	11,212	4,250	
1/mx	.239	.299	.250	

27 Oralloy Billets

Added 311 313
133 131

Scaler	1	2	3	4
Time 4	1017 ⁺⁵⁰	1010 ⁺³²	394 ⁺¹⁰	64 ⁺⁸
Scal	1025 ⁺⁴⁰	1015 ⁺¹²	395 ⁺⁴⁹	63 ⁺⁴⁷
	1029 ⁺⁴⁵	1021 ⁺⁶⁰	394 ⁺³²	62 ⁺⁴⁴
Total Cnts	16,390	16,248	75,805	
CPM	16,378	16,248	6,517	
CPM	16,378	16,248	6,513	
1/mx	.157	.206	.1670	

1/21/59

Background

Scale	1	2	3	4
Scale 14	18	5	4	0
Time 20min		14	4	5
CPM	17	5	3	0

INSTRUMENT CHECK

Time _____ AM _____ PM _____

A B C D E

Range 1000 opt 10¹⁰ 1000 900V

Source Dist. 22" 0" 6" 0"

% F.S. Trip 85 OK 100 80 100

27 Dralley Billets

Turn 4	1020	31	1022	71	392	24	69	19
Scale 64								
	1027	38	1024	10	392	13	70	62
	1020	5	1014	38	387	27	69	23
Total Counts	196,362		195,840		75,008			
	186,362							
	16,363		16,320			-4		
	- 12		- 6		75,004			
	16,351		16,314		6,251			

27 Orally Billets Styrofoam Removal.

Scale	1	2	3	4
Scale 64	879 ²⁰	894 ⁵²	337 ¹⁰	49 ⁺³⁶
Time 4min.	882 ⁴⁹	898 ³⁸	343 ⁵⁷	49 ⁺²¹
	887 ⁸	896 ¹⁷	342 ³⁰	49 ["]
	885 ⁴¹	899 ⁴³	343 ⁹	51 ⁴¹
	226,230	229,718	87,466	
CPM	14,139	14,357	5,466	
-By	-17	-4	-4	
	14,125	14,353	5,462	

1 Orally Billet in 252 - 36" Vault - 1" Phisiglon
1" Phisiglon on 12" Center

Scale 64	159 ⁴²	817 ⁷	68 ³³
Time 4	161 ²⁸	4 ²⁰⁸ +39	70 ["]
	161 ¹³	208 ²⁴	68 ⁸
	160 ⁴⁴	208 ⁵¹	68 ⁶⁰
	158 ⁵⁷	210 ⁶³	68 ["]
	159 ³³	205 ⁵²	68 ["]
		208 ⁸	69 ⁵⁵
Total Cnts	61,529	80,037	26,460
CPM	2,563	3,335	1,103
-By	-14	-4	4
CPM	2,549	3,331	1,099

36" Vault "Plinths"
 1 oralley Pos 232 + 1" Plinths (12" ~~1050~~)
 + Foam Glass

Scaler	1	2	3	4
Scale 64	153 ⁺⁷	197 ⁺⁵⁹	64 ⁺¹⁵	6 ⁺¹⁴
4 min.	154 ⁺¹²	197 ⁺⁵⁴	66 ⁺¹⁶	6 ⁺³⁴
	155 ⁺¹⁹	200 ⁺¹⁸	64 ⁺⁶	5 ⁺⁶²
	159 ⁺⁵⁶	201 ⁺¹²	65 ⁺⁴¹	5 ⁺⁵⁶
	123 ⁺⁴⁴	199 ⁺⁷	62 ⁺⁴¹	
	154 ⁺⁴	195 ⁺⁰	63 ⁺⁸	

Total Counts ~~59,534~~
 CPM ~~2,481~~
~~- Bgd~~
 CPM ~~2,467~~

Above counts taken
 when South wing
 was running

149 ¹²	195 ¹⁹	60 ⁵⁷
152 ¹⁷	196 ²⁵	60 ⁶²
148 ⁴³	197 ⁵⁷	64 ²⁰
153 ¹³	199 ⁸	62 ⁶²
154 ¹	194 ²⁰	62 ⁵³
150 ³⁹	196 ³	62 ¹³
TC 58,105	75,460	23,947
CPM 2,421	3144	998
- Bgd -12	-5	-4
CPM 2,409	3139	994

1/mx

Right Center

106

7 Billets - 122, 221, 222, 223, 212, 232
322

Scale

	1	2	3	4
Scale 64	172 +42	218 +48	70 +40	5 +57
4 min	173 +10	219 +17	69 +50	5 +31
	176 +56	217 +13	70 +39	6 +0
	173 +52	218 +58	78 +63	5 +32
	175 +27	217 +27	68 +56	-
	177 +24	216 +52	71 +26	5 +49

Total Counts

CPM

- 14

1/My

67,155	83,735	27,026
2,798	3,489	2,252
- 14	- 6	- 4
2,784	3,483	2,248
.865	.901	.885

15 Bellits - 36" Vanet - 1" Ploglas
 - 1" Ploglas on 12" Centre
 Foam Glass in voids

107

1/22/59

Background

Scaler	1	2	3	Y
Scale 64	46	21	17	
Time 4 min				
CPM	~ 12	5	4	0

INSTRUMENT CHECK

Time 8:50 Source PuBe

Range $\frac{10}{1000}$ 0.1 10^{-10} $\frac{10}{1000}$ 900V

Source Dist. 8" 0" 11" 3" 0"

% F.S. Tap 80 OK 100 80 100

Scaler	1	2	3	4
Scale 64	214 +62	261 +62	82 +39	4 +62
4 min	213 +7	260 +34	82 +42	4 +30
	209 +41	259 +21	83 +54	5 +32
	213 +6	257 +17	82 +48	5 +46
	214 +13	260 +22	82 +52	5 +20
	216 +36	263 +34	84 +29	5 +19
Total Cts	82,021	100,030	31,953	
	3,418	4,168	1,331	
Prep	- 12	- 6	- 4	
CPM	3,406	4,162	1,327	
Kmx	.707	.7542	.749	

108

27 Billits -

3 X 3 X 3 array Complete

1" Plexiglas Vault

1" " " on 12" Centers + Foam Insul

Scalers

	1	2	3	4
Scale 64	289 +16	337 +62	111 +50	6 +22
7 min	286 +10	336 +17	112 +29	6 +44
	288 +37	336 +36	114 +29	6 +45
	288 +61	339 +61	112 +8	-
	292 +2	331 +43	112 +29	6 +62
	292 +7	334 +36	114 +14	-
Total Count	111,173	128,832	43,359	
CPM	4,632	5,368	1,807	
- Bgd	-12	-5	-4	
CPM	4,620	5,363	1,803	
1/mx	.521	.585	.551	

Position of Counters

2) - 39" up from Top Plexiglas over center
of 3x3x3 array 4" antil

This is the position of chamber itself 5" Paraffin
1 1/2" Paraffin suspended below it. Chamber position
in East-West Direction

27 Billets 3x3x3 Array
Plastic internal

No Vault. 109

[Counter # 2 now located
just behind center of fixed
table - 39" off floor]

2
4
5
2

Scale 001	462 ⁵⁸	265 ⁴⁰	192 ¹⁰
Time 7	467 ²⁹	260 ⁷¹	194 ²¹
	464 ⁵⁰	263 ⁵⁷	193 ⁵⁷
	464 ¹⁸	257 ²²	195 ⁹
	463 ⁵³	259 ²¹	197 ³⁰
Total Counts	148,694	83,629	62,271
	7,435	4,181	3,114
	- 12	- 5	- 4
	7,423	4,176	3,110
\bar{y}_{mx}	.473	.396	.470

1 Dralloy IN 232 - Internal Plexiglas

Sealer	1	2	3	4
Scale 64	220 ⁺³⁰	101 ⁺¹²	93 ⁺⁵	11 ⁺⁴⁶
4 min	218 ⁺¹⁶	104 ⁺¹⁰	90 ⁺²⁸	11 ⁺⁴⁸
	220 ⁺⁴⁴	104 ⁺²	91 ⁺⁴⁷	11 ⁺⁵
	220 ⁺³²	103 ⁺³²	91 ⁺⁶³	
	223 ⁺¹	103 ⁺⁵⁰	91 ⁺⁶¹	
	217 ⁺³³	104 ⁺⁸²	90 ⁺³⁹	10 ⁺⁵⁸
	84,508	39,764	35,187	
	3,521	1,657	1,466	
	- 12	- 5	- 4	
	3,509	1,652	1,462	

Background

1/23/59

1
0 +56

2
0 +20

3
0 +13

1 Cralley - Pos 232 - all Plexiglas Removed

Scaler	1	2	3
Scale 64	207 +17	95 +36	87 +53
4 min	209 +1	91 +58	86 +36
	205 +9	91 +23	85 +59
	205 +33	92 +62	88 +13
	206 +12	89 +41	88 +15
	202 61	91 +59	86 +32
	205 16	92 +33	87 +63
Total Counts	92,186	41,313	39,119
CPM	3,292	1,475	1,397
- Pgd	- 14	- 5	- 3
CPM	3,278	1,470	1,394

9 Cralley - 131, 132, 133, 231, 232, 233, 331, 332 + 333

Scaler	1	2	3
Scale 64	220 +61	102 +0	97 +18
4 min	219 +34	99 +44	94 +21
	219 +31	100 +10	95 +51
	221 +39	100 +3	97 +16
	219 +26	106 +6	95 +7
	223 +24	98 +44	94 +26
Total Counts	84,769	38,437	36,747
CPM	3,532	1,601	1,531
- Pgd	- 14	- 5	- 3
CPM	3,518	1,596	1,528
1/mx	.932	.921	.912

27 Oralloys - 3 X 3 X 3 array

Scaler	1	2	3
Scale 64	285 ⁺²³	499 ¹⁵ X 16	124 ⁺¹⁶
4 min	285 ⁺⁰²	125 ⁺⁸⁰	122 ⁺⁵⁶
	285 ⁺³³	125 ⁺³³	125 ⁺⁴¹
	283 ⁺⁶⁰	122 ⁺³	122 ⁺³⁴
	288 ²³	125 ⁺²⁴	124 ⁺⁶²
	288 ⁴⁸	123 ⁺⁹	127 ⁺¹
Total Counts	109,945	47,789	47,826
CPM	4,581	1,991	1,993
- Bgd	- 14	- 5	- 3
CPM	4,567	1,986	1,996
1/μx	.718	.740	.698

9 Oralloys Billets - 211, 212, 213, 221, 222, 223, 231, 232 + 233

Scaler	1	2	3
Scale 64	235 ⁺⁵⁴	104 ⁺²⁹	105 ⁺⁵
4 min	238 ⁺³⁹	106 ⁺⁴⁵	105 ⁺⁵⁵
	232 ⁺⁴⁵	107 ⁺²³	105 ⁺⁵⁷
	234 ⁺¹	105 ⁺³⁷	104 ⁺²⁸
	234 ⁺⁸	105 ⁺⁴⁶	104 ⁺⁵⁹
	234 ⁺⁵⁰	105 ⁺²²	104 ⁺²⁵
	90,245	40,620	40,553
	3760	1694	1681
	- 14		- 3
	3746	1689	1678
1/μx	.8751	.8703	.83075

333

Counter Position

= Origin of Coordinates.

Center of lattice at table top level.

+x north
 +z up
 +y east

#1. $x = +45''$ Chamber axis parallel
 $y = ~~0~~ ~~40''~~ -40''$ to y axis
 $z = +15' 4''$

#2 $x = -4''$ Chamber axis parallel
 $y = 0$ to y axis
 $z = +6' - 3''$

#3 $x = +51''$ Chamber axis parallel
 $y = +22 \frac{1}{2}''$ to x axis
 $z = 101.5''$

Billet Experiments

Background.

Scaler	1	2	3
Scale 16	92	17	—
Time 6	84	28	—
CPM	15	3	—

Tuballoy in 222 Small source in hole of Billet

Scale 64	21	221	46
Time 10 min	20	220	47
	21	219	46
	20	221	45
	21	219	45
	20	220	47
	20	218	47

1/26/59 Background Scale 16 Time 10 min.

CPM	13 10 + 0 > 368	2 2 + 5 > 83	2 3 + 0 > 83
	18.4	4.2	4.6

Scale 64	41	438	94
Time 20 min	41	440	89
	41	435	90
	42	441	90
Total Counts	20,135	210,948	44,128
	134	1,406	294
CPM	117	1,402	290

1 Oralley in 222 [small source in hole of pellet.]

Scaler	1	2	3
Scale 64	58 ⁺⁴⁴	644 ⁺¹⁵	141 ⁺⁴⁵
20 min.	59 ⁺²⁷	693 ⁺¹⁰	144 ⁺¹³
	55 ⁺¹⁶	640 ⁺³⁷	141 ⁺⁸
	57 ⁺²¹	637 ⁺⁵⁹	142 ⁺²²
	55 ⁺³²	639 ⁺³⁷	142 ⁺⁴⁰
	57 ⁺⁴	631 ⁺¹⁷	143 ⁺⁴⁵

Total Counts	21968	245551	54776
CPM	183	2046	456
- Bgd	17	4	-7
CPM	166	2042	452

No. 1.419 1.456 1.558 1.48

1 Oralley in 222 [Small source under pellet]

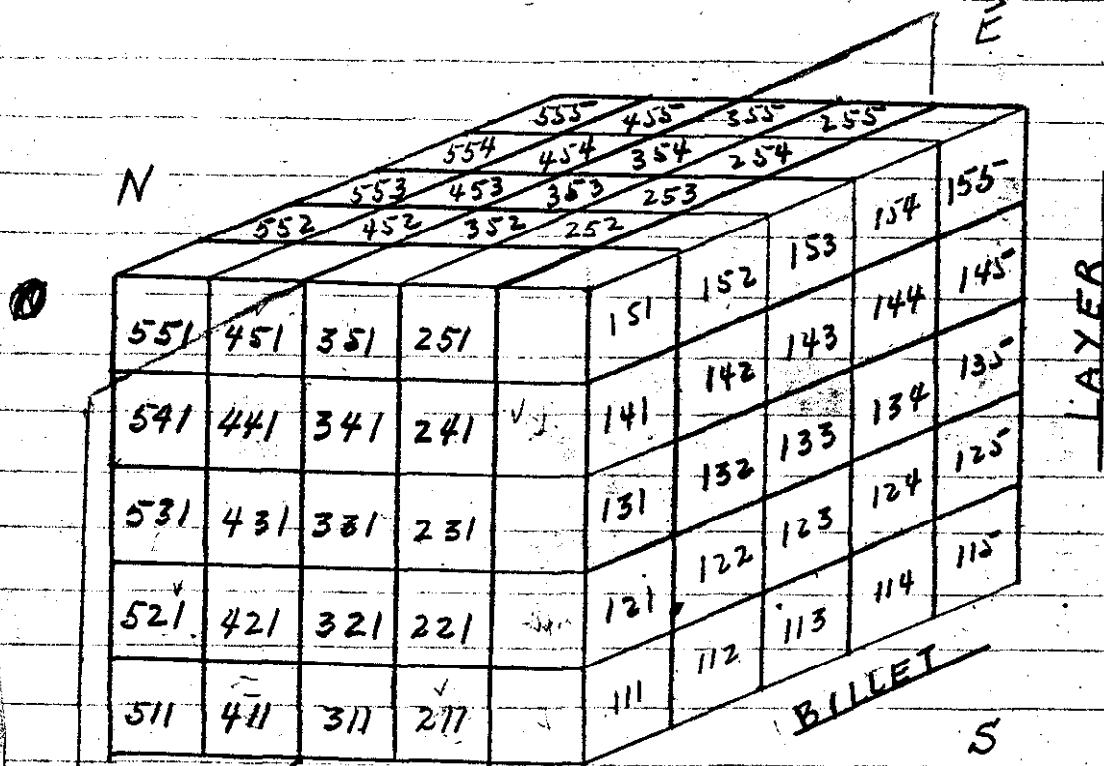
Scale 64	41 ⁺⁰	397 ⁺³⁸	123 ⁺¹¹
20 min	39 ⁺⁵⁴	405 ⁺²⁵	120 ⁺²²
	42 ⁺⁸	398 ⁺³⁶	120 ⁺²⁰

Total Counts	7,870	76,879	23,305
CPM	131	1,281	388
CPM - Bgd	114	1,277	384

No. 1.332 1.395 1.45 1.39

Scale 64	23 ⁶¹	215 ²¹	62 ⁶³	Tuba 11-7
Time 15 min	24 ⁺¹¹	215 ²⁹	63 ¹⁴	
	3080	27,570	8077	
	103	919	269	
	86	915	265	

15" centers



Row

Table Separation W

BILLET

LAYER

S

2/5/59

5x5 x5 Array - 1" Vant
15" spacing

117

By

Scale #	1	2	3	4
20 min	56	29	37	-

Check of counters with Pu-Bc source
Fixed Distance from each counter.

1

Scale 256

Time 1 min

Registers	25 ⁵⁸	1 ²⁷⁹	0 ²⁵⁵
	25 ²⁸	1 ²²⁷	0 ²⁵⁹
3 min	75 ⁴³	5 ²⁶⁶	3 ⁵¹
	76 ³²	3 ²⁵⁵	3 ⁸⁶
	75 ⁷³	4 ²¹⁵	3 ¹

2

Time 1 min

Scale 256

11 ⁷⁷	11 ¹⁴⁷	93¹²⁷	93 ⁺²¹	4 ¹³	4 ⁺⁷
11 ⁸⁶	10 ²²⁴	83⁹¹	92 ²²²	4 ³	4 ⁺⁴¹
11 ⁵⁵	10 ⁺²⁰⁶	51¹⁵⁹	93 ⁴²	4 ¹⁴	4 ⁺⁷⁹
11 ¹⁶²	11 ⁺¹³⁷	74¹¹⁵	93 ⁹⁸	4 ¹⁵⁰	4 ⁺⁸
10 ²¹⁵	11 ⁺⁵²	80⁵¹	93 ¹⁷⁵	4 ⁴⁶	4 ⁺⁹⁷
11 ³		83⁴⁰		3 ²⁴⁶	
11 ¹²		68¹¹		4 ⁴³	

Scale 256	Source	Fixed	Distance from #3
Time 1 min	4 +251	4 +17	104 225
	4 +250	4 +21	104 254
	5 +25	4 +37	103 29
	5 +48	4 52	105 114
	4 +220	3 +248	104 +187

1 Tuballoy in Pos. 353

Scaler	#1	#2	#3	#4
Scale 256	32 114	71 199	29 179	38 47 x64
Time 5 min	32 150	71 86	30 62	9 115
	32 208	71 145	29 72	9 222

2/6/59 Same as above

	33 56	73 60	29 244	70 +90
	33 149	72 216	29 109	9 +176
	32 165	72 97	29 117	9 +142
	32 167	71 241	29 38	9 +102
	32 235	73 +8	29 160	9 +139
	32 172	71 +146	28 226	9 +178
Total Ct	75,656	165,806	67,925	22,331
	1,681	3,685	1,509	496
	<u>38</u>			
	1651	3677	1501	496

1 Tuballoy in Pos. 343

Scaler	# 1	# 2	# 3	# 4
Scale 256	31 ⁺⁸⁹	43 ⁺²⁰³	25 ⁺²⁰⁷	63 ⁺²²
5 Min.	31 ⁺⁸⁹	44 ²⁰	25 ⁺²⁴⁸	63 ⁺⁸⁹
	31 ⁺⁵³	44 ⁺⁷²	25 ⁺²⁴⁸	62 ⁺¹²⁹
	30 ⁺⁵⁵	43 ⁺¹⁴⁵	26 ⁺¹³⁹	63 ⁺¹³
	30 ⁺¹²⁸	44 ⁺⁸⁹	26 ⁺⁸¹	63 ⁺⁸³
	30 ⁺²⁹⁹	43 ⁺⁹⁹	26 ¹⁹⁰	63 ⁺⁹
	30 ⁺¹⁵⁹	44 ⁺⁵⁶	26 ⁷⁰	63 ⁺⁸²
	30 ⁺¹¹⁷	43 ²²⁸	26 ¹⁹¹	62 ⁺³⁹
	29 ⁺²⁴	42 ²³⁵	26 ¹⁵⁰	63 ⁺³⁸
	30 ⁺²⁰	43 ⁸⁴	26 ⁵⁹	63 ⁺⁸⁶
	78,492	112,387	67,375	161,559

Background

Scale	143	40	36
256	0	0	0
By	153	52	41
Time 5min	152	35	50
CPM	30	8	8

	1570	2247	1347	3227
	-30	-8	-8	
CPM	1540	2239	1339	3226

$$\frac{\Sigma 1,2+3}{3} = .795$$

1. Orally in 353

Scaler	1	2	3	4
Time 5 min	41 ¹⁷³	97 ⁴⁷	34 ²²⁵	11 ⁶⁰
Scale 256	42 ¹⁵	97 ⁷²	34 ³⁸	11 ⁶⁹
	42 ⁶³	96 ³⁸	34 ⁷⁶	11 ⁴³
	41 ⁺¹¹⁶	95 ¹⁶⁸	34 ¹⁷⁶	11 ⁺⁶
	42 ⁺⁵²	96 ⁶³	32 ²¹⁶	11 ¹³²
	41 ⁺²³⁶	96 ⁺¹¹¹	34 ⁺⁸³	11 ⁺⁸²
	41 ²⁴¹	95 ¹¹⁵	33 ⁺²²⁷	11 ⁺⁹⁶
Total Cts	75,084	172,772	61,457	20,240
CPM	2,145	4,936	1,756	578
CPM - Bgd	2,115	4,928	1,748	578
% CPM	.781	.746	.859	.858

1 Orally in 343

256	39 ⁴⁹	57 ⁸³	31 ⁷⁸	71 ²⁵³
5 min	39 ²²³	58 ⁴³	32 ¹¹⁰	73 ³¹
	40 ⁺¹²⁹	59 ⁺²⁴	31 ⁺²¹⁰	73 ⁷⁶
	40 ⁺¹⁴⁰	57 ⁺¹⁸⁴	32 ⁺⁵⁸	73 ⁺⁵⁷
	38 ²³⁴	58 ¹⁰⁶	31 ¹¹¹	73 ²³
	38 ¹⁵⁸	58 ²⁵⁰	32 ⁹¹	72 ¹³³
	39 ²⁰⁴	58 ¹²⁶	31 ²⁰⁹	72 ⁶⁰
	40 ⁺¹⁰	58 ²¹	32 ⁸	73 ⁵¹
Total Counts	81,475	119,365 134,213	64,387	149,171
CPM	2,037	2984,355	1,609	3,729
CPM - Bgd	2,025	29803,352	1,607	3,729
%	.760	.668	.838	.865
P. 119		.751		
		$\frac{\Sigma 1,2+3}{3} = .781$		

6/59

INSTRUMENT CHECK					
Time	12:45	PM	Source	PuBe	
Range	1000	0pr	25X10 ¹⁰	10	1000 908V
Source Dist.	6"	0"	36"	3"	1"
% F.S. Trip	90	OK	100+80	100+	

Counter Check

Sum in Fixed Position

Scale 256	#1	2	3
Time 5mi	124 ²¹⁶	463 ¹¹⁴	518 ⁸²

Background

5min	#1	2	3
	60	10	6
	69	16	5
	184	44	27
	0 55	0 18	0 16
	CPM-12	3	2

	#1	2	3	4
256	43 +143	62 +134	34 +179	75 +16
5min	42 +225	63 +138	35 +6	74 +136
	42 +242	63 +44	35 +0	74 +82
	42 +233	63 +48	35 +23	74 +163
	42 +164	62 247	34 230	74 +75
	42 +121	62 +69	34 199	74 +140
	65896	96,680	53,629	
CPM	2197	3,227	1788	
	-14			
	2185	3220	1786	
4mo	.205	.695	790	$\frac{\Sigma 1,2+3}{3} = .730$

2 x 2 x 2 ARRAY
 119 to detector
 119 to detector

122

Background

Scaler	1	2	3	4
Time 5				
Scale 25	69 cts CPM 14	15 3	14 3	
	8 Orally Beadlets - 333, 334, 343 , 344, 433, 444, 443 + 444			
256	43 ⁺¹⁴	63 ⁺¹⁰²	38 ⁺¹⁰⁷	74 ⁺²²⁴
5 min	42 ⁺¹⁵⁶	64 ⁺⁷⁸	34 ⁺¹³⁰	75 ⁺²⁴⁶
	43 ⁺¹³⁰	63 ⁺²⁴⁵	34 ⁺¹⁸⁴	77 ⁺¹⁷⁰
	43 ⁺¹	63 ⁺⁹⁷	34 ⁺³²	76 ⁺¹²⁶
	42 ⁺²²⁰	63 ⁺⁶⁵	35 ⁺⁸⁰	76 ⁺¹⁹²
	43 ⁺¹²	63 ⁺⁸¹	34 ⁺²³⁸	-
	66,069	97,642	53,507	
	2,202	3,255	1,784	
	-12	-3	-	
	2,190	3,252	1,782	
Y/m.	.703	.588	.751	$\frac{2,190 + 3}{3} = .714$

Background

CPM	10	3	2
	48	14	11
	53	17	8
	7. Beadlets	333, 323, 233, 433, 334, 332, 343	
Register	42 ¹⁴²	63 ²⁰⁴	36 ⁷⁹
256	42 ¹⁵⁷	62 ²⁰⁴	35 ¹⁸⁵
5 min.	43 ²²	63 ¹¹⁴	35 ¹⁷⁸
	43 ⁶⁶	63 ¹¹⁶	35 ²⁴¹
	43 ⁵⁶	63 ⁷¹	35 ¹⁴⁵
	42 ¹⁹⁵	65 ⁵⁵	35 ²³⁰
Total Counts	65,964	97,284	55,080
CPM	2,199	3,243	1,836
CPM - Bgd	2,189	3,240	1,834
Y/m.	.703	.696	.730
			$\frac{2,189 + 3}{3} = .708$

cts #4 out

2/9/57

123

Background

Sealer	1	2	3	4
SCALE 256	0 +114	0 +9	0 +34	-
5 Min.	0 +79	0 +17	0 +8	

Source at fixed distance from counter -
 126 + 234 471 + 147 517 + 38

INSTRUMENT CHECK				
Time	8:56	AM	Source	Pu B.
Range	$\frac{10}{1500}$	10"	$\frac{10}{1500}$	900V
Source Dist.	6"	0"	13"	3" No
% F.S. Trip	85	OK	100	86 100

8 Billets - added 353

256	46 +36	101 +12	36 +221
5 min	46 +127	101 +197	37 +70
	46 +139	101 +42	37 +80
	45 +36	101 +231	37 +101
	45 +242	101 +155	36 +205
	45 +224	102 +60	37 +41
	45		37

70,692	150,089	57,058
2,356	5,203	1901
- 20	- 3	- 7
<u>25,31</u>	5200	1897
Ym. 707	.707	.791

$$\frac{E_{1,2+3}}{3} = .732$$

714

32, 343

708

15 Billets + 353

16 Billets - Added 432, 434, 232, 234, 443, 423, 243 + 223!

	49 ⁺¹⁴	107 ⁺³³	39 ⁺²⁶⁷
256	49 ⁺⁸⁸	105 ⁺²⁵⁰	39 ⁺¹⁷⁰
5 min.	48 ⁺¹⁴⁷	105 ⁺⁷⁴	39 ⁺¹²⁰
	47 ²³⁷	105 ²¹²	39 ¹²⁹
	48 ⁺⁵⁰	105 ¹⁶¹	39 ¹⁹⁴
	49 ⁺¹⁸³	106 ⁺¹⁸⁵	39 ²⁴⁴
	75,771	162,963	60,978
	2,515	5,452	2,032
	-20		
	2495	5429	2028
Ym.	.662	.677	.740

$$\frac{\Sigma 1,2+3}{3} = .693$$

15 Billets Source under 547 Remainder 553

	46 ²⁰⁵	66 ²⁴⁹	36 ¹¹¹
	46 ²¹⁰	68 ¹⁷	35 ²⁵⁰
	46 ¹²⁰	68 ⁶¹	36 ²⁹
	46 ¹³²	67 ¹⁴⁵	36 ⁴³
	46 ¹⁹²	67 ¹⁷⁰	36 ¹⁰¹
	59,739	86,658	46,418
	2,589	3,460	1,857
	-20	-3	-5
	2369	3463	1854
Ym.	.650	.640	.722

$$\frac{\Sigma 1,2+3}{3} = .673$$

Background

	187	47	31
	152	20	55
	159	38	42
	33 CPM	7	8

20 Billets Add. 2 353, 322, 342, 324, 344

+ 223

25p
5 min

51 + 19	112 202	41 + 149
52 8	111 220	41 257
50 154	112 13	41 100
50 160	112 113	41 117
51 72	112 140	41 57
65,457	143,798	53,204
2617	5752	2128
-33	-7	-8
2584	5745	2120

Ym.

.639 .640 .708

$$\frac{\Sigma 1, 2 + 3}{3} = .662$$

25 Billets - Added ³ - Source under 353 313, 331, 335, 133 + 533

51 + 108	112 + 208	41 + 141
51 + 5	112 + 92	41 + 225
50 + 212	111 + 235	42 + 204
51 + 87	111 + 171	42 + 107
51 + 62	112 + 88	42 + 123
65,498	143,642	54,048
2620	5,746	2,162
-33	-7	-8
2,587	5,739	2,154
.638	.640	.697

= .673

$$\frac{\Sigma 1, 2 + 3}{3} = .658$$

33 B. llets Alded. 222, 224, 242, 244, 422, 424
442, 444 Source under 353

	55 ²⁴	117 ¹²⁸	46 ¹⁰⁸
256	54 ⁴²	118 ¹⁷⁹	44 ²¹⁰
5 min	54 ²¹⁶	117 ²²²	45 ¹⁵⁶
	55 ²⁰	118 ¹⁶⁹	45 ⁴²
	55 ¹⁷⁹	117 ¹³⁷	45 ¹⁶¹
	70,309	157,157	58,277
	2,814	6,046	2331
	-30	<u>-7</u>	-8
	2784	6039	2323
1/2 mo.	.593	.609	.6461

$$\frac{\Sigma 1,2+3}{3} = .616$$

5x5x5 27 B. llets. - Source under 343

	50 ⁺⁷¹	74 ⁺¹⁵⁶	39 ⁺²⁰¹
	50 ⁺²⁶	75 ⁺⁴²	40 ¹³⁴
	50 ⁺⁹¹	74 ⁺¹³⁹	40 ⁺¹²⁵
	50 ⁺⁸	74 ⁺²²⁵	40 ⁺⁵
	50 ⁺¹⁵²	74 ⁺²¹⁴	40 ⁺¹⁷⁴
	75	39	
	64,348	96,008	51,327
	2,574	3,840	2,053
CLM. Pgd	2,544	4 3,833	2,045
1/2 mo	.605	.584	.654

$$\frac{\Sigma 1,2+3}{3} = .614$$

	3x3x3 + 1 at top center	- Added	Source	- 28 Billets
256	53 + 121	115 + 144	44 + 80	
5 min	53 + 6	115 + 198	42 + 254	
	52 + 220	116 + 168	44 + 173	
	53 + 179	115 + 101	44 + 136	
	53 + 170	112 + 251	43 + 227	
Total cts	68,280	148,318	56,422	
Total CPM	2,731	5,933	2,256	
CPM - Byd	2,701	5,926	2,248	
	.611	.620	.667	

$$\frac{1,2+3}{3} = .633$$

2/10/59

Scaler	1	2	3
5 min. Bagd	89 80	19 15	14 11
	CPM 17	CPM 3	CPM 3

Source fixed distance from counters
 128 + 246 480 + 119 523 + 86

INSTRUMENT CHECK					
Time	9:00	AM	Source	Pu	Be
			Channel	A	B
Range	1000	10 ⁰⁰	1000	1000	Post.
Source Dist.	6"	0"	15"	2"	0"
% F.S. Trip	75	OK	100	80	100

Source under 353
 41 Oralley Billets - Added 352, 354, 312, 314, 253, 213, 453 + 413

256	59 + 38	126 + 188	47 + 73
5 min	58 + 108	125 + 161	45 + 166
	60 + 23	126 + 53	46 + 67
	59 + 97	127 + 244	45 + 198
	61 + 37	127 + 227	46 + 28
	61 + 19	126 + 123	45 + 49
Total cts	91,970	194,788	70,469
CPM	3,066	6,493	2,349
CPM-Bagd	3,049	6,490	2,346
	.541	.566	.639

$$\frac{\Sigma 1, 2 + 3}{3} = .582$$

49 O'Connell, Billings

353 Source

129

Add. 2	235	325	345	435
	231	321	341	431

Source under 353

Scaler

	1	2	3
Time 5	62 201	130 84	42 241
Scale 250	62 45	130 153	47 57
	62 119	130 20	47 182
	62 30	130 111	47 95
	62 132	129 174	47 188

Total Ct	79,887	166,728	60,667
CPM	3,195	6,669	2,427
CPM-Bgd	3,178	6,666	2,424
	.520	.552	.619

3+413

$$\frac{\sum 1, 2 + 3}{3} = .564$$

Background

Scaler	1	2	3
Scale 256	0 +145	0 +21	0 +11
Time 5 mi.	0 +74 cpm 22	0 +16 cpm 4	0 +9 cpm 2
Source at fixed distance	134 +144	484 +209	516 +147

INSTRUMENT CHECK						
Time 9:30	AM	Source <u>Pu Be</u>				
		Channel				
		A	B	C	D	E
Range		$\frac{10}{1000}$	off	$\frac{10}{1000}$	$\frac{10}{1000}$	900.
Source Dist.		6"	0"	0.16"	3"	0"
% F.S. Trip		80	OK	100	75	$\frac{100}{100}$

Source 383

57 Billots Added 123 145 152 154
525 545 552 554

66	188	135	198	50	223	12	22
66	224	134	237	50	248	12	9
66	+17	134	221	51	+171	12	48
66	+172	134		50	+92	11	255
66	+131	135	+6	50	+33	11	202
CPM	85,212	172,193		65,023		15,384	
CPM-Bgd	3,408	6,888		2,601		615	
$\frac{1}{mo}$	3,386	6,884		2,599		615	
	.488	.534		.578			

$$\frac{\Sigma 1, 2 + 3}{3} = .533$$

65 Billets - Added 122, 142, 124, 144, 522, 524, 544 542

2
-147

70 + 66	136 + 131	52 + 225	12 + 158
69 + 151	132 + 182	52 + 241	12 + 86
69 + 163	131 221	52 243	12 + 280
69 + 220	134 + 101	53 + 140	12 + 156
69 + 104	133 + 16	53 + 28	12 + 198
89,280	171,147	67949	
3571	6845	2718	
<u>-22</u>	-4		
3549	6841	2716	

Ym. .4652 .537 .553

$$\frac{\sum_{1,2+3}}{3} = .518$$

64 Billets - 4x4x4 Array - Source Under 393

3
5
2
4
5
5

61 + 106	85 + 162	47 + 137	73 154
62 + 50	85 + 10	47 + 245	74 + 218
62 + 20	83 + 95	48 + 32	74 + 83
62 142	82 222	47 + 233	75 34
62 168	83 + 197	47 + 136	73 + 130
79,590	107,694	61,199	
3184	4308	2448	
<u>-22</u>	-4	-2	
3162	4304	2446	
Ym. .487	.5202	.547	

$$\frac{\sum_{1,2+3}}{3} = .518$$

132 2/2/59

Background

Scaler	1	2	3
Scale 10	7 ⁺¹	1 ⁺¹	1 ⁺⁴
Time 5	4 ¹²	1 ¹¹	1 ⁰
	5 ⁴	1 ⁹	0 ¹³
	6 ¹	1 ⁵	0 ¹²
18 CPM		5	3

65 Billots

Same loading as P130 57 + ~~572~~ ~~584~~ ~~592~~ ~~594~~
 212 ~~214~~ 412 ~~414~~
~~57~~
 252, 254, 452, 454

INSTRUMENT CHECK					
Time	10:00	AM	Source	Pu Be	
			Channel		
	A	B	C	D	E
Range	$\frac{10}{1000}$	Op	10 ⁻¹⁰	$\frac{10}{1000}$	900
Source Dist.	13"	0	14"	3"	0"
% F.S. Trip	80	OK	100	75	100 No

Counter Check with Pu Be Source Fix distance
 131 + 237 470 + 19 523 + 55

65 - Billets -	0	3	3	3	0
	1	3	5	3	1
	3	5	5	5	3
	1	3	5	3	1
	0	3	3	3	0

Row 1 2 3 4 5

Scaler

1 2 3 4

Scale 256	70 + 228	137 + 208	52 + 17	16 | 207 + 15
5 min	70 + 209	137 + 108	52 + 157	52 + 255
	69 + 212	138 + 219	52 + 43	12 + 179
	69 + 242	137 + 134	52 + 118	12 + 203
	70 + 173	136 + 206	52 + 127	12 + 131
				12 + 101

134
5/4

90,152	176,234	66,700
3600	7049	2671
-18	-	-3
3588	7044	2668

1/m .460 .522 .563

$$\frac{\Sigma 1, 2 + 3}{3} = .515$$

	73 <i>Bills</i>	221, 225, 241, 245, 421, 425, 441 + 445		
256	72 ⁺²⁰³	142 ⁺³⁴	55 ⁺¹⁶⁵	12 ⁺²⁴⁴
5 min.	73 ⁺²	141 ⁺³	54 ⁺²⁴⁶	12 ⁺²³²
	73 ⁺²³⁵	139 ⁺²³	55 ⁺¹³³	13 ⁺¹⁹
	72 ⁺¹⁴⁶	139 ⁺¹¹³	55 ⁺²⁰⁷	13 ⁺⁵⁷
	73 ⁺³⁵	141 ⁺⁸³	55 ⁺²¹⁶	12 ⁺²⁰¹
Total Cts	93,549	179,968	71,111	16,827
CPM	3,742	7,199	2,844	668
CPM - <i>Exp</i>	3,724	7,194	2,841	
<i>mo</i>	.443	.571	.528	

$$\frac{\Sigma_{1,2+3}}{3} = .494$$

10 Shelves Brought in

8 on South wall

2 in NW Section of Room

2/13/59

Back ground

135

445
14
32
27
28

Scaler	1	2	3
256	0 +108	0 +20	0 +9
5 min	0 +80	0 +18	0 +11
Source & Fixed	19 CPM	4 CPM	2 CPM
Distance	133 ¹⁹⁶	469 ²³⁰	521 ¹²¹

INSTRUMENT CHECK

Time 9:15 AM Source Pa 132

Range	Channel				
	A	B	C	D	E
	$\frac{10}{1000}$	OK	10^{-10}	$\frac{10}{1000}$	900V
Source Dist.	30"	0"	24"	8"	0"
% F.S. Trip	80	OK	100	70	$\frac{100}{100}$

Source under 353

81. Billets - Added 122, 124, 142, 144, 522, 524, 542 + 544

76 + 56	145 + 107	58 + 158	14 + 28
75 + 156	144 + 164	58 + 165	14 + 52
+ 254	144 + 246	58 + 62	13 + 145
76 + 123	144 + 190	58 + 209	14 + 51
77 + 6	142 + 173	58 + 135	14 + 42
97,875	185,456	74,969	17,982
3915	7,418	2,999	719
- 19	- 4	- 2	
3896	7,418	2,997	
$\frac{4}{1000}$.424	.496	.501	

$$\frac{\Sigma 1,293}{3} = .474$$

	131	40	27
	139	59	32
B _g	184	75	28
Scale 256	180	59	41
Time 5	142	48	30
	137	47	24

30 CPM 90 CPM 7 CPM

Source at fixed distance from counters.

130	24	469	227	525	117
-----	----	-----	-----	-----	-----

INSTRUMENT CHECK

Time 2:00 On Be
Ion E

Range	$\frac{10}{1000}$	apr 15 ¹⁰	$\frac{10}{1000}$	900V	Source 353
Source Dist.	4"	0" W.F.	2"	12"	
% F.S. Trip	90	OK	100	85		100+

89 to photo - added 113, 153, 311, 315, 513, 553, 351 + 355

256	80 ¹⁸¹	149 ¹⁶⁰	58 ¹³⁹	14 ¹⁰⁶
5 min	80 ¹⁷⁴	150 ⁶¹	58 ²⁰⁶	14 ⁶⁷
	79 ¹⁹²	150 ⁹³	59 ¹⁵³	13 ²⁵⁴
	79 ²³⁵	150 ¹	58 ²⁴⁷	13 ¹⁶⁷
	79 ¹²⁸	147 ¹⁷⁰	58 ¹⁸⁸	14 ¹⁸
	100,442	191,461	75,429	18,020
	4,058	7,658	3017	721
	4,028	7,679	3,010	
	.410	.481	.499	
	$\frac{\Sigma 1,293}{3} = .463$			

97	Billets	Add	521	531	135	535
82	+39	0	141	131	125	545
82	39	153	53	61	83	14 90
82	92	152	4	62	20	14 64
82	132	153	130	61	134	14 148
83	217	152	219	60	166	14 185
83	83	154	29	61	142	14 130

Total Cts	106,030	196,036	78,665	18,539
CPM	4,241	7,842	3,047	742
Bgd	-30	-9	-7	
CPM - Bgd	4,211	7,831	3,040	742
1/m	.392	.469	.478	

$$\frac{E_{1,2+3}}{3} = \frac{.446}{3} = .1487$$

e 353

+ 355

$$\frac{75}{76} = \frac{77}{80}$$

$$\frac{143}{141} = \frac{230}{22}$$

$$\frac{56}{56} = \frac{66}{93}$$

$$\frac{13}{14} = \frac{2}{7} = \frac{3}{21}$$

2/18/59.

Counter Check

	1	2	3
	134 ¹⁰⁷	11 ¹²⁶	6 ²⁰
Scale 25%	62 ¹³⁴	478 ²¹⁶	23 ⁵²
5 min.	27 ⁸⁷	21 ²¹⁴	522 ⁸²

INSTRUMENT CHECK				
Time: 1:30 PM	Source Pu Be			
2/18/59	r on A + E			
	A	B	C	E
97 Billets	1000	opr	10 ¹⁰	10/100 900V.
Same as p. 137	1"	0"	16"	3" 10"
% F.S. Trip	85	OK	100	75 100+

Source 343

	79 ⁺¹²	101 ⁺¹¹⁰	64 ⁺²⁵⁵	79 ⁺²⁵¹
25%	78 ⁺¹⁶³	100 ⁺¹³⁰	64 ⁺²²⁹	81 ⁺³⁸
5 min	78 ⁺⁴⁴	100 ⁺¹³¹	64 ²⁵²	81
	79 ⁺⁷⁴	100 ⁺²²¹	64 ²²⁵	—
	79 ⁺¹⁴	101 ⁺¹³	64 ⁺³	80 ⁺²⁵⁰
Total Cts	100,915	129,117	82,884	82,715
CPM	4,037	5,165	3,315	4,136
CPM-Byd	4,009	5,155	3,309	—
Ymo	.384	.434	.405	—

$$\frac{\Sigma 243}{3} = 406$$

Source under 333

97 Billets - Same as p. 137

256	74 ⁺⁴	76 ⁺²⁴⁸	63 ¹²⁶	46 ²¹⁸
5 min	74 ⁺¹⁹⁸	76 ⁺¹⁸⁰	63 ⁹⁸	47 ⁹⁶
	74 ⁺⁵⁶	77 ⁺²⁰	63 ⁶⁰	46 ²³²
	75 ¹²⁰	76 ⁶⁷	62 ¹⁰¹	46 ²²⁷
	75 ¹⁶²	76 ⁸	63 ⁺²⁸	—
Total Counts	95,772	98,059	80,957	48,133
CPM	3,831	3,922	3,234	2,407
CPM - Bgd	3,803	3,912	3,228	—
AV =	.383	.404	.384	.36

Background

343	256	130	CPM	51	CPM	34	CPM
	5 min.	145	28	51	10	25	6

105 Billets - Added 541, 411, 121, 251, 525, 145, 255, 415

Source under 353	87 ⁺²⁰	160 ⁺²⁵²	64 ⁺¹⁷²	14 ⁺¹⁴⁹	
	85 ⁺¹³²	158 ⁺⁰	64 ⁺¹⁵⁸	14 ⁺¹⁹²	
	85 ⁺¹¹⁶	159 ⁺²⁰	64 ⁺⁸⁴	14 ⁺¹³⁵	
	86 ⁺¹⁵²	157 ⁺¹⁹⁸	64 ⁺²³²	14 ⁺²²⁴	
	85 ⁺⁸⁴	158 ⁺⁶¹	64 ⁺⁸⁵	14 ⁺¹⁹²	
715	Total cts	110,072	203,283	82,651	18,812
136	CPM	4,403	8,131	3,306	753
—	CPM - Bgd	4,375	8,121	3,300	—
	1/mo	.377	.452	.455	—

$$\frac{\Sigma 1,2+3}{3} = \frac{488}{3} = 162.67$$

2/20/59

INSTRUMENT CHECK								
Time	9:00	AM	Source	PuBe				
			Channel	A	D	C	B	E
Range				10/1000	10/1000	10	20	900V
Source Dist.				3 1/2"	2"	16"		0"
% F.S. Trip				100	95	100	OK	100

Background

Scale	#1	#L	#J			
5 Min	149	839	31			
	145	66	38			
	147	58	42			
	117	28CPM	60	11CPM	36	7CPM
	151	53	37			
Counter Check,	132	20	11	133	5	240
5 Min	61	204	472	167	23	62
Scale 250	20	178	22	250	521	442

105 Billits Source under

82	5	104	59	67	82	53
82	125	105	206	66	81	229
80	201	104	170	60	82	207
80	248	104	49	67	82	68
83571	63,041			68713		
4178	3152	5363		5430		
22		-11		5429		
4150	3139	5352		3929		
	1321	.418		.390		

Σ = 393

78 ¹⁶⁰	81 ⁸³	66 ⁸²	47 ⁷⁰
77 ¹⁶⁰	81 ¹⁰⁷	65 ¹⁶⁶	47 ²⁰³
79 ⁸	81 ²⁶⁵	66 ⁵³	47 ¹⁰⁷
78 ⁵⁸	82 ²¹²	67 ⁸⁷	48 ⁶²
80,080	83,897		
4,004	4,194		
3976	4,183		
113 Billets	Added.	3399	342
		3,392	342
		451	755
		215	211
		112	114
		552	554

AV = .362

Source under 353

256	87 ⁺¹¹	163 ⁺¹⁵	67 ⁺⁷⁷	15 ⁺³⁸
5 min	87 ⁺¹³¹	161 ⁺³²	67 ⁺¹⁴⁶	14 ⁺²⁴⁹
	88 ⁺¹¹²	161 ⁺²¹⁹	68 ⁺³⁶	15 ⁺¹⁶
	87 ⁺¹⁹⁷	161 ⁺⁸⁹	66 ⁺¹⁶²	15 ⁺³⁹
	88 ⁺⁷⁰	160 ⁺¹¹⁰	67 ⁺⁷⁰	-
	114,266	206,801	86,251	15,446
	4,571	8,272	3,450	772
	4,543	8,261	3,443	-
	.363	.445	.436	

$\frac{1,23}{3} = .415$

Source under 343

84 ²⁰⁰	111 ¹³	70 ²⁷	82 ⁵⁰
86 ¹⁰⁷	110 ¹⁷⁰	70 ¹⁴⁵	82 ⁹⁰
84 ⁷⁰	109 ²¹⁶	71 ²⁵³	82 ⁹¹
85 ⁺²²⁷	109 ¹⁰⁸	71 ¹⁶	82 ⁵
85 ⁺¹⁹⁸	110 ¹⁷³	69 ²⁴¹	82 ¹³⁴
109,282	142,504	90,538	105,330
4,371	5,700	3,622	4,213
4,343	5,689	3,615	
.354	.393	.370	

AV = .372

3

142

113 Billets - Source Under 333

	83 +104	88 +8	70 245	49 107
256	82 +172	87 +30	70 114	48 226
5 min	83 +38	88 +82	70 104	48 128
	82 +76	87 +240	70 236	48 23
	81 +178	87 +155	70 179	47 113
Total Cts	105,784	112,131	90,478	62,037
CPM	4,231	4,485	3,619	2,481
CPM. Pgd	4,203	4,474	3,612	2,481
AD = .341	.365	.335	.322	

Source Under 353 117 Billets - Added 512,514, 152 + 154

	89 +162	165 +19	69 +238	15 +16
256	89 +116	165 +239	70 +41	15 +89
5 min	88 +194	164 +154	69 +130	15 +100
	90 +246	165 +76	70 +127	15 +170
	88 +234	163 +204	68 +214	15 +108
	114,616			
	113,336	211,024	89,326	19,683
	4,533 4,584	8,441	3,573	787
	4,505 4,556	8,430	3,567	787
	365 .362	.436	.421	

$$\frac{\Sigma 1,2 + 3}{3} = .406$$

2/20/57
 2:30 PM
 256
 5 min

117 Billets - Source under 333 143

84 +25	89 +23	72 +41	47 +84
84 +43	90 +88	72 +39	48 +243
82 +226	90 +244	71 +232	48 +75
84 +115	89 +198	72 +72	48 +85
82 +130	89 +132	22 +104	48 104

Total ct 107,547 115,117 92,392 61,775

C PM 4,302 4,605 3,696 2,471

CPM. Bq 4,274 4,584 3,689 2,471

Au = .33K .359 .327 .315

4 Source under 353 125 Billets - Added 111, 115, 151, 155, 511, 515, 551, + 555

5 x 5 x 5 array

92 +183	166 +35	71 +67	15 +148
93 +219	168 +56	72 +59	15 +205
92 +145	166 +166	72 +179	15 +61
94 +20	167 +201	72 +36	15 +170
92 +255	167 +184	71 +83	15 +138

119,320 214,146 92,072 19,922

4,773 8,566 3,683 797

4,745 8,555 3,676 794

.348 .430 .408

$$\frac{\Sigma_{1,2+3}}{3} = .395$$

125 Billets - Source Under 343

256 5 min	90 + 7	117 + 68	75 + 46	82 + 202
	89 + 58	115 + 218	75 + 180	83 + 112
	90 + 81	115 + 236	75 + 169	81 + 248
	91 + 206	115 + 223	74 + 227	83 + 150
	92, 512	119, 017	77, 166	84, 936
4, 626	5, 956	3, 859	4, 247	
4, 598	5, 945	3, 852	4, 247	
.335	.377	.347		

$$\frac{\Sigma 123}{3} = .353$$

2/24/58

Background.

Scale 256
5 min

0 + 99

0 + 25

0 + 18

0 + 74

0 + 20

0 + 12

0 + 83

0 + 21

0 + 11

Source at a fixed distance

139 + 43

11 + 201

6 + 236

65 + 8

484 + 13

24 + 185

27 + 159

22 + 100

520 + 178

INSTRUMENT CHECK					
Time	9:15	AM	P. Re		
			Channel		
	A	B	C	D	E
Range	100	500	10 ⁰⁰	10 ⁰⁰	900 ⁰
Source Dist.	12' 8"	0'	15'	3'	0"
% F.S. Trip	80	OK	100	70	100 ⁺

125 Pills - Source meter 333

256	89 + 180	95 + 17	75 + 40	48 + 236
5 min	89 + 136	94 + 159	75 + 197	48 + 155
	89 + 126	95 + 49	75 + 255	47 + 234
	89 + 202	94 + 65	75 + 240	48 + 245
	90 + 109	94 + 169	75 + 225	48 + 222
	114,929	121,291	96,957	62,276
	4,597	4,852	3,878	2,491
	4,576	4,848	3,875	2,491
	.336	.310	.30	

A₁ = .315

Along South Wall

Bgd - 21
 - 4
 - 3

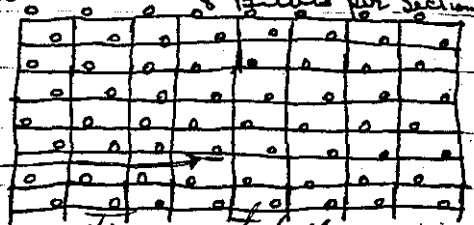
1 Tuballoy in shelf A All Billets in Riv

Scale 256

Tim 10 min	30 ¹⁰	15 ¹¹⁷	36 ¹²⁰
	29 ³³	15 ¹⁰⁹	37 ⁷⁰
	29 ¹⁸⁰	15 ²¹	36 ¹⁷⁰
	29 ²¹³	15 ³⁶	37 ⁸⁴
	29 ¹⁵⁴	15 ⁴⁵	36 ⁷⁴

Total Counts	37,966	19,528	47,110 37,924
CPM	759	391	942
CPM-Bgd	738	387	939

Billets to be unloaded
 in 8 Shelf sections
 along South Wall with
 8 Billets per Section



Source Location for Counts

1 Oralley in Shelf in some position as tuballoy above

256	35 ¹³²	18 ⁸⁸	45 ²¹⁷
10 min	35 ⁶⁴	18 ¹⁵⁶	45 ⁹⁵
	35 ¹¹⁰	18 ¹⁸	46 ¹⁸
	35 ¹⁰⁹	18 ⁴¹	45 ⁹¹
	35 ¹⁹	18 ⁷	45 ¹⁰³
	35 ¹⁴²	18 ⁸⁵	46 ⁴⁵

55,872	27,943	70,201
931	466	1,170
910	462	1,167
.811	.838	.805

$$\frac{\Sigma 1,2+3}{3} = .818$$

~ symmetric about source

12 Billets in Shelves along South wall.

256	38 + 153	19 + 64	51 + 108
10 min	37 + 119	20 + 14	57 + 86
	38 + 109	19 + 255	50 + 20
	38 + 43	20 + 14	50 + 101
	38 + 132	19 + 131	50 + 71

48,942	25,310	64,897
979	506	1,298
968	502	1,295
.770	.771	.725

$$\frac{1,298 + 1,295}{3} = .755$$

113 Billets in Rig - Source under 353

256	89 + 239	163 + 208	67 + 8	18 + 28
5 min	90 + 213	164 + 1	67 + 97	15 + 10
	90 + 159	164 + 24	67 + 128	15 + 168
	89 + 184	163 + 159	68 + 61	14 + 246
	91 + 128	163 + 122	68 + 2	15 + 81

113,307	209,666	86,568
4,532	8387	3463
4,511	-4	3460
.366	.439	.434

$$\frac{3463 + 3460}{3} = .413$$

loaded
sections
with
section
below.

2/25/59

Background

256
5 min.

0 + 62	0 + 17	0 + 17
0 + 52	0 + 26	0 + 15
0 + 63	0 + 22	0 + 9
177	177	177

12 cpm 14 cpm 13 cpm

Source at a fixed distance

137	110	693
63	476	23
27	22	526

38 180 188
251 93 163
23

INSTRUMENT CHECK					
Time	9:25 AM	Source	Parse		
Channel					
Range	A 17 1000	B 400	C 10 ⁻¹⁰	D 14 1000	E 900V
Source Dist.	9"	0"	15"	3"	0"
% F.S. Trip	85	OK	100	75	100+

97 Billets in Rig - Source under 353 Same as p. 137

83 + 168	153 + 30	62 + 26	14 + 194
83 + 254	154 + 91	61 + 230	15 + 76
83 + 220	155 + 208	61 + 142	
83 + 231	153 + 238	62 + 104	14 + 240
82 + 126	154 + 89	63 + 146	15 + 19
106,983	197,463	82,568	15,377
4,279	7,899	3,303	615
4,267	7,895	3,300	615
.387	.466	.454	

$A_v = .416$

89 Billets in Reg - Source under 353 - Same as p. 136

80 + 123	150 + 158	59 + 16	14 + 146
80 + 83	150 + 114	59 129	14 + 127
81 + 147	150 + 47	60 + 198	14 182
80 + 245	149 + 191	59 218	14 + 226
82,774	153,854	61,233	14,917
4,139	7,693	3,062	746
4,127	7,689	3,059	746
.400	.478	.491	

$\frac{E_{1243}}{3} = 456$

Source under 343

78 141	97 27	61 136	83 129
78 70	98 26	61 98	82 244
78 28	98 176	61 220	82 24
77 128	98 26	61 173 173	82 145
78 170	98 56	62 81	83 23
100,071	125,795	79,044	106,037
4003	5020	3162	4,241
- 12	- 4	- 3	4,241
$\frac{E_{143}}{3} = 419$	3991	5016	5159
.386	.446	.424	

p. 137

Source under 333

73 153	74 61	60 186	47 185
73 23	73 187	60 1	47 46
74 59	74 182	62 18	47 26
72 121	74 165	60 253	46 211
73 2	74 168	60 236	47 90
93,798	95,226	78,006	60,462
3,752	3,909	3,120	2,418
1,3740 .411	3,805 .395	3,117 .373	2,418

7
✓
✓

$Av = .393$

81 Billets in Rig - Source Under 353

256
5 min

77 + 221	146 + 41	60 + 90	14 + 119
78 + 162	147 + 209	59 + 226	13 + 255
78 + 25	146 + 125	60 + 73	14 + 19
77 + 131	147 + 91	59 + 239	14 83
77 + 242	147 + 177	60 + 179	14 85

99,853 188,291 77,095 18,225

3,994 7,532 3,084 729

$\frac{E_{1,2+3}}{3} = .463$

3,982 7,528 3,081 729

.414 .488 .487

Source under 343

73 243	92 + 219	59 111	82 + 28
73 112	98 + 96	58 251	81 + 69
72 244	92 + 109	59 97	80 + 231
74 150	93 + 234	59 233	81 + 179
74 75	92 + 115	59 25	81 + 139

94,520 119,045 75,981 104,326

$\frac{E_{1,2+3}}{3} = .449$

3,781 4,762 3,039 4,173

3,769 4,758 3,036 4,173

.435 .471 .441

Source under 333

70 + 116	69 233	58 172	47 124
72 + 5	70 53	58 287	46 249
71 + 175	70 198	60 40	47 69
71 + 2	70 126	60 1	47 25
70 + 197	70 81	60 10	47 21

= 406

~~88,557~~ 3645 90,035 76,758 60,904

$\frac{E_{1,2+3}}{3}$

~~3,540~~ 3633 3,601 3,070 2,436

~~3,520~~ 3633 3,597 3,067 2,436

.423 .417 .379

73 Billits in Reg. Source Under 353 151

75 + 27	143 + 230	56 + 166	13 + 213
76 + 0	141 + 22	56 + 93	14 + 2
74 + 34	142 + 234	56 + 52	13 + 234
75 + 163	142 + 178	56 + 193	13 + 120

256
5 min.

77,024	146,072	57,848	14,137
3,851	5,843 7,304	2,892	708
3,839	5,839 7,300	2,889	707
.430	.503	.520	

$\frac{E_{1,2+3}}{3} = .484$

Source under 342

70 + 245	88 + 118	56 + 14	80 + 44
70 + 78	89 + 84	55 + 160	80 + 121
70 + 210	89 + 179	56 + 99	78 + 242
70 + 38	88 + 236	56 + 200	80 + 174

72,251	81,241	57,551	81,990
--------	--------	--------	--------

$\frac{E_{1,2+3}}{3} = .461$	3,613	4,562	2,877	4,099.5
3	3,601	4,558	2,874	4,100
	.427	.491	.466	

Source under 333

67 + 800	66 + 20	56 + 177	46 + 139
67 138	66 57	56 20	47 60
66 149	65 155	56 156	46 80
67 26	65 251	56 113	46 219
68 89	66 176	56 127	46 217

80,262	84,587	72,359
--------	--------	--------

$\frac{E_{1,2+3}}{3} = .431$	3450	3385	2894
3	3438	3380	2891
	.447	.444	.402

04
36
336

2/26/59

Background

	1	2	3
Scale 25c	0 +74	0 +26	0 +11
Time 5	0 63	0 15	0 12
	0 55	0 21	0 11
	0 57	0 19	0 8
	0 57	0 15	0 16
S	25 | 308 (12 CPM)	25 | 96 (4 CPM)	25 | 53 (2 CPM)

Source at Fixed Distances from each Counter

135	18	10	199	5	244
61	191	482	162	22	238
26	249	21	217	526	245

27 Billets in Shelves along South wall.

256 5 min	19	212	10	26	26	25	Σ 1,243 = 1,731 3
	20	46	10	35	26	71	
	19	173	9	233	26	97	
	20	64	10	3	26	180	
	19	184	10	5	25	136	
	25,511	12,844		33,503			
	1,020	514		1,340			
	1,008	510		1,338			
	.732	.759		.702			

INSTRUMENT CHECK

Time	11:00	AM	Source	Pa 83
Range	$\frac{10}{1000}$	999	10^{-10}	$\frac{10}{1000}$ 900V.
Source Dist.	7"	2"	14"	1 1/2" 0"
% F.S. Trip	95	OK	100	95 100+

256
5 min.

65 Billets in Rig - Source Under 353 - Same as p. 131.

71	125	140	100	53	138	13	120
72	181	141	74	53	207	13	245
73	160	139	172	54	35	13	151
72	117	140	35	53	171	13	183
71	231	141	156	54	30	13	205
	92718		179,995		69421		
	3709		7,997,780		2737		
	-12		2196 7790		2735		
$\Sigma 123 =$	3697		772.511		.549		
$\frac{3697}{3} =$	.446						

65 Billets Source under 343

68	122	80	253	54	41		
68	78	80	119	53	255	80	244
68	161	85	105	53	231	81	195
68	52	85	45	53	119	80	251
	20,053		87924		53,153		
	2902		4399		2758		
	3502		-7		-2		
	3426		4395		2752		
$\Sigma 123 =$	4405		.509		1486		
$\frac{4405}{3} =$	.731						

65 Billots Source London 333

	64 ⁶¹	62 ¹⁸⁶	53 ⁹	46 ⁴⁵
	65 ⁶⁶	62 ²⁹⁵	51 ²⁴⁴	46 ⁹⁸
	64 ⁷⁹	62 ⁸³	51 ¹⁸⁵	46 ⁵⁷
256	64 ²⁴³	62 ¹¹⁰	52 ¹⁵⁴	—

5 min.

	66, 241	64, 162	53, 584	35, 528
	3, 312	3, 208	2, 679	2, 368
	3, 300	3, 204	2, 677	2, 368
	.465	.469	.434	

$\frac{6+2+3}{3} = .456$

49 Billots in Reg - Source London 353

0	1	3	1	0
0	3	5	3	0
1	5	5	5	1
0	3	5	3	0
0	1	3	1	0

Row 1 2 3 4 5

66 ²³⁰	133 ³¹	48 ²²⁰	12 ²²⁰
66 ²²⁰	132 ²⁴¹	48 ²³⁰	13 ¹
66 ⁷⁷	131 ¹⁰⁴	49 ⁹²	12 ¹⁶⁵
66 ¹⁸¹	131 ²⁴⁸	49 ⁶	13 ["]
66 ¹⁶⁰	130 ²⁴⁴	49 ¹⁷³	12 ¹⁸⁰
85, 348	169, 060	62, 929	16, 449
3, 414	6, 762	2, 517	658
3, 402	6, 758	2, 515	659
.485	.544	.597	

$\frac{6+2+3}{3} = .542$

49 Billets - Source 343

256	61 ⁹²	76 ⁵⁵	48 ¹⁰⁰	81 ¹⁷⁷
5 Min.	61 ¹⁶¹	77 ⁴⁷	48 ⁴⁷	80 ²³⁰
	61 ²²⁴	76 ³⁹	49 ⁶	81 ⁹³
	61 ²²⁰	75 ¹⁵³	47 ¹⁸¹	81 ¹⁵³
	62 ²¹	76 ⁸⁴	47 ¹³⁰	80 ⁴⁹
	79,054	97,658	61,648	103,870
$\frac{E, 283}{3} = .535$	3,162	3,906	2,465	4,151
	3,150	3902	2,463	4,157
	.489	.573	.543	

49 Billets - Source ~~343~~ 333

220	58 ⁷²	52 ²⁴³	47 ⁷⁷	45 ²³¹
1	58 ²	52 ²²⁹	47 ¹³⁵	46 ⁸⁹
165	58 ²²²	53 ²⁴⁵	47 ²¹⁷	46 ⁴²
"	58 ²⁴¹	53 ³⁵	47 ²²²	45 ²⁰¹
180	58 ³⁷	53 ⁵⁵	47 ¹⁴¹	46 ⁵²
	74,814	68,135	60,952	58,983
	2,993	2,725	2,438	2,359
	2,981	2,721	2,435	2,319
	.515	.552	.477	

$\frac{E, 283}{3} = .515$

49
58
59

45 Billets - 3 X 3 X 5 - SOURCE UNDER 393

59 ⁹⁸	81 ¹⁹²	45 ²¹⁸	80 ²¹⁵
59 ⁵⁶	81 ¹⁴¹	45 ¹⁵⁵	79 ⁸¹
59 ¹⁴³	82 ⁵²	45 ¹⁰³	79 ⁵²
59 ³¹	82 ¹⁸³	45 ⁸⁵	79 ¹¹²
59 ¹⁴⁹	82 ⁴	45 ¹⁰⁷	79 ¹¹⁵
75,997	105,020	58,268	101,376
3,040	4,201	2,331	4,055
3,028	4,197	2,328	4,055
.509	.533	.575	

$$\frac{\Sigma_{1,2+3}}{3} = .525$$

2/27/59

	Background	105	16	8
5 min		64	10	7
		74	15	13

134	182	11	33	5	182
60	128	488	137	21	183
26	160	21	144	526	46

INSTRUMENT CHECK

Time 9:05 ^{AM} / _{PM} Source Pa Be

Channel: _____

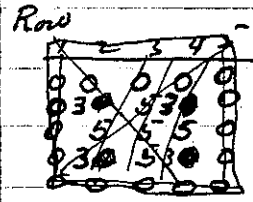
Range 10 / 1000 SPR 10⁻¹⁰ 19 / 1000 Pool

Source Dist: 9" 0" 19" 3" 0"

% F.S. Trip 80 OK 100 75 100

Row

1	2	3	4	5
0	0	0	0	0
0	3	5	3	0
0	5	5	5	0
0	3	5	3	0
0	0	0	0	0



37 ~~37~~ Billets - 3x3x5 Trimes the 8 corners
Source under 393

	57 ¹⁵⁶	82 ¹⁸	42 ¹⁹⁹	77 ¹⁸⁴
25p	57 ¹⁴⁸	82 ²	43 ¹⁵⁶	77 ²⁰³
5 min	57 ¹	81 ³⁰	42 ²¹⁰	77 ²⁰⁹
	58 ²⁷	81 ¹⁶²	42 ²⁵³	79 ⁹⁶
	58 ⁵²	81 ⁹¹	43 ¹³⁵	79 ¹⁴⁰
	73,856	104,475	55,225	99,904
	2,954	4,179	2,209	3,996
	2,942	4,178	2,207	3,996
	,523	,536	,607	

$$\frac{1,203}{3} = .555$$

29 Billets - Source under 343

3 3 3
3 5 3
3 3 3

256

5 min.

55 ⁴⁰	79 ⁹²	40 ²²⁸	80 ²⁷
54 ²¹²	79 ⁸⁹	40 ²³¹	79 ¹³³
55 ²⁵²	78 ²³¹	40 ²⁴⁷	79 ⁸⁰
55 ⁸⁰	77 ¹⁷¹	40 ¹⁶¹	78 ¹³⁴
55 ¹²¹	79 ¹⁷⁹	41 ⁴²	78 ⁸²
70,849	101,120	52,365	101,320
2,834	4,045	2,095	4,053
2,822	4,041	2,093	4,053
.546	.554	.639	

28 Billets - 3 X 3 X 3 plus 353 - Source under 353

58 ¹³⁴	121 ³⁷	44 ²⁰⁰	12 ³⁸
58 ⁵⁷	119 ²⁴⁰	46 ¹⁸	12 ⁷¹
57 ²³³	119 ¹⁸⁷	45 ⁴⁸	12 ⁹
57 ²¹³	119 ⁶⁹	45 ⁶	12 ²⁷
58 ⁹⁷	120 ⁷	45 ¹²⁸	12 ¹⁶
74,462	153,628	58,000	15,521
2,778	6,145	2,320	6,21
2,766	6,141	2,317	6,21
.5566	.5987	.648	

Source under 343

54 ⁸⁰	65 ⁶¹	42 ¹⁰⁶	79 ⁶⁶
54 ²³⁵	64 ¹²³	42 ¹⁴⁶	79 ¹⁸⁶
54 ¹⁶¹	64 ²⁰²	41 ²⁵⁰	79 ¹⁷²
55 ³⁵	64 ²²⁸	41 ²³⁷	80 ²⁶
55 ⁵⁴	64 ¹⁸¹	42 ³⁰	79 ¹⁵⁸
70,197	82,971	54,017	101,964
2,908	3,319	2,161	4,079
2,796	3,316	2,159	4,079
.551	.675	.620	

$\frac{\Sigma 1,2,3}{3} = .615$

Source in 333

	51 ⁵⁷	44 ⁸²	41 ¹⁴	44 ⁷⁷
256	50 ¹²⁴	44 ¹⁹⁸	40 ¹⁵⁷	44 ¹⁷³
5 min	50 ¹⁶⁰	44 ¹⁷⁹	40 ¹⁸³	44 ²³⁷
	49 ⁶⁶	45 ¹⁷²	40 ²⁴⁶	45 ⁸⁸
	51 ²⁴	40 ¹⁴³	40 ¹⁴⁶	40 ⁸⁴
	64,687	57,506	52,202	57,385
	2,587	2,300	2,088	2,295
	2,575	2,296	2,085	2,295
	.596	.654	.566	

under
3
E1282
3 " .605

20 Billets - Source under 353

	51 ¹⁵⁴	113 ²¹⁹	42 ⁵⁶	11 ⁸⁶	Row	2	3	4
	53 ⁹⁶	113 ¹³⁴	42 ³¹	11 ²⁰²		0	1	0
	52 ²¹	112 ¹²²	42 ⁹	11 ¹²²		1	3	1
	51 ⁹¹	111 ²⁵¹	42 ²⁸	11 ¹⁰⁹		0	0	0
	52 ⁴¹	112 ⁵⁶	41 ⁸⁵	11 ²⁷				
	66,707	144,398	53,713					
	2,668	5,776	2,148					
	2,656	5,772	2,145					
	.622	.637	.700					

7

20 Billets - Lauren Under 333

256	45 ⁺⁷	40 ³⁶	38 ¹²⁵	43 ²¹⁵
	46 ²²	40 ¹⁰⁹	38 ⁹⁹	44 ²²
5 min.	45 ¹⁸⁶	39 ²⁰⁵	39 ³⁸	43 ²²⁸
	45 ¹³⁶	40 ⁴⁴	38 ⁴	44 ²⁰⁸
	46 ²⁶	40 ¹⁹	38 ³⁰	43 ²⁴¹

58,689	51,357	49,192	56,466
2,348	2,054	1,968	2,259
2,336	2,051	1,966	2,259
.657	.733	.591	

$$\frac{\Sigma 1, 2 + 3}{3} = .660$$

64 Billets in Shelves along South Wall - ^{see} p. 146

19 ⁺⁰	9 ⁸⁹	25 ²⁴⁹
19 ⁴⁷	9 ¹⁵²	25 ²⁵⁰

3 1/2 1/2 1/2	19 ⁺⁵⁴	9 ⁺¹⁹⁴	26 ⁺¹
	19 ¹⁴¹	9 ¹³⁷	25 ¹⁷⁵
	19 ¹³⁸	9 ²⁰³	25 ²⁰⁴
	74,700	12,395	33,135
	988	495	1,325
	976	492	1,323
	.756	.786	.710

$$\frac{\Sigma 1, 2 + 3}{3} = .751$$

Background ~~3/2/59~~

Counts
5 Min

+72	+16	11	
$\frac{55}{120}$	$\frac{15}{31}$	$\frac{4}{15}$	2 CPM
12 CPM	3 CPM		

Counter Check fixed distance

133 ¹⁵⁷	10 ¹⁷²	5 ¹²²
59 ⁷⁶	491 ¹⁹²	21 ¹²²
26 ⁸⁶	21 ¹⁴⁵	524 ¹⁵⁸

256 16 Billets - Source under 353

	Row	2	3	4
52 ²⁴⁶		0	1	0
52 ¹⁴⁹		3	3	3
51 ²³⁵		0	0	0
52 ¹⁰³		0	0	0
52 ¹⁰²		0	0	0
67,139				
2,686				
2,674				
.617				

$\frac{E_{1,2+3}}{3} = .658$

46

Source under 343

50 ¹⁰³	57 ¹⁷⁶	36 ²¹⁰	76 ¹⁸
50 ¹⁸	56 ²⁴¹	37 ²⁴	77 ⁵⁷
49 ¹⁹⁷	58 ¹¹⁶	36 ¹⁰⁰	77 ⁴
50 ³⁵	57 ²⁰⁸	36 ¹³⁹	77 ⁴²
49 ¹⁸⁹	57 ¹⁸²	37 ¹³⁶	77 ²⁸⁶
64,030	73,883	47,201	98,611
2,561	2,955	1,888	3,944
2,549	2,952	1,886	3,944
.604	.758	.710	

$\frac{E_{1,2+3}}{3} = .691$

Row	2	3	4
	00	11	00
	01	31	00
	00	00	00

	48 ⁶	104 ²⁰⁶	39 ¹⁴¹	9 ¹²³
	47 ¹⁶⁵	104 ²⁴⁶	38 ²³¹	10 ²⁵
256	47 ²²²	105 ³⁷	39 ²²¹	9 ²⁵¹
	48 ⁵²	103 ²²⁹	39 ³⁷	9 ²³⁴
5 Min.	46 ¹⁷³	103 ¹⁹³	39 ¹¹³	9 ¹⁷²
	61,034	133,745	50,407	12,581
	2441	5350	2,016	503
	2429	5347	2,012	503
	1/2 703 .6777	.688	.745	503

$\frac{E_{1,283}}{3} = .750$	46 ¹³⁶	52 ²²⁴	35 ¹⁶⁵	76 ³⁹
	46 ⁷⁷	53 ¹⁰⁶	35 ²⁴⁷	76 ⁷⁷
	46 ¹⁶⁰	53 ⁷	36 ⁴⁷	76 ¹⁸²
	46 ¹⁵²	52 ²³¹	35 ²³⁴	76 ⁵⁷
	46 ³	53 ⁴⁴	35 ¹¹⁶	77 ¹³
	59,408	67,950	43,305	97,904
	2,376	2,718	1,732	3,916
	2,364	2,715	1,730	3,916
	.651	.824	.774	

	43 ⁴⁰	31 ¹³⁷	33 ¹⁵²	42 ¹⁶²
	43 ¹²²	32 ⁷⁴	32 ¹⁵²	43 ⁸⁷
	43 ²⁰¹	32 ¹⁴⁷	33 ⁴⁹	43 ⁸²
	43 ⁹⁵	32 ²³⁵	32 ¹⁶⁶	42 ²³⁹
	43 ⁸⁴	32 ²⁶	32 ¹⁸⁹	42 ¹¹⁵
	43 ¹³⁴	31 ²²¹	32 ¹²²	43 ⁷⁹
	66,724	49,480	50,546	66,039
	2,224	1,649	1,695	3,200 2,201
	2,212	1,646	1,683	2,201
	.694	.913	.690	

2
1
3
1
0

4
00-00
00

1 Oralley - Position 343

163

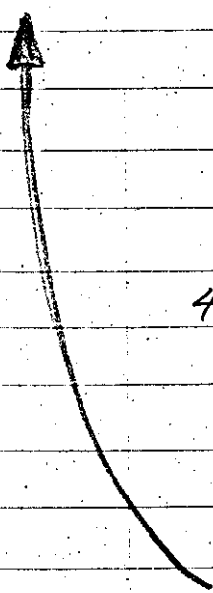
41 ⁸²	60 ¹¹¹	32 ⁶³	73 ¹³⁴
41 ⁷⁶	59 ¹³⁰	31 ¹²⁶	74 ⁵³
40 ¹⁵¹	59 ²⁰⁵	32 ²³	73 ²⁴⁴
41 ¹⁶⁷	59 ¹¹¹	30 ¹⁸²	73 ²⁴²
41 ⁶⁰	59 ⁸²	31 ⁸⁶	74 ⁵⁶
41 ¹⁰¹	59 ⁶¹	32 ⁹³	75 ²²
63,357	91,579	48,701	113,137
2,112	3,053	1,623	3,771
2,100	3,050	1,621	3,771
.733	.734	.826	

Using Counts
1.166 per
hour

~~.772~~

1 Oralley - Position 353

44 ⁷⁰	98 ⁸⁸	34 ⁹⁰	12 ⁶
43 ¹³³	96 ²⁵²	34 ¹²⁸	11 ²²⁴
43 ²⁵³	95 ²⁰⁸	34 ¹⁰⁴	11 ¹⁵²
44 ¹⁴⁸	97 ³¹	34 ¹⁰⁷	11 ¹⁷⁶
43 ²³⁹	97 ¹⁵¹	34 ¹³²	11 ¹⁶⁵
44 ¹¹⁰	96 ⁷⁶		
67,769	149,714	44,081	17,944
2,259	4,990	1,763	598
2,247	4,987	1,761	598
.734	.737	.852	
* .772	.758	.853	.895



2,201
01

1 Oralloy in Position - 333

256
5 min

38 194	41 237	29 219	41 141
38 208	42 50	29 221	41 63
39 75	41 141	29 121	41 61
38 217	41 217	28 249	40 132
39 132	41 180	29 161	40 160
38 206	41 142	29 220	40 251
39 177	41 49	29 158	40 131
70,073	74,603	53,217	73,387
2002	2131	1520	2,097
-12	-3		2,097
CPM 1,990	2128	1518	

2 Tuballoy in 333

30 12	28 152	22 91	29 220
30 185	30 26	22 247	30 42
29 206	30 108	22 135	29 136
29 241	29 175	22 231	30 44
30 96	38 167	22 253	29 232
30 36	29 16	30 45	30 45
29 184	29 131	22 253	29 252
		22 135	
54,208	52,745	40,809	53,709
1548	1507	1165	1,535
1536	1503	1162	1,535

32 ⁵⁹	42 ²⁴⁶	25 ²⁷⁶	65 ⁵⁶
32 ¹¹⁰	42 ⁶⁹	26 ²⁰	65 ²⁰²
31 ²³⁰	41 ¹⁶⁹	26 ³²	65 ⁴⁹
32 ⁶⁴	42 ¹⁵⁵	26 ¹¹⁶	64 ²⁴⁸
33 ⁵	40 ²²⁰	26 ²³	67 ¹⁹⁵

32 ⁹¹	46 ¹⁶¹	26 ⁶⁰	—
32 ²⁴⁶	46 ²⁰⁷	26 ⁴⁹	67 ³⁴
32 ¹⁷⁰	46 ¹⁰	26 ¹¹²	67 ²³⁰
32 ⁹⁸	46 ²¹⁰	26 ¹³³	68 ²⁵¹
32 ¹⁹⁷	45 ⁴	26 ¹⁹⁶	—
83,200	113,067	67,358	136,338
1,664	2,261	1,347	1,028
1,652	2,258	1,345	1,028

3/3/59 Background

94	13	9	2 CPM
68	4	10	15/24
61	14	5	
15/223	15/31		

Source at fixed distances from Counters

134 ²	9 ²⁵⁰	5 ⁸¹
------------------	------------------	-----------------

9	25 ²⁴	22 ⁶¹	524 ¹³⁷
5	58 ⁴²	481 ²⁵²	21 ⁴¹
5	58 ¹³⁹	475 ¹⁵³	21 ¹⁰⁶
	58 ²⁶	473 ⁴¹	20 ²⁵¹

Tuballoy in 353

3-3-59	34 ²⁸	74 ⁴	29 ⁷⁸	10 ¹⁰⁷
256	34 ⁷⁸	74 ¹⁴³	30 ⁵⁵	10 ⁶⁵
	34 ⁷	73 ¹⁵³	29 ¹⁶⁷	10 ¹³¹
5 Min.	34 ⁵⁹	73 ¹⁸⁷	29 ⁴¹	—
	34 ¹⁵⁰	73 ⁹⁹	29 ¹⁵¹	10 ⁹⁷
	34 ⁷⁸	73 ²¹⁶	30 ⁸⁵	10 ²¹⁵
	33 ¹⁷⁶	74 ⁴⁶	29 ²⁴⁵	10 ⁷²
Total Counts	61,248	132,412	53,302	16,047
CPM	1,750	3,783	1,522	535 5,349
CPM - Bgd	1,735	3,780	1,520	535

To Place Billets IN A LINE on 11" Centers (IN Row 3 Layer 3)
Source under 333

2 Oralloys - Position 333 + 332

54 ⁴⁷	36 ²²⁵	27 ¹⁰¹	Tables Separated
54 ¹⁴¹	36 ²²²	27 ²⁴¹	Physics removed
54 ⁷⁹	37 ¹⁸⁶	28 ⁹	from E + W side
54 ¹¹⁸	37 ⁸⁹	27 ¹⁶¹	
54 ⁸⁶	35 ²²¹	27 ¹⁴⁴	

$\frac{E_{1,2+3}}{3} = .758$	69,591	47,279	35,472
	2,784	1,891	1,418
	2,770	1,889	1,416
	.746	.761	.766
	1 Billet in Pos. 333		

52 ²¹⁵	36 ²⁴⁸	26 ¹²⁷
52 ²⁰⁰	37 ¹³⁸	27 ³⁷
52 ²⁰⁹	37 ¹⁵⁶	26 ¹¹⁵
53 ⁵²	37 ¹⁰⁰	26 ¹⁶⁵
52 ¹⁹⁵	36 ¹⁴⁴	26 ⁴⁰

$\frac{E_{1,2+3}}{3} = .771$	67,687	47,634	34,020
	2,707	1,905	1,361
	2,692	1,902	1,359
	.768	.748	.798

3 Oralloy - Pas. 333, 332, ^{add}334

7
5
1
256
5 min.

54 ²¹⁹	37 ¹⁵⁹	27 ²¹⁰
53 ¹⁵³	37 ⁹⁰	27 ¹⁹²
54 ³⁴	37 ¹¹⁸	27 ¹⁷⁷
55 ¹³⁴	38 ¹⁵³	28 ⁹
54 ²²⁷	37 ¹⁸⁵	27 ¹⁹⁴

$$\frac{\$1,253}{3} = .750$$

69,887	48,321	35,598
2,795	1,933	1,424
2,780	1,930	1,422
.743	.744	.763 Added

47
35
49
5
3
13
br

5 Oralloy - 333, 332, 334, 331, 335

55 ¹⁰⁹	38 ¹⁸²	28 ³⁰
55 ²⁴²	38 ¹⁶⁶	27 ¹⁴⁰
55 ²¹	39 ²	28 ⁸⁵
54 ²³⁷	38 ¹²¹	28 ¹⁰³
54 ⁸³	39 ⁹⁹	27 ²¹⁵

$$\frac{\$1,233}{3} = .739$$

rated
removed
W side

70,588	49,722	35,901
2,823	1,989	1,436
2,808	1,986	1,434
.736	.724	.757

7 Oralloy - 333, 332, 334, 331, 335, ^{added}330+336

54 ¹³⁹	38 ⁶²	28 ⁹³
54 ¹¹⁷	39 ²²	27 ²¹⁶
53 ²⁴²	39 ⁴⁶	28 ²
54 ²³⁸	38 ¹⁵²	28 ¹⁰⁸
55 ²⁸	38 ¹⁷⁷	28 ¹³⁹

$$\frac{13}{3} = .740$$

69,884	49,611	36,142
2,795	1,984	1,446
2,780	1,981	1,444
.744	.725	.751

1 Tuballoy in Pos. 333 - Tables Separated
 Plexiglas Removed from E+W
 Sides

40 ¹¹⁰	27 ¹⁸⁴	20 ²⁵³
40 ²⁵¹	28 ¹³⁸	21 ⁴⁰
40 ¹⁴⁶	28 ¹³³	21 ¹³⁵
40 ²¹³	28 ¹⁰	21 ¹⁰
40 ²⁵³	27 ²⁰⁰	21 ³⁴
40 ⁴³	28 ²⁹	21 ¹³¹
62, 456	43, 190	32, 603
2, 082	1, 480	1, 087
2, 067	1, 437	1, 085

3/10/59

169

15" Spacing - 75" Plexiglas Vault, 1" Thick
- Internal plexiglas 1" thick on 15" centers

Source at fixed distance from Counters

Scale
256

Time 5 min.

Scaler #	# 1	# 2	# 3
	133 + 57	10 + 8	11 + 126
	57 + 149	501 + 63	76 + 90
	24 + 101	21 + 153	528 + 206
Background (Total counts)	64	18	28
	59 11 CPM	11 5 CPM	34 6 CPM
	40	14	30

1 Tuballoy in 333

5 min.	8 + 19	17 + 20	10 + 7
10 min.	16 + 93	33 + 240	21 + 8
"	16 + 106	34 + 184	20 + 243
"	15 + 139	34 + 208	20 + 297
"	16 + 25	35 + 165	29 + " ?
"	16 + 97	34 + 166	27 + 167
"	16 + 30	34 + 86	20 + 223
"	16 72	34 237	19 252
	31,055	66,586	29,140
	414	887.8 = 888	389 530
	- 11		524
	403	887.8 = 885	389

+W
Sides

1 Tuballoy in 353

Scale 256	23	219	86	204	22	83
	23	254	87	125	22	116
5 min	24	19	86	86	22	141
	23	227	87	29	22	86
	23	100	87	95	22	161
	23	211	87	23	22	211
	23	44294			22	
Total Counts	23	1476	133,682			34,590
C/m	1		4,456			1,153
		1,465	4,453			1,147

1 Orallouy in 353

	34	+37	129	+17	27	+56
	33	+189	127	+209	26	+210
	34	+219	129	+136	26	+237
	33	+199	127	+223	26	+207
	34	+112	128	+129	27	+3
		43,763	164,554			34,505
		1,751	6,582			1,380
		1,740	6,579			1,374
$\frac{1}{M_0}$		.841	.676			.834

$$\frac{E_{1,2+3}}{3} = .784$$

1 Oralley in 333

256	10 + 90	24 + 184	13 + 181
	10 + 173	24 + 224	13 + 254
5 min	10 + 46	24 + 124	13 + 235
	10 + 78	24 + 224	13 + 220
	10 + 196	24 20	13 + 240
	10 + 146	24 233	13 + 80
	10 + 142	24 192	14 + 92
	18,791	44,257	25,682
	537	1,264	734
AV = .729	526	1,261	728
	.766	.702	.720

8 Oralley

345 353 433 255 355 325
 334 332 ~~335~~

Source under 353

36 114	135 114	30 159
37 8	137 25	30 184
37 102	136 153	30 125
37 27	155 101	30 132
36 118	156 18	30 30
	156	31
47,289	174,235	39,386
1892	6,969	1,575
- 11	6,966	1,569
AV = .925	.639 .944	.876
AV = .779	.731	

AV = .716

	443	423	243	232
16 Or Alloy - Add. c	432	434	223	234
256	41 +140	145 +185	36 +41	
5 min.	41 +85	145 +25	35 +152	
	41 +111	144 +131	36 +19	
	41 +236	145 +112	36 +34	
	41 +191	145 +149	36 +57	
	53,243	185,946	46,127	
	2,130	7,438	1,845	
	2,119	7,435	1,839	
$A_0 = .638$				
$\frac{1}{m_0}$	.691	.599	.624	
$\frac{1}{m_x}$	.821	.884	.747	

3/11/59 Background

0 +105	0 +13	0 +4
0 +77	0 +15	0 +11
0 +52	0 +14	0 +10
$\sqrt{234} = 16 \text{ CPM}$	$\sqrt{42} = 3 \text{ CPM}$	$\sqrt{25} = 2 \text{ CPM}$

INSTRUMENT CHECK					
Time	5:50	AM	Source	Pa Be	
Range	$\frac{10}{1000}$	OK	10^{-10}	$\frac{10}{1000}$	900V
Source Dist.	2 1/2"	0"	15"	2"	0"
% F.S. Trip	100	OK	100	100	100+

Source at fixed distance from Counter

133 + 101	10 + 17	4 + 254
58 + 164	501 97	21 + 46
25 + 88	21 + 153	528 + 5

28 Billits - 3X3X3 + 353 Added

222	244	342	424
224	322	344	482
242	324	422	449

256
5 min

55 + 241	175 + 67	49 + 25
54 + 255	174 + 230	48 + 205
55 + 23	173 + 185	49 + 72
55 + 74	175 + 27	48 + 178
56 + 20	174 + 64	49 + 132

71,013	222,547	62,815
2,841	8,942	2,513
2,825	8,939	2,511
.519	.498	.457

PM
Av = .491
1/mo

Source under 332

256
5 min

47 + 168	88 + 210	53 + 170
47 + 198	89 + 184	54 + 39
47 + 49	89 + 31	54 + 103
48 + 139	88 + 238	54 + 137
47 + 122	89 + 160	54 + 78

61,092	114,231	69,391
2,444	4,569	2,776
2,424	4,566	2,774
.166	.194	.189

Av = .183

Source under 333

	33 Aralley - Added	133, 331, 335, 313 + 533	
	59 + 228	103 + 64	69 + 127
	59 + 3	103 + 114	69 + 32
	59 + 257	104 + 35	68 + 200
	59 + 99	103 + 55	70 + 53
Av = .149	60 + 86	104 + 96	69 + 160
	76,446	132,716	88,892
	3,058	5,309	3,556
	3,042	5,306	3,554
	256		
	59	103	55
	60	175	55
Source	222	107	105
under 353	59	176	56
	58	34	42
	59 + 150	174	55
		83	217
		175	55
		79	110
Av = .458	76,446	224,898	71,321
	3,058	8996	2855
	3,042	-3	2853
Vm.	.478	8993	
		.495	.402

$\frac{1}{m_0} = .132$

$\frac{1}{m_0} = .167$

$\frac{1}{m_0} = .147$

41 Oralley - Added 312, 352, 314, 354, 223, 243, 423, 443

25-6
5 min

88 +128	247 +76	74 +207
89 +76	246 +65	74 +67
88 +72	243 +238	78 +186
89 +25	243 +8	74 +238
88 +140	244 +107	74 +169

113,593	313,088	95,331
4,544	12,523	3,813
4,528	12,520	3,811
.324	.356	.301

147

AV = .327
~~.324~~

Source at 333

89 +160	162 +254	95 +70
91 +80	161 +226	95 +221
89 +134	162 +220	94 +25
89 +55	162 +65	94 +75

AV = .100

92,077	166,397	97,159
4,604	8,320	4,858
4,588	8,317	4,856
.0878	.106	.108

Y/mo

Source under 353

49 Billito - Added 231, 235, 431, 435, 321, 325, 341 + 395

256	88 +206	218 +30	73 +196
<u>4 min</u>	88 +200	216 +227	73 +191
	88 +236	214 +47	74 +48
	88 +236	214 +70	73 +232
	90,990	221,046	75,675
	4,550 5,687	13,815 11,052	4,730
.274	4,524 5,671	13,812 11,049	4,728
Av. .274	.258	.322	.243

256	105 +250	170 +90	103 +196
<u>4 min</u>	105 +45	172 +123	104 +117
	104 +247	172 +207	103 +250
	106 +169	172 +114	103 +37
	106 +47	172 +116	103 +66
	155,414	220,298	132,762
Av. .075	6771	11015	6658
	-16		
	6755		
1/m.	.0596	.0803	.07894

3/12/59

177

+395

Source at a fixed distance

135 + 221	10 + 221	5 + 165
60 99	502 129	21 63
35 171	22 110	571 16

INSTRUMENT CHECK

Time 9:40 ^{AM} ~~PM~~ Source Pa Co

Channel:

	A	B	C	D	E
Range	<u>10</u> <u>1000</u>	<u>ep</u>	<u>10⁻¹⁰</u> <u>1000</u>	<u>10</u> <u>1000</u>	<u>900V</u>
Source Dist.	<u>3"</u>	<u>0"</u>	<u>15"</u>	<u>2"</u>	<u>0"</u>
FS Trip	<u>100</u>	<u>ok</u>	<u>100</u>	<u>95</u>	<u>100+</u>

57 Billets - added 123, 143, 132, 134, 523, 543, 532 + 534.

3 min Count		# 1	# 2	# 3
Source 333	with tabs at 3.5"	84 ⁺¹⁶¹ = 7,184 CPM	130 ⁺⁵⁴ = 11,098	85 ⁺¹³⁹ = 7,267
	" 3.0"	87 ⁺³¹ = 7,427	137 ⁺²⁴⁴ = 13,693	90 ⁺¹⁴⁶ = 7,625
	" 2.0"	99 ⁺²⁰⁸ = 8,516	157 ⁺¹⁷⁷ = 13,626	103 ⁺²⁴¹ = 8,869
	" 1.25"	111 ⁺⁶ = 9,472	181 ⁺⁵⁹ = 15,464	118 ⁺¹⁷⁰ = 10,125
	" 0.75"	120 ⁺²⁴⁹ = 10,312	196 ⁺¹⁷⁷ = 16,783	151 ⁺¹¹ = 11,182
	" 0.25"	131 ⁺²¹² = 11,199	217 ⁺²¹³ = 19,589	141 ⁺¹²⁹ = 12,074
	256 3 min	133 ⁺¹²⁴ = 11,352	225 ⁺¹¹⁰ = 19,236	147 ⁺¹⁶ = 12,578
	"	135 ⁺¹⁴⁰	223 ⁺³²	146 ⁺⁷⁵
	"	134 ³³	224 ¹²⁶	147 ²⁵⁴
	"	134 ⁺²	224 ¹³⁹	147 ⁺⁵²
Av. .041	134 ²⁸	223 ⁶⁷	145 ²⁴⁸	
	171,987	286,935	188,057	
	11,466	19,129	12,534	
	11,450	.0463	.0418	
	.0350			

256
3 min.

97 +132
96 +247
97 +87
98 +113
96 +166

219 +217
220 +58
223 +175
223 +54
222 +92

92 +151
92 +114
94 +199
92 +95
94 +79

av = .185

124,393
8,293
.177

283,732
18,915
.235

118,910
7,927
.144

1/m.

Source under
333

61 Billets - Added 212, 214, 442 + 444

256
3 min

Tables at	3.5"	2.75"	2.00"	1.25"	0.75"	0.25"	0.0"
	100 ⁺¹⁷⁵ = 8,591 cpm	112 ⁺¹⁵⁰ = 9,607	125 ⁺¹⁸ = 10,672	143 ⁺⁴² = 12,216	159 ⁺⁷⁰ = 13,590	177 ⁺⁹⁴ = 15,134	186 ⁺¹¹⁷ = 15,910
	159 ⁺¹⁵¹ = 13,617	180 ⁺¹⁹⁶ = 15,424	204 ⁺¹⁰² = 17,441	239 ⁺²⁸ = 20,402	269 ⁺¹¹² = 22,990	306 ⁺⁰ = 26,111	315 ⁺⁴⁷ = 26,895
	99 ⁺¹¹⁵ = 8,486	161 ⁺⁰ = 9,472	125 ⁺¹⁹ = 10,672	145 ⁺²⁵⁴ = 12,457	163 ⁺¹⁵⁷ = 13,960	184 ⁺⁵⁶ = 15,720	191 ⁺⁹¹ = 16,312
	186 ⁺¹²²	185 ⁺¹⁷⁰	188 ⁺¹⁸⁰	187 ⁺²⁴⁷	316 ⁺³	315 ⁺⁸⁹	318 ⁺³
	319 ⁺²⁰⁶	191 ⁺²⁶	190 ⁺¹¹⁹	191 ⁺⁶⁸	191 ⁺¹⁸⁵		
	239,434	408,728	244,663				
	15,962	27,248	16,310				
	15,950						
	.0253	.0328	.0321				

Av. = .0301

6/ Billets - Source under 353

	131 + 3	285 + 220	120 + 84
	131 52	284 86	121 89
	133 215	286 150	121 118
	131 153	286 123	120 98
	132 104	288 85	122 17
	168,975	360,488	155,030
Av - .141	11,265	24,432	10,335
	11,249		
1/m.	.1302	.1823	.111

Source 333 65 Billets - Added 242, 244, ~~412~~ 412 + 414

6	Tables at 3.5"	127 +127 = 10,880	207 +12 = 17,668	121 +116 = 10,364 CPM
2	" 2.75"	145 +53 = 12,391	238 +95 = 20,341	140 +14 = 11,951
72	" 2.00"	165 +97 = 14,112	279 +160 = 23,861	163 +139 = 13,956
457	256			
260	3 min	200 +82 = 17,094	339 +162 = 28,982	198 +6 = 16,898
720	" 0.75"	230 +148 = 19,688	396 +92 = 33,822	228 +137 = 19,502
312	" 0.25"	269 +234 = 23,033	470 +74 = 40,131	271 +225 = 23,200
	" 0.00"	284 +54 = 24,253	497 +104 = 42,445	297 +95 = 24,519
		284 +103	498 +83	298 +55
		284 +130	498 +11	287 +73
		284 +30	498 +9	286 +249
3		284 +119	496 +19	287 +84
		363,956	636,898	367,906
		24,263	42,460	24,527
		24,250		
		.0166	.0208	.0213
	Av = .0196			

193 +134	400 +26	179 +218
193 +157	400 +234	180 +174
192 +19	401 +129	180 +169
192 +196	400 +128	181 +128
193 +54	398 +180	179 +174
247,088	512,441	228,447
16,473	410,041	15,223
	34,162	
	27,336	
Av. = .099 .098	.130	.075
16,460	.068	
.089		

69 Billets - added 241, 245, 421 + 425

Tablet 4.0"	143 ⁺²⁴⁶ = 12,285	226 ⁺¹²⁸ = 19,328	134 ⁺¹⁷⁰ = 11,491
" 3.5"	157 ⁺²⁹ = 13,407	249 ⁺⁷³⁴ = 21,259	148 ⁺⁹⁶ = 12,661
256 3 min " 2.75"	180 ⁺²⁶ = 15,369	291 ⁺⁷⁷⁶ = 24,857	174 ⁺¹⁶⁷ = 14,904
" 2.00"	218 ⁺¹³⁶ = 18,665	360 ⁺⁹⁰ = 30,783	213 ⁺⁴³ = 18,190
" 1.25"	276 ⁺¹⁵⁰ = 23,602	465 ⁺¹⁵⁴ = 39,731	274 ⁺²⁵² = 23,465
" 0.75"	340 ⁺²¹⁸ = 29,086	573 ⁺²⁴⁷ = 48,978	338 ⁺¹⁶⁹ = 28,999
Source 333 " 0.25"	436 ⁺¹⁷⁰ = 37,262	737 ⁺¹⁰⁶ = 62,926	435 ⁺⁸³ = 37,144
" 0.00"	479 ⁺²⁵² = 40,958	806 ⁺⁸⁷ = 68,808	479 ⁺³ = 40,879
"	478 ⁺³	806 ⁺⁷⁰	478 ⁺¹⁹⁴
	481 ⁺¹³¹	808 ⁺¹⁴³	478 ⁺³¹
	481 ⁺⁴³	807 ⁺⁶⁵	476 ⁺⁹⁵
	480 ⁺⁶⁷	807 ⁺¹⁰¹	479 ⁺²⁰⁵
	614,740	1,033,130	612,368
	40,982	68,875	40,825
av. = .0118	.00983	.0128	.0128

309 +4	587 +147	292 +24
310 +18	589 +179	295 +179
310 +1	589 +237	293 +5
309 +21	587 +42	292 +246
310 +90	588 +229	293 +53
396,421	753,414	374,740
AN = .0634 26,428	50,228	24,983
.0555	.0887	.0459

71
61
704
190
3,465
8,899
144
879

8
-
8

3/13/59

Background

3 min	0 ⁺²⁴	0 ⁺¹⁰	0 ⁺²
5 min	135 ⁶¹	11 ⁶⁴	5 ⁷³
	65 ⁷⁵	445 ⁶⁵	21 ²²²
	62 ¹⁴²	43 ¹⁹²	21 ¹⁰¹
	21 ¹⁷⁰	19 ¹⁵⁵	523 ²⁴²

Linear Amplifiers to scaler #2 changed

INSTRUMENT CHECK

Time 10:00 AM Source Y

Channel

	A	B	C	D	E
Range	$\frac{10}{100}$	opt	10 ⁻¹⁰	$\frac{10}{100}$	900V
Source Dist.	1"	0"	5"	0"	12"
% F.S. Trip	90	OK	100	60	100 [†]

	61 ²⁵⁷	493 ¹⁶⁵	21 ²⁴⁵	Row	2	3	4	5
60 Billits - 4 X 4 X 4 less four Corners					3	4	4	3
Table at 0.75"	175 ⁺²¹⁸ = 15,006	276 ⁺¹²² = 23,593	92 ⁺¹⁴¹ = 7,898		4	4	4	4
" 0.25"	195 ⁺²⁵⁴ = 16,725	311 ⁺²³⁴ = 26,617	101 ⁺¹⁹² = 8,683		4	4	4	3
" 0.00"	203 ⁺²⁰⁹ = 17,392	323 ⁺²⁶ = 27,571	105 ⁺⁹³ = 8,991		0	0	0	0

Source 333

256
3 min

64 Billets — 4 X 4 X 4

	Tables at 1.25"	191 ⁺⁵⁹ = 16,318	284 ⁺¹¹ = 24,272	93 ⁺¹⁶¹ = 7,989
	" 0.75"	213 ⁺²⁰ = 18,183	325 ⁺¹²³ = 27,774	106 ⁺²⁵⁰ = 9,129
256	" 0.00"	252 ⁺⁵⁷ = 21,522	386 ⁺¹⁵³ = 32,990	124 ⁺²²¹ = 10,655
3min	" "	259 ⁺¹⁸⁶	387 ⁺⁶²	126 ⁺¹⁵²
		252 ⁺⁹	387 ⁺⁶⁷	125 ⁺¹⁵⁶
		251 ⁺¹²³	385 ⁺²⁰	126 ⁺²⁰⁸
		251 ⁺²⁰³	388 ⁺²⁵	125 ⁺¹⁴⁷
		323,134		
		271,924	495,175	161,140
		21,542	33,011	10,743
		.0187	.0268	.0488

Source under 353

3 7 5
4 4 3
4 4 4
4 4 4
4 4 3
5 0 0

207 ⁺¹¹⁹	383 ⁺²⁰⁵	100 ⁺²¹
205 ⁺¹⁶³	383 ⁺²¹¹	100 ⁺¹⁴²
207 ⁺²⁹	384 ⁺⁷⁸	101 ⁺²³⁹
207 ⁺¹³⁹	384 ⁺⁰	101 ⁺¹⁴³
209 ⁺²¹⁵	386 ⁺²⁵³	101 ⁺⁸⁶
265,625	492,267	129,298
17,708	32,817	8,620
.0827	.135	.133

Av. = .116

33

71

27 Billits - 3 X 3 X 3 Array

Source under 353

256
3 min

50 + 170
51 + 38
51 + 5
50 + 157
51 + 42

162 + 128
161 + 222
162 + 85
162 + 235
162 + 220

35 + 124
36 + 17
36 + 99
36 + 50
35 + 165

65,180
4,345
4,330
338

13,866

16 Billits - Same as p. 172

256
4 min

33 + 156
33 + 131
33 + 142
33 + 165
33 + 160
33 + 188

118 + 172
116 + 121
116 + 236
114 + ~~244~~ 241
116 + 106
117 + 130

29 + 48
28 + 161
28 + 129
28 + 149
29 + 113

Source 353

51,630
2,151
2,136

179,438
7,476

37,002
15,42

Source under 333

4 min	19 + 90	35 + 144	24 + 147
10 min	48 + 171	89 + 161	60 + 225
	49 + 100	89 + 146	61 + 161
	49 + 180	91 + 8	61 + 30
	48 + 91	89 + 140	61 + 137
	49 + 42	90 + 119	61 + 62
	67746	124304	84730
	1255	2303	1569
	1240		

1/m = 403/1240 | 0.325 885/2303 | 0.384 524/1569 | 0.334

Av. 347

186

3/19/59

12" spacing
Plexiglas Vault 36" x 36" x 108"

Assembly of 3x3x9

	# 1	# 2	# 3
Standard Count	26 ¹⁵¹	22 ⁶⁶	522 ⁴⁶
	46 ¹⁰⁴	448 ²²⁰	21 ¹⁶¹
	47+9	442 ²³⁷	21 ¹⁶²
	130 ²³⁶	8 ¹¹⁹	6 ¹⁸⁰

2:00 PM
Backg round.

	4 cpm	2 cpm	10 cpm
256 5 min	0+44	0+9	0+7
	0+32	0+9	0+5

4:15 PM

1 Juballoy in 554

	# 1	# 2	# 3
Scale 256	64 ¹²¹	165 ¹⁶⁹	28 ¹⁶
10 min.	63 ²³³	163 ²⁴³	27 ¹⁵⁴
	63 ⁷¹	162 ⁹⁹	26 ²³¹
	64 ¹³⁶	163 ¹⁹⁶	27 ²⁰²
	63 ¹²⁸	162 ²¹⁶	27 ¹⁸⁰
	63 ⁵⁹	162 ¹⁵⁴	27 ¹²⁶

Total Counts	98,028	250,677	42,361
CPM	1,638	4,178	706
CPM-Bgd	1,598	4,158	696

1 Juballoy in 544

59 ¹⁹⁹	111 ¹⁶⁷	29 ²²⁶
59 ³⁹	111 ¹⁶³	29 ²²¹
59 ⁸³	111 ¹²	30 ¹⁰⁰

3/20/59

Background

50 10cpm 9 2cpm 15 5cpm

1 Tally 544

Scale 252	29 ⁹	54 ¹⁰²	14 ¹⁹³
Time	28 ²⁰⁷	54 ²⁰¹	15 ³³
5 Min	28 ²¹⁴	55 ⁸⁵	15 ¹⁰⁷
	28 ²⁴⁴	55 ⁷³	14 ²³⁰
	27 ⁶⁷	54 ¹⁸⁵	14 ²⁴²
	28 ¹⁷²	55 ¹²⁸	14 ¹⁶¹
	29 ¹⁰	55 ⁵	14 ²⁴⁹
	28 ¹¹¹	54 ¹⁰⁹	15 ⁶⁸
	58,634	112,463	30,729
	1,462		
	2,466	2,812	768
	1455	2,910	765

1 Orally in 544

37 ²³⁵	73 ²⁵⁵	18 ¹³²
37 ²⁰⁸	74 ⁵⁶	18 ²¹⁷
36 ²³⁸	75 ¹⁵²	18 ²³⁰
38 ⁴⁷	73 ¹¹⁸	18 ¹⁹⁷
37 ³	74 ⁸¹	18 ²²⁵
37 ¹⁶⁰	74 ⁸⁷	19 ⁵⁵
37 ¹⁹⁹	74 ⁴	19 ¹⁹
67,324	133,105	33,845
1926	3803	967
1916	3794	964
1759.834	.7402	.7935

767

1 ORALLOY in 557

	40	211	111	165	16	192
	41	20	111	217	16	198
	39	157	112	20	16	255
	40	35	111	189	16	120
	40	187	111	5	16	118
	39	212	112	71	16	253
	40	257	112	127	16	125
Av. .772	72,519		200,474		27,909	
	2072		5728		856	
1/m. .775			.726		.815	

9 ORALLOY in Row 5 Source 554

	49	239	133	34	20	242
	50	140	133	55	21	55
	50	144	133	65	20	211
	50	61	134	122	21	
	50	118	133	30	20	149
	50	5	133	250	21	25
	77,257		205,106		32,270	
	2575		6837		1076	
	-10					
Av-627	2565		6835		1073	
	.623		.608		.649	

INSTRUMENT CHECK

Time 11:10 AM Source: Pu Be
PM

Channel

	A	B	C	D	E
Range	$\frac{10}{1000}$	<u>OK</u>	10 ¹⁰	$\frac{10}{1000}$	900V
Source Dist.	10"	0"	20"	4"	1/2"
% F.S. Trip	100 ⁺	<u>OK</u>	100	90	100 ⁺

18 Dralley - Added Row 6 Source 557

	59 ¹¹¹	156 ²¹⁴	24 ¹¹⁴
	59 ²²	156 ¹²⁰	24 ¹²¹
	59 ¹²⁹	157 ³⁸	24 ¹⁷⁰
	59 ⁵¹	154 ¹³⁰	24 ³⁹
	58 ²¹¹	155 ¹⁷²	24 ¹³²
Av - .555	75,848	199,844	31,302
	3034	7994	1252
	3024	.	1241
	.5284	.5201	.5572

27 Dralley Added 9 to Row 4 Source 557

	70 ²⁰⁹	185 ⁹⁹	29 ¹⁶⁸
	71 ⁴⁴	185 ⁸²	29 ⁹⁹
	72 ¹⁵	185 ⁴²	28 ¹⁰⁴
	71 ⁸⁰	187 ³⁸	28 ¹⁶⁷
	72 ¹⁰	186 ⁷¹	29 ¹⁸¹
Av - .447	91,458	237,903	39387
	3658	9516	1495
	3048		
	.438	.457	.466

22 with Source under 544

65	185	126	243	33	224
66	119	127	113	34	95
65	231	127	212	34	167
65	164	127	156	34	107
67,515	130,516	35,153			
3,376	6,526	1,758			
3,366					Av. = .433
.435	.430	.435			

36 Oralley - Added Row 7 - Source 554

256	77	232	199	107	31	255
5 min.	77	21	201	53	31	173
	77	23	200	70	31	183
	78	62	199	10	31	100
	76	211	199	52	31	55
	99,109	255,78	40,446			
	3,964	10,231	1,618			
	3,927					
	.404	.406	.430			

W. = .413

45 Oralley - Added Row 3

85	213	219	75	37	90
84	254	218	47	36	153
85	52	217	18	37	2
84	215	218	96	37	21
84	40	218	38	36	225
108,800		279,384		47,339	
4352		11,175		1,894	
4342					
1/m.	.368	.372		.368	
Av	.369				

54 Oralley Added Row 8

92	109	224	231	38	138
91	179	227	4	38	201
92	18	229	100	38	201
92	1	227	156	38	209
90	206	229	27	38	212
117500		290,822		49,601	
4700		11,633		1984	
4690					
1/m.	.356	.357		.357	

Av 348

3/23/59

Scale 16 $8^{+12} = 140$ $1^{+6} = 22$ $0^{+10} = 10$
 5 min $4^{+3} = 77$ $1^{+3} = 19$ $0^{+9} = 9$
 20 cpm 4 cpm

256 134³⁴ 9¹⁵⁴ 6¹⁶⁶
 5 min 50⁷ 451³⁴ 32³⁶
 27¹⁴¹ 22²⁰⁴ 523¹⁷¹

INSTRUMENT CHECK				
Time	7:00	AM	Source	Pa Be
		PM		
			Channel	
			A B C D E	
Range			10^{-10}	10^{-10} 300V.
Source Dist.	7"	0"	16"	2" 0"
% F.S. Tap	25	OK	100	95 100+

63 Oralley - Added Row 2 - Source under 554

256 150 128 238
 5 min 100 271 43
 100 242 45⁵⁰
 100 241 43⁷⁻
 99 240 43³⁹
 99 239 43¹⁸²
 Av 128,109 308,603 55,577
 5124 12344 2223
 5104
 1/m .313 .337 .313

72- Oralley - Added Row 9

193

105 + 118

246 + 173

44 + 118

105 + 127

244 + 179

44 + 147

104 + 248

247 + 129

43 + 163

105 + 103

245 + 255

44 + 169

105 + 117

244 + 191

44 + 224

134,837

314,783

56,885

5,393

12,591

2,275

5,373

Av. = .311

.297

.330

.306

81 Oralley - added Row 1 - 3 X 3 X 9

110 82

255 107

50 157

109 171

255 61

51 125

109 217

255 126

50 53

110 180

256 109

50 54

109 189

254 209

50 109

140,869

327,012

64,748

5,635

13,080

2,590

5,615

~~3,179~~

.284

.318

.269

Av. = .290

This Frame work used for
assemblies beginning p. 186

Table Separation

12" Centers

E

N

S

951	851	751	651	551	451	351	251	151
941	841	741	641	541	441	341	241	141
931	831	731	631	531	431	331	231	131
921	821	721	621	521	421	321	221	121
911	811	711	611	511	411	311	211	111

W

3/24/59

197

Assembly of 5x5x5 with 12 inch spacing
1" vault.

Vault 5' x 5' x 5'

Background.

Center	102	11	5
	20 CPM	2 CPM	1 CPM

Counter Check

133 ¹¹¹	= 26 ⁺²²⁰	9 ⁵²	6 ¹⁵²
49 ¹⁵⁴		447 ¹³⁰	22 ⁷⁸
26 ⁹⁹		22 ⁷⁹	526 ⁶⁰

1 Tuballoy in 533

Scale 256

Time 8 MIN

46 ¹²⁷	64 ⁴⁸	30 ⁴⁸
47 ⁹⁷	63 ²³²	30 ¹²⁰
46 ¹⁹⁰	64 ¹⁹	30 ¹⁶³
46 ⁸⁹	64 ⁶⁶	30 ²⁰⁷
46 ¹⁸¹	64 ²⁰²	30 ¹⁴¹
59,820	82,231	39,079
1,496	2,056	38 977
1,476	2,054	976

1 Tuballoy in 553

256	54 ¹³⁸	129 ²¹⁶	42 ²⁰⁸
8 min	54 ¹¹¹	128 ¹⁹³	42 ¹²³
	53 ²³⁶	128 ¹⁴⁴	43 ¹⁵
	54 ⁷⁷	129 ⁴⁵	42 ¹¹³
Total count	55,602	132,182	43,211
CPM	1,390 1,738	3,303 4,131	1,728 1,080
CPM - Bgd.	1,370 1,718	3,302 4,129	1,079 1,349

1 ORALLY IN 553

256	53 ²⁴⁸	135 ¹²¹	38 ⁸³
6 min	53 ⁶⁴	135 ¹⁸⁰	38 ¹⁸⁵
	53 ¹¹⁶	135 ³⁴	38 ¹⁸⁵
	53 ⁶²	135 ¹⁷⁹	38 ¹⁴
	54,762	138,754	39,379
	2,282	5,781	1,641
Av. = .765	2,262	5,779	1,640
	.760	.714	.822

1 ORALLY IN 533

	44 ⁵²	64 ⁷⁶	29 ²⁰¹
	43 ¹³⁶	63 ¹⁷⁶	30 ⁹
	44 ⁶⁸	64 ²³	20 ⁶⁹
	43 ²⁵³	63 ¹⁸⁶	29 ²²⁷
Av. = .770	45,053	65,485	30,716
	1,877	2,729	1,280
	1,857	2,727	1,279
	.795	.753	.763

8 ORALLOY - Added 532, 534, 543, 553
 Source under ~~553~~ 523, 433, 633.

199

	49 ¹⁵⁶	123 ⁷⁹	35 ³⁰
	50 ¹⁵²	122 ¹²⁰	34 ⁹⁹
257	50 ²⁴³	123 ⁶⁰	34 ¹⁸⁹
5 min.	49 ¹⁸⁴	122 ²²⁴	35 ¹⁸⁶
	51 ³	123 ⁵	35 ¹²⁷
	64,482	157,492	44,919
50	2,579	6,200	1,797
49	2,559	6,299	1,796
	.671	.655	.751

A_v = .692

INSTRUMENT CHECK						
Time	AM PM	Source <u>Pu-Bc</u>				
		Channel				
		A	B	C	D	E
Range		1% ¹⁰⁰	ORR. 1 ⁻¹⁰	1% ¹⁰⁰	1% ¹⁰⁰	900 ^d
Source Dist.		2"	1 1/2"	18"	1 1/2"	0"
% F.S. Trip		100	OK	100	100	100

15 ORALLOY Added

	56 ⁸⁹	135 ²¹⁷	40 ⁸⁶
	56 ¹⁴²	134 ³¹	39 ¹⁷⁷
5 min	56 ¹⁸⁶	134 ¹³⁹	40 ⁴⁸
	57 ²⁹	135 ³⁰	40 ⁶⁰
	56 ²⁴	135 ²⁴²	40 ¹¹⁴
A _v	72,405	172,	51,429
617	2896	6918	.2057
	2876		
	.597	.592	.6558

28 Orally Added

256	52 ¹⁷²	53	37 ¹²³
	52 ²	121 ¹⁷⁸	57 ⁶⁴
4 Min.	52 ⁴⁷	122 ¹⁴⁸	37 ¹¹
	53 ¹⁴⁰	122 ⁷¹	37 ²²
	52 ¹⁸⁹	122 ¹⁵⁸	34 ¹⁷¹
	67,365	105,980	47,502
	3,368	7,799	2,375
	3,348	7,797	2,374
AV = .537	.513	.530	.568

33 - ORALLY -

55 ⁵²	126 ⁷⁷	40 ²⁸
54 ²¹⁸	126 ⁹	39 ²²⁶
55 ¹⁰	126 ⁷⁹	40 ¹⁷⁸
55 ⁶	125 ¹⁶	39 ²²⁵
56 ¹³¹	126 ²⁷	40 ¹⁹
70,817	161,232	51,360
69,537	8,062	2,568
3,541	8,060	2,567
3,521		
AV = .509	.488	.512
		.526

41 ORALLY -

	63 ²³	142 ³²	39 ²⁸
256	63 ⁶	140 ¹⁹⁸	39 ¹⁴⁹
4 min.	61 ¹⁶³	142 ⁷⁸	39 ¹⁴⁷
	61 ¹³⁷	141 ⁵⁶	39 ⁶²
	62 ¹³¹	142 ¹⁸⁹	39 ³⁴
	79,820	181,545	50,340
	3,991	9,077	2,517
	3,971		
Av = .475'	.433	.455'	.536

57 ORALLOY -

	71 ⁹²	157 ¹⁸	46 ²²⁶
256	71 ⁸¹	157 ¹⁷⁸	46 ⁶⁵
4 min.	72 ⁶¹	155 ²²⁷	45 ²⁴⁹
	71 ¹⁴²	155 ¹⁰²	45 ²⁰⁸
	71 ¹⁷⁷	156 ¹⁵³	45 ⁹⁶
	91,689	200,418	58,950
	4584	10,021	2948
	4564		
Av.	.374	.413	.458

202

3/25/59

Background

4 min	0 +101	0 +16	0 +77
	0 +46 = 167 21 cpm	0 +20 36 4 cpm	0 +18 25 9 cpm

Source at a fixed distance

4 min	107 57 = 26 +206	8 82	5 122
5 min	52 193 26 236	451 200 23 90	24 34 526 33

INSTRUMENT CHECK

Time 9:00	AM	Source Pu Be			
	PM				
		Channel			
	A	B	C	D	E
Range	$\frac{10}{1000}$	opt	10^{-10}	$\frac{10}{1000}$	900V
Source Dist:	4"	0"	17"	2"	0"
% F.S. Trip	100+	OK	100	100+	100+

Source under 553

73 ORALLOY -

256	.107 244 = 21	226 177	70 238
5 min.	107 184	228 8	70 8
	107 110	227 151	70 190
	106 149	224 254	71 172
	109,969	229,710	72,544
	5,498	11,486	3,627
	5,477	11,482	3,624
	.314	.360	.372

AV = .349

81 ORALLOY -

	117	47	241	121	80	102
256	116	224	242	104	80	240
5 min.	117	138	242	136	79	27
	116	135	243	243	79	206
	119,840		249,501		81,983	
	5,992		12,475		4,099	
av. = .316	5,971		12,471		4,096	
	.288		.331		.329	

89 ORALLOY -

256	102	186	210	151	69	187
4 min.	102	196	209	208	70	135
	103	81	208	129	71	43
	102	53	209	237	69	197
	102	103	209	141	70	205
	131,435		268,386		90,111	
	6,572	5,257	13,419		4,501	
	6,551	5,236	13,415		4,498	
Av = 290	.262		.308		300	

97 ORALLOY -

	110	42	221	222	76	53
	110	253	222	77	75	255
	111	85	221	74	77	191
	110	215	221	34	77	23
	110	187	220	230	77	68
	141,838		283,517		98,332	
	7,092		14,176		49,17	
Av = .269	7,071		.291		.274	
	.243					

105 ORALLOY-

256	123 77	240 137	85 196
4 Min	123 153	238 19	85 229
	122 142	240 185	86 27
	122 156	239 77	85 143
	122 149	239 138	86 35
	157,347	306,732	109,942
	7,867	15,337	5497
	7.846		
$\bar{x} = .244$	.219	.269	.245

113 ORALLOY

252	99 193	196 156	72 69
3 Min	100 185	197 57	71 127
	102 55	195 137	71 250
	100 227	197 255	72 132
	100 102	195 189	71 133
	129,618	251,674	92,078
	8,601	16,778	6,139
	8,580		
	.200	.246	.220

$\bar{x} = .222$

117 - ORALLOY

107 ³⁹	205 ²⁵	77 ¹⁹⁶
106 ¹³²	205 ²⁹	77 ¹⁹⁸
107 ³⁵	206 ¹⁶⁷	78 ³⁷
106 ¹²¹	206 ¹⁶⁷	78 ³⁰
107 ⁷⁵	203 ¹¹⁰	78 ⁴⁰

136,870	262,900	99,829
9,125	17,526	6,655
9,104	.	.
.189	.236	.203

AV. = 209

125 ORALLOY

~~At 209~~ Source under 553 - 5X5 XS ARRAY

256	116 ¹²	222 ¹⁴⁴	85 ¹⁶⁹
	117 ¹⁷⁷	220 ⁹⁶	86 ⁹⁶
3 min	116 ¹³⁹	222 ¹³⁷	86 ⁹⁵
	116 ¹²	221 ⁸²	86 ⁷¹
	116 ¹⁵⁴	221 ¹⁴²	86 ²⁰

149,220	283,722	112,835
9,948	18,914	7,522
9,827	.	.
.175	.218	.179

AV. = .191

Source under 533

118 ¹⁸⁰	176 ¹⁴⁰	95 ⁶⁸
118 ¹³⁶	177 ¹⁴⁵	95 ¹⁵⁷
119 ⁸¹	178 ¹⁴⁵	94 ¹⁷
119 ²⁴⁶	178 ¹¹⁰	94 ¹²³
118 ¹⁹⁵	177 ¹²⁵	94 ¹²³

152,390	227,480	121,320
10,159	15,165	8,088
10,138	.	.
.145	.135	.121

AV. = .134

3 x 5 x 8

2/26/59

207

Counter Check

137 ²¹⁵	11 ²²¹	7 ³⁰
57 ³¹	461 ³	20 ⁷⁷
27 ¹⁴¹	25 ²⁴⁰	525 ⁹⁵

INSTRUMENT CHECK				
Time: 1:10	AM			Pa Be
Range	1000	0	1000	900V
Source Dist	3"	0"	15'	2" 0'
% F.S. Trip	95	OK	100	95 100

Background
256, 5 min.

0 + 177
 0 x 157 = 334
 33 CPM

0 82
 0 + 86 = 168
 17 CPM

0 30
 0 + 48 = 78
 8 CPM

120 ORALLOY - 3 x 5 x 8 Array Source under 553
 Rows 2 thru Row 9 - 1" Plexiglas Vault 3' x 5' x 8'

256	168 ¹⁸⁷	346 ²²	99 ¹¹⁴
5 min	169 ⁴⁷	345 ⁸⁹	99 ¹⁹¹
	168 ¹⁴⁶	347 ¹⁷³	101 ⁴⁸
	168 ¹³⁶	346 ¹⁰³	101 ¹¹⁸
Total Counts	172,804	354,691	102,871
CPM	8,640	17,730	5,144
CPM - Bgd	8,607	17,713	5,136
	.188	.235	.200

A 0 = 208

208

105 ORALLOY - 3 X 5 X 7

Source under 553

- Removed Row 9

	150 ¹⁰⁴	323 ¹⁷⁷	97 ³³
256	150 ⁷²	324 ¹⁰⁹	94 ¹⁴³
5 min	150 ²²⁸	325 ⁸⁸	95 ¹⁸⁶
	151 ¹⁶²	325 ⁵	95 ¹¹⁸
	154,422	332,411	98,016
	7,721	16,620	4,901
	7,688	16,603	4,893
AV = +224	.211	.251	.210

90 ORALLOY - 3 X 5 X 6 - Removed Row 2
Source 553

256	135 ⁶⁵	291 ²⁵¹	74 ⁷⁶
5 min	134 ⁹⁵	291 ⁶	72 ²¹⁶
	133 ²⁴⁷	291 ¹⁰⁹	74 ³²
	134 ²²³	290 ¹¹⁸	72 ²³¹
	137,846	298,212	75,311
	6,792	14,910	3,766
	6,759	14,897	3,758
	.240	.279	.273
AV =	.264		

under 3

7/30/59 90 Oralloy - 3 x 5 x 5 - Removed Row - 8

209

By $+70$ 14 CPM $+15$ 30 CPM 8 2 CPM
5 min

Counter check

135 ⁴⁵	10 ¹⁴⁰	6 ¹⁶¹
54 ⁶⁰	459 ²¹⁷	24 ¹²²
27 ⁴⁸	24 ¹³	523 ¹³⁹

INSTRUMENT CHECK						
Time	AM PM	Source				
		Channel				
		A	B	C	D	E
Range		10 ¹⁰⁰⁰	OPR	10 ¹⁰	10 ¹⁰⁰⁰	100
Source Dist.		5"		18"	2"	0"
% F.S. Trip		90	OK	1000	90	100

3 x 5 x 5 - 75 Oralloy

256	117 ⁵⁹	267 ⁶⁵	67 ²²⁹
5 Min	126 ²¹¹	267 ¹⁶⁹	68 ¹²⁴
	117 ⁶⁴	267 ⁶²	67 ²⁴⁹
	117 ¹⁵	266 ⁵	68 ¹⁵⁶
	119,901	273,453	69,878
	5995	13,672	3,494
$\bar{N} = .290$	5,981	13,669	3,492
	.271	.304 7	.294

3 X 5 X 4

60 Orally Removed Row 3

	102 ¹⁶²	232 ¹⁶⁶	53 ²⁴⁰
256	103 ¹¹¹	235 ¹³¹	53 ¹⁵⁴
5 min.	101 ⁴⁶	233 ²⁴⁶	53 ⁴⁷
	101 ²⁵	235 ¹⁶⁹	53 ⁶⁴
	102 ⁸¹	235 ⁶¹	53 ⁷⁰
	130,729	300,293	68,409
AV = .345	5,229	12,011	2,736
	5,215	12,008	2,734
	.311	.347	.376

3 X 5 X 3 - 45 Orally Removed Row 7

	86 ¹²⁹	206 ²³⁰	47 ¹¹⁸
	86 ¹⁹²	210 ¹⁹¹	47 ¹⁰⁸
	87 ²⁰⁶	207 ¹⁴⁷	47 ⁸⁰
	86 ¹²⁴	207 ¹⁸³	46 ²⁴⁹
	87 ⁵³	205 ¹⁹⁹	47 ³⁶
AV = .393	111,296	265,910	60,493
	4,452	10,636	2,420
	4,438	.365	.391
	3 X 5 X 2 - 30	Orally	Removed Row 4

69 ¹⁵⁴	169 ⁴⁸	38 ¹¹⁶
70 ["]	169 ⁸⁸	37 ¹³
69 ³⁰	168 ²⁴⁸	38 ¹²¹
69 ¹⁸⁵	169 ["]	37 ¹⁹⁴
69 ¹⁷⁷	168 ¹⁵⁷	38 ¹⁰⁴
89,117	216,365	49,186
3,565	8,655	1,968
3,551	.481	1,522
.456		

AV = .486

ord

3X5XT - 15 Dralloy - Removed Row 6 211

3

	55 ²¹⁹	140 ¹⁹⁴	31 ³⁸
25b	56 ²³⁴	141 ⁵²	<u>27⁷⁰</u>
5 min	55 ¹³⁹	139 ¹⁴⁹	30 ¹¹⁸
	55 ²⁰³	140 ²⁴	31 ¹⁶
	55 ¹⁷³	139 ²⁴⁹	31 ¹⁴

7,1614 179,612 31,960

3,865 7,184 1,598

Av. = .597 2,851

6

4

.568 .579 .643

1 Dralloy in 553

25b	69 ²²⁸	185 ⁴³	38 ¹⁷
8 min.	69 ⁸⁷	185 ¹⁸⁵	38 ¹²⁹
	68 ²¹⁵	184 ⁷³	37 ¹⁷⁴
	69 ¹³⁵	184 ²⁰²	38 ²⁶
	69 ⁹³	185 ⁴⁷	37 ³

88,822 236,838 48,477

Av. = .762 ~~3,553~~ 2,221 5,921 1,212

124

~~3,559~~ 2,207 ~~5,918~~ 5,918 1,210

.734 .703 .849

1 Tuballoy in 553

	51 ¹²³	130 ¹¹⁸	32 ⁹¹
	51 ¹⁶²	131 ⁵¹	32 ¹⁰⁰
	50 ¹⁸⁸	129 ²²⁷	32 ³⁹
	50 ²²⁶	130 ¹⁰⁹	32 ⁵⁰
	50 ²³⁷	128 ²⁵⁴	31 ¹⁶¹
	50 ²⁰⁶	130 ¹¹¹	32 ⁵⁸

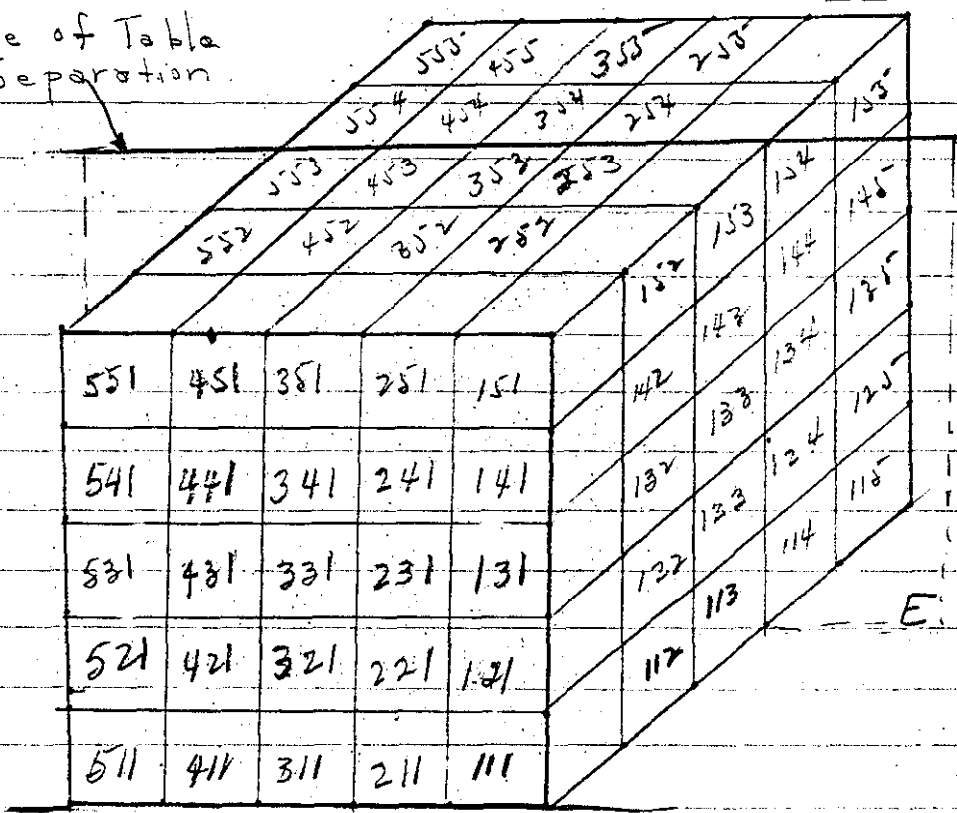
78,489 199,884 49,395

1,635 4,164 1,029

1,621 4,161 1,027

Plane of Table Separation

W



S

Counter	Voltage	Discriminator	Gain	Rise Time
1	1600	30	2	0.2 μ s
2	1800	30	4	0.2 μ s
3	1600	25	4	0.2 μ s

4/9/59

Frame work for 12" spacing modified to do 11" spacing of billets. Billets for this spacing must be loaded from North and South direction.

Source at fixed distance from Counters

256	134 ⁺⁶⁵	9 ⁺¹³	7 ⁺¹¹
5 min	51 ⁺⁶⁹	454 ⁺¹⁷³	22 ⁺¹⁵²
	27 ⁺⁷⁸	21 ⁺⁵⁴	526 ⁺³⁹

Background

0 ⁺¹⁶¹	0 ⁺⁶⁵	0 ⁺⁴³
0 ⁺¹³⁸	0 ⁺⁵⁴	0 ⁺³⁵
299 = 30 CPM	119 = 12 CPM	78 = 8 CPM

1 Tuballoy - Pos. 333

Tables Separated

256	38 ⁵⁴	33 ⁵⁹	17 ²¹⁹
5 min	39 ⁷¹	33 ¹²³	18 ⁹⁶
	39 ¹¹⁷	33 ¹⁰¹	18 ¹⁰⁷
	39 ³⁹	33 ⁸⁸	18 ¹⁷¹
	39 ¹⁷	33 ¹⁶¹	18 ⁴⁸
	37 ²¹²	32 ¹⁹⁴	17 ¹⁷⁵
	38 ⁵⁹	32 ¹⁶⁵	18 ¹²⁶

s Vault
2

1 Tuballoy in Pos. 333

256	47 ³⁸	59 ¹⁷¹	30 ²⁰⁰
with 8 min	46 ¹⁸⁹	58 ¹⁸⁷	31 ¹³⁰
	46 ¹⁷⁷	60 ¹⁵⁶	31 ¹⁸¹
	47 ¹⁵⁶	59 ²⁵⁵	31 ⁶⁰
	47 ²¹⁰	60 ⁷⁵	31 ⁷⁴
Total Counts	60,417	26,620	40,069
CPM	1,510	0,916	1,002
CPM-Bgd	1,480	1,904	994

1 Tuballoy in Pos 353

3 PM

57 ²⁶	113 ²⁶	40 ⁴
52 ⁴⁰	112 ¹⁵³	41 ⁷⁰
53 ¹¹⁷	113 ⁹¹	41 ⁸³
52 ²⁰⁸	113 ¹⁸⁶	41 ⁹²
53 ⁶⁸	112 ²⁰²	40 ⁹
54,193	144,786	52,226
1,694	3,620	1,306
1,664	3,608	1,298

1 Oralley in 333

256	56 ²³	76 ⁶	38 ¹⁰⁰
8 min.	56 ¹⁰⁵	75 ⁴³	38 ¹⁸³
	57 ⁷⁶	78 ¹⁷⁸	38 ¹⁷⁷
	55 ¹⁷²	75 ²⁴⁰	38 ¹¹⁶
	56 ¹⁹⁵	74 ¹⁷⁸	38 ³⁵
	72,251	96,675	49,251
Av = .813	1,806	2,416	1,231
	1,776	2,404	1,223
	.833	.792	.813

1 Oralley in 353

256	65 ⁷⁸	146 ¹⁷⁰	45 ²¹⁰
8 min.	65 ⁴⁷	146 ⁶⁷	47 ¹¹⁶
	65 ¹³¹	147 ¹¹	46 ²¹
	64 ⁷⁰	147 ¹⁴³	45 ²⁵⁰
	63 ²³⁹	147 ⁹⁶	45 ¹⁹⁵
	82,997	188,129	59,160
	2,075	4,703	1,479
	2,045	4,691	1,471
	.814	.769	.882

Av = .822

April 10/59

217

Background

Time, 5 min	160 cts	18 cts	16 cts
	24	10	13
	25 cpm	3 cpm	3 cpm

Counter Check

135	232	9	122	6	120
51	128	453	251	22	240
27	139	21	130	523	229

INSTRUMENT CHECK								
Time	8:35	AM	Source	Pu Be				
			Channel	A	B	C	D	E
Range				10/1000	09n.	10 ⁻¹⁰	1/1000	900
Source Dist.				6"	0"	15"	2"	0"
% F.S. Trip				85	OK	100	95	100+

Source 353	8	ORALLOY BILLETS - Added	343	332	233	323
			334	433	333	
256	48	60	103	225	33	171
			40	103	164	33	78
5 min	48	209	103	30	34	1
			125	103	146	33	80
			49,330	106,037	34,378	
			2,467	5,302	1,719	
			2,442	5,299	1,716	
			.681	.681	.756	
Av. = .706						

Source under 353

	16 Orally	Billets - Added	443	423	243	223
	54 133	115 222	432	434	222	234
256	54 128	116 240		39	43	
5 min	55 24	116 189		39	192	
	54 161	116 44		39	180	
	55, 998	119, 223		40,	476	
	2,800	5,961		2,	024	
Av = .616	2,775	5,958		2,	021	
	.600	.606			.642	

Source under 333

	51 48	55 239	36 106
	51 59	56 31	35 162
	50 163	56 95	35 248
	50 124	55 82	35 91
	52, 106	57, 279	36 794
	2605	2864	1839
	2580		
Av = .593	.574	.665	.541

~~28~~ Billets Source 353 - 28 minutes three billets layer 4.

	62 12	128 191	45 41
	61 47	128 65	44 115
	61 191	128 197	44 151
	61 88	128 99	44 237
	6306	131, 624	45, 856
	3153	6581	2293
Av = .548	5127	.548	.566
	532		

3
4

59 ⁵⁹	72 ⁴³	45 ¹⁶
59 ²³⁴	72 ²⁶	45 ¹⁵¹
59 ¹⁷⁷	72 ²	45 ³
59 ⁸⁰	72 ²⁵	44 ¹⁷⁶

7

28 Dralloy - 3x3x3 Plus 353

65 ²⁴⁰	138 ²⁰⁶	48 ²⁴⁹
66 ¹⁰	138 ²⁷	48 ²¹³
64 ²¹²	138 ²⁴²	48 ⁴⁰
65 ¹⁶⁰	138 ¹⁹¹	48 ¹⁸⁹
67,188	141,978	49,843

AV = .509

3,359	7,099	2,492
3,334	7,096	2,489
.499	.508	.521

Source under 333

61 ²¹⁰	77 ²³⁹	47 ⁸³
63 ³⁹	77 ²¹⁹	48 ³
61 ¹⁶⁴	76 ²⁵²	47 ²⁴⁷
61 ⁵¹	77 ¹¹¹	48 ⁷⁹
63,440	79,313	49,052
3,172	3,966	2,453
3,147	3,963	2,450
.509	.480	.406
.470		

AV = .452

three
4

33 Oralley - Added $\frac{133}{533}$ $\frac{331}{335}$ 313

	68 ⁶¹	144 ³⁶	51 ²⁰⁹
256	68 ²¹⁹	145 ⁸⁰	50 ¹⁹⁷
5 min	—	144 ⁸⁶	50 ²¹⁰
	68 ²⁰²	145 ²¹	51 ¹⁸⁸
	68 ¹⁵²	145 ²³	50 51 ¹⁰⁸
	70, 266	185, 334	65, 680
	3, 513	7, 413	2, 627
AV = .486	3, 488	7, 410	2, 624
	. 477	. 487	. 492

49 Oralley - Source 353

256	88 ²⁵⁴	184 ²⁴⁹	56 ³²
5 min	88 ¹⁶⁵	188 ⁸⁵	56 ²²⁴
	90 ¹²⁴	185 ¹⁴⁰	56 ²²
	88 ⁴⁶	186 ⁸⁸	55 ²⁵⁴
	91, 213	191, 282	57, 617
	4, 561	9, 564	2, 881
AV = .395	4, 536	9, 561	2, 878
	. 366	. 377	. 451

Source under 333

256	83 ²⁴⁷	113 ¹⁸	58 ¹²⁶
5 min	84 ¹²²	112 ⁹⁸	59 ²¹⁰
	85 ¹³⁶	112 ¹⁰⁶	58 ²²⁰
	83 ²⁰⁰	113 ¹¹⁴	59 ¹¹¹
	86, 465	115, 596	60, 571
	4, 323	5, 780	3, 029
AV = .334	4, 298	5, 777	3, 026
	. 344	. 330	. 328

57 Oralloy -

	100 ¹²³ 37	203 ¹⁴³	64 ³⁹
	99 ²³⁹	202 ¹⁶²	65 ⁷⁸
	100 ²¹	203 ¹⁴³	65 ¹⁵⁴
	99 ⁶²	202 ⁷¹	64 ²⁰⁸
	102,333	207,879	66,527
	5,116	10,394	3,326
AV = .350	5,091	10,391	3,326
	.327	.347	.390

Source 353 73 Oralloy

256	123 ²²⁹	249 ¹⁸⁸	86 ²
5 min	126 ²¹⁶	250 ²³³	84 ¹⁷⁴
	125 ⁷²	250 ²	85 ⁸⁸
	125 ²⁵⁴	250 ⁷⁹	85 ¹³⁸
	128,515	255,744	87,442
	6,425	12,787	4,372
	6,400		
AV = .279	.260	.282	.297

Source = 333

	99 ³²	142 ⁶⁷	73 ⁹⁸
256	100 ³⁹	143 ⁷	73 ¹⁴⁷
	98 ⁴⁶	144 ⁵¹	74 ¹⁰
4 min	100 ¹⁷⁸	143 ⁰	74 ¹²⁹
	101,927	146,557	75,547
AV = .217	5,097 6,370	7,328 9,160	8,777 4,721
	5,097 6,345		
	.291	.209	.203 = .2107
	.233	.208	

222 Source
353

81 Oralley

116 ¹⁰⁶
116 ¹⁵⁵
117 ¹⁶
116 "

119,328
7,458
7433
.224

Av = .241

225 81
224 ¹⁶⁸
226 ²¹⁹
226 ²⁰⁵

231,329
14,458

.249

81 ¹³²
80 ⁹³
80 ²³⁰
80 ¹¹⁰

62,261 82,741
~~3,891~~ 5171

~~33~~ .251

4/13/59

Bg.

4 min

112 Counts

21

4

Counter Check

4 min

109 ¹¹⁹
43 ⁶⁴
22 ⁵³

8 ¹⁸²
357 ²¹
18 ¹⁰⁹

5 ¹²¹
17 ¹⁶³
416 ¹⁸⁶

MULTIPLICATION				
Sector	c.	min.	BC	Mult. T/M
1				
2				
3				

INSTRUMENT CHECK						
Time	AM PM	Source				
		Channel				
		A	B	C	D	E
Range		10 ⁻¹⁰⁰⁰	OPR	10 ⁻¹⁰	10 ⁻¹⁰⁰⁰	9000
Source Dist.		2"		16"	1"	0
% F.S. Trip		90	010	100	95	100

741
71

81 Dralloy Source 333

	166			
	120	173	31	88 ¹⁴
256	119 ²⁰⁰	173	76	87 ²³⁸
4 min.	119 ¹⁴⁵	172	229	89 ¹⁶⁵
	119 ¹¹¹	172	18	88 ⁸
	122,734	177,084		90537
	7,670	11,421		5,658
Av. = .179	7,648			
	193	167		176

89 Dralloy Source 353

	100 ²⁴⁷	191	146	70 ²⁹
256	101 ²³⁶	192	185	70 ⁰
3 min.	100 ²³³	192	139	69 ¹⁴⁹
	100 ¹²	191	166	70 ⁹⁸
	103,384	196,732		71,700
Av. = .210	8,615	16,394		5,975
	8,590	220		217
	5,194			

224

89 Oralloy

Source 333

	105 ²²⁹	157 ¹⁸³	79 ¹²⁹
	105 ²¹⁶	156 ⁹	78 ²¹⁶
256	105 ¹⁴	154 ¹⁶²	79 ⁴⁸
3 min.	103 ¹⁸²	155 ¹⁰¹	78 ²⁴³
	107,649	159,619	81,020
	8,971	13,301	6,752
Av. = .152	8,945	-	-
	.165	.143	.147

Source 353	97 Oralloy -	
	115 ¹⁰⁹	216 ¹⁰⁵
256	110 ⁷⁵	215 ¹²⁶
3 min.	115 ²⁷	215 ²⁵²
	116 ²¹⁶	218 ¹¹⁹
	118,697	221,786
	9,891	18,482
	9,866	-
	.168	.195
		.183

Source 333	123 ⁴⁷	184 ²³³	95 ⁴
	123 ⁶²	186 ¹⁰⁷	94 ¹¹⁰
256	125 ²³⁰	186 ¹⁴²	95 ⁷⁵
3 min.	124 ¹²⁰	186 ¹⁷	94 ¹⁷⁵
	127,691	190,451	97,132
	10,598	15,871	8094
	10,525		
Av. 124	.140	.120	.123

104
~~105~~ Quality Source 353

Added 525 411 121 251
~~544~~ 415 145 225

7			
16	146 ⁵⁷	207 ⁴⁴	107 ²¹⁵
8	148 ⁵³	200 ¹⁰¹	106 ²⁵⁴
13	147 ¹⁶⁶	200 ¹⁶⁶	107 ²³⁷
	147 ⁷⁵	207 ⁹	106 ¹²⁶
0	150,879	27,6696	109,880
52	12,573	23,058	9,156
	12,548	—	—
47	.132	.156	.141

Source 333

158 ²²⁰	245 ⁴⁴	124 ¹⁸⁴
160 ⁴⁵	246 ¹¹¹	123 ²⁴¹
159 ²⁸	245 ⁴⁵	123 ¹⁷⁵
159 ⁸³	244 ¹⁰¹	123 ¹⁵⁸
163,198	258,181	124
13,599	20,931	127,222
13,574	—	10,602
.109	.091	0.094

$A_v = .098$

¹¹² #3 Quality - added 451, 455, 552, 554, 112, 114, 211 & 215

Source in 353

181 ¹⁹⁰	325 ²¹⁶	132 ¹⁹²
181 ³⁷	323 ¹⁵⁹	133 ¹⁴⁶
182 ¹²¹	322 ⁸²	133 ¹⁷⁹
183 ¹²⁷	324 ²⁵³	133 ⁴²
186,487	331,264	136,495
15,540	27,605	11,375
.117	.131	.114

	202 ²⁵⁴	313 ⁶²	157 ¹⁶⁰
	201 ¹⁸⁵	313 ²⁵	154 ⁹⁵
256	201 ²²⁸	312 ¹⁷³	155 ²⁵⁴
	203 ²⁰¹	314 ²³	156 ¹⁸⁶
	207,460	320,795	159,927
	17,284	26,752	13,327
Av. 077	.0856	.0712	.0746

~~116~~
~~117~~ Oralloy
44

Source 353

	211 ⁵⁶	370 ⁷⁷	155 ¹¹⁶
	211 ¹²⁴	368 ⁴⁴	154 ²⁴¹
256	211 ³¹	371 ¹¹³	154 ¹⁸⁰
3 min.	210 ³¹	369 ¹⁹³	154
	216,319	387,882	153 ¹⁹⁰
	Source 333	31,843	158,423
	18,001	.113	13,201
	.092		.098

Source 333

	235 ²⁵⁴	369 ²⁴⁸	183 ⁶⁶
	240 ⁴²	368 ²³¹	181 ¹⁸⁵
	240 ¹⁶⁶	374 ²⁶	183 ¹⁴⁷
ΔV = .065	240 ¹⁴⁴	372 ⁶	182 ²⁰²
	245,040	38,552	186,456
	245,086	37,127	15,538
	245,061		
	20,421		
	.072	.059	.063

Oralloy = 125 - 5 X 5 X 5 - Complete

227

	293 ¹⁰⁸	496 ¹¹⁶	218 ²⁵²
	292 ¹³¹	495 ⁰	219 ¹⁰⁵
353	290 ⁷²	497 ⁷⁸	220 ⁷²
	290 ¹⁶⁴	495 ¹³	221 ¹³⁴
	302,734	508,880	225,331
	302,709	508,925	224,819
	25,225	42,410	18,777
Av. = .074	.065	.085	.069

Source	336 ¹³	523 ¹⁷	262 ²³⁴
333	335 ¹¹⁴	524 ⁹⁷	261 ²¹⁵
	336 ²⁸	524 ²¹⁰	260 ⁵⁷
256	334 ²⁵¹	522 ⁹⁸	260 ²³¹
3 min.	343,702	536,230	267,745
AK = .046	343,697	44,685	22,312
	28,641	-	-
	.051	.043	.045

117 Oralloy - Removed 8 corners

Source	222 ⁵⁶	388 ²⁵²	163 ²⁴⁸
353	221 ⁹²	389 ⁷⁹	164 ⁴¹
	222 ¹⁴	387 ²⁰⁶	165 ²⁴⁵
256	220 ²²⁵	387 ²⁰⁴	161 ²⁴⁹
3 min.	226,691	395,233	167,952
	226,666	32,936	13,996
	28,880	-	-
Al = .097	.088	.109	.093

228 orally
113

Source 353

	190 ¹³⁵	335 ¹⁶⁸	139 ⁶⁵
	189 ⁶⁴	334 ⁶	141 ¹⁹⁴
256	189 ¹⁹¹	335 ³¹	139 ⁸¹
3mm	189 ¹⁴⁷	334 ⁷	138 ⁴
	187 ¹⁵⁹	334 ¹⁸	139 ¹⁴¹
	242,360	428,363	178,653
AV=112	16,157 42,335	28,557	11,910
	2,194	.126	.109
	.102		
	0.87		

146 ¹⁶³	265 ¹⁵¹	106 ⁶⁹
147 ⁵³	265 ⁶¹	105 ¹⁴⁹
146 ³⁷	264 ⁵¹	105 ²⁰⁹
148 ³²	266 ¹¹⁷	106 ³⁰
150,557	271,740	108,488
150,532	22,645	9,040
12,521	.159	.143
.132		
72,475		

3x3x3 1" Spacing

1" Billet Internal

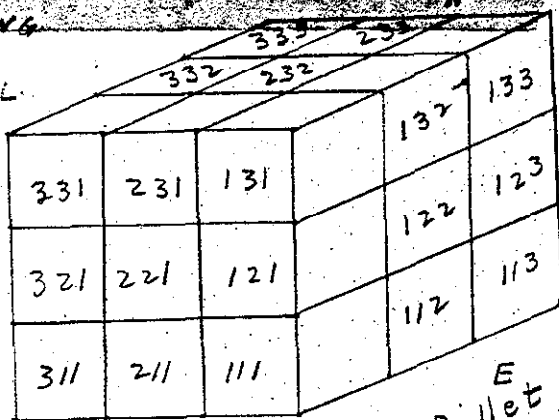
C. 11" SPACING

1" INTERNAL MODERATION

5 min
Scale 256

B₂

LAYER W



S
Row

Scale 256

5 min	14	99	38	93	10	94
10 min	27	231	76	12	20	24
	28	202	76	228	20	60
	27	242	75	112	20	135
	28	189	76	94	20	150
	29	38	74	245	20	-
		40,169		107,024		
		72,425		194,576		28,653
		730		1,946		
		1,317		3,538		521
		722		1,944		
		1,309		3,536		519

241

Counter Check

5 min	133 ⁷⁴	8 ²³³	6 ⁵⁵
Scale 256	40 ²⁻⁷	405 ¹³⁵	6 ²⁰⁰
	25 ²⁰¹	7 ²¹⁹	525 ⁴⁰

By 0+41	0+12	0+13
0+30	0+60	0+5
<u>77 = 80cpm</u>	<u>22</u>	<u>18</u>
	20cpm	20cpm

Tubally in ~~222~~ ²²² [Center of Assembly]

Scale 256

5 min	14 ⁹⁹	38 ⁹³	10 ⁹⁴
10 min	27 ²³¹	76 ¹²	20 ²⁷
	28 ²⁰²	76 ²²⁸	20 ⁶⁰
	27 ²⁴²	75 ¹¹²	20 ¹³⁵
	28 ¹⁸⁹	76 ⁹⁴	20 ¹⁸⁰
	29 ³⁸	74 ²⁴⁵	20 ⁻
	40,169	107,024	
	72,425	194,576	28,653
	730	1946	
	1,317	3,538	521
	722	1,944	
	1,309	3,536	519

4/20/59

4/20/59 By

By.	140 cmts 28 CPM	12 2	10 cmts 1
	134 ¹⁰⁵	8 ⁴¹	6 ¹⁰⁴
	41 ⁷⁶	425 ¹³⁵	6 ²³⁰
	25 ¹³	6 ¹⁹⁴	524 ⁵⁶

INSTRUMENT CHECK

Time: 8:45^{AM} Source: Pu Be

Channel: B C D E

Source Dist. 6" 0" 14" 2" 0"

% F.S. Trip 90 OK 100 95 100⁺

256	1 Juballoy in	232
5 min	22 ²⁴	76 ⁸³
	21 ²²⁷	74 ¹⁵⁷
	22 ²⁹	74 ⁵²
	22 ¹¹⁷	76 ⁹²
	22 ⁷⁶	78 ²⁰
	22 ⁶⁵	82 ⁴¹
	22 ¹⁴⁵	77 ⁴⁵
	22 ⁶⁸	77 ⁸⁰
	45,551	157,754
	1,139	3,944
	1,111	3,942
		26,288
		657
		655

256

1 ORALLOY in 222

5 min.

AV = 733

18 ²⁴⁴	48 ¹³⁵	13 ¹⁶⁵
19 ⁴⁵	48 ²¹¹	14 ⁴¹
19 ⁷⁹	50 ⁹⁶	14 ³⁵
20 ⁷	50 ⁶⁷	14 ⁸⁹
19 ¹⁶⁹	50 ¹⁹⁰	13 ¹⁸³
19 ¹⁴⁸	52 ¹³⁵	14 ³
29,876	77,634	21,508
996	25,878	716
.725	.751	.724

1 ORALLOY in 232

256

5 min.

AV = .687

31 ²⁴⁴	120 ¹⁷⁶	17 ²⁴⁰
31 ²³²	121 ¹⁶	17 ⁸⁴
31 ³⁶	120 ⁵⁸	18 ⁴⁷
31 ¹⁰⁷	118 ²⁴⁰	17 ²⁴⁸
30 ²⁴⁸	118 ³⁵	17 ²²⁸
31 ²⁴⁸	116 ⁹⁹	18 ⁷⁵
48,219	182,896	27,547
1,607	6,097	918
1,579		
597	.646	.713
.703		
38¹³³	128⁹⁵	21¹¹⁹

Source under

3 Orally - 232, 222, 223

	38 ¹³³	128 ⁹⁵	21 ¹¹⁹
	37 ²³⁵	129 ⁷⁶	21 ⁸⁴
	38 ¹⁸⁶	128 ¹⁴⁵	21 ^{779}
	38 ¹⁶⁸	129 ¹⁸	21 ²¹¹
	37 ²²⁹	125 ⁵⁷	21 ⁹⁵
	49,079	163,975	21 ¹³⁸
	1963	6559	27,508
	1930	6555	1103
AV = .590	.575	.601	1100
		.538	.595

3 Orally Source under 222

	26 ⁶⁴	61 ¹²⁹	18
256	26 ¹⁸⁹	58 ¹²	17 ²³¹
5 min.	26 ⁶⁴	63 ²⁵⁰	17 ¹⁷⁸
	26 ¹⁸⁰	63 ²⁵	17 ⁶⁸
	26 ²⁴⁰	65 ²⁷	17 ²²⁶
	26 ⁹⁹	64 ¹⁶²	17 ¹⁷⁰
	40,770	80,984	27,241
	1359	2,699	908
	1329	2,697	906
AV = .612	.543	.721	.573
		.645	

Source under 232

4 Oratloy - added 212

233

256

5 min.

40 ⁶⁹	146 ⁸⁷	24 ¹³⁴
40 ²³⁵	146 ⁷⁰	25 ¹³⁰
39 ²³⁰	145 ²⁰⁰	24 ²⁵²
40 ¹⁴¹	146 ⁶³	24 ²⁰³
40 ²⁴⁷	146 ¹⁵⁴	25 ²⁸
39 ²⁴⁴	145 ¹⁵⁵	25 ¹³⁶

62,094	224, ⁴⁷⁸ 734	38,515
39 2,070	7,482	1,283
2,042	7,454 7,454	1,280
.544	.528	.512

AV = .528

5 Oratloy - added (122) 221

41 ²²⁶	145 ⁸⁸	26 ⁸¹
42 ¹⁵⁸	146 ¹⁸⁰	25 ²³¹
41 ¹⁰¹	146 ²²²	26 ¹⁰⁴
42 ⁵⁷	146 ¹⁶	26 ¹²⁴
42 ¹⁷¹	146 ¹⁰³	26 ¹⁰⁹
42 ¹⁷⁷	148 ⁹	26 ¹⁶
64,890	225,130	40,345
2,163	7,504	1,344
.513	.525	.487
	.470	

Av. = .508

Av =

234

Source under 232

2 56
5 min

7 Oralloq - Added		122 + 322
49 ²⁰⁹	171 ³⁰	30 ²¹⁶
49 ²⁰	166 ⁴⁸	32 ⁴¹
49 ⁶	162 ²³⁰	31 ²⁵²
48 ¹⁸⁶	156 ⁵⁶	31 ¹⁶⁸
48 ¹⁰¹	152 ¹⁵³	31 ⁸⁷
227, 109 62,724	207,109	40,440
2,508	8,284	1,618
2,480	8,282	-
.448	.476	.404

7 Oralloq - Source under 222

43 ¹²⁰	98 ¹⁷²	33 ¹¹
44 44 ¹⁶	109 ¹⁷	32 ⁶⁴



Counter #2 gone



Repaired

$$\frac{207,109}{231,185} = .895$$

4-21-59

235

Source at fixed distance

136	217	8	188	6	70
41	230	474	3	7	35
25	231	819		523	130
By 148		52		22	
30 cpm ✓		10 cpm ✓		4 cpm ✓	

INSTRUMENT CHECK						
Time	AM	Source Pu-Bi				
	PM					
		Channel				
		A	B	C	D	E
Range		10 ⁰⁰⁰	10 ⁰⁰	10 ⁰⁰	10 ⁰⁰	9000
Source Dist.		3"	16"	2.5"	0"	
% F.S. Trip		95	010	100	90	100

5 min	7 Dralloy	Source under 232	
256	49 ¹³⁰	208	31 ¹⁷⁰
	49 ²⁴⁹	180	31 ²¹³
AV. 432	49 ¹⁴⁰	181 ⁶⁰	30 ²²⁸
	49 ³⁰	179 ²¹⁸	31 ¹²
	49 ¹⁷⁵	179 ¹⁵⁹	30 ²²³
	63,419	179 ¹³¹	37,888 40,014
	2,536	231,185	15,155
	.438	9,247	1,601
		426	1,597
			.438
			.410

236

Source under 222

	45 ⁹⁴	118 ²⁸	32 ²⁴⁸
	44 ⁷⁸	118 ^{1⁴}	31 ¹⁹⁷
256	44 ¹⁸⁰	117 ¹³⁸	32 ¹⁵³
5 min	44 ²³⁹	117 ²⁴⁹	32 ⁵⁵
	44 ¹²¹	117 ²⁵⁶	32 ³⁸
	57,288	151,067	41,390
	2,292	6,043	1,656
	2,262	6,033	1,652
	.319		
Av. = .318	.490	.322	.314

9 Orteloy - added 112 + 332

59 ⁸⁴	212 ⁴	37 ²¹
59 ⁴⁵	209 ⁹⁷	37 ⁵⁵
60 ²⁰⁵	211 ¹⁹⁷	37 ⁹²
59 ⁰	209 ²²⁶	37 ¹²⁷
58 ²⁵⁵	212 ¹²³	37 ³⁰
76,109	270,215	47,685
3044	10,808	1907
3014	10,800	
.369	.365	.345

Source under 222

	54 ¹⁷¹	146 ¹⁴⁵	38 ²⁴⁶
256	54 ⁹²	147 ⁵⁰	39 ²⁶
5 min.	54 ¹⁸³	147 ²¹⁹	38 ¹⁵⁰
	54 ¹⁰⁰	146 ¹⁷²	38 ²¹¹
	54 ²⁴⁷	147 ⁶⁶	39 ²²
	69,913	188300	48,778
	2797	188292	48,774
	2767	7531	1,950
	4015	258	266
	1260		

11 Oralloy

Source under 232 - Added
132
312

	72 ⁴⁶	254 ³⁸	44 ⁸⁶
	71 ¹²⁷	254 ¹¹⁷	44 ¹⁷⁹
	70 ¹⁴³	252 ²³⁴	45 ¹⁰
	70 ¹⁵²	254 ¹⁵⁷	46 ⁶²
	72 ⁷⁴	251 ¹⁸⁰	46 ⁵⁰
	91,502	324,572	57,993
	3660	12982	2320
	3630	12972	2310
A. 218	.306	.304	.283

238

13

Source 232

added 231
213

	88 ¹⁸⁵	308 ⁷	57 ⁴⁰
5 min	88 ¹⁶¹	309 ⁸⁵	58 ¹⁷⁰
2 56	87 ²³¹	305 ⁸⁶	58 ¹⁷⁹
	88 ⁵⁹	306 ⁴¹	58 ²⁷
	88 ³⁵	306 ¹⁹⁷	58 ¹⁹²
	113,055	393,376	74,584
Ave. 238	113,030	393,346	74,562
	4,521	15,733	2,982
	.245	.250	.219

15 Orallooy

Source 232 - added 233
211

	115 ⁸¹	384 ²⁴⁸	77 ⁰
5 min	115 ⁹⁸	381 ²²¹	75 ¹⁴⁰
2 56	115 ¹²³	382 ¹⁶⁹	76 ⁶⁷
	115 ¹³⁵	381 ¹⁹²	76 ⁶²
	114 ²¹	382 ¹²²	77 ⁹⁴
	147,402	489,912	97,901
Ave. 185	147,372	489,882	3,916
	5,896	19,595	
	.188	.201	.167

Source 2 2 2

256	115 ⁵⁸	3 16	173	83	52
5 min	116 ³⁷	3 13	254	84	107
	116 ²⁷	3 17	4	83	200
	114 ²⁵³	3 16	156	82	218
	115 ⁹⁴	3 16	92	83	59
	147,921	404,647		106,874	
	5,917	16,185		4,275	
AV = 121	5,887				
	.123	.120		.121	

233
211

	17	Oralley - added	121 + 323
256	116 ⁰	369	13
4 min.	115 ¹⁸⁴	369	91
	116 ⁷¹	368	25
	116 ²⁹	368	13
	117 ¹²¹	367	115
	148,915	47,3610	
	148,885	2,3681	
	7,444	166	
	.149		.127
			127

240

Source
232

19 Oralloy - Added

321 + 123

256	164 ⁴	426 ²²⁴	112 ¹¹¹
	161 ¹⁰⁸	477 ¹⁹	114 ³³
	162 ¹⁶⁴	474 ⁵⁷	112 ¹³⁶
9 min	161 ¹⁵	472 ⁷⁹	113 ⁹⁶
	162 ²⁵⁰	474 ⁸¹	114 ⁸³
	207,801	608,048	145,099
	10,391	30,402	7,255
	10,380		
Av. = .109	.107	.130	.090

Normalize ctr #1 to above

$$\frac{10,391}{10,683} = .972$$

Base Count = 1111

$$\frac{1111}{.972} = 1,143 \text{ new Base}$$

4/22/59

By 4 min
25 8 7

Counter Check

	41	21	121
256	126	9	6
	40 ²⁰⁵	465 ¹³⁷	7 ²⁵⁷
5 min	24 ²⁰⁶	8 ¹⁷⁴	529 ¹¹⁵
	125 ¹⁵⁴	=	6 ¹³⁹

ctr #1 - Counts down ~ 10% - Preamp tubes

changed.
ctr position
probably
not same

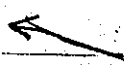
INSTRUMENT CHECK					
Time	9:05 AM		Source <i>Co Ra</i>		
	Channel				
	A	B	C	D	E
Range	1 ¹⁰⁰⁰	10 ¹⁰⁰⁰	10 ¹⁰⁰⁰	1 ¹⁰⁰⁰	9000
Source Dist.	7"		15"	2"	0
% F.S. Trip	85	OK	100	90	100

source ct = 106⁺⁹⁹
105⁺⁸⁷

4/22/59

19 Dralloy - Source 232

256	166 ²⁴³	472 ²³²	114 ¹³³
4 min	167 ²⁰	474 ⁷³	114 ¹¹⁸
	166 ³⁵	470 ⁵²	113 ²⁴⁹
	167 ¹⁰⁹	470 ³	113 ⁹¹
	166 ⁹⁵	469 ²⁴⁵	114 ⁶
	167 ¹⁵⁴	473 ⁹⁰	113 ¹⁴⁴
	256, 400	724, 613	125, 077
	10, 683	30, 192	7, 295
	107	131	1090



242

19 Oralloy - Source 222

256	186 ⁷²	465 ¹¹⁰	132 ⁷⁵
4 min	186 ⁴²	465 ⁷⁰	132 ²⁰¹
	185 ¹³⁵	463 ⁷⁰	133 ¹²⁷
	186 ¹⁵	463 ³⁷	133 ¹⁵⁵
	190,472	476,426	136,238
Av = .0629	11,905	29,777	8,515
	.0623	.0653	.0610

Source 232

21 ORALLOY - ADDED 111 2/3 333

256	172 ⁸⁷	460 ⁸⁵	117 ¹⁷⁶
3 min.	170 ⁸⁰	464 ⁷⁵	117 ¹⁰⁹
	171 ⁴¹	462 ¹⁶¹	117 ¹⁸⁹
	171 ¹⁵⁵	465 ⁴	116 ²⁵⁰
	171 ¹⁸⁵	461 ²²⁴	116 ¹⁵⁴
	171	461	117
	219,418	592,421	150,125
	14628	39,495	10,008
	14600		
Av .0812	.0782	0998	0655

Source 222

256	194 ²⁰⁹	482 ²¹⁹	149 ²⁴⁷
3 min	197 ¹⁷⁹	479 ²²⁹	141 ⁵
	196 ⁶⁰	481 ⁸¹	141 ⁷³
	196 ⁷²	481 ¹²⁰	140 ²⁵¹
	200,948	492,937	144,009
	167,45	41,078	12,000
	0443	.047	.0432

23 Orallo - Added 331 + ~~133~~ ¹¹³

	205 ²¹⁷	680 ²¹⁸	184 ¹⁰⁵
	266 ¹⁹⁷	683 ¹⁷³	184 ¹⁵⁵
256	265 ¹⁶⁵	682 ²⁰⁷	183 ⁵⁴
3 min	265 ²⁵¹	681 ⁶⁴	188 ⁶⁰
	272,190	698,516	188,825
	88,282 22,682	58,204	15,735
AV = .052	.0425 .050	.067	.0416
		Source 222	

	313 ⁹⁵	753 ²⁵⁵	224 ²¹⁵
256	313 ¹⁹⁷	746 ⁵¹	223 ²²⁹
3 min	313 ²³⁵	752 ⁸	224 ²²
	313 ²⁰²	753 ⁶¹	222 ¹⁵⁷
	321,241	769,399	229,231
AV = .0284	26,770	64,116 cpm	19,103
	.0277	.0303	.0272

$\frac{64,116}{29,341} = 2.185$

343²¹⁷ ← Discriminator on ctr #2
 88,023
 29,341 cpm
 Changed from 25 to 50.

Source 232 25 Orallo - Added ~~331~~ + 133

2 min	361 ¹²⁴	369 ⁷	250 ¹⁵⁰
	361 ²⁰	375 ⁹⁰	251 ¹⁵¹
	364 ⁸⁷	377 ¹¹	254 ¹⁷¹
	364 ¹⁵³	378 ¹⁶	252 ¹⁴⁶
	371,684	383,868	258,377
	46,460	47,980	32,290
	.0246	104,863 1,048,630	.0203
AV = .0275		.0375	

244

Source at 222 25 Oralloy

	438 ⁵⁶	421 ⁹	309 ¹³⁵
256	440 ¹³⁶	424 ⁷⁵	311 ⁹⁰
2 min.	441 ²⁴⁶	428 ⁹	311 ¹⁶⁸
	441 ⁸³	428 ⁷⁸	313 ¹²⁵

Source 232 26 Oralloy - Added 313

25p	764 ¹⁶⁶	637 ²⁰³	522 ¹⁰⁶
2 min.	770 ²⁴⁰	641 ¹⁸⁶	525 ⁵⁷
	775 ²⁰⁸	646 ¹⁹⁷	532 ¹²⁰
	770 ¹⁵⁶	647 ²⁴²	527 ²⁸
	771, 304	658 964	539, 447
	96, 410	82, 3705	67430
.0145	.01185	179, 979	
		0219	00971

size. Changed on ctr # 1 from 30 to 80 #3
2 from 50 to 70 #3

291 ⁹⁶	184 ²¹⁶	526 ⁷¹
291 ¹⁴⁴	182 ⁴⁶	527 ²⁰¹

27 Oralloy - added 133
Rough Est. Mult. - 130

246

1-7-60

Magnet Check of Scram
mechanism for Slab Experiment

	Voltage Control	Magnet Current	Remarks
1.	27 (Varia Setting) Variac	40 Milliamperes	No
2.	32 "	50 "	No
3.	36 "	60 "	No
4.	38 "	70 "	Yes
5.	40 "	75 "	Yes
6.	42 "	80 "	Yes
7.	44 "	85 "	Yes

R.E. Rover

J.T. Thomas

J.T. Michalezo

J.J. Lynn

D.E. McCarty

For settings 4, 5, 6 + 7 above, system was set and fired with no load, with 1 lead brick load (~ 25 lbs) and with 2 lead brick (~ 50 lbs), results were measured by use of brush recorder.

1-8-60

BARE

INSTRUMENT CHECK					
Time	8:50 AM	Source Pu Be			
		Channel			
	E ₂	10	D	E ₁	
Range	OK	1000	10 ⁻¹⁰	1000	10-50 V
Source Dist.	with source	7"	0"	31"	3" 0"
% F.S. Trip		80	OK	100	80 100+
Counters	1, 2 + 3	OK (all BF ₃ chambers)			

E₂ - Photomultiplier installed Dec. 1959. By J.F. Ellis.
 (F) Has low level trip for firing rods and separating tables, high level trip for sounding building alarm. All other instruments have been removed from building alarm circuit.

Room (108) Background

Counter #	1	# 2	# 3
(10 Min)	2.3 c/m	7.3 c/m	6.5 c/m

248

1-11-60	Scaler # 1	# 2	# 3
	Gain (Fines) 1	1	1
	" (Course) 8	4	4
Exp. A	Rise Time 0.2 μ s	0.2 μ s	0.2 μ s
	Discriminator 15.5	20	24

Run 1
Base One (1) tuballoy slab, (2 pieces, 1" X 5" X 10" + 1" X 3" X 10") 1" X 8" X 10", hanging from holder of stationary table. Source PN 467 in 5" piece.

	Scaler # 1 (Scale 256)	# 2 (Scale 256)	# 3 (Scale 256)	
5 min.	60 + 57 = 15,417	51 + 4 = 13,060	23 + 9 = 5,897	5 min
	61 + 163 = 15,779	58 + 250 = 13,050	22 + 173 = 5,808	
	61 + 135 = 15,711	51 + 135 = 13,191	22 + 20 = 5,672	
Σ	61 + 149 = 15,765	51 + 129 = 13,185	22 + 161 = 5,793	12923
6910	60 + 166 = 15,526	51 + 92 = 13,148	22 + 59 = 5,691	1/cp

Run 2
 Removed tuballoy - Replaced with ~~tuballoy~~ ^{3131cpm} ~~1154~~
 #1000 - $\frac{3}{8}$ " X 5" X 10" and #1040 - $\frac{3}{8}$ " X 3" X 10" - Total U - 21,240 gm

13204 gm	77 ⁷ = 19,719	8,036 gm	65 ¹⁶⁶ = 16,650	26 ¹⁶⁶ = 6,822	Run 4
	77 ²⁵¹ = 19,963		65 ⁵¹ = 16,691	27 ¹²⁹ = 7,040	5 min
5 min Cts	77 ¹⁶³ = 19,975		64 ¹⁷¹ = 16,535	27 ¹⁰⁸ = 7,020	
	76 ²⁴⁸ = 19,704		64 ¹²⁷ = 16,511	27 ¹⁸⁸ = 8,000	
Σ	8700cpm	3936cpm	33201	1444	
1/cpm	1.149	2.541	3.012	6.925	

1/cpm

BARE

INSTRUMENT CHECK

249

Time	10:10	AM	Source	PX 467				
		PM		Channel				
				A	B	C	D	E
Range	E ₂			$\frac{10}{1000}$	opr	10^{-10}	$\frac{10}{1000}$	1030 V
Source Dist	OK			16"	0"	48"	7"	1"
% F.S. Trip				80	OK	100	70	100+
Counters	1, 2 & 3			OK				

Run 3 added # 1003 - $\frac{3}{8}$ " X 5" X 10" - to Movable table
 Total ~~2255~~ - 34,602 gms

Scaler # 1 # 2 # 3

5 min ct	102 +86 = 26,198	105 +67 = 26,747	45 + 284 =
	100 +253 = 25,853	103 68 = 26,436	45 + 235 =
	103 +29 = 26,397	104 75 = 26,699	46 + 129 =
	101 +152 = 26,008	105 +47 = 26,926	46 + 73 =
12923 cpm	5223	5340	2363
1/cpm	7738	1.9146	1.873
			4.2319

Run 4 added # 1038 - $\frac{3}{8}$ " X 3" X 10" - 8038 gms - to Movable table
 Total ~~11~~ - 42,640 gms - Slab - $1\frac{3}{4}$ " X 8" X 10"

5 min ct	110 +74 = 28,234	113 +231 = 29,159	47 +252 = 12,284
	108 +94 = 27,742	112 +108 = 28,780	48 +209 = 12,497
	109 +28 = 27,932	112 +155 = 28,825	48 +168 = 12,456
	109 +181 = 28,085	113 +87 = 29,015	48 +78 = 12,368
E	111,193	115,779	49,605
13,828 cpm	5,559 cpm	5,799 cpm	2,480 cpm
1/cpm	.7231	1.7988	1.7274
			3.5211

250

Run 5 Added to fixed table - 1 pc $\frac{1}{4}$ " x 5" x 10" - #1075 - 38309 gm
 1 pc $\frac{1}{4}$ " x 3" x 10" - 0988 - 2301 gm
 Total U ~~205~~ - 48,772 gm - slab 2" x 8" x 10" 6,121

5 min cts	139 + 225 = 35809	145 + 95 = 37,205	60 + 167 = 15527
	140 + 167 = 36,007	145 + 143 = 37,263	61 + 93 = 15709
	139 + 0 = 35624	145 + 93 = 37213	60 + 213 = 15573
	140 + 201 = 36041	144 + 0 = 36824	60 + 0 = 15361
	143481	148555	
17710	CPS 7174	7428	3108
L CPS .5646		1.346	

Run 6 Removed 2 pcs added for Run 5
 Added to fixed table - 1 pc $\frac{1}{2}$ " x 5" x 10" - #0964 - 7,650
 1 pc $\frac{1}{2}$ " x 3" x 10" - #0999 - 4,989 gm
 Total U - 55,281 gm - slab 2 $\frac{1}{4}$ " x 8" x 10" 12,639

5 Min cts	174 + 150	188 + 67	79 + 234
	174 + 172	187 + 131	79 + 71
	174 + 214	187 + 161	79 + 206
	175 + 143	187 + 145	79 + 2
	179,111	192,248	81,409
CPS E2657	8955	9612	4070
44175	1,1167	1,040	2,457

INSTRUMENT CHECK

1-12-60

Time	8:50 AM	Source	PA 467			
Range	E ₂	Channel	A	B	D	E
			$\frac{10}{1000}$	10 ⁻⁰	$\frac{10}{1000}$	1050V
Source Dist.	13"		48"	5"	1 1/2"	
% F.S. Trip	80		100	75	100+	

3830 gms
361 gms
121

527
709

Run 7 Added to fixed table - 1 pc 1/2" x 5" x 10" - #7075 - 3830 gms
1 pc 1/2" x 3" x 10" - #0988 - 2301 gms
Total U - 61,412 gms - slab 2 1/2" x 8" x 10"

4 Min Cto	177 +28	197 +83	79 +1
	176 +217	198 +39	80 +7
	177 +195	198 +25	78 +223
	177 +66	198 +26	78 +248
	181498	202679	81119
2909 cpm	11343	12677	5069.9
3438 1/cpm	.8816	.7888	1.97242

7,650
4,989
3,669

Run 8 Removed Pcs added for Runs 6 + 7.
Added to fixed table - 1 pc 7/8" x 3" x 10" - #1037 - 8,032 gms
1 pc 7/8" x 5" x 10" - #1007 - 13,361 gms
Total U - 64,034 gms - slab 2 5/8" x 8" x 10"

4 min cto	200 +214	231 +73	89 +235
	201 +44	227 +225	90 +105
	199 +166	229 +1	91 +81
	154,024	176,191	69,541
33,312 cpm	12,835	14,682 cpm	5,795
.30019		.6811	

Run 9 Added to fixed table - 1 pc $\frac{1}{4}$ " X 3" X 10" - # 0988 - 2301 gms
 1 pc $\frac{1}{4}$ " X 5" X 10" - # 1075 - $\frac{3830}{6,151}$ gms
 Total 2 - 70,165 gms - Slab $2\frac{3}{8}$ " X 8" X 10"

4 Min	266 + 70	313 + 95	123 + 176
1 Min	66 + 48	78 + 41	30 + 1
	67 + 33	79 + 206	38 + 133
	65 + 216	78 + 133	30 + 107
	119,151		
E	44,979	180,763	54,995
	66,374 CPM	20,109 CPM	7,849 CPM
	2223		
	75066 CPM	4973 CPM	1.274 CPM

Run 10 added to Movable table - 1 pc $\frac{1}{4}$ " X 3" X 10" - # 0989 - 2305 gms.
 1 pc $\frac{1}{4}$ " X 5" X 10" - # 0986 - $\frac{3851}{6,156}$ gms.
 Total 2 - 76,321 gms - Slab $3\frac{1}{8}$ " X 8" X 10"

Table Separation

0.54	72 ¹⁵⁵	92 ²⁵	35 ⁵	51179
0.28	97 ²⁰	122 ⁵¹	45 ⁶⁵	6772
0.18	98 ¹⁰⁷	123 ¹⁹¹	45 ¹²⁹	68523
0.06	95 ⁹⁰	119 ⁴⁹	44 ⁹⁵	66288
	94 ¹¹⁴	117 ¹⁹³	44 ¹⁴⁴	
	95 ⁷⁶	118 ¹¹⁰	44 ²³⁰	
	94 ²⁴³	119 ⁷⁷	44 ²⁰²	
	95 ²¹⁰	118 ⁸⁹	43 ³⁵³	
	107,114	115866		
	30813	30363		
	0524	0.329		

Table Separation — 1 minute count

0.45	79 ¹⁶⁶	103 ⁷⁰	38 ¹⁸	56574
0.40	85 ⁸¹	108 ²⁷	39 ¹³¹	59633
0.35	90 ⁸²	112 ¹⁷	42 ²⁹	62592
0.30	97 ²¹	122 ¹⁰²	45 ¹³⁹	67943
0.25	98 ¹⁰⁸	122 ²¹⁷	45 ¹⁵⁰	68375
0.20	99 ⁶⁵	123 ¹⁸⁰	46 ⁴²	68895
0.17	100 ³	123 ⁶²	45 ¹⁴⁵	68818
0.15	98 ²⁰⁹	121 ²³⁰	45 ⁷⁰	68083
0.10	96 ¹⁴⁰	119 ¹⁴⁰	45 ¹⁵⁹	60999

0.19	97 ¹⁰⁷	121 ¹⁴	45 ¹⁷⁷	
	97 ¹⁰⁹	121 ²⁰⁵	45 ¹⁶⁷	
	96 ²³⁶	121 ⁷¹	46 ⁷⁸	
	96 ¹³⁷	120 ²⁵⁴	46 ¹⁰⁷	
	99407	124192	47117	

gms.
19
2
23
88

cpm	24852	31048	11779	67679
1/cpm	40238	032208	1.143	14775

254

Removed pieces added for Run 10

added to moveable table - 1 pc $\frac{1}{2}$ " x 3" x 10" - # 0989 - 4989 gm

Run 11

1 pc $\frac{1}{2}$ " x 5" x 10" - # 0964 - $\frac{7,650}{12,639}$

Total 21 82,804 gm - slab $3\frac{3}{8}$ " x 8" x 10"

1 min

Table Sep

0.4"	124 ²²⁶	165 ¹⁹²	59 ¹²²	1,1156 89636
0.35	134 ²⁸	181 ⁴²	64 ³	1.0293 97147
0.30	152 ²⁵	198 ¹²⁸	71 ⁹³	49257/108062
0.25	166 ²⁰	217 ¹⁴⁷	77 ²⁵⁵	.8456 118252
0.20	171 ²⁴³	222 ⁶⁸	79 ¹⁹²	.8241 121339
0.15	168 ²¹²	219 ²²⁵	78 ²³⁴	

0.20"	214 164 ⁺³⁷	214 ⁺⁹⁹	77 ⁺¹¹⁰	
	163 ⁺¹⁷⁴	214 ⁺¹⁵²	77 ⁺⁸⁰	
	164 ⁺²⁵	214 ⁺¹¹³	77 ⁺²⁹²	
	164 ⁺³⁴	213 ⁺¹⁷⁹	77 ⁺¹⁴⁴	

0.23"	167 ⁺¹⁰⁵	218 ⁺¹⁵	78 ⁺²²¹	
	166 ⁺⁹³	217 ⁺¹⁸⁴	78 ⁺²⁵²	
	164 ⁺¹⁷⁸	218 ⁺¹⁹	78 ⁺²⁵²	
	167 ⁺²⁴³	219 ⁺¹²³	79 ⁺¹⁸⁵	
	170603	223573	81038	
	42651	55893	202595	1188035
	23440	.1789	.4936	284170

Added to Moveable - 1 pc $\frac{1}{8}$ " X 3" X 10" - #0994 - 1,157 gms **255**
 1 pc $\frac{1}{8}$ " X 5" X 10" - #1065 - 1,939 gms
 Total - 3,096 gms

Run 12

Total - 85,900 gms

Slab - $3\frac{1}{2}$ " X 8" X 10"

Table Soap

					1/cr	cm
36	0.5	130 ¹⁷²	187 ¹⁹³	67 ⁵	1.	100214
17	0.4	168 ⁸⁵	229 ²⁴⁷	81 ¹⁶⁷	.814	122867
62	0.3	225 ¹⁹⁰	301 ⁸²	108 ⁵⁵	.615	162631
2	0.25	230 ¹⁰⁰	312 ¹²⁹	111 ³⁷		
1		231 ¹³	311 ⁹⁷	111 ²³⁶		
	0.22	240 ¹⁴⁰	322 ²	113 ¹⁵²		
		240 ⁸¹	322 ¹³¹	114 ¹⁷²		
	0.20	242 ¹¹⁷	325 ¹⁴⁶	117 ²¹		
		243 ¹	325 ⁶⁹	117 ¹⁰⁸		
	0.18	244 ²³⁶	327 ¹³⁵	116 ²¹³		
		243 ⁸⁴	325 ¹⁷³	116 ²³³		
	0.16	247 ¹⁰⁷	331 ¹³⁷	118 ²⁴¹		
		246 ⁹⁴	332 ¹⁴	119 ¹⁶³		
		63204	849645	30542		
		15822	11769			
8035	0.14	246 ⁹⁷	327 ²⁰⁷	117 ²³²		
73		245 ²⁰	329 ⁴⁸	118 ²⁸		
	0.12	238 ²¹⁶	322 ²²¹	116 ¹³⁹		

3274 178710

256

1-13-60

INSTRUMENT CHECK

Time	8:35	AM	Source	POI 467		
		PM				
			Channel			
	E2	A	B	C	D	E
Range	1000	$\frac{10}{1500}$	off	10^{-10}	$\frac{10}{1500}$	1050V
Source Dist.	3"	13"		48" 4"	1"	
% F.S. Trip		80		100	80	100+
Counters	1, 2 + 3					

Run 12 A

Same as Run 12

Counters	1	2	3
.39	200 ⁺⁶	268 ⁺¹⁵⁵	91 ⁺¹⁰⁰
.3	249 ⁺¹⁹⁸	331 ⁺¹⁵¹	111 ⁺¹¹⁷
.2	265 ⁺¹¹²	357 ⁺²³⁰	121 ⁺²⁴⁵
.16	263 ⁺⁹	351 ⁺¹¹⁷	120 ⁺¹²⁷
.16	262 ⁺⁵	353 ⁺⁵³	121 ⁺²²⁴
.14	259 ⁺¹²⁸	349 ⁺¹⁵³	120 ⁺²⁶
.2	248 ⁺²	332 ⁺⁶²	116 ⁺³²
.37	273 ⁺¹⁴²	366 ⁺⁷³	127 ⁺²⁰⁶
.37	273 ⁺²²⁴	362 ⁺⁶³	127 ⁺¹³⁴
.37	273 ⁺²⁰⁰	368 ⁺⁹³	130 ⁺¹⁰⁴
.37	274 ⁺¹³⁷	364 ⁺¹⁷	129 ⁺²³⁹
.37	273 ⁺¹⁴⁵	363 ⁺²⁹	129 ⁺¹⁹
.37	272 ⁺⁹²	365 ⁺¹	129 ⁺¹²⁷

Run #13

Removed 1/8" added for Run 12.

Added to moveable Table - 1 pc 1/4" x 3" x 10" # 0989 - 2358 gms

Total 21 - 88,960 gms - #1
- 1 pc 1/4" x 5" x 10" # 0986 - 3857 gms
#2 Slab - 3 5/8" x 8" x 10" #3 6156

Run 13

Table Sep

0.60" 159¹⁸⁹ 225¹⁸⁰ 78²³⁵ 8413 118866

1/4R

0.50 212¹³⁷ 276³ 164¹⁵⁸
26782
.373

0.45' 252²⁰⁹ 347²⁵⁵ 124²⁰²

CR 255⁵⁷ 352²⁵ 124²⁰⁷

1/4 CR 31947

1/2 CR .3130

0.40 311²¹¹ 429²⁹ 151²⁴¹

313¹⁸⁶ 432⁷⁶ 153⁵⁷

CR 39074

1/2 CR .256

0.38 345¹³⁷ 440²⁵ 169

350¹⁸⁵ Disc changed to 45 170¹⁸³
316¹²¹

CR 43552

1/2 CR .2296

0.36 393¹⁶³ 347 192¹⁹³

396²⁴⁵ 344¹³⁹ 195³⁸
397⁶⁰ 347⁵ 193²²⁹
347¹⁴⁷ 194¹³⁹

CR 101361
49776

1/2 CR .2009

Discriminator
changed to 40
338²⁵⁴
337¹⁵⁶ 86522

3537

195¹⁶⁸

258

Table Sep

0.37"

379⁹⁹
379

392⁹
390¹⁰³

218¹⁰⁵
220¹⁶³

CR

5498

1/CR

.1779

0.32"

446¹²³
452¹³⁸

441¹⁶
438²⁰¹

260¹⁵³
263⁵⁵

67048

.1491

0.30

501¹³⁵
502¹⁷⁷

290¹²⁹
295¹

74945

.1334

0.28

514¹⁵⁹
516²²⁵

302⁸⁶
302²⁰⁸

77460

.12909

0.25

540⁷⁵
544¹³
138796

315¹⁰⁸
315⁶²
80725

.072048 x = 0615

.12388

Table Sep

. Q23

523²⁴⁷
521¹⁸⁰

322⁷²
305⁷²
77768
.1286

0.20

490¹¹⁴
421²¹⁵

284²⁴¹
285¹²²
176047
.13694
259⁹¹
66395
.150-

0.15

441⁸⁷

→
Moveable Table

Stationary Table

260

1-14-60

INSTRUMENT CHECK							
Time	9:45	AM	Source	PN 467			
			Channel				
			A	B	C	D	E
Range			$\frac{10}{1000}$	Open	10^{-10}	$\frac{10}{1000}$	100
Source Dist.			13"	0"	4"	4"	5"
% F.S. Trip			85	OR	100	80	100
Counters	1, 2 + 3						

Run 14 Removed the $\frac{1}{4}$ " ~~rod~~ per added for Run 13
 Same Loading as Run 11 U = 82,804 gms slab $3\frac{3}{8}$ x $3\frac{3}{8}$ =
 Source directly under bottom of Billets.

Table Sep.	1 Min	Cts	# 1	# 2	# 3
.25			25 + 63	35 + 136	16 + 55
.155			28 + 181	38 + 219	17 + 163
.10			30 + 169	41 + 203	18 + 81
		Top .5521	30 + 236	42 + 75	17 + 245
		.08 Bottom .6438	30 + 205	42 + 79	18 + 77
			30 + 228	42 + 21	18 + 170
			31 + 105	43 + 24	18 + 66
			30 + 233	41 + 27	18 + 63
CR			7932.6		
			,1261		

7
 Run 15 Added insert to Source Hole # 1084 - 169 gms
 $U = 82,973$ gms

1050V.	Table .25	26 ⁺¹⁸	36 ⁺¹⁴⁴	16 ⁺¹³
1"	.15	29 ⁺²²¹	41 ⁺¹	18 ⁺⁷¹
120 ⁺	.12	31 ⁺¹⁰⁰	42 ⁺¹⁶⁴	18 ⁺²¹³
	Top .5402			
	.08 Bottom .6402	33 ⁺⁶⁶	43 ⁺⁰	19 ⁺¹¹⁹
X8" X 10"		32 ⁺¹⁶⁵	43 ⁺¹⁸³	19 ⁺¹⁶
		32 ⁺²¹⁵	44 ⁺²	19 ⁺¹⁶⁹
		32 ⁺²⁶	45 ⁺⁶⁶	19 ⁺¹⁵²
		33 ⁺³¹	44 ⁺⁵⁶	19 ⁺³²

Run 16 Remove insert from Source Hole. $U = 82,804$ gms
 Source in Hole (Normal Position)

Table	.25	119 ⁺¹⁵³	161 ⁺¹³⁷	54 ⁺¹⁶⁵
	.15	147 ⁺¹⁹⁵	192 ⁺²¹⁹	65 ⁺⁹²
	.12	160 ⁺⁸¹	209 ⁺⁵¹	71 ⁺⁵⁰
	Top .5348			
	.08 Bottom .6392	163 ⁺²³⁹	214 ⁺²²³	72 ⁺⁷⁷
		160 ⁺²⁴⁴	216 ⁺⁶⁵	73 ⁺⁶²
		165 ⁺⁴¹	218 ⁺⁸	72 ⁺¹¹²
		163 ⁺⁸⁷	216 ⁺¹³⁹	73 ⁺²⁵

Run 17

Same loading as Run 16.

Table Top. 5381 Bot. 3365

1" x 11" x 11" Plexiglas placed on fixed table 5" back of fuel to simulate structure ^{Reflection} of moveable table.

	162 + 132	213 + 55	73 + 21
1 min. cts	164 + 176	216 + 239	73 + 0
	164 + 222	215 + 197	72 + 187
	166 + 77	217 + 170	73 + 101
	163 + 238	216 + 97	73 + 231

Run 18

Placed ~ 18 mil thick Al strip between the 1st and 2nd Billets on fixed table, leaving gap from top to bottom of ~ 15 to ~ 30 mils.

Table Top. 5246 Bot. 12300

	117 + 58	159 + 75	54 + 284
.25	143 + 232	198 + 173	65 + 25
.15	156 + 40	202 + 34	69 + 155
.12			
1 min cts .08	160 + 210	210 + 151	72 + 212
	160 + 226	213 + 70	73 + 132
	160 + 126	211 + 37	73 + 128
	160 + 26	213 + 148	73 + 20
	160 + 87	211 + 63	71 + 192

1-15-60

table
section
9-

Exp. B

1" REFLECTOR

INSTRUMENT CHECK					
Time	1:00	AM	Source	PN 467	
		PM			
			Channel		
Range	E2	A	B	C	D
	OK	10	10	10	10
		1000	1000	1000	1000
Source Dist.		14"	28"	3"	4"
% ES Tap		80		80	
		Cts 1, 2 + 3			

Oralloy on Fixed Table.

Run 1
 1 pc # 1040 - 7/8" X 3" X 10" - 8036 gms
 1 pc # 1000 - 7/8" X 5" X 10" - 13204 "

Slot 7/8" X 8" X 10" Total U = 21,240

1" THICK REFLECTOR

Table	ctr #1	#2	#3
Top .5182 Bottom .9320	51 +96 X256	49 +133 X256	19 +189 X256
3 min cts	52 +1	49 +18	19 +227
	51 +133	49 +50	19 +186

Run 2

Table Counter #1 Relocated East of Tables.

Top .5208 Bottom .8325	15 +67	50 +52	19 +96
3 min.	15 +107	50 +79	19 +64

Tables not to gether, Plexiglas (1/2") along top
 not allowing plexiglas on moveable table
 to come against billets.

3 min.	10 +201	37 +223	13 +141
	10 +163	38 +210	13 +110

Counters with tables Separated

1-18-60

Exp. B

INSTRUMENT CHECK					
Time	8:57 AM	Source	PN 467		
	PM				
		Channel			
	E	A	B	C	E
Range	1000	$\frac{10}{1000}$	Opr.	10^{-10}	$\frac{10}{1000}$ 1050 V.
Source Dist.	OK	12"	0' 48"	3"	$\frac{1}{2}$ "
% F.S. Trip		80	OK	100	80 100+
Counters	1, 2 & 3				

Run 3 Loading See Run 1

Table .07	14 + 93	49 + 82	19 + 91	
Top .5348	14 + 90	47 + 227	18 + 254	
Bot. .4330				
3 Min.	14 + 81	49 + 137	20 + 39	
	14 + 62	48 + 77	19 + 207	
	14 + 67	48 + 240	19 + 177	E
	18,313	62,459	25,088	105,66
CPM	1,145	4,164	1,672	7,04
$\frac{1}{\text{CPM}}$	.0008733	.0002401	.5981	.000141

Run 4 Added to Fixed Table - $\frac{1}{4}$ " x 3" x 10" - #0988 - 2301 gm
 $\frac{1}{2}$ " x 5" x 10" - #1075 - 3830 "
 Total U = 27,371. gms. - Slab $\frac{3}{8}$ " x 8" x 10" 6,131

Table .07				
Top .5341	19 + 7	61 + 166	24 + 34	
Bot. .4322	18 + 168	62 + 7	24 + 81	
3 Min.	18 + 133	62 + 219	23 + 249	
	18 + 221	61 + 253	24 + 134	
	18 + 51	61 + 33	23 + 248	E
	23,876	79,270	30,954	13A,
CPM	1,592	5,285	2,064	89
$\frac{1}{\text{CPM}}$	6281.	1892	4845	.000111.

Run 5 Removed pieces added for Run 4
 added to Fixed Tables - $\frac{1}{2}$ " x 5" x 10" - #0964 - 7650 gms
 $\frac{1}{2}$ " x 3" x 10" - #0999 - 4989 gms
 12,639

Tables .073 Total U 33,879 gms - Slab - $\frac{11}{8}$ " x 8" x 10"

Top .5290
Bot .1320

3 Min.	24 +152	79 +12	30 +211	
	24 +155	78 +131	31 +14	
	23 +252	78 +248	31 +107	
	24 +76	78 +149	31 +238	
	24 +88	78 +216	31 +108	E
	31,187	100,852	40,102	172,141
CPM	2,079	6,723	2,673	11,476
$\frac{1}{CPM}$	.0004810	1487	3741	8713

E
 22 V.
 $\frac{1}{2}$ "
 00+

105,660
 7,044
 101419

Run 6 Added to fixed Table - $\frac{1}{4}$ " x 3" x 10" - #0988 - 2,301 gms
 $\frac{1}{4}$ " x 5" x 10" - #1075 - 3,830 gms
 6,131

Tables .073 Total U - 40,010 gms - Slab - $\frac{13}{8}$ " x 8" x 10"

Top .5335
Bot .0330

3 Min.	34 +226	106 +197	40 +5	
	34 +14	106 +135	40 +79	
	34 +24	107 +90	40 +24	
	34 +123	106 +103	40 +57	E
	35,203	109,325	51,356	195,884
CPM	2,936	9,110	4,280	16,324
$\frac{1}{CPM}$	.0003406	1098	2336	6216

137,100
 8,940
 201119

266

Run 7 Removed $\frac{3}{4}$ " X 8" X 10" from Fixed Table.

Pcs added for Runs 5 + 6

added to Movable Table - $\frac{7}{8}$ " X 3" X 10" - #1038 - 8,0.

- $\frac{7}{8}$ " X 5" X 10" - #1003 - 13,36

Total 21 - 42,640 gms - SLAB - $\frac{14}{8}$ " X 8" X 10" 21,80

Tables .073

T = .5160
B = .8395

	39 + 63	119 + 221	44 + 158	
	39 + 145	119 + 112	44 + 245	
3 min.	39 + 166	119 + 161	44 + 203	
	30,160	91,886	34,398	156,44
16 CPM	3,351	10,209	2,866 3,822	13,07 17,38
1 CPM	2984	9795	2616	575 7670
.16	40 + 110	122 + 155	45 + 22	
	40 + 58	122 + 69	44 + 177	
3 min.	39 + 186	122 + 11	42 + 109	

use data next page

1-19-~~59~~⁶⁰

INSTRUMENT CHECK

267

Time 8:50 AM PM

Source PV 467

Channel

	A	B	C	D	E
Range	E2	10 ¹⁰	10 ¹⁰	10 ¹⁰	1050V
Source Dist.	15"	0"	48"	4"	5"
% F.S. Trip	90	OK	100	80	100+

Counters, 2 & 3

- 8,038
-13,362
21,400

6,440
1,1332
~~3,037~~
5753
~~7670~~

Run 8	Repeat of Run 7	- 12"	8	
Table .3	13 +119	41 +86	14 +186	
.2	13 +218	42 +187	15 +133	
1 Min. .14	13 +78	42 +188	16 +40	
.1	13 +139	42 +202	16 +106	
.072	13 +33	42 +67	15 +103	
T. 5236	13 +221	42 +64	15 +152	
B. 8355	13 +106	42 +138	15 +184	
	13 +133	43 +19	15 +152	
1 Min. to	13 +126	41 +153	16 +8	
	13 +102	42 +180	15 +139	
	20,689	65,133	24,034	109,856
	3,448	10,855	4,006	18,309
	2900	9212	2496	5462



Run 9 Added to Fixed Table - $\frac{1}{4}$ " X 3" X 10" - #0988 - 2,301 gms
 $\frac{1}{4}$ " X 5" X 10" - #1075 - 3,830 gms
 Total 21 - 48,771 - SLAB 2" X 8" X 10"

Table .072	22 +67	64 +193	23 +157	
T. 5220	22 +150	65 +31	23 +158	
B. 7292	22 +15	65 +253	23 +216	
1 Min cto	22 +91	65 +204	23 +116	
	21 +231	66 +89	23 +250	Σ
	28,458	83,970	30,334 30,334	142,762
CPM	5,692	16,794	6,067	28,552
$\frac{1}{\text{cpm}}$	1757	5954	1648	3502

Run 10 Removed $\frac{1}{4}$ " Added for Run 9
 Added to fixed table - $\frac{1}{2}$ " X 3" X 10" - #0964 - 4,989 gms
 $\frac{1}{2}$ " X 5" X 10" - #0999 - 7,650 gms
 Total 21 - 55,279 gms - SLAB 2 $\frac{1}{4}$ " X 8" X 10" ^{12,639} gms.

	40 +92	114 +10	39 +240	
	40 +59	113 +3	39 +116	
	40 +80	112 +213	39 +46	
	40 +136	112 +151	39 +203	
	39 +110	111 +25	39 +135	
	51,421	144,274	50,660	246,355
CPM	10,284	28,855	10,132	49,271
$\frac{1}{\text{cpm}}$	9800	3465	9870	2030

gms
- gms

Run 11 Added to Fixed Table - $\frac{1}{4}$ " X 3" X 10" - 2,301 gms

$\frac{1}{4}$ " X 5" X 10" - $\frac{3,836}{6.13}$

Total U - 61,410 gms - SLAB $2\frac{1}{2}$ " X 8" X 10"

4"	73 + 120	197 + 155	65 + 16
3"	101 + 120	271 + 89	90 + 30
2"	125 + 156	335 + 144	111 + 33
1"	113 + 238	305 + 65	101 + 189
Σ	Table together 115 + 6	306 + 237	102 + 26
42,762	" 113 + 149	305 + 67	103 + 24
18,552	" 115 + 41	309 + 189	104 + 57
3502	88,004	240,450	79,211
	CPM 29,335	80,150	26,404
	$\frac{1}{\text{CPM}}$ 3409	1247	3787

89 gms
50 gms
39 gms.

1-20-60 Room 108 Background

	ctr # 1	# 2	# 3
46,355	25 Min 77 cts	252	183
9,271	3 CPM	10 CPM	7 CPM
2,030			

1 Bare Slab $\frac{1}{8}$ " X 8" X 10" in Room

270

2" REFLECTOR

1-21-60

Exp. C2" REFLECTOR

INSTRUMENT CHECK

Time 8:35 AM

Source PN 467

Channel

	A	B	C	D	E
Range	750V, $\frac{10}{1000}$	op	10^{-10}	$\frac{10}{1000}$	1000V
Source Dist.	OK 12"	0"	48"	3"	1/2"
% F.S. Trip	OK 85	OK 100	80	100	100
Counters	1, 2 & 3				

Source in place Tables Separated

1 Min Cts	3+125	x 256	12+224	x 216	4+26	x 256
	3+125		12+203		3+255	
	3+125		12+191		4+2	

Run 1

Oralloy on Fixed Table

1 pc - $\frac{7}{8}$ " x 3" x 10" - #1040 - 8,036 gm $\frac{7}{8}$ " x 5" x 10" - #1000 - 13,204 "SLAB - $\frac{7}{8}$ " x 8" x 10"

Total U = 21,240 gms

3 Min Cts	19+51		62+186		23+160	
	19+56		63+242		23+144	
	19+44		62+22		23+67	
	19+65		62+23		23+112	
	19+22		62+104		23+151	
	24,558		80,193		30,074	134,825
CPM	1,637		5,346		2,005	8,988
$\frac{1}{\text{CPM}}$	6109		1871		4988	1113

Run 2 Added To Fixed Table - $\frac{1}{4}$ " X 3" X 10" - #0988 - 2,301 gms
 $\frac{1}{4}$ " X 5" X 10" - #1075 - 3,830 gms
 Total U: 27,371 gms. SLAB - $\frac{3}{8}$ " X 8" X 10" 6,131

	28 ⁺²⁰⁰	89 ⁺⁸³	32 ⁺¹³⁹	
3 Min Cts	28 ⁺⁶⁰	89 ⁺¹⁷⁵	32 ⁺⁶⁷	
	27 ⁺²²²	90 ⁺²¹⁰	32 ⁺¹⁴⁰	
	29 ⁺²²	88 ⁺²⁵⁰	32 ⁺²²⁰	
	29,181	91,854	33,334	154,369
CPM	2432	7,655	2,778	12,864
$\frac{1}{\text{CPM}}$	4113	1306	3560	7773

Run 3 Removed Pcs added for Run 2
 Added to fixed Table - $\frac{1}{2}$ " X 3" X 10" - #0989 - 4989
 $\frac{1}{2}$ " X 5" X 10" - #0964 - 7652 gms
 Total U - 33,879 gms SLAB - $\frac{1}{8}$ " X 8" X 10" 12,639

	45 ⁺¹³⁴	138 ⁺⁹⁰	48 ⁺¹⁰³	
3 Min Cts	45 ⁺¹⁴⁴	138 ⁺¹²	49 ⁺³⁹	
	45 ⁺²⁵⁰	139 ⁺¹¹⁴	48 ⁺²¹¹	
	35,088	106,406	37,473	178,967
CPM	3,899	11,823	4,164	19,885
$\frac{1}{\text{CPM}}$	2565	8458	2402	5029

34,825
 7,988
 113

272

Run 4 Added to fixed table - $\frac{1}{4}$ " X 3" X 10" - # 2,301
 $\frac{1}{4}$ " X 5" X 10" - # 3,830
 Total U = 40,010 gms. SLAB - $\frac{13}{8}$ " X 8" X 10" 6,131

3 Min ct	96 +73	273 +188	93 +154	
	97 +124	278 +120	93 +111	
	97 +88	276 +150	93 +286	
	74,535	212,170	71,825	358,580
CPM	8,282	23,574	7,986	39,842
$\frac{1}{CPM}$	1207	4242	1252	2510

Run 5 Removed $\frac{3}{4}$ " added for Run 3 & 4.
 Added to Movable Table - $\frac{7}{8}$ " X 3" X 10" - # 1038 - 8038 gms
 $\frac{7}{8}$ " X 5" X 10" - # 1003 - 13,362
 Total U = 42,640 gms. SLAB - $\frac{11}{8}$ " X 8" X 10" 21,400 gms.

1 Min Cts	64 +17	178 +164	57 +187	
	64 +87	178 +77	57 +141	
	64 +40	177 +83	56 +205	
	62 +211	177 +206	57 +154	
	63 +197	177 +219	58 +42	
	81,704	227,821	73,689	383,214
CPM	16,341	45,564	14,738	76,643
$\frac{1}{CPM}$	6119	2195	6785	1305

5 min Room Background

1-27-60	15	44	23
	3 CPM	9 CPM	5 CPM

3" REFLECTOR

273

1-28-60

Exp. D

INSTRUMENT CHECK							
Time	8:40	AM	Source	PN-467			
		PMT					
			Channel				
			A	B	C	D	E
Range	10	1000	10	10	10	10	1050V
Source Dist.	13'		42"	5"	1/2"		
% F.S. Trip	85		100	75	100		
Counters	1, 2 & 3						

In order to be able to make 1/8" addition it was necessary to move source on moveable table. Because of super structure it is necessary to stop tables before normal closure this was done by adding a 2" stop extension. Table is at 2.10.

Tabuloy slab 1" X 8" X 10" on moveable table.

	ctr #1 (256)	#2 (256)	#3 (256)
Run 1	9 +118	22 +226	26 +221
5 min	9 +158	23 +53	26 +158
	7256 484 CPM		17647 1176 CPM
Table Pos.			1 1/2 Paraffin added - first
5 min. 2.10	9 +68	22 +216	14 +184
2.30	9 +164	23 +127	15 +239
2.50	10 +231	24 +174	16 +205
3.00	12 +202	26 +54	18 +70
5.00	14 +227	29 +216	19 +145
10.00	18 +25	33 +27	21 +66
20.00	27 +39	39 +37	26 +125
35.00	37 +228	40 +121	30 +161
out	38 +179	62 +181	33 +171

8,580
9,842
510

8038 gm
3,362
21,400 gm

33,214
6,643
1305

L

274

1-28-60 On moveable Table - 1 pc $\frac{3}{8}$ " X 3" X 10" - #1090 - 8,036
 Cullon 1 pc $\frac{3}{8}$ " X 5" X 10" - #1000 - 13,204
 Run 2 21,240

SLAB - $\frac{3}{8}$ " X 8" X 10" - U - 21,240 gms.

5 min.	47 + 153	94 + 179	41 + 107	
	48 + 106	94 + 160	40 + 156	
	48 + 94	93 + 137	40 + 155	E
	36,961	72,312	31,394	140,667
CPM	2,464	4,821	2,093	9,378
$\frac{1}{\text{CPM}}$	4058	2074	4778	10663

Counts with tables separated

5 min	70 + 87	112 + 251	54 + 214
	69 + 43	112 + 222	55 + 128
	69 + 240	112 + 86	55 + 199

Run 3 Added on fixed Table - 1 pc $\frac{1}{2}$ " X 3" X 10" - #0988 - 2301
 1 pc $\frac{1}{4}$ " X 5" X 10" - #1075 - 3830
 6,133

Slab - $\frac{3}{8}$ " X 8" X 10" - U - 27,377 gms

5 min	80 + 89	157 + 162	62 + 60	
	82 + 63	151 + 2	63 + 0	
	81 + 236	152 + 219	62 + 236	E
	62,596	116,607	49,209	227,412
CPM	4,173	7,774	3,214	15,161
$\frac{1}{\text{CPM}}$	2396	1286	3111	6596

Run 4 Added to moveable table - $\frac{1}{8}$ " X 3" X 10" - # 0994 - 1,157 gms
 $\frac{1}{8}$ " X 5" X 10" - # 1065 - 1,939
 SLAB - $\frac{10}{8}$ " X 8" X 10" - 21 - 30,469 gms. $\frac{3,096}{}$

8,036	3 min	73 + 51	131 + 6	52 + 149	
3,204		73 + 69	131 + 215	53 + 15	
21,240		72 + 218	131 + 210	53 + 95	E
		56,146	101,039	40,707	197,892
	CPM	6,238	11,226	4,523	21,988
	$\frac{1}{CPM}$	1603	8908	2211	4548

Run 5 Removed $\frac{1}{8}$ " added for Run 4
 Added to moveable table - $\frac{1}{8}$ " X 3" X 10" - # 0989 - 2,305 gms
 $\frac{1}{8}$ " X 5" X 10" - # 0996 - 3,851
 SLAB - $\frac{11}{8}$ " X 8" X 10" - 21 - 33,529 $\frac{6,156}{}$

2,301	3 min	115 + 98	205 + 97	81 + 18	
3830		116 + 201	205 + 18	82 + 45	
6,131		116 + 122	205 + 200	82 + 79	
		9917	17528	69846	
		1,0084	5705	1,432	2904

E
 22,742
 15,161
 6,596

276

1-29-60

INSTRUMENT CHECK

Time 10:30 AM

Source PN-467

Channel

Range (r) E₂

A	B	C	D	E
$\frac{10}{1000}$	opr	opr	$\frac{10}{100}$	1050

Source Dist. OK

11"	0"	54"	4"	$\frac{1}{2}$ "
-----	----	-----	----	-----------------

% F.S. Tap

80	OK	100	80	100 ⁺
----	----	-----	----	------------------

Counters 1, 2 & 3

Run 6

Time	Counters	#1	#2	#3
10:35 AM	3 min Background	9	22	32
11:45 AM	"	183	30	158
	Added to Fixed table - $\frac{1}{8}$ " X 3" X 10" - #		1076	1145 gm
	SLAB - $\frac{12}{8}$ " X 8" X 10"		0954	$\frac{1404}{309}$
11:05	u = 36,528 gm.	173 ⁺¹⁵⁰	313 ⁺²²⁰	119 ⁺¹⁶¹
		171 ⁺⁵³	313 ⁺⁴⁷	119 ⁺²¹⁹
		172 ⁺⁸⁸	312 ⁺¹⁹⁹	120 ⁺⁴²

Top noticeable not together

adjusted

3 min	209 ⁺²⁴³	371 ⁺²⁵	146 ⁺⁵
1	212 ⁺⁸³	376 ⁺²²⁷	148 ⁺¹³³
11:38	211 ⁺²⁴⁶	372 ⁺¹²¹	147 ⁺⁵⁶
Σ	162,364	286,837	113,090
62,477	18,040	31,871	12,566
1601	5543	3138	7958

6,131 gms
 3,049
 9,190

277

Run 7 Removed $\frac{1}{4}$ " added for Run 3 + $\frac{1}{8}$ " added for Run 6.
 Added to fixed table - $\frac{1}{2}$ " X 3" X 10" - #0989 - 4,989

SLAB - $\frac{13}{8}$ " X 8" X 10"

$\frac{1}{2}$ " X 5" X 10" - #0964 - 7,650

12,639
 - 9,180
 3,459

Table Sup - $\frac{1}{2}$ min etc

3.00"	15 + 48	23 + 228	11 + 200 = 50
2.89	17 + 130	27 + 160	13 + 109 = 54
2.80	19 + 22	31 + 20	14 + 21 = 65
2.70	22 + 213	36 + 71	16 + 59 = 75
2.60	27 + 225	45 + 122	20 + 80 = 93
2.50	36 + 230	54 + 227	25 + 228 = 121
2.40	54 + 102	91 + 207	37 + 157 = 184
2.30	103 + 62	173 + 219	66 + 235 = 342
2.28	126	212 + 159	82 + 169 = 421
2.26	170 + 119	Jamming	112 + 211 = 283
2.25	185 + 183	-	124 + 49 = 309
2.24	221 + 165	-	152 + 23 = 374

.00427

77,870 CPM

461
 219
 + 42
 5
 133
 56
 0
 66
 8

.00322

278

4" REFLECTOR

2-2-60

Exp. E

INSTRUMENT CHECK						
Time	10:20	AAA PHT	Source	PN 467		
			Channel	A	B	C
Range	E2	10	1000	092	10 ¹⁰	10
	out				1000	1050
Source Dist.			4"	0"	42"	5" 1/2"
% F.S. Trip			100+	OK	100	80
Class	# 1, 2 + 3					100!

Run 1 1 min ct - Table Separated - Billet in place
 13 +32 21 +50 11 +6

ON movable Table - 1 pc 7/8" X 3" X 10" - # 1020 - 8,036 gm
 7/8" X 5" X 10" - # 1000 - 13,204 "

SLAB - 7/8" X 8" X 10" - U - 21,240 gms 21,240

3 min	20 +166 (256)	43 +178 (252)	19 +58 (256)	
	20 +247	42 +239	18 +242	
	20 +231	43 +36	19 +135	
	21 +85	43 +19	18 +253	
	21 +11	42 +186	19 +68	
	26,852	50,186	24,564	7,107
CPM	1,790	3,679	1,638	7,070
± CPM	5587	2718	6105	1407

Run 2 Added to fixed table - $\frac{1}{8}$ " x 3" x 10" - # 1076 - 1,148 gms

$\frac{1}{8}$ " x 5" x 10" - # 0954 - $\frac{1904}{3,049}$ gms

SLAB - 1" x 8" x 10" - U - 24,289 gms

3 min

27 + 204

54 + 27

23 + 209

27 + 80

54 + 20

23 + 162

27 + 119

53 + 213

23 + 144

27 + 63

54 + 125

23 + 71

28,114

55,425

24,138

CPM

2,343

4,619

2,012

8,974

$\frac{1}{\text{CPM}}$

4268

2165

4970

1114

036 gm

$\frac{3,204}{240}$

Run 3 Removed $\frac{1}{8}$ " added for Run 2

Added to fixed table - $\frac{1}{4}$ " x 3" x 10" - # 0988 - 2,301

$\frac{1}{4}$ " x 5" x 10" - # 1075 - $\frac{3,830}{6,131}$ gms

SLAB - $\frac{9}{8}$ " x 8" x 10" - U - 27,371

3 min.

42 + 22

77 + 247

30 + 240

41 + 206

78 + 44

30 + 28

41 + 141

77 + 68

31 + 48

41 + 115

78 + 150

30 + 31

42,724

79,869

31,323

3,560

6,656

2,610

12,826

2809

1502

3831

7797

3,107

~~1,070~~

1,407

Run 4 added to fixed table - $\frac{1}{8}$ " X 3" X 10" - # 1076 - 5145

$\frac{1}{8}$ " X 5" X 10" - # 0954 - $\frac{1904}{3049}$

SLAB = $\frac{10}{8}$ " X 8" X 10" U = 30,420

3 min	61 + 52	111 + 216	44 + 115	
	61 + 32	111 + 187	43 + 69	
	61 + 43	112 + 31	44 + 47	
	46,973	85,938	33,767	
CPM	5,219	9,599	3,752	18,520
$\frac{1}{\text{CPM}}$	1916	1047	2662	5400

Run 5 ^{2:45 PM} Removed - $\frac{1}{4}$ " and $\frac{1}{8}$ " added for Runs 3 + 4

Added to fixed Table - $\frac{1}{2}$ " X 3" X 10" - # 0999 - 4989

$\frac{1}{2}$ " X 5" X 10" - # 0964 - $\frac{7650}{12,639}$

SLAB - $\frac{11}{8}$ " X 8" X 10" - U = $\frac{33,879}{37,699}$ gms. - $\frac{9,180}{3,459}$

3 min	121 + 145	216 + 228	80 + 171	
	121 + 204	216 + 70	80 + 226	
	122 + 131	217 + 179	82 + 26	
	93,664	166,621	62,378	
	10,407	18,513	6,931	35,859
	9609	5402	1443	2789

Run 6 Added to fixed table - $\frac{1}{8}$ " x 3" x 10" - #1076 - 1,145

$\frac{1}{8}$ " x 5" x 10" - #0954 - 1,904

SLAB - $\frac{12}{8}$ " x 8" x 10" - U - ~~37,748 gms.~~ $\frac{3049}{33879}$

Table Pro.

→ 34,928

2.50	22 ⁺¹³⁹	36 ⁺¹⁸⁸	14 ⁺²⁴⁰	137
2.40	29 ¹⁸	49 ³	19 ²⁸	102
2.30	41	71	27	72
2.2	60	105	39	49

20
00

1 min
Count

129 ⁴⁰	223 ²⁹	82 ¹²⁰	
129 ⁶¹	224 ⁷²	81 ⁸⁵	
129 ⁷	225 ⁸³	82 ²³	
33059	57405	62,958	
3025	1742		
99177	172216	62,958	E
33059	57405	20982	111,450
$\frac{1}{CR}$ 3025	1742	4745	8973

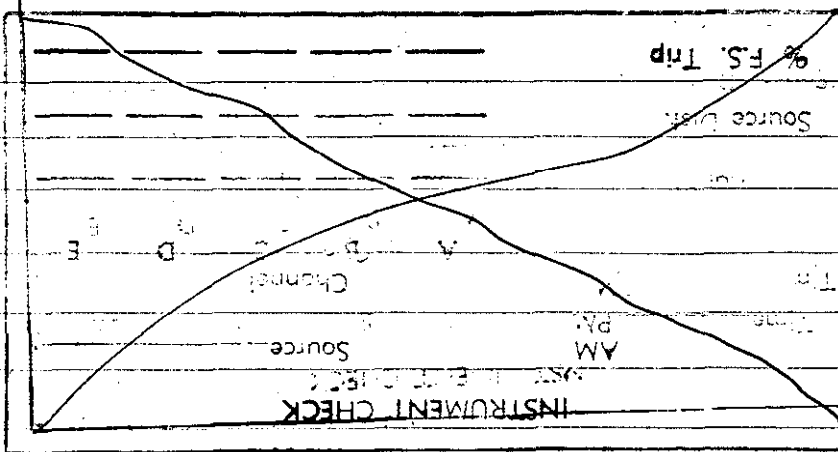
9
0
9
0
9

859
189

2-3-60 TEST OF Building Alarm with instrument "F" (E₂)

6" REFLECTOR

Exp F.



2-4-60

INSTRUMENT CHECK							
Time	8:25	AM	Source	PN	467		
			Channel				
	8 E2		A	B	C	D	E
			10%	100%	10%	10%	100%
Source	8"	0"	48"	4"	1/2"		
% F.S. Trip	80	OK	100	80	100%		
Counters	1, 2 & 3						

Run 1 ON Movable Table - 1" X 3" X 10" - Tuballoy
 1" X 5" X 10" - "

SLAB - 1" X 8" X 10" - Tuballoy

5 Min	3 + 251 (256)	9 + 209 (256)	6 + 24 (256)
	4 + 29	9 + 30	6 + 13
	4 + 13	9 + 134	6 + 99
	4 + 0	9 + 132	6 + 31
	4,133	9,721	6,311
CPM	2067 206.7	486	315.55

Run 2 Oralloid on Moveable Table - $\frac{7}{8}$ " X 3" X 10" - # 1070 - 8036 gms

$\frac{7}{8}$ " X 5" X 10" - # 1000 - $\frac{13,204}{21,240}$ "

SLAB - $\frac{7}{8}$ " X 8" X 10" - 21 - 21,240 gms

S min.	19 + 80	34 + 203	16 + 115	
	18 + 209	34 + 218	16 + 89	
	19 + 114	35 + 109	16 + 81	
	19 + 53	35 + 82	16 + 134	
	19,656	35,940	16,803	
CPM	983 $\frac{1}{2102}$	1,797	840	3,620
$\frac{1}{CPM}$	1017	5565	1190	2762

Run 3 Added to fixed Table - $\frac{1}{8}$ " X 3" X 10" - # 1076 - 1145 gms

$\frac{1}{8}$ " X 5" X 10" - # 0954 - $\frac{1945}{3,049}$ "

SLAB - 1" X 8" X 10" - 21 - 24,289 gms.

S min	24 + 57	45 + 5	20 + 40	
	24 + 116	44 + 150	20 + 101	
	24 + 243	45 + 28	19 + 237	
	24 + 120	44 + 207	20 + 181	
	25,106	45,958	20,713	
CPM	1,255	2,298	1,036	4,589
cpm	7968	4352	9653	2179

284

Removed $\frac{1}{8}$ " add for Run 3

Run 4 Added to ~~fixed~~ table - $\frac{1}{4}$ " X 3" X 10" - # 0988 - 2,301
 $\frac{1}{4}$ " X 5" X 10" - # 1075 - $\frac{3,850}{2,131 \text{ gms}}$
 SLAB - $\frac{9}{8}$ " X 8" X 10" - U - 27,371 gms

5 min	36 + 211	64 + 131	26 + 218	
	36 + 112	64 + 85	26 + 168	
	36 + 55	65 + 30	27 + 44	
	28,026	49,654	20,654	E
CPM	1,868	3,310	1,377	6,555
$\frac{1}{\text{CPM}}$	5353	3021	7262	1526

Run 5 Added to fixed table the $\frac{1}{8}$ " Removed for Run 4 - 30,499 gms
 SLAB - $\frac{10}{8}$ " X 8" X 10" - U - 30,420 gms

5 min	53 + 202	96 + 255	39 + 7	
	53 + 90	97 + 157	38 + 242	
	53 + 20	96 + 141	38 + 157	
	41,016	79,537	29,844	E
CPM	$\frac{2,734}{2,051}$	4,969	1,990	9,693
$\frac{1}{\text{CPM}}$	$\frac{3,658}{4,876}$	2012	5025	1032

2-5-60

INSTRUMENT CHECK					
	A.M.	Source PN-467			
	P.M.				
		Ch...			
	E ₂	A	B	C	D
		10	10	10 ⁻¹⁰	10
Range		1000	800	1000	1000
Source Dist.		8"	0"	48"	4" 0"
% F.S. Trip		80	OK	100	80 100+
Counters	1, 2, & 3				

Run 6 Repeat of Run 5

55	5 min.	55 +32	100 +80	37 +237	
26		55 +157	100 +241	38 +60	
		28,399	51,541	19,497	E
3049 gms	CPM	2835	5154	1950	9939
	1/CPM	3527	1940	5128	1006

Run 7 Removed 3/8" added for Run 4 + 5

Added to fixed Table - 1/2" x 3" x 10" - #0999 - 4989
 1/2" x 5" x 10" - #0964 - 7,650
 SLAB - 1/8" x 8" x 10" - U - 33,879 gms - 9,180
 3,459

93	5 min	103 +122	177 +74	68 +250	
032		103 +215	176 +53	70 +30	
		104 +167	176 +230	69 +81	
		29,864	135,781	53,353	E
	CPM	5,324 3882	9,052	3,557	17,933
	1/CPM	1878	1105	2811	5576

Added to Fixed Table - $\frac{1}{8}$ " used for Run 3 - 3049 gms
 SLAB - $\frac{12}{8}$ " X 8" X 10" - 4 - 36,928

Table Pos. $\frac{1}{2}$ min cts

2.5	12 ⁺¹⁴⁷	19 ⁺¹⁰⁴	8 ⁺¹⁵²
2.4	14 ⁺²²⁷	23 ⁺¹²⁵	9 ⁺¹¹²
2.3	19 ²⁵⁵	32 ⁺²³⁷	12 ⁺¹³⁶
2.25	25 ³⁰	42 ⁺²¹¹	15 ²²⁰
2.20	32 ⁶⁵	54 ²³⁵	20 ¹⁶⁵
2.16	41 ⁴⁸	70 ⁹⁸	25 ¹⁶⁵
2.13	51 ²⁵²	90 ⁷³	33 ⁸⁹

2.10	227 ⁺⁸⁰	396 ⁺²⁰⁶	145 ²⁴⁵	
in	235 ⁺¹³	389 ⁺²³³	148 ⁺¹³⁴	
2 min cts	232 ⁺¹³⁸	405 ⁺²³¹	148 ⁺¹⁶³	
	177,895 ⁻	307,826	113,438	
CPM	29,649 ⁴⁹⁷¹	51,312	19,906	99,867
$\frac{1}{\text{CPM}}$	3372	1949	5289	1001

counter 1 (X256)
 10 + 201
 10 + 165
 3 min cts. Table Separated $\frac{7}{8}$ " SLAB in Plate
 3
 13 + 181
 13 + 110

A
C
R

(Sc

29 gms
2
6
0
5
✓

2-8-60
Exp
G

INSTRUMENT CHECK

Time _____ AM _____ PM _____ Source PN 467

Channel _____

Range F A B D E
15 10⁻¹⁰ 10 1000 1000 V.
1000 10⁻¹⁰ 1000 1000 1000

Source Dist. 7" 0" 48" 3" 0"

% F.S. Trip 75' OK 100 80 100+

Counters 1, 2 + 3 OK

C.A. SLAB Exp. G Run 1

Sheet _____ Date 2-8 1960 Time 10:25 ^{AM}/_{PM}

Purpose Determine Critical Thickness
of SLAB lying on Floor.
(REFLECTOR ON ONE SIDE)

Run 1 Removed plexiglas from fixed table.
 on movable table - $\frac{7}{8}$ " x 8" x 10" Fuel + 6" Reflector

7867
1001

" Fixed " - $\frac{5}{8}$ " x 8" x 10" Fuel

SLAB - $\frac{12}{8}$ " x 8" x 10" - U - 36,928 gms

	17 + 110	39 + 158	16 + 49	
2 min	17 + 80	38 + 235	16 + 153	
(Scale 256)	17 + 29	39 + 38	16 + 124	
	16 + 221	39 + 186	16 + 206	
	17 + 30	38 + 249	16 + 92	
	21,974	50,274	21,104	Σ
	4099 2197	5,027	2,110	9,334
	9099 4552	1989	4739	1071

288

Run 2 Added to fixed Table - $\frac{1}{4}$ " X 3" X 10" - #0988 - 2,301 gms. Run

$\frac{1}{4}$ " X 5" X 10" - #1075 - 3,830 "

Slab - $\frac{14}{8}$ " X 8" X 10" - 21 = 43,059 gms. 6,131 "

2 min.	25 ⁺¹²	55 ⁺⁷¹	23 ⁺⁹⁹		
	24 ⁺²⁵⁵	55 ⁺¹⁴⁷	23 ⁺²¹²		2
	25 ⁺²¹²	55 ⁺³⁶	23 ⁺¹⁵²		
	25 ⁺⁸⁶	55 ⁺¹⁸¹	23 ⁺¹²²		
	25,909	56,755	24,137	E	
CPM	3,239	7,094	3,017	13,350	C
$\frac{1}{\text{CPM}}$	3087	1409	3315	7491	Z

Removed $\frac{1}{2}$ " and $\frac{1}{8}$ " pcs.

Run 3 added to fixed - $\frac{7}{8}$ " X 3" X 10" - #1037 - 8,032

$\frac{7}{8}$ " X 5" X 10" - #1007 - 13,361

SLAB - 2" X 8" X 10" 21 = 48,764 21,393

2 min.	42 ⁺⁶⁵	86 ⁺⁸⁶	36 ⁺¹²⁷		
	42 ⁺³⁵	86 ⁺²²⁹	36 ⁺¹⁸⁶		
	42 ⁺²⁰⁹	86 ⁺¹⁴⁵	36 ⁺²¹⁷		
	32,585	66,016	28,178		
CPM	5,431	11,003	4,696	21,130	
$\frac{1}{\text{CPM}}$	1841	9088	2129	4732	

gms.	Run 4	Removal $\frac{1}{4}$ " added for Run 2			
"		added to fixed table - $\frac{1}{2}$ " X 3" X 10" - 4,989 - 4,989			
"		$\frac{1}{2}$ " X 8" X 10" - 7,650 - 12,639			
"		SLAB - $\frac{18}{8}$ " X 8" X 10" - 21 = 55,698			
2 min		80 + 9	155 + 131	66 + 43	
		80 + 71	154 + 13	66 + 204	
		80 + 90	154 + 199	67 + 164	
E		61,610	118,871	51,355	
350	CPM	10,268	19,812	8,559	38,639
491	$\frac{1}{CPM}$	9739	5047	1168	2588

32
01
3

$$\frac{18}{8} = 2 \frac{1}{4}$$

30
732

290

2-9-60

EXP
H

INSTRUMENT CHECK				
Time	8:25	AM	Source	PN-467
Range	F 0x(8)	$\frac{10}{1000}$	OPR 10 ⁻¹⁰	$\frac{10}{1000}$ 1050
Source Dist.	14"	0"	48"	0' 3"
% F.S. Trip	80	OK	100	100 ⁺ 80
Counters	1, 2 & 3			

C.A.	Expr.	H	Run	1
Sheet	Date	2-9-1960	Time	8:40 AM
Purpose	Multiplication of LiD + LiH placed between U slabs.			

Run 1 on Moveable Table - 1 1/2" X 8" X 10" [source on Moveable]
 " Fixed " - 1 1/2" X 8" X 10"
 Bare SLAB - 3" X 8" X 10"

2 min	97 +52	176 +65	73 +255	
(Scale 256)	97 +240	178 +39	74 +29	
	96 +188	178 +198	74 +245	
	74,720	136,490	57,103	Z
CPM	12,453	22,748	9,517	44,718
$\frac{1}{\text{CPM}}$	8.030	4.396	1.051	2.236

Tables Separated Source in Position

2 min	26 ⁺⁸⁵	48 ⁺²²⁹	21 ⁺¹⁸⁴	
	26 ⁺¹³⁷	47 ⁺¹⁶³	21 ⁺⁷⁹	
	26 ⁺¹⁸¹	47 ⁺¹³⁷	21 ⁺¹⁸⁶	
	20,371	36,881	16,577	
CPM	3,395	6,147	2,763	12,305
$\frac{1}{\text{CPM}}$	2946	1627	3619	8127

Run 2 Added to fixed Table - 1/2" X 8" X 10" - Li D at interface moved fuel back 1/2".

2 min	52 ⁺⁶⁵	97 ⁺⁶⁶	45 ⁺⁹¹	
	53 ⁺¹⁰⁶	97 ⁺¹³⁵	45 ⁺⁷	
1/2" Li D	52 ⁺¹³⁰	97 ⁺¹⁷¹	45 ⁺⁷	
	40,493	74,868	34,665	
	6,749	12,488	5,778	25,005
	1482	8013	1731	3,999

Run 3 Removed Li D added for Run 2.

Fuel Remained fixed, tables closed. Fuel separated 1/2" at interface

	62 ⁺¹³³	112 ⁺²³⁸	50 ⁺²⁵²	
	63 ⁺⁴⁰	111 ⁺¹⁶⁷	51 ⁺³⁰	
	63 ⁺¹⁴	114 ⁺⁴⁵	50 ⁺⁸⁴	
	48,315	86,722	39,022	
CPM	8,053	14,454	6,504	29,011
$\frac{1}{\text{CPM}}$	1242	6919	1538	3,447

44,718

2236

Z

10
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veable]

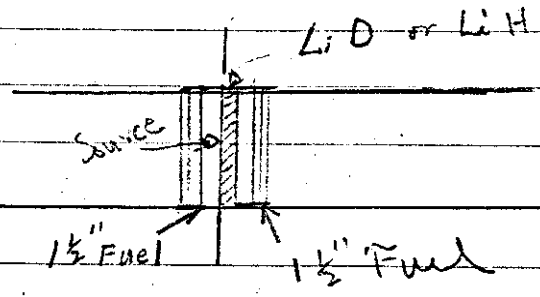
292

Run 4 Added $\frac{1}{2}$ " x 8" x 10" - Li H at interface of fixed table.

2 min	52 + 217	95 + 126	44 + 84
	52 + 102	96 + 167	44 + 18
$\frac{1}{2}$ " Li H	52 + 184	96 + 85	44 + 160
	40,439	73807	34054
	6,740	12301	5676 2477
	1484	8129	1762 40458

Run 5 Moved fuel on fixed table back $\frac{1}{2}$ ". Removed Li H. Added 1" x 8" x 10" - Li D on fixed table at interface.

2 min	40 + 129	74 + 194	36 + 4
	39 + 118	72 + 240	35 + 171
1" Li D	39 + 58	73 + 48	34 + 253
	40 + 18	73 + 177	35 + 65
	40,771	75,411	36,333
	5096 6,745	9426 2,569	4542 6,056 19064
	1962 + 472	1061 7956	2202 1651 5,245



Run 6 Removed ~~Li D.~~ Li D.
 Added 1" X 8" X 10" - ~~Li D.~~ Li H on fixed table.

12:50 PM

2 min.	35 +139	66 +245	32 +74	
	36 +51	66 +81	33 +18	
	35 +48	65 +139	33 +4	
1" Li H	36 +70	66 +192	32 +50	
	36,860	67,985	33,426	E
58	4,583	8,498	4,178	17,259
	2182	1177	2393	5,794

Li H.
 interface.

Run 7 on Fixed Table - Moved Fuel Back 1/2"
 - added 1/2" Li H.
 1 1/2" X 8" X 10" Li H.

19064
 5,245

2 min	27 +140	51 +185	26 +229	
	27 +225	51 +50	27 +9	
	28 +71	51 +12	26 +172	
1 1/2" Li H	27 +13	51 +94	26 +71	
	27 +195	51 +151	26 +225	
	35,520	65,772	34,242	
	3,752	6,577	3,424	13,553
	2915	1520	2921	7,378

294

Run 8

1.5" Lid -

2 min	32 ¹⁴⁰	59 ¹²²	31 ²⁰	
4 min	65 ¹⁰⁹	118	60 ²³⁸	
6 min	98 ¹⁰⁷	178 ¹⁰⁸	30 ²²⁰	
8 min	131 ¹³³	238 ¹³⁴	61 ⁷⁸	
	33669	61062	31282	
	4209	7632	3910	15751
	2376	1310	2558	63488

Run 9

Removed 1 1/2" Lid.

Added 2" ~~1 1/2" Lid~~ Lid

2 min	28 ⁺¹²⁸	52 ⁺¹²³	27 ⁺¹⁰¹	
	28 ⁺¹⁹⁰	53 ⁺¹¹⁵	28 ⁺⁵³	
	28 ⁺¹¹⁹	52 ⁺²³⁴	27 ⁺¹⁸⁸	
<u>2" Lid</u>	28 ⁺¹⁷⁴	52 ⁺⁵¹	28 ⁺⁶⁰	11,872
	29,283	54,027	28,526	46613
	3,660	6,753	3,570	13983
				7151

Run 10 Removed 2" Li^D Added 2" Li^H

2 min	23 +190	43 +87	24 +59
	23 +187	44 +231	23 +241
<u>2" Li^H</u>	24 +115	44 +10	23 +140
	23 +60	43 +176	24 +59
	23 +226	44 +109	23 +250

751	30,474	44 56,421	30,701	
488	3,047	5,642	3,070	11,759
	3,282	1,772	3,257	8,504

Run 11 Add 1" Li^H

	20 +18	36 +190	20 +204
	20 +30	37 +171	20 +139
<u>3" Li^H</u>	19 +248	36 +162	20 +134
	20 +95	36 +124	20 +134
	20 +31	37 +23	21 +31
	25,766	47202	26498
	2,577	4720	2649
	3,880	2116	9952
			3775
			10048

~~11,873~~
46613
13983
7151

296

3" L.D

Run 11

2 min	25 ⁵³	44 ¹³⁰	24 ¹²⁰
	25 ¹⁰⁶	45 ⁷⁰	23 ⁸⁸
	25 ⁷⁹	45 ²⁰	23 ²⁵⁰
	24 ³⁴	45 ¹¹	24 ¹²⁰
	24 ²⁰⁷	45 ⁰	24 ¹⁴¹
	25,617 32,107	57,592	31,123
CPM	2,311 3,211	5,739	3,112
1/CPM	3,114	1,736	3,213
			12,082
			8277

B_g Source in Vault South wing still at power
 2 min 0⁶ 0²⁵ 0¹³

20 min - Background

2-10-60	0 54	0 175	0 78
	3 CPM	8.8 CPM	7 CPM

F
2
3
1
2
1

2-10-60

INSTRUMENT CHECK					
Time: 8:25	Source: PN-467				
	Channel				
F	A	B	C	D	E
	$\frac{10}{1000}$	op	$\frac{10}{100}$	$\frac{10}{100}$	100V.
Source-Dist:	13"	0"	48"	4"	0"
% F.S. Trip	80	OK	100	80	100+
Counters 1, 2 + 3					

3" LiD - Exchanged the 2" LiD pos.
Same as Run 11

Run 12	25 +2	44 +165	24 +77	
2 mi	25 +37	45 +26	23 +103	
<u>3" LiD</u>	25 +31	44 +215	23 +246	
	25 +12	45 +109	23 +132	
	25,682	46,083	24,296	
CPM	3,210	5,760	3,037	12,007
$\frac{1}{CPM}$	3,115	1,736	3,293	8,328

Run 13 2 1/2" LiD

<u>2 1/2" LiD</u>	26 +172	48 +87	25 +16	
	26 +138	48 +16	25 +75	
	26 +49	48 +83	25 +15	
	26 +133	48 +111	24 +227	
	27,116	49,446	25,677	
	3,390	6,181	3,210	12,781
	2,950	1,618	3,115	7,824

082
3277

298

Run 14

4" Li D

2 min	22 +166	40 +245	21 + 249	
	22 +210	40 +203	21 +126	
	22 +246	40 +239	21 +144	
	22 +175	41 +126	21 +243	
	22 +196	40 +213	21 +203	
	29,153	52,482	27,845	
Cpm	2,915	5,248	2,785	10,948
$\frac{1}{\text{cpm}}$	3431	1905	3591	9134

Run 15

4" Li H

2 min	18 +187	33 +74	18 +221	
	18 +50	34 +37	18 +194	
	18 +76	33 +66	19 +61	
	18 +192	34 +47	18 +225	
	19 +125	34 +66	18 +224	
	23,670	43,298	24,221	
	2,367	4,330	2,422	9,119
	4225	2309	4129	1097

Run 16 5" Li H

3 min.	26 ⁺⁵¹	48 ⁺²⁴	27 ⁺⁶⁵	
	27 ⁺²⁰	48 ⁺¹⁷⁵	26 ⁺²⁴⁷	
	25 ⁺²¹⁰	47 ⁺¹⁹¹	27 ⁺¹⁰⁴	
	20249	36998	20896	
	2250	4111	2322	8683
	4444	2432	4307	11.517

10,948

9134

Run 17 5" Li D

	31 ⁺³⁶	56 ⁺²⁴⁸	31 ⁺²⁰⁷	
3 min	31 ⁺⁹⁴	58 ⁺²⁴	32 ⁺³⁸	
	32 ⁺²²	58 ⁺³³	32 ⁺¹⁷⁰	
	24211	44337	24737	
CPM	2690	4926	2748	10364
CPM	3717	2030	3639	9.6488

Run 18 6" Li D

1:25 PM	31 ⁺⁴²	56 ⁺³⁹	30 ⁺¹⁷³	
	31 ⁺¹⁰	56 ⁺⁴⁷	31 ⁺³⁸	
3 min	31 ⁺⁶³	56 ⁺²¹	31 ⁺¹⁸¹	
	23,932	43,115	23,944	
	2658	4791	2660	10,109
	3762	2087	3759	9892

9,119

1097

Slab Sizes & Weights (Gross Wt)

Li D

#1	2" X 8" X 10"	- 2095 gms
#2	"	- 2075 "
#3	1" X 8" X 10"	- 1072 "
#5	"	- 1089 "
#4	1/2" X 8" X 10"	- 579 "
#6	3" X 8" X 10"	- 3058 "
#7	"	- 3064 "
#8	"	- 3073 "

Li H

#1	2" X 8" X 10"	- 1850 gms
#2	"	- 1862 "
#3	1" X 8" X 10"	- 984 "
#4	"	- 960 "
#5	1/2" X 8" X 10"	- 537 "

2 al rods/slab = ~ 54 gms

Wrapper Foil (al) =

Run 22 - 5" Li D on Fixed - 1 1/2" Fuel on Movable.

3 min	29 + 233	53 + 222	30 + 5
	28 + 177	54 + 111	30 + 15
	29 + 125	57 + 76	29 + 164
	29 + 248	54 + 181	30 + 25
	30, 223	55, 640	30, 673
	2, 519	4, 637	2, 556
	3969	2157	3912
			9712
			10296

Slab Exp. Cont'd in Book #2

300

Run 19

6" Li H

3 min

25 + 117

46 + 202

27 + 74

25 + 149

47 + 82

27 + 17

25 + 161

46 + 156

27 + 19

25 + 173

47 + 121

27 + 49

26,200

48,137

27,807

CPM

2183

4,011

2,317

8,511

CPM

4581

2493

4316

1175

Run 20

Removed fuel (1 1/2") from fixed Table.

6" Li H on Fixed

1 1/2" Fuel on Moveable.

3 min

24 + 83

45 + 52

26 + 92

24 + 69

45 + 241

26 + 32

24 + 66

46 + 189

26 + 168

24 + 189

45 + 108

25 + 146

24978

46924

26804

2082

3910

2234

8224

12.154

Run 21

Removed Li H from fixed Table.

6" Li D on Fixed

1 1/2" Fuel on Moveable

3 min

29 + 112

54 + 17

30 + 115

29 + 211

54 + 47

30 + 80

29 + 155

53 + 104

29 + 243

29 + 167

55 + 19

30 + 34

30,341

55,483

30,936

9730

2,528

4,624

2,578

~~9730~~

3956

2163

3879

~~9730~~

10277