

BOOK 107R

Notes:

"Bk 7, 1970, 1971, 1967" on spine

Blank pages: inside front cover sheets, 1, 33, 111-168, inside back cover sheets

-page 55 has 1 drawing taped down on it

-page 57 has 1 drawing taped to it

-page 79 has 1 drawing taped to it

-page 80 has 2 drawings taped to it

Scanned by:

Sheila Finch

RSICC /Oak Ridge National Lab.

November 18, 1999

2

CTU CHECK - P. 98

U disc, Infinite Poly., one side.

7" dia	p. 8	
9" "		10, 30
11" "		12, 29
13" "		16, 26
15" "		19

Page 35 - U disc, graphite reflected.

Page 38 U diameter, C Thickness

	7"	1"	
37, 90	7"	Sandwich	1" C
40, 93	7"	"	2" C
42, 94	7"	"	3" C
43, 95	11"	"	1" C
44, 98	11"	"	2" C
46, 101	11"	"	3" C
47, 103	15"	"	1"
47	15"	1" C Complete	
48, 105	15"	Sandwich	2" C
49, 108	15"	"	3" C
51, 110	7"	Bare	
54	15"	Bare	

4

7.7112

9.6366

11.5609

13.4813

	7"	9"	11"	13"	15"
A (in ²)	38.48	63.62	95.03	132.73	176.71
Kg/1" HT	11.84 <small>11.8112</small>	19.55 <small>19.5124</small>	29.18 <small>29.1590</small>	40.74 <small>40.7199</small>	54.19 <small>54.201</small>
g / 1/32" HT	370	611	912	1273	1692

M
L
Taf

B

3.00425

1.0015
99.00

9.97
1.3

F

K

6" Poly - 1 side

Mihalozof
Lynn, J.
Taylor, J.

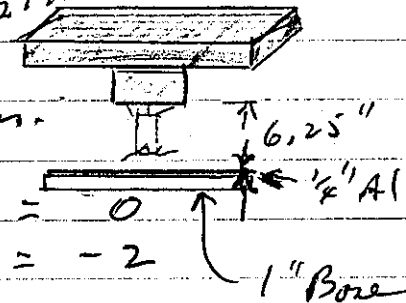
DATE	14 Nov 67				SAFETY CHECK	
TIME	9:20		Taylor & Lynn			
CHANNEL					F	
RANGE	10	1000	10	980	750	
SOURCE DIST.	10" OK	30"	11"	31"	OK	
% F. S. T.M.P.	100+	100	100+	100+	-	
BLDG. ALARM						
AUX CTGS.						
SOURCES USED						
TABLES	LIGHTS	AREA CLEARED				

Run 1 Critical Stack 7" dia disc with 6" thick polyethylene on one (1) side. 44" X 44" X 6" poly slab. Fuel (3 3/4") X 7" loaded on ram, raised against poly.

pos # 2732, 2733, 2728, 2729, 2770 + 2771

Sub Crit.

Mass (u)
44,302 gms.



up Pos #1 = 11.320
11.390

#3 = 0
#4 = -2

Run 2 Fuel Height = 4"

#1 = 11.070

#2 = 11.140

k < 1 Close

pos 2733, 2733, 2731, 2770 + 2771 = 47,268 gm

Run 3 Added Skin for power -

Neq period

LN = 405 sec - 3.5 #
#1 = 415 - 3.4
#3 =

= -3.45 #

Run 4

added 1" thick steel on support
base, except ~~immediately~~ ^{directly} under fuel -

$$10 \times 15.015 \text{ in} = 150.15 \text{ in}^2$$

Pos Period Pette = +12.41 ¢

LN = +12.75 ¢

STEEL = 16.03 ¢

+ 12.58 ¢

Run 5

Removed 6" poly from North side
Poly now 44" x 38" x 6"

Pos Period Pette = +13.27 ¢

Poly = -0.69 ¢

Run 6

Same as Run 1, except Fuel = $4 \frac{1}{16}$ "
pcs 2732, 2733, 2731 + 2730

mass (u) = 48,043 gms.

#1 = 10.942 up = 11.008

#2 = 11.008 = 11.072

at -0.066 ", 15 mils = 15 ¢

(Forget Runs
1 thru 6)

R.

12 b

3 1/8

R.

Run 7 Levelled top ply to get better contact with ^{fuel} in up position, using graphite as quage.

58¢

Fuel Height = 4" Base Area = 255 in² of support stand

12 blocks }
3 7/8" x 3 7/8" x 1"

1" Thick Fe on base except edges. or (~~180~~ in²)

Pos Period $P_{atte} = 40.07 \text{¢}$

~~up~~ #1 = 11.116 #3 = - 2
#2 = 11.186 #4 = 0

5/16"

~~∞~~ #1 = 11.076
#2 = 11.045

13 gms.

Run 8 Fuel = 4"

Base Run $P_{atte} = +14.04 \text{¢}$

1" Fe Base = 26 ¢

15 Nov 67
 9:00 = Taylor & Lynn
 $\frac{10}{1000}$ op L-15 $\frac{10}{1000}$ 900 950
 10" 30" 1" 1" OK
 100 - 100 100 100+ -
 ✓ ✓ ✓
 ✓ - ✓
 226 + 8
 ✓ ✓ ✓

Run

Run 9 Vertical Support evaluation.
 $\frac{1}{16}$ " thick Al used for mock up. ($\frac{1}{2}$ the pco) Run
 (down pco #1 = .03)

up #1 = 11.127 #3 = -1
 #2 = 11.197 #4 = +1

log N = 40.2 sec, +18.98¢
 Pitte = +18.15¢

#1 = 11.110 ∞
 #2 = 11.181

18.57¢

Run 10 Base Run 4" Fuel

7" dia

Log N = 70.6 sec +12.57¢
 Pitte +12.12¢

Vertical Support = 6.23¢

12.34¢

Run 11 Removed 6" Poly from North Side
and 3" poly from East side.

Poly now 38" X 41" X 6"

Log N. 12.47 ¢

Pette + 11.87 ¢

Poly = -0.17 ¢

12.17 ¢

oco) Run 12 Fuel = $3 \frac{15}{16}$ " Poly 44" X 44" X 6"

pes 2732, 2733, 2730, 2729, 2770 + 2771

mass (u) = 46,513 gm

up #1 = 11.187

#2 = 11.260

Pette = - 50.42 ¢

7" dia X $\frac{1}{16}$ " = 62.3 ¢

Total Supports = 32.23 ¢

4 ¢

Run 13

CRITICAL STACK, 9" DIA. DISC
 Poly one (1) side 44" x 44" x 6"

Run

FUEL = $2 \frac{13}{16}$ " pcs 2731, 2732, 2730+2771
 2738, 2762, 2737+2774
 Mass (U) = 54,896 gms

Sub Crit -

14 FUEL = $2 \frac{7}{8}$ " pcs 2731, 2732, 2729, 2770, 2771
 38, 62, 36, 74, 75
 mass (U) = 56,121 gms

9" Disc

up #1 = 12.245 3 = +1 68.4
 2 = 12.317 4 = - LV = 12.85
 #1 = 12.232 } - 7¢ 12.228 } - 31¢ 12.44¢
 #2 = 12.305 } 12,300 } 12.210
 12.283

18 Fuel = 7" dia = $2 \frac{7}{8}$ " as #14 33,966
 7" x 9" ring = $2 \frac{13}{16}$ " as #13 21,679
 55,645 gms

9 7 Pitte = - 2.3¢

$\frac{7}{16}$ " (7" x 9") = 14.74¢

Run 16 Supports added [Vertical + Bose]

$$Pitte = + \underline{53.6} \text{ \#}$$

+2771

+2774

$$\text{Supports} = \underline{\underline{56}} \text{ \#}$$

0,2771

7, 75

58.4

= 12.85

= 12.02

12.44

12,210

12,283

66

79

75 gms

16 Nov 67
9:10 Taylor + Lynn

A	B	C	D	E
1000	over L-15	900	750	
1"	OK 30"	1"	075	
100+	- 100	100+	-	
✓	✓	✓		
✓	✓	✓		
226+	8			

Run 17 CRITICAL STACK, 11" DIA DISC -
Poly one (1) side 44" X 44" X 6"

Fuel = $2 \frac{5}{16}$ "
 $\frac{1}{2}$ " Supports in place.
Sub critical

7"	7x9	9x11
2731	2762	2776
2728	2736	2742
2729	2829	2443
2730	2737	2767

Run 18 Fuel = $2 \frac{3}{8}$ "
Sub crit

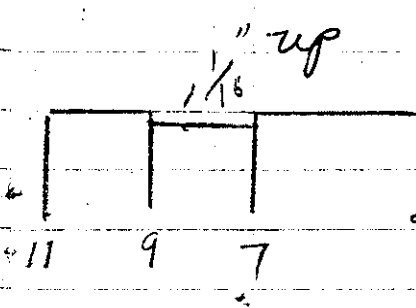
7"	7x9	9x11
2731	2762	2776
2732	2738	2745
2729	2736	2742

Run 19 Fuel 7" dia = $2 \frac{7}{16}$ "
7x9 = $2 \frac{3}{8}$ "
9x11 = $2 \frac{7}{16}$ "
Mans (w) 70, 605 gm

$P = +42.16 \phi$

	7"	7x9	9x11
# 1	2731	2776	
# 2	2729	2742	
	2730	2767	
	2770	2778	
	2771	2779	
	12,676		
	12,739		
	+ 15 ϕ		

Run 20 Supports Removed ($\frac{1}{2}$)



#1 = 12,705
#2 = 12,770

Pette = + 6.78 ¢

Supports ($\frac{1}{2}$) = 35.4 ¢ ←

Total = 71 ¢

Run 21 Removed Poly - Now 41" X 38" X 6"

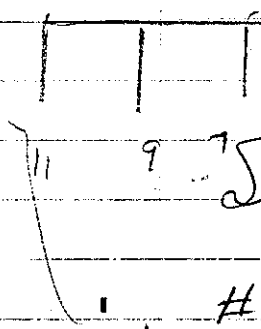
Pette = 2.82 (x20) P = 5.64 ¢

loss due to poly = 1.14 ¢

- 9x11
- 2776
- 2742
- 2443
- 2767

Run 22 Fuel = $2 \frac{7}{16}$ " , per 7" , 7x9 , 9x11

- 2776
- 2745
- 2742



Super ≈ 60¢ (good ext)

- | | | |
|---|------|---|
| S | 2762 | S |
| A | 2736 | A |
| M | 2737 | M |
| E | 2774 | E |
| | 2775 | |

#1 = 12,685
#2 = 12,748

18,781

11" dia

P = + 40 ¢

⊙ - 20 mils
20 ¢

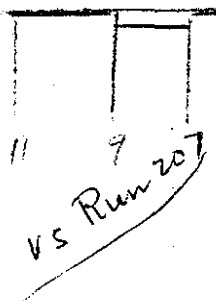
mass (u) 71,078 gms-

- 776
- 742
- 767
- 778
- 779

Run 23

Fuel = 7" dia = $2 \frac{7}{16}$ "
 7 x 9 = $2 \frac{13}{32}$ "
 9 x 11 = $2 \frac{7}{16}$ "

7" dia, 7 x 9, 9 x 11
 S 2762 S
 A 2738 A
 M 2738 M
 E 2763 E
 3217
 18,533



Pette = + 27.58 \$

$\frac{1}{32}$ " (7 x 9) = 20.8 \$
 Do not use

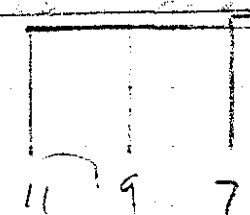
mass(u) 70,830 gm

Re

Run 24

Fuel 7" dia = $2 \frac{7}{16}$ "
 7 x 9 = $2 \frac{13}{32}$ "
 9 x 11 = $2 \frac{13}{32}$ "

7" dia, 7 x 9, 9 x 11
 S S 2776
 A A 2745
 M M 2744
 E E 3216
 23,209



Pette = 14.94 \$

mass(u) = 70,540 gms.

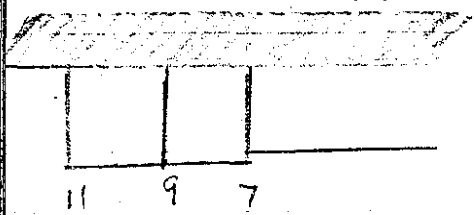
$\frac{1}{32}$ " (9 x 11) = 12.64 \$
 Do not use

Run 25

FUEL - 7" dia = $2 \frac{3}{8}$ "
 7 x 11 = $2 \frac{7}{16}$ "

7" dia, 9 x 9, 9 x 11
 2731, 2762, 2776
 2732, 2737, 2767
 2729, 2736, 2742
 2829, 2743
 2763, 2744

Supports in place.



P = 22.63 \$

28,095 18,782 23,515
 70,392 gm u

vs Run 22 +60 \$
 Supports 79 \$
 1.31

1.31
 .23
 1.08 " (7" dia pc)

9 X 11
S
A
M
E

DATE 17 Nov 67		SAFETY CHECK					
TIME	9:00	Taylor & Lyman					
OFFICE	A	B	C	D	E	F	
	1000	opr 15	0	900	750		
	1"	ok	30	1"	ok		
		-	100	100+	-		
		✓	✓	✓			
		✓		✓			
	226 + 8					✓	
TABLES	✓	LIGHTS	✓	AREA OF AREA		✓	

0 gms

Run 26 Fuel - 7" dia = $2 \frac{3}{8}$ " 7", 7x9, 9x11

9 X 11

7x9 = $2 \frac{7}{16}$ " S S AS

2776

9x11 = $2 \frac{13}{32}$ " M M Run

2745

E E 24

2744

7,086 gms U

3216

Inst. Trip - "E" at Inst. Check (900V).

209

" 9 7

Log N = .01

Rem Run Pette = +15.5¢

$\frac{1}{32}$ " (9x11) = 7.1¢

$\frac{71}{12.64} = .562$

7 X 11

Run 23 $\frac{1}{32}$ " (7x9) = 11.7¢

2776

2767

25 $\frac{1}{32}$ " (7" dia) = 5.4

2742

$\frac{1}{32}$ " (11" dia) = 72.8¢

2743

2744

3,515

U

16

Run 27 CRITICAL STACK 13" DIA, Disc.

Poly one (1) side = 44" x 44" x 6"

Supports in place.

Fuel = $2\frac{3}{16}$ " 7" dia, 7x9, 9x11, 11x13
 $1" + \frac{9}{16}" + \frac{3}{8}" + \frac{1}{4}"$

up #1 = 12.957

Super @ #1 = 12.857

+17¢ #2 = 12.917

Run 28 Fuel | 7" dia = $2\frac{1}{16}$ "
7" x 13" = $2\frac{1}{8}$ "



13 11 9 7

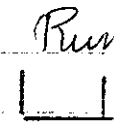
Sub critical

Run 29 Fuel 7" dia = $2\frac{1}{16}$ "
7" x 13" = $2\frac{5}{32}$ "

Sub Crit.



13 11



13 11

$\frac{1}{32}$ (7)
1

DATE	20 Nov 67	SAFETY CHECK	
TIME	9:45	Taylor & Lynn	
CHANGE			
SAMPLE	$\frac{1}{1000}$ OPR 215	$\frac{1}{1000}$ 900	750
SECURE		0	1" OK
% F. S. T.		100	100+
BLED. ALUM.			
AUX.			
SCHEM. NO.			
TABLES			

Run 30 Fuel - 7" dia = $2\frac{3}{16}$ Supports Removed
 7" x 13" = $2\frac{5}{32}$

	7"	7x9	9x11	11x13
#	2731	2762	2776	2751
	30	36	42	49
	29	74	78	82
	71	75	79	83
		3217	3216	3215
	25,843	16,612	20,797	25, 577 ⁶⁰³

mass = 88,248 gms U
 Pitte = -7.17 #
 88,306

Run 31 Fuel 7" dia + 7x9 = $2\frac{3}{16}$

	9" x 13"	
13	9	7
Removed per	2775	+ 3217 = 4,084
Added per	2737	= 6476 ⁴³³⁶

$\frac{1}{32}$ (7x9)"
15.79 #

mass = ~~88,500~~ gms U
 88,558

P = + 8.62 #

∞ = - 20 mils

Run 32 Fuel = same

Poly 44" x 38" x 6"

Run

$P = +6.80 \text{ \#}$

Poly = -1.82 \#

33 Fuel = 7" dia, $7 \times 9 + 9 \times 11 = 2 \frac{3}{16}$ "
 " " 11 x 13 = $2 \frac{5}{32}$ "

" Poly = 44" x 44" x 6"

Removed # 2779 + 3216 = 5,125
 Added # 2767 = 5,410

$P = 20.64 \text{ \#}$

$\frac{1}{32}" (9 \times 11) = \underline{12,02 \text{ \#}}$

~~88,785~~ gm U.
 88,843

Run

34 Fuel = ~~7" dia, 7 x 9~~, $2 \frac{3}{16}$ "

Removed # 2782 + 3215 = ~~6,147~~
 Added # 2755 = 6,514

$2 \frac{3}{16}$ "

$P = 29.89 \text{ \#}$

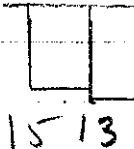
89,210?
~~89,152~~ gms U
 89,144

$\frac{1}{32}" (11 \times 13) = \underline{9,25 \text{ \#}}$

-70 miles = -42 \#

or 70 miles = 72 \#

CALCULATED



Run 35 · CRITICAL STACK, 15" DIA. DISC

Fuel = 2 1/2" Poly = 44" X 44" X 6" one (1) side

7" dia, 7 x 9, 9 x 11, 11 x 13, 13 x 15

#1
up = 13.193

Super #1 = 13.01 ≈ + 29¢
#2 = 13.071

Run 36 Fuel = 2" Supports on (mock up)

7" dia, 7 x 9, 9 x 11, 11 x 13, 13 x 15

# 2731	2762	2776	2751	2760
2732	2738	2745	2752	2786
23,655	15,413	19,278	2753	2739
			2754	

up #1 = 13.140
#2 = 13.704

23,241 - 26,806

108,398 gms U

$\rho = 33.70 \text{ g/cm}^3$

37 Removed from (13x15) # 2739 = 13,461



15 13 11 9 7 $\rho = 27.55 \text{ g/cm}^3$

1/32" (13x15) = 6.15 g

Added # 2766
2758
3217

11,457 - 2004

106,504 gms U

Run 38 Removed from (11 x 13) $\frac{1}{32}$ "
vs Run 36

2753
2754

11,608 g

Added

2755

3215

2780

11,201 g

-407

$\phi = \underline{20.71 \phi}$

$\frac{1}{32}$ " (11 x 13) = 13.6

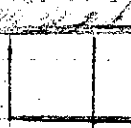
108,704

gms U



15 13 11 9 7

Ru



Ru



15 13

DATE	21 Nov 67					SAFETY CHECK	
TIME	8:45		Taylor & Lynn				
CHAMBER	1	1	1	1	1	1	
SIZE	1000	off	L-15	1000	900	750	
TYPE	1"	OK	30	1"	2"	OK	
WEIGHT	100	—	100	100	100 ⁺	—	
DEPTH	✓	✓	✓	✓	✓	✓	
ACT. BY	✓	✓	✓	✓	✓	✓	
SOURCES	226 + 8					✓	
TABLES	✓	LIGHTS	✓	AREA COATED	✓	✓	

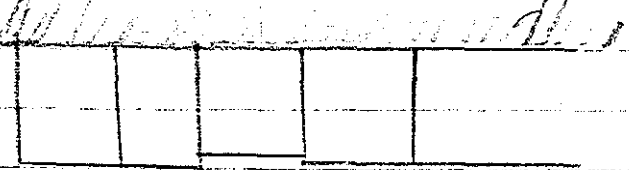
608g
201g
-407
= 20

Run 39 Removed $\frac{1}{32}$ " (7x9) # 2738 7710
 Added # 2745 = 9634
 vs Run 36 # 2737 = 4336
 # 2767 = 5410
 3217 2167
 3216 = 2708
 2767 953
 2744 = 1223
~~934~~ 7456
 $P = 10.45 \text{ } \neq$
 $\frac{1}{32}$ " (7x9) = 23.25 \neq -254



108,257 gms U

Run 40 Removed $\frac{1}{32}$ " (9x11) # 2745 = 9634
 Added # 2767 = 5410
 vs Run 36 3214 = 2708
 2744 = 1,222
 $P = 14.22 \text{ } \neq$ 9341
 $\frac{1}{32}$ " (9x11) = 19.48 \neq -293



108,215 gms

15 13 11 9 7

Run 41. Fuel = 2" $\frac{1}{2}$ Supports in place.

Sub crit -
Found Support stand somewhat bent.

42. Installed 2nd Support stand.

Fuel = 2" Supports up. (mock up)

Same as

~~#~~ Run 36

$$P = \underline{34.89} \text{ \#}$$

up #1 = 13.130

#2 = 13.195

43. Removed 4 blocks Fe ($\frac{1}{2}$) from periphery of base

$$4 \text{ Fe} = \underline{31.19} \text{ \#} \quad P = \underline{3.70} \text{ \#}$$

44. Removed poly from edges

Poly = 41" x 38" x 6"

$$\text{Poly} = \underline{\underline{-0.67}} \text{ \#} \quad P = \underline{3.03} \text{ \#}$$

45. Removed 2 Fe from base center. ($\frac{1}{2}$)
 vs Run 42 $(3\frac{7}{8}'' \times 3\frac{7}{8}'' \times 1'')$
 $P = \underline{6.91 \text{ \#}}$

$$2Fe = \underline{27.98 \text{ \#}}$$

46. Removed $\frac{1}{2}$ of Al upright support
 mock up.

$$P = \underline{1.65 \text{ \#}}$$

$$\frac{1}{2} \text{ Al supports} = \underline{5.26 \text{ \#}}$$

$$\text{Run 43} \quad \underline{31.19}$$

$$\text{Run 45} \quad \underline{27.98}$$

$$64.43 \text{ \#} \times 2 = \underline{129 \text{ Supports}}$$

11-27-67

9:30 Taylor & Lynn

1000	open	L-15	1000	900	750
2"	OK	36"	1"	2"	OK
100		100	100+	100+	-
	✓	✓	✓		
	✓	-	✓		
	227 + x				✓
TABLES					✓

Run 47 Fuel Evaluation.

Fuel = 2" raised 1/4" off support stand
 up position in order to be able to add 1" x 1" x 1/8"
 to bottom of stack.

#1 = 12.896 U = 108,508 gms.
 #2 = 12.958 Base Run P₀ = 5.82¢
 #3 = +2
 #4 = -13

48 Placed 1" x 1" x 1/8" (38 gms) at
 bottom center of stack.

8.32
 x .679
5.65¢

P₁ = 14.14¢
 P₁ - P₀ = 8.32¢

49 Fuel pc moved out 1/2"
 1/2" from 0 position

5.38¢

P₂ = 13.74¢
 P₂ - P₀ = 7.92¢

50 Fuel pc 1 1/2" from 0 position.

4.62¢

P₃ = 12.63¢
 P₃ - P₀ = 6.81¢

51 Fuel pc $2\frac{1}{2}$ " from 0 position.
 $P_4 = 11.71 \text{¢}$
 4.00¢ $P_4 - P_0 = 3.89 \text{¢}$

52 Fuel pc $3\frac{1}{2}$ " from 0 position.
 $P_5 = 10.23 \text{¢}$
 2.99¢ $P_5 - P_0 = 4.40 \text{¢}$

53 Fuel pc $4\frac{1}{2}$ " from 0 position.
 $P_6 = 8.94 \text{¢}$
 2.12¢ $P_6 - P_0 = 3.12 \text{¢}$

54 Fuel pc $5\frac{1}{2}$ " from 0 position.
 $P_7 = 7.80 \text{¢}$
 1.34¢ $P_7 - P_0 = 1.98 \text{¢}$

55 Fuel pc $6\frac{1}{2}$ " from 0 position.
 $P_8 = 6.86 \text{¢}$
 0.71¢ $P_8 - P_0 = 1.04 \text{¢}$

57 Fuel pc $7\frac{1}{2}$ " from 0 position.
 $P_8 = 6.66 \text{¢}$
 0.57¢ $P_9 - P_0 = +0.84 \text{¢}$

58 Base Run + Carrier ($\frac{1}{16}$ " strip A1)
 for fuel in place as Run 48. $P_9 = +8.49 \text{¢}$
 $\frac{5.65}{832} = .679$ $P_1 - P_9 = \frac{5.65}{8.32 - 5.65} = 2.67 \text{¢}$

stand
 1" x 1/8"

32¢

72¢

.63¢

¢

Run 59 Fuel Evaluation, 13" dia disc.
 Fuel = $2\frac{3}{16}$ ", as Run 34 p. 18
 $U = 89,210$ gms.

Base Run, same procedure as p. 24.

60 Fuel at 0 position. (38 gms, $1" \times 1" \times \frac{1}{8}"$)
 $P_0 = 19.48 \phi$

20 miles from up to slow period

$$P_1 = 27.04 \phi$$

$$P_1 - P_0 = 7.56 \phi$$

61 0 position - $\frac{1}{2}"$

$$P_2 = 26.20 \phi$$

$$P_2 - P_1 = 6.72 \phi$$

62 0 pos. - $1\frac{1}{2}"$

$$P_3 = 26.49 \phi$$

$$P_3 - P_2 =$$

63 0 pos - $2\frac{1}{2}"$

$$P_4 = 25.55$$

$$P_4 - P_3 = 6.07 \phi$$

64 0 pos - $3\frac{1}{2}"$

$$P_5 = 21.65$$

$$P_5 - P_4 = 2.17$$

65 0 pos - $4\frac{1}{2}"$

$$P_6 = 19.98 \phi$$

$$P_6 - P_5 = 0.5 \phi$$

66 0 Position - $\frac{1}{2}"$

$$P_7 = 26.17 \phi$$

$$P_7 - P_6 = 6.75 \phi$$

Do Not Use This Data

Run
 See Run
 out #
 Add #
 #

67 0 position - 5 1/2" P = 18.70 #

DATE	28 Nov 67						SAFETY CHECK	
TIME	8:25		Taylor + Lyman					
ONLINE								
	1500	OFF	L-15	1000	900	750		
	2"	OK	36"	4"	2"	OK		
	100		100	100	100			
	✓	✓	✓	✓	✓	✓		
OR P.S. 8	227 + 8							
TABLES								

Run 68 Repeat 13" dia disc

See Run 34
 out # 2737
 Add # 3217
 # 2775
 3/8" Plug (12 gm)
 Fuel = 2 3/16", except (9x7) ring = 2 5/32"
 U = 88,956 gm -

Base Run P₀ = 10.03 #
 up #1 = 12.710

69 Fuel pc @ 0 position (center of stack) P₀ = 19.29 #

19.29 #
 12.64 #
 6.65 #
 6.65 / 9.29 = .7181
 P₀ - P₆ = 9.26 #

70 Fuel pc @ -1/2" P_{1/2} = +18.98 #
 P_{1/2} - P₀ = 8.95 #

71 FUEL PC @ -1 1/2" P_{1 1/2} = +17.66 #
 P_{1 1/2} - P₀ = 7.63 #

72 Fuel pc @ -2 1/2" P_{2 1/2} = +16.07 #
 P_{2 1/2} - P₀ = +6.04 #

K

73 Fuel pc ② - 3 1/2" $P_{3\frac{1}{2}} = 14.33 \text{¢}$
 $P_{3\frac{1}{2}} - P_0 = \underline{4.30 \text{¢}}$

74 Fuel pc ② - 4 1/2" $P_{4\frac{1}{2}} = 12.87 \text{¢}$
 $P_{4\frac{1}{2}} - P_0 = \underline{2.84 \text{¢}}$

75 Fuel pc ② - 5 1/2" $P_{5\frac{1}{2}} = 11.47 \text{¢}$
 $P_{5\frac{1}{2}} - P_0 = \underline{1.44 \text{¢}}$

76 Fuel pc ② - 6 1/2" $P_{6\frac{1}{2}} = 10.63 \text{¢}$
 $P_{6\frac{1}{2}} - P_0 = \underline{0.60 \text{¢}}$

10:30 77 Fuel carrier ② 0
 1/16" Thick Al, 1/2" wide $P_{C0} = 12.64 \text{¢}$
 $P_{C0} - P_0 = \underline{2.61 \text{¢}}$

13:00 78 carrier ② - 2 1/2" $P_{C2\frac{1}{2}} = 11.40 \text{¢}$
 $P_{C2\frac{1}{2}} - P_0 = \underline{1.37 \text{¢}}$

79 carrier ② - 5 1/2" $P_{C5\frac{1}{2}} = 10.68 \text{¢}$
 $P_{C5\frac{1}{2}} - P_0 = \underline{0.65 \text{¢}}$

Run

14:50

Run 80 FUEL EVALUATION, 11 DIA. DISC.
 Fuel = See Run 23 p. 14

$$81 \text{ FUEL CARRIER } \odot \text{ O position} \quad P_b = 31.01 \text{ } \phi$$

$$P_{c0} = 33.61 \text{ } \phi$$

$$P_{c0} - P_b = 2.60 \text{ } \phi \leftarrow$$

$$82 \text{ CARRIER } \odot -2'' \quad P_{2c} = 32.38 \text{ } \phi$$

$$P_{2c} - P_b = 1.37 \text{ } \phi \leftarrow$$

$$84 \text{ CARRIER } \odot -4'' \quad P_{4c} = 31.50 \text{ } \phi$$

$$P_{4c} - P_b = 0.49 \text{ } \phi \leftarrow$$

$$85 \text{ FUEL } \odot \text{ O (center of stack)} \quad P_0 = 41.50 \text{ } \phi$$

$$P_0 - P_b = 10.49 \text{ } \phi$$

$$14:50 \quad 86 \text{ FUEL } \odot -1'' \quad P_1 = 40.46 \text{ } \phi$$

$$P_1 - P_b = 9.45 \text{ } \phi$$

$$87 \text{ FUEL } \odot -2'' \quad P_2 = 38.62 \text{ } \phi$$

$$P_2 - P_b = 7.61 \text{ } \phi$$

$$88 \text{ FUEL } \odot -3'' \quad P_3 = 36.23 \text{ } \phi$$

$$P_3 - P_b = 5.22 \text{ } \phi$$

$$89 \text{ FUEL } \odot -4'' \quad P_4 = 34.35 \text{ } \phi$$

$$P_4 - P_b = 3.34 \text{ } \phi$$

$$90 \text{ FUEL } \odot -5'' \quad P_5 = 32.66$$

$$P_5 - P_b = 1.65 \text{ } \phi$$

DATE	29 Nov 67	SAFETY CHECK					
TIME	8:40	Taylor & Lyman					
REV.		1000	077	L-15	1000	900	750
		2"	OK	36"	2"	2"	OK
		100.	-	100	100	100	-
REMARKS							
AUT.							
SO. TIME		227 + 8.					
TABLES	✓	UNITS	✓	AREA CLEARED	✓		

Run 91 FUEL EVALUATION, 9" DIA DISC.
 FUEL = $2\frac{7}{8}$ ", See Run 14 p.10.

92 Fuel pc (2) 0 $P_b = +18.79$
 $P_0 = 29.46 \text{ †}$
 $P_0 - P_b = 10.67 \text{ †}$

93 " (2) $-\frac{1}{2}$ " $P_{1/2} = 28.87 \text{ †}$
 $P_{1/2} - P_0 = 10.08 \text{ †}$

94 " (2) -1 " $P_1 = 27.86 \text{ †}$
 $P_1 - P_0 = 9.07 \text{ †}$

95 " (2) -2 " $P_2 = 25.04 \text{ †}$
 $P_2 - P_0 = 6.25 \text{ †}$

96 " (2) -3 " $P_3 = 22.10 \text{ †}$
 $P_3 - P_0 = 3.31 \text{ †}$

97 FUEL Pc @ -4" $P_4 = 19.77 \text{ \#}$
 $P_4 - P_0 = 0.98$

98 Fuel Carrier @ 0 $P_{c0} = 20.45$
 $P_{c0} - P_b = 1.66 \text{ \#}$

99 " @ -1" $P_{c1} = 19.77 \text{ \#}$
 $P_{c1} - P_b = 0.98$

SC. 100 " @ -3" $P_{c3} = 18.70$
 $P_{c3} - P_b = 0$

.7967 \#.08 \#07 \#.25 \#

\#

.31 \#

R Run 101 FUEL EVALUATION, 7" dia Disc.
 FUEL = 4", See Run 10 p. 8.

	Fuel CARRIER	⊙	0	$P_{c0} = 18.13 \text{ } \phi$
102	"	⊙	-1"	$P_{c0} - P_b = 1.67 \text{ } \phi$ $P_{c1} = 17.38 \text{ } \phi$
103	"	⊙	-2"	$P_{c1} - P_b = 0.92 \text{ } \phi$ $P_{c2} = 16.98 \text{ } \phi$
104	Base Run			$P_{c2} - P_b = 0.52 \text{ } \phi$ $P_b = 16.46 \text{ } \phi$
105	FUEL	⊙	0	$P_0 = 25.56 \text{ } \phi$ $P_0 - P_b = 9.10 \text{ } \phi$
106	"	⊙	-1/2"	$P_{1/2} = 24.86 \text{ } \phi$ $P_{1/2} - P_b = 8.40 \text{ } \phi$
107	"	⊙	-1"	$P_1 = 23.69$ $P_1 - P_b = 7.23 \text{ } \phi$
108	"	⊙	-2"	$P_2 = 26.09 \text{ } \phi$ $P_2 - P_b = 4.63 \text{ } \phi$
109	"	⊙	-3"	$P_3 = 18.12 \text{ } \phi$ $P_3 - P_b = 1.66 \text{ } \phi$

R

Passes alpha possible

Page 39 - 7" dia, 1" Refl Top + Bottom

41 - " , 2" " "

42 - " , 3" " "

AP

M
Ly
Tau

Ru

F

93% U Disc, GRAPHITE REFLECTED

APR 3 1970

DATE	APR 3 1970		SAFETY CHECK		
TIME	9:10		Taylor & Lyman		
CHARGE					
RAM	10	apr	k-9	900	900
SEPARATOR	15"	OK	OK	3"	OK
DIAPHRAGM	100			100+	
TABLES	✓	✓	✓		
SC	227 # Co 18				✓
TABLES	✓	✓			✓

Mihalcz, J.
Lynn, J.
Taylor, J.

7" dia u disc with 1" graphite reflector.

Run 1 7" x 2 1/2" - Ram - 1"
Diaph - 1 1/2"

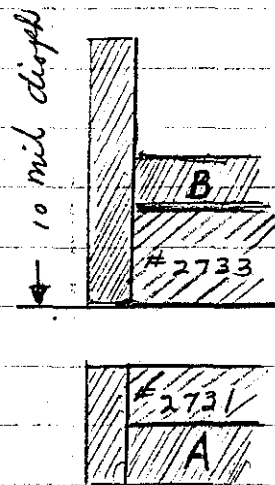
5 min cts, tables separated.

BF ₃ ctr #1	#2	#3
415	376	436
cts/min 83	75	85

Tables closed, 2 min cts

92	153	118
101	151	104
cts/min 48	76	56

up partitions - #1 = 19.725 #3 = 42
 #2 = 19.767 #4 = 62



Run 2 Ht = 3 1/2" added 1" to diaph (#2732)

2 min cts	72	144	86
	85	153	98
CPM	40	74	46

Run 3 Added $\frac{1}{2}$ " to diaph. (#2770 and #2771)

Ht = 4"
 Pos Period $\approx 5\frac{1}{2}$
 #1 = 19,37
 #2 = 19,357

Run 4 Ht = $3\frac{7}{8}$ " (#2771 off, #2768 on)

Pos Period $\sim 5\frac{1}{2}$
 #1 = 19,49
 #2 =

Run 5 Ht = $3\frac{3}{4}$ " (#2768 off)
 #1 = 19,59

~~Pos~~ Period ∞

Run 6 Ht = $3\frac{5}{8}$ " (#2770 off, #2768 on)

$P = < 1$
 #1 = 19,775
 #2 = 19,767

2 min etc

286	343	220
126	232	109
107	172	103

Run

-k >

Run

k >

7" DIA. SANDWICH

37

C.A. _____	Exp. 7" dia	Run 7
_____	Date APR 3 1970	Time 2:40 PM
Purpose 7" U with 1" C Refl on <u>bottom</u> and <u>Top</u> <u>only.</u>		

on) Run 7. $HT = 4''$ 3" on diaph, 1" on Ram
up - #1 = 19,215
Tables down, source cut
2 min cts

BF ₂	#1	#2	#3
	285	310	228
	311	294	224

Tables closed, source in.

8 on)

$k > 1$	400	459	258
	382	446	297
CPM	196	226	139

Run 8 $HT = 4\frac{1}{4}''$ $2\frac{3}{4}''$ on diaph, $1\frac{1}{2}''$ on Ram

$k > 1$	1075	1307	543
	1191	1327	565

DATE APR 6 1970 SAFETY CHECK

TIME 9:05 AM BY TAYLOR and LYNN

CHANNEL	A	B	C	D	E	F
RANGE	$\frac{10}{1000}$ opt		6-9	$\frac{10}{1000}$ 900	900	900
SOURCE DIST.	16"	OK	OK	2"	4"	OK
% F. S. TRIP	100			100	100+	
BLDG. ALARM	✓	✓	✓			
AUX OTRS.	✓	✓	✓			
SOURCES USED	227 + 8		BRIGETS			✓
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓

Run 8
↓ (4 1/4")

Run 9
#2770
#2732 off, #2730, 2728 & 2729 on
k > 1, up #1 = 19.215

Pette LN
+ 16.96¢, 17.47¢, 17.30, 17.70, 17.70¢

B_{F3} Counters
#1, #2, #3

B
#2770
#2732
#2733
#2734
A

Run 10 -

Added NE 102 - 1/2" on diaphragm
1/2" from stacks.

Counter moved p > 1, + 22.88¢
away when tables raised.

Run 11 - Repeat with Counter taped
in place.

p > 1, + 25.81

ctr @ 1/2" = + 8.85¢

Run 12 -

ctr placed in contact with stack.
Taped in position.

$P > 1, \quad + 32.29 \text{ } \phi$

ctr @ contact = + 16.33 ϕ

n 8
(7 1/4")

Run 13 -

Removed center (.360" dia) plugs
from pcs # 2734, 33, ~~30~~, 28 and 29
2730 has no hole.

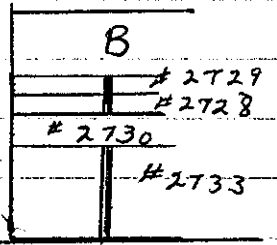
$h < 1.$

Run 14 -

Returned center plug to # 2734.

$h < 1, \quad \sim .5 \text{ } \phi$

$H = 4 \frac{5}{16}$ " less center plugs →
shown.



DIAPH.

APR 7 1970

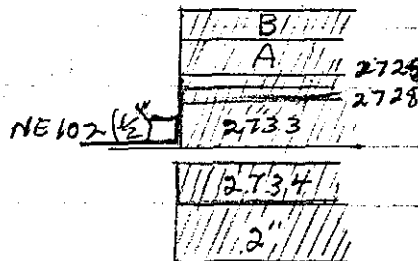
DATE		APR 7 1970		SAFETY CHECK			
TIME		8:25		AM		BY TAYLOR + LYNN	
	A	B	C	D	E	F	
1000	OK	7-9	1000	900	900		
18"	OK	OK	1"	5"	OK		
100			100	100 ⁺			
✓	✓	✓	✓	✓			
✓	✓	✓	✓	✓			
CONTACTS USED	227		MAGNETS				✓
TABLES	✓		LIGHTS		✓		✓
AREA CLEARED						✓	

7" dia U with 2" C reflector top and bottom only.

Run 15 - $Ht = 3 \frac{3}{4}"$ $2 \frac{1}{4}"$ on diaph, $1 \frac{1}{2}"$ on horn
 $k < 1$ Counter in place,

2 min Counts

417	434	326
566	471	311



Run 16 - $Ht = 3 \frac{13}{16}"$

#2728 + 29 OFF, #2730 + 70 ON.

2 cts

482	569	423
531	523	324

Run 17 $H = 3 \frac{15}{16}''$ #2768 on

2 min cts

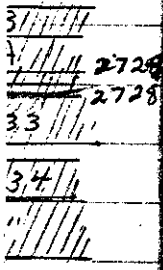
741	781	434
749	806	399

Run 18 $H = 4 \frac{1}{16}''$ #2770 off, 2728 on

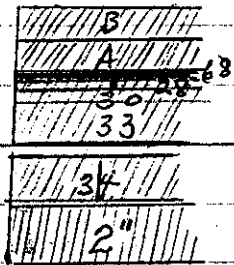
$k > 1$, +33.14 ϕ

SEE Run 12 p. 39, removing same plugs as for Run 14 would give system close to ∞ .

on horn



$4 \frac{1}{16}''$ horn plugs as shown DIAPH.



CA _____ Date _____ 7" dia _____ Run 19 _____
 Date _____ Time _____ PM
 Run 93U Disc, 7" diameter
 with 3" C top and
 bottom only.

2768
 # 2729
 # 2728
 # 2733

Run 19 - $wt = 3 \frac{7}{8}"$
 up #1 = 17.195

Diaph = $2 \frac{3}{8}"$
 Ram = $1 \frac{1}{2}"$, # 2734

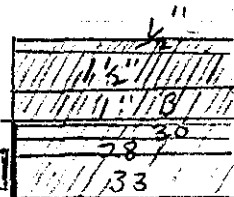
$k < 1$, 2 min etc

BF ₃	#1	#2	#3
	933	1016	441
	943	1033	518

Run 20 - $wt = 3 \frac{15}{16}"$

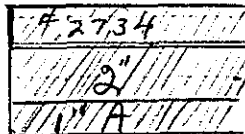
$k \infty$

as Run → NE102 ($\frac{1}{2}$)



$3 \frac{15}{16}"$

good



11" GRAPHITE SANDWICH

APR 8 1970

43

DATE	APR 8 1970		SAFETY CHECK			
TIME	10:15	AM	BY TAYLOR & LYNN			
CHANNEL	A	B	C	D	E	F
RANGE	100	OPR 1-9	1000	900	900	
SOURCE DIST.	16" OK	36"	1"	6" OK		
% F. ST. TRIP	100	OK	100	100%		
BLDG. ALARM	✓	✓	✓			
AUX STAS.	✓	✓	✓			
SOURCES USED	227 + Co		SECRET			✓
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓	✓

2768
2729
2728
2733
2734

Run 21 11" diameter u with 1" graphite on top and bottom only.

Est. up = 19.24

Ht = 2 3/4"

Diaph = 1 1/4"

#2731, 38 & 45

#2803

Ram = 1 1/2"

#2734, 40 & 47

k > 1

#1 = 19.11

Run 22 - Ht = 2 11/16"

Diaph = 1 3/16"

#2728, 36 & 42

#2730, 37 & 67

#2803

Ram = 1 1/2"

SAME

k > 1, + 40.24

Run 23 - Ht = 2 11/16"

DIAPH = 1 1/16"

RAM = 1"

All plugs out.
k < 1, = -10

NE102 (1/2")

2 11/16" can use.

1/8 38		
1/2 38		
78	72	76
67	37	30
42	36	28
2803		
45	38	32
1"		

APR 9 1970

DATE	APR 9 1970					
TIME	9:45 AM		BY TAYLOR & LYNN			
CHANNEL	A	B	C	D	E	F
RANGE	$\frac{10}{1000}$	opr	L-9	$\frac{10}{100}$	900	900
SOURCE DIST.	15" OK		6'	1"	6"	OK
% F. S. TRIP	100		OK	100	100	
BLDG. ALARM	✓	✓	✓			
AUX CTRS.	✓	✓	✓			
SOURCES USED	227 & Co			MAGNETS	✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓	

Run 24 - 11" DIAMETER with 2" GRAPHITE on Top and Bottom only
up #1 = 18.71

$k > 1$
#1 = 18.66

Diaph ($\frac{1\frac{3}{8}"}$) =

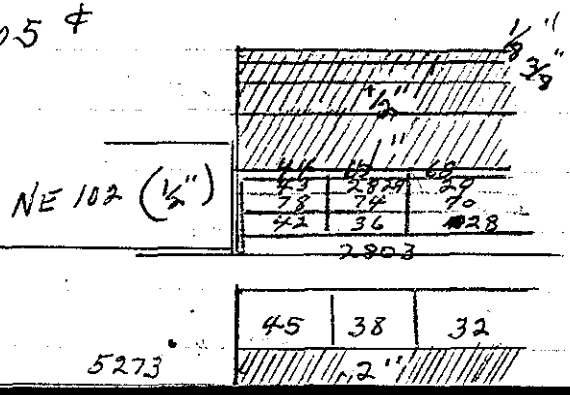
- # 2768, 63, 44
- # 2729, 2829, 43
- # 2770, 74, 78
- # 2728, 36, 42
- # 2803

RAM ($\frac{1"}{2}$) = #2732, 38, 45

NE102 ($\frac{1}{2}"$) in place.

Run 25 - $k > 1$
all plugs removed & Detector up.

$k > 1$, + 29.05 #



APR 19 1970

45

DATE		APR 19 1970		SAFETY CHECK	
TIME		10:50		Taylor & Lynn	
CHARGE	10			10	
RANGE	1000	Off	L-9	1000	Pre 900
COINTEGR.	15"	OK	3'	14"	6" OK
SP. OF TRIP	100		100	100	100 ⁺
BLDG. ALARM		✓	*✓	✓	
ACK OTSR.		✓	✓	✓	
SOURCES USED	227 + Co 18		MAGNETS		✓
TABLES	LIGHTS	✓	AREA CLEARED	✓	

* SLUGGISH

Run 26 - $74 = 2\frac{5}{16}$ " Diaph $1\frac{5}{16}$ " #70, 74, 78, 29, 2829.

on

and 43 off

#30, 37 & 67 on

Detector up & Pulgs in -

k < 1, slight instrument response -

maybe - 60 f

Probably too far out.

44
43
78
2

65

up.

1/8" 39

8

CA. _____ Expr. _____ Run 27
 Date 4-13-70 Time _____ AM/PM
 Purpose 11" Dia u with 3"C
Reflector on Bottom and
Top only -

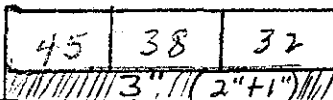
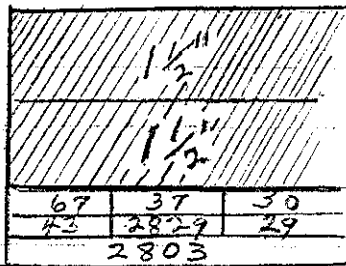
Run 27 - HT = $2 \frac{1}{16}$ " Diaph $1 \frac{1}{6}$ "
 up #1 = 17,740 Ram 1"
 k < 1

Run 28 - HT = $2 \frac{1}{8}$ "
 k < 1

Diaph ($1 \frac{1}{8}$ ") = { # 71, 75, 79
 # 29, 2829, 43
 # 70, 74, 78
 # 2803 }
 Ram (1") = # 32, 38, 45

Run 29 - HT = $2 \frac{3}{16}$ " DIAPH ($1 \frac{3}{16}$ ")
 k > 1, #1 = 17,67
 ~ + 25 P

$2 \frac{3}{16}$ " with plugs
 removed might
 get ∞ .



APR 11 1970

15" DIAMETER SANDWICH

47

DATE APR 11 1970		SAFETY CHECK					
TIME	10:00	AM	BY TAYLOR & LYNN				
CONTROL	A	B	C	D	E	F	
TIME	1000	OPR	L-9	100	900	900	
WIND DIR.	15" OK	3'	1"	5"	OK		
WIND S. TEMP	100		100	100	100 ⁺		
WIND ALARM	✓	✓	✓				
WIND DIR.	✓	✓	✓				
SERVICES LOG	227	+	18			✓	
TABLES	✓		LIGHTS	✓	AREA CLEARED	✓	

31, 62, 76, 57, 39

Run 30 — HT = 2 1/4" Diaph (1 1/4") = # 2803, 82, 2885-
 up = 19.72 RAM (1") = # 32, 38, 45, 56, 35

5, 79
 24, 43
 4, 78
 03

k < 1,

1, 45

Run 31 — HT = 2 1/4"
 Added (17" x 15") x 2" graphite ring
 on diaphragm.

k < 1

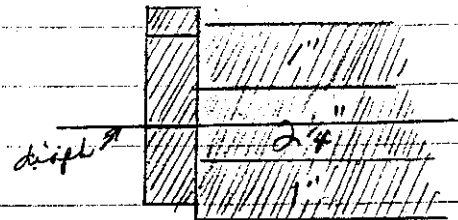
Run 32 — HT = 2 1/4"
 Added (17" x 15") x 1 1/2" to Ram
 " x 1 1/2" to Diaph

2 1/4"

DETECTOR UP
 k > 1, + 6.8 #

1" Complete
 Reflected

Trim up C + remove plugs
 then can use



APR 15 1970

15" DIA. 2" C SANDWICH

DATE	APR 15 1970					
TIME	10:18					
OPERATOR	TAYLOR # LYNN					
QUANT.	10	8	0	0	E	F
FAIR	1000	OPR	1-9	1000	900	900
SCREWS USED	15"	OK	4'	1"	6"	OK
90°	90+	100	100	100	100+	
BLDG. MARK	✓	✓	✓			
AUX. MARK	✓	✓	✓			
SCREWS USED	227 + 18					✓
TABLES	✓	LIGHTS	✓	AREA CLEANED		✓

Run 33

$H+ = 1 \frac{15}{16}$

Diaph ($\frac{15}{16}$ ")

{ # 68, 63, 44, 80, 58 }
 { # 30, 37, 67, 55, 66 }
 # 2803

Ram (1") #32, 38, 45, 56, 35.

$up = 18.725$

#3 = -2

$k > 1, +38.88 \text{ } \neq$

#4 = -4

DETECTOR UP.

Run 34 - REMOVED PLUGS from the RAM Pcs.

$H+ = 1 \frac{15}{16}$ " $k > 1, +2 \text{ } \neq$

Can still removed needed plugs from top fuel.

APR 2 1970

DATE		SAFETY CHECK					
TIME	1:45	BY TAYLOR & LYNN					
		A	B	C	D	E	F
WIND	10				10		
WIND DIR	1000 OPR	L-9		1000	900	900	
WIND S. DIR	18" OK	36"	1"	6"	OK		
WIND S. S. DIR	90+	100	90+	100+			
WIND S. S. DIR		✓	✓	✓			
WIND S. S. DIR		✓	✓	✓			
WIND S. S. DIR	227 # 18					✓	
TABLES	✓	LIGHTS	✓	AREA CLEANED	✓		

Run 35 - 15" DIAMETER, 3" C SANDWICH.

DETECTOR UP - PLUGS OUT OF RAM FUEL

HT = 1 11/16" , Diaph (15/16") SAME AS RUN 33

RAM (3/4") #29, 2929, 43, 50, 85

up = 17.975 , #28, 36, 42, 49, 84

k > 1, slight multiplication

k < 1

Run 36 - Added RAM PLUGS

k > 1? Very little difference

k < 1

Looks as if 1/16" Fuel addition would be too much -

0,58 }
5,66 }

35.

50

APR 17 1970

CHANNEL	A	B	C	D	E	F
DATE	APR 17 1970					
TIME	8:45 AM BY Taylor & LYNA					
RANGE	¹⁰ 1000	OPR	L-9'	¹² 1000	900	900
SOURCE DIST.	18"	OK	OK	1"	6"	OK
% F. S. TRIP	90%		100	90%	100%	
ELEC. ALARM	✓	✓	✓			
AUX CTGS.	✓	✓	✓			
SOURCES USED	227	+ 18	MAGNETS			✓
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓

SEP

J.T.M

J.J. I

J.R.

Run 37 - Added 3" RADIAL REFLECTOR TO
DIAPHRAGM -

#1 = 17.82

 $k > 1, + 28.54\%$

SEP 2 1970

51

DATE SEP 2 1970 SAFETY CHECK

TIME 10:30 AM BY TAYLOR & LYNN

CHANNEL	A	B	C	D	E	F
RANGE	<u>OUTS</u>	<u>OPR</u>	<u>k-11</u>	<u>12/1000</u>	<u>900V</u>	<u>900V</u>
SOURCE DIST.	<u>SC</u>	<u>✓</u>	<u>36"</u>	<u>1"</u>	<u>15"</u>	<u>OK</u>
% F. S. TRIP	<u>TR</u>	<u>OK</u>	<u>OK</u>	<u>100</u>	<u>100</u>	<u>100</u>
BLLG. ALARM	<u>✓</u>	<u>✓</u>	<u>✓</u>			
AUX CHS.	<u>✓</u>	<u>OUT</u>	<u>✓</u>			
SOURCES USED	<u>m-227</u>	<u>h-18</u>		<u>BAGETS</u>	<u>✓</u>	
TABLES	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>AREA</u>	<u>✓</u>	<u>✓</u>

J. T. Michalezo
 J. W. Lynn
 J. R. Taylor

Rhoette
 Response
 OK

GA _____ Expt. 7" Dia Run 38

Date 9-2-70 Time 11:05 AM

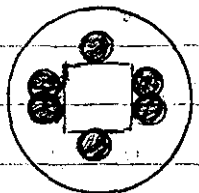
Sample Critical Stack

7" dia Solid Cylinder

Run 38 Loading = $4 \frac{15}{16}'' + 2 [2 \frac{1}{2}'' \times 2 \frac{1}{2}'' \times \frac{1}{32}'']$

RAM = $1 \frac{1}{2}''$ up #1 = 20.090
 Diaph = Remaining #2 = 20.119
 #3 = +10
 Sub Crit. #4 = +16

Run 39 Added six (6) G.A. Sphere buttons,
 $\frac{7}{8}''$ dia x $\frac{1}{8}''$ thick, 132 gms to top.



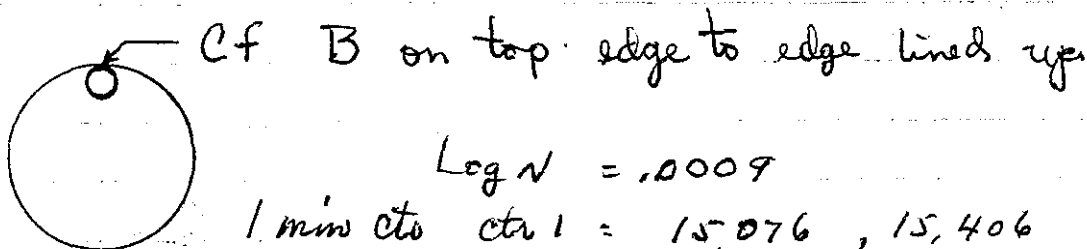
$k = 1$, - 8.75⁺ Pitte
 - 10.4⁺ Log N

DATE	SEP 3 1970						SAFETY CHECK					
TIME	3:10		AM PM		BY TAYLOR - LYNN							
CHANNEL	A	B	C	D	E	F						
RANGE	OUT2	OPR	L-11	10/1000	900V	900V						
SOURCE DIST.	—	OK										
% F. S. TRIP	—	—	OK	100	100	100						
BLDG. ALARM	✓	✓	✓									
AUX CTGS.	✓	OUT2	✓									
SOURCES USED	227 & 18		MAGNETS			✓						
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓						

Rhette Response K

DEC

Run 40 Loading = Same



$$\text{Log } N = .0009$$

$$1 \text{ min cts } \text{ctr 1} = 15,076, 15,406$$

$$3 = 9,750, 9,718$$

Run 41 cf B moved to top center.

	Log N	1 Min	# 1	# 3
3:55 PM			68,840	44,215
4:00 PM			78,217	49,488
4:02 PM			90,963	57,980

FAST NEUTRON SURVEY METER WITH SO. B ON TOP. #RAM DOWN.
 FROM OUTER SURFACE OF TOP PIECE AVG READINGS:
 contact = ~50 mrem; 2" = 28 mrem; 4" = 16 mrem

DEC 1 1970

Scram time measurement by E.R.R.
2"

relK

2-

8

0

m Down.

m

DEC 2 1970

"Keithly Micro-Microammeter installed for Chan "A" replacing vibrating Reed meter." (By E.R.R.)

Mihalcz, J.
Lynn, J.
Taylor, J.

DATE	DEC 2 1970		SAFETY CHECK	
TIME	10:40	BY Taylor & Lynn		
STAGE	A	B	C	D E F
RANGE	10X10 ⁻¹²	over L.R.	700V	900V
SOURCE DIST.	14"	40	36"	5"
PS S. SUPPLY	OK	100	100+	
LEAK ALARM	✓	✓	✓	
AMB. COND.	✓		✓	
SOURCES USED	227 + Co			✓
TABLES	✓	LIBR/S ✓	REF. CHECKED ✓	

"A" = 100
Source @ 18"

CA 15" Dia Ht 2 ¹⁵/₁₆"

Bare

Purpose: Reactivity measurement

Run 1 Loading - Ram = $\frac{13}{16}$ "
 (2 ¹⁵/₁₆") Top = 2 ¹/₈"
 Little = - 2.58

Down = 99.99
 up = 20.820
 #3 = 5
 #4 = 15

Run 2 Loading = Ram Same

$$\left(\begin{array}{l} 0 \rightarrow 3.5" = 3" \\ 3.5" \rightarrow 7.5" = 2\frac{5}{16}" \end{array} \right) \text{Diaph} - 0 - 3.5" = 3" \text{ \#1}$$

$$3.5" - 7.5" = 2\frac{1}{8}" \quad \text{\#2}$$

$$P = -1.62$$

$$\frac{1}{16}" (7" \text{ dia}) = 96 \text{ \#}$$

$$\#1 \quad \#2$$

$$2p = 20,853 \quad 20,854$$

$$\#3 = 0$$

$$\#4 = -7$$

$$18"$$

	58	80	43	2829	29	3/8"
	2885	82				
	66	55	67	37	30	9/16"
	2848	53				
	60	51	45	38	31	1"
			3058			1/4"
13/16"	87	52	44	63	68	1/8"
			42	36	28	3/8"
			0104			5/16"

DATE DEC 3 1970		SAFETY CHECK					
TIME	11:10	AM	BY TAYLOR & LYNN				
CHANNEL	A	B	C	D	E	F	
RANGE	10X10 ¹²	OPR	2-10	only	900V	900V	
SOUNDING DIST.	12"	OK	5'		6"	OK	
% F. S. TRIP	94		100	1	100+		
ELECT. ALARM	✓	✓	✓				
LOCK CODE							
SOURCES USED	22, 7 & 6					✓	
TABLES	✓	✓	✓	✓	✓	✓	

SEE p. 55

Run 3 loading = 3"

Ram = same ($\frac{13}{16}$ ")Period up Log N = +19.5 ϕ
Pette = -18.7 ϕ Diaph = 2 $\frac{3}{16}$ "Pette = -69.1 ϕ

up = SAME

$$\therefore \frac{1}{16} \times (3.5" \times 7.5") = 93 \phi$$

$\frac{11}{32}$	$\frac{3}{32}$
-----------------	----------------

R₁

Run 4

3214 58	3215 50	3216 46	3217 43	29	3/8"
66	55	67	37	30	9/16"
2848	53				
60	51	45	38	31	1"
3058					1/4"

13/16"	87	52	44	63	68	1/8"
			42	36	28	3/8"
	0104					5/16"

20,845
20,848
+ 1.5
- 8

Same

to



1.3 #

DATE DEC 9 1970		SAFETY CHECK					
TIME	1 ²⁰ PM	BY TAYLOR & LYNN					
CHANNEL	A	B	C	D	E	F	
RANGE	10X10 ¹²	Opv	L-8	2	900V	900V	
SOURCE DIST.	18"	OK	7'	4	6"	OK	
% F. S. TRIP	100		100	T	100 ⁺		
BLOSS. ALARM	✓	✓	✓				
AUX. CRTS.	✓		✓				
SOLARIS USED	227	+ Co	MAGNETS			✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓	

Run 4 Loading = 0 → 3.5" Radius = 3"
 3.5" → 7.5" Radius = 3 $\frac{1}{2}$ "

Pitte = -25.0 ¢: up #1 = 20.845

#2 = 20.848

∴ $\frac{1}{32}$ " × (3.5" × 7.5") = 44 ¢

#3 = +1.5

#4 = -8

Run 5 Added $\frac{1}{32}$ " to 3.5" → 4.5" radius

pc 37.73 ¢ 3217 removed

pc 2762 added

$\frac{21}{32}$ " $\frac{31}{32}$ " $\frac{31}{32}$ " $\frac{31}{16}$ " 3"

∴ $\frac{1}{32}$ " × (3.5" × 4.5") = 18.2 ¢ up = Same

Pitte = -6.8

Run 6 Added NE 102 - 1/4 in Contact to diaphragm fuel.

Pitte = -5.5 ¢

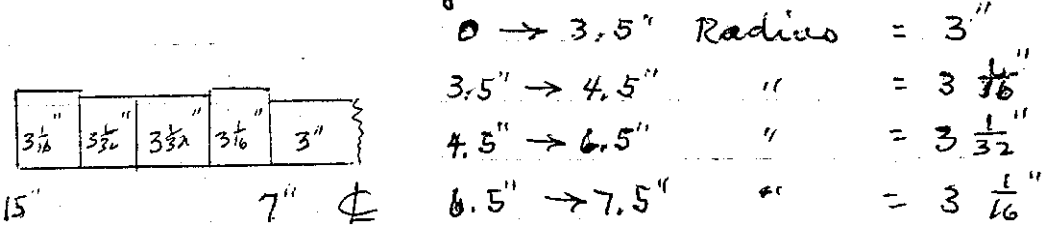


NE 102 - 1/4 = 1.3 ¢

DATE <u>DEC 10 1970</u>		SAFETY CHECK					
TIME	<u>08²⁵</u>	<u>AM</u>	BY <u>TAYLOR & LYNN</u>				
CHANNEL		A	B	C	D	E	F
RANGE		10×10^{-12}	<u>opt</u>	<u>L-15</u>		<u>900V</u>	<u>900V</u>
SOUND DIST.		<u>20"</u>	<u>OK</u>	<u>24"</u>		<u>6'</u>	<u>OK</u>
% F. S. TRIP		<u>100</u>		<u>100</u>		<u>100</u>	
BLDG. ALARM		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
AUX CRGS.		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
SOURCES USED		<u>227 + Co</u>					<input checked="" type="checkbox"/>
TABLES	<input checked="" type="checkbox"/>	<u>CHARTS</u>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>

Run
3 1/2" 3 1/2"

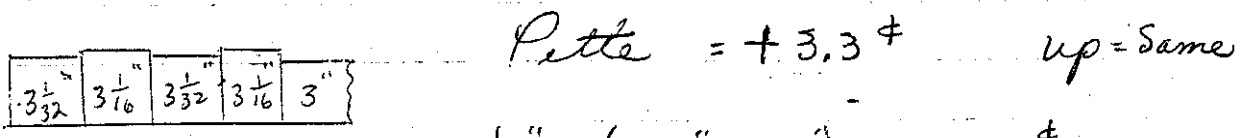
Run 7 Loading (15" Dia Diec, Bare)



Removed 66, 58 & 3214 ; Added 2739
 Pette = -1.7¢ up = Same

$\therefore \frac{1}{32} \times (6.5 \times 7.5) = 3.8 \text{¢}$

Run 8 Removed 55, 80 & 3215 vs Run 6
 Added 2757

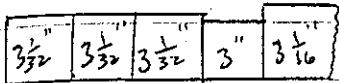


$\therefore \frac{1}{32} \times (5.5 \times 6.5) = 8.8 \text{¢}$

Then $\frac{1}{32} \times (4.5 \times 5.5) = 13 \text{¢}$
 from Run 4

Run 9. Loading (15" dia disc, Bare)

- 0 → 3.5" radius = $3 \frac{1}{16}$ "
- 3.5" → 4.5" " = 3"
- 4.5" → 7.5" " = $3 \frac{1}{32}$ "



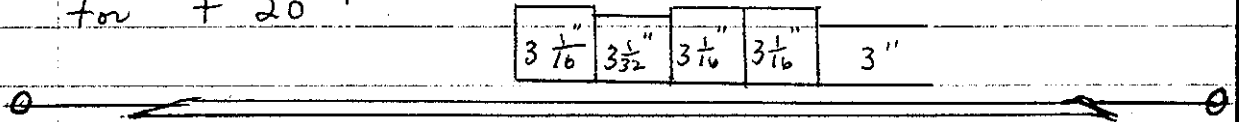
Patte = 52.1 φ

(Detector in place since Run 6)

Run 4 = - 2.5 φ

Run 7 = - 1.7 φ

For + 20 φ



DEC 10 1970

2:30 PM

loaded $2 \frac{15}{16}$ " gap = ~~-2.60~~

84	49	78	75	76
96	54	43	2828	29
2868	53	45	38	31
60	51	30.58		
87	52	42	36	28
		10.4		

10 mil SS diaph.

↓
13 1/16
↑

DEC 14 1970

CA-15-2 $\frac{1}{16}$ " Bare

Run

DEC 14 1970

AAA
DMA

Randomly pulsed neutron
measurement with Cf.

p. 263-C

Loading 2 $\frac{15}{16}$ " HT ; # - 2.60Depth = 2 $\frac{1}{4}$ "Ram = $\frac{1}{16}$ "

Same pcs as 10 Dec 70
 $\frac{1}{2}$ " from Ram exchanged for
 $\frac{3}{8}$ " on depth.

Up Position: 1 = 20.950; 2 = 20.950; 3 = +3; 4 = 0.

1530 - SEPARATED FUEL; REMOVED CF^C # RECLOSED.

DEC 15 1970

Raised table for background count, source
removed.

Lowered table added source: Cf C

Data Collection start 08:50.

Repeat above steps. Start 10:30 / source E.

DEC

← 24

DEC 16 1970

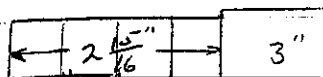
1-15-2 $\frac{5}{16}$ " Cont'd of measurements.
Bar



Loading - Ram = $\frac{11}{16}$ "

Diaph = 0 → 3.5" Rods = 2 $\frac{5}{16}$ "

3.5" → 7.0" " = 2 $\frac{1}{4}$ "



Removed #70 and #71

Added #30 (p.59)

Est. # -1.60
see p.52

Dec 70
for

covered.

DEC 17 1970

DATE	17 Dec 1970					
TIME	8:05					
BY	Lynn E. Mihalcz					
CLASS	A	B	C	D	E	F
TYPE	10X10 ⁻¹²	OPR	L-15	0	900	900
STOVE DPT.	15"	OK	3'	4	6"	OK
% S. G. TRAP	100		100	T	100+	
ELIM. PLANN	✓	✓	✓			
AUX. CLS.	✓	X	✓			
SOURCES USED	227 + Co			MAGNETS		
TABLES	✓	LIGHTS	✓	AREA CLEANED		

Con'd. Cf measurements. Loading as p. 62.

DEC 17 1970

Loading = 3"

RAM = 1/16"

- 70¢

DIAPH = 2 5/16"

SEE P. 56

66	55	67	37	30
87	52	44	63	65
2848	53	45	38	31
60	51			
84	49	43	2829	29

Diaphragm

DEC 17 1970

loading = 0 → 3.5" Radius = 3"

3:40 PM

3.5" → 7.5" " = 3 1/2"

- 25¢

See p. 57

See Run #10

3214	3215	3216	3217	68
2855	82	78	74	28
66	55	67	37	30
2848	53	45	38	31

Same

NOTE:

DATE		SAFETY CHECK					
TIME	10 ³⁰	AM	BY				TAYLOR & MINALCZO
CHANNEL	A	B	C	D	E	F	
RANGE	10710 ⁻¹²	OPR	L-10	X	900	900	
SOURCE DIST.	2'	OK	5'	OK	4"	OK	
% F. S. TRIP	100	-	100	OK	100	OK	
BLEED ALARM	✓	✓	✓				
AUX CTAS.	✓	-	✓				
SOURCES USED	N + H			REARSETS	✓		
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓		

Rhett OK

FUEL LOADING SAME AS 17 DEC 70 (3:40 PM)

- Up Selwyn = 20.965, 20.965, +2, +3.
- 2 detectors are on diaphragm. Go up on the remote source to $h\nu = .00018$, pull source and take BF_3 etc to estimate a period. $\approx -12^{\ddagger}$
- DN and put CF^C on detector - Back Up ($h\nu = .0009$)
JTM # DATA VIA He^3 (Ref C-294)
- DN and put CF^A in place of CF^C - Back Up $h\nu = .0002$
- DN @ 1700 hrs.

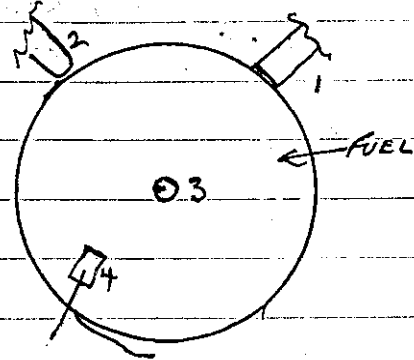
DATE REC 29 1970		SAFETY CHECK					
TIME	0810	AM	BY TAYLOR & NIMALCZO				
OFFICER	A	B	C	D	E	F	
RANGE	10710-12	OPR	1-10	X	900	900	
SOURCE DIST.	2'	O/C	5'	X	4"	O/C	Rhoette
% F. S. TRIP	100	-	100	X	100	O/C	
BLLG. ALARM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
AUX CDS.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SCHEMATIC	N/A					<input checked="" type="checkbox"/>	
TAGES	-	10710	-			-	

Run # 10 Fuel Loading same as 17 Dec 70 (3:40 PM). He³ & SC/10. UTR.
 laying on diaphragm. Up Position = 20.965, 20.965, +3, +4.
 Rhoette = -7.1¢; h₀ = -8.1¢
 BF₃ #1 = -7.5¢, BF₃ #3 = -8.1¢. Avg = -7.7¢

Run # 11 Change fuel on 15-13 ring:
 FROM Pieces 3214, 2885, 2766
 TO 2739, 2758.
 Also put up remote skin and
 a dummy CF source.
 Rhoette = +10.4¢

Run #12 Change fuel on 15-13 ring back to as Run #10 and using small Al skins (cermet), operate @ ∞ for JTM data.
 (Ref log C-300)

1 = Scin; 2 = He³; 3 = Cf; 4 = SUMMA



10:45 $h_N = .0005$

$A = 10 \times 10^{-11} @ 50$

$C = H-19 @ 48$

11:35 $h_N = .0015$

$A = 3 \times 10^{-10} @ 50$

$C = H-1 @ 48$

12:20 $h_N = .0050$

$A = 10 \times 10^{-10} @ 50$

$C = H-9 @ 45$

→ Oscillating $CTU^{2.4}$ vs Cf^C source @ ∞ (DC)
 23 runs (1min) $ChA_{peak} = 10 \times 10^{-11} @ 36$

→ Oscillating $CTU^{2.4}$ vs Cf^A source @ ∞ (DC)
 10 runs (1min) $ChA_{peak} = 10 \times 10^{-12} @ 98$
 10 runs ($\frac{1}{2}$ min) $ChA_{peak} = 10 \times 10^{-12} @ 60$
 10 runs ($\frac{1}{2}$ min) $ChA_{peak} = 10 \times 10^{-12} @ 55$

66

$$\begin{aligned} (13-11) (9-7) &\longrightarrow = 3\frac{1}{32}'' \\ (15-13) (11-9) \& (7'' \text{ dia}) = 3.0'' \end{aligned}$$

Run #13 Change fuel on (15-13) and (11-9) rings.
 Remove # 3214 and # 3216 & Rotate shim
 Put on # 2886, and # 2779 est. @ -20°F
 [as ref. to 17 Dec 70 (3:40 PM)]
 Table up @ 1515 hrs. - DN 1630

DEC

Run #14 Changed fuel to 1-15-2¹⁵/₁₆ for
 overnight run (Ref 14 Dec 70)
 Table up @ 1645.

D10

John was in about 2230 and made
 some changes of settings.

fuel change was:
 from (Ref Run #13)

7-9	1/4 for 9/32 & 1/2 for 9/16
9-11	1/2 for 9/16
11-13	1/4 for 9/32 & 1/2 for 9/16
13-15	1/2 for 9/16
7 dia	1/2 for 9/16

R

DEC 30 1970

Found table down when I came in @ 0800.
(no serum light showing). Raised table and
proceeded with data plan. Charlie = L-2 @ 60

2886	2783	2779	2775	2771
2885	2782	2778	2774	2770
2787	2782	2744	2763	2768
2898	2753	2742	2736	2728
2760	2751	2745	2738	2731
		3058		
2784	2749	2743	2829	2729
0104				

DIAPHY

Run #15 Fuel change: 7" dia. only \rightarrow $\frac{9}{16}$ " for $\frac{1}{2}$ "
from Ref run #14. Charlie = L-2 @ 70
@ up table @ 10:00 AM

$$\therefore \left[\begin{array}{l} 15 - 7 \rightarrow 2 \frac{15}{16} \\ 7 \text{ DIA} \rightarrow 3.0 \end{array} \right]$$

NOTE: at 5:30^{PM}, $\frac{1}{16}$ " of fuel was REMOVED
FROM THE 7" dia only for overnight run.
However, the table was found to be
down to 3" when I came in on
the 31st. (see top of page also) JRT

B-7
E
DJM

DATE		SAFETY CHECK					
TIME	0900	BY TAYLOR & THOMAS					
CHANNEL		A	B	C	D	E	F
RANGE		10x10 ⁻¹² OK	5-10	5-10	900	900	
SEC. E DIST.		2' OK	5'	5'	5"	OK	
% P. S. TRIP		100 -			100	OK	
BLEND. FLIGHT		✓	✓	✓			
ADJ. TRIP		✓	✓	✓			
SENSORS OK'D		N & h				✓	
TABLES	✓	✓	✓	✓	✓	✓	✓

Run # 16 Change Fuel to 1-15-3
 (stacked as 17 Dec 70 Pg 62)
 Table up @ 09²⁰ for CF, HE³ & Seim data.
 Ref Log Pg D-20
 Channel C → h-8@63

Notes: AT 1541 hrs the table came down
 (on req. speed) to the 3" position again
 as prev. mentioned. LASH data is OK.
 - Ran table down and secured.

DATE		SAFETY CHECK					
TIME	0935	AM	BY	TAYLOR & MITCHELL			
CHANNEL		A	B	C	D	E	F
RANGE		10×10^{-12}	OPR	6-10		90	900
SOURCE DIST.		2'	OK	5'	OK	5"	OK
% F. S. TRIP		100	-	-	9	100	OK
BLOC. ALARM		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
AUX CTS.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
SOURCES USED		N & D					<input checked="" type="checkbox"/>
TABLES		<input checked="" type="checkbox"/>	LIMITS	<input type="checkbox"/>	AREA CLEARED	<input checked="" type="checkbox"/>	

Run #17 Loading as 17 Dec 70 @ 3:40 PM
 This is a repeat setup as run #12
 Establish ~~source~~ (D) using ~~servo~~ ^{# dummy} source
 Auto-matic cyclor has been installed.
 - Up positions normal. Using ≈ 10 mil
 slow speed.
 - Down @ 10:15 Put up Cf^c
 - Begin cycling @ 10:25
 EXAMPLE: 30 sec @ Up; 1" travel; 55 ^{sec} cycle time
 on ARLE 3×10^{-11} the peak avg = 65.
 The Log N peaks = .0002

Run 18 added $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{16}$ to center top of stack (apes)

$$R_{\text{netto}} = +24.3\%$$

Fuel added estimated to be $\approx 18\%$

Moved screw down in $\approx 6\%$

Began cycling @ 1440 hrs

EXAMPLE: 17.5 sec up time; 1" travel; cycle

time = 40 sec ABE after about 20 cycles (settle out), peak = 3×10^{-10} @ 90

$$L_{\text{d}} = .002$$

RUN⁷

Down ≈ 1650 hrs

Run 19 Loading $1-15-2\frac{1}{16}$; -2.58 (p. 54)

1700 hrs

Fuel as top page ~~57~~ ~~58~~ ~~59~~ ~~60~~ ~~61~~ ~~62~~ ~~63~~ ~~64~~ ~~65~~ ~~66~~ ~~67~~

Start data @ 1717 hrs

NOTE: 5 Jan 71 morning - Table was in down pos.

DATE	JAN 5 1971		SAFETY CHECK			
TIME	09 ³⁰	AM	BY	TAYLOR - M. HALOZO		
CHANNEL	A	B	C	D	E	F
RANGE	10810 ¹²	OPR	6-10	X	900	900
SOURCE DIST.	2'	OK	5'	X	5"	OK
% F. S. TRIP	100	-	-	X	100	100
BLDG. ALARM	-	✓	✓			
AUX CTRE.	-	✓	✓			
SOURCES USED	N & A			MAGNETS	✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓	

(kpc)
1/32

RUN # 20

LOADING = 7" dia = 3" ; 15"-7" req = 3 1/16"
 Scin # We det are in place and servo skins
 is up.
 Rhoetto = +47.9 #

Cycling Example: 7 1/2 sec @ up; 1" travel; NO slow
 speed; 27 sec cycle time; Not exceeding
 .005 on log N. hN = .005
 Source CPA A = 10 x 10⁻¹⁰ @ 26

58	80	46	73	
2886	83	44	36	
2885	82	42	63	29
87	54	79	75	68
2848	53	78	74	30
60	51	45	38	31
-----		3058	-----	
84	49	43	2829	29
-----		0104	-----	

002.

Run #21

Add $[2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{32}]$ to center of conf.

Use dummy CF service

Rhoette = 4 runs: +58.18

+57.64

+57.72

+57.86

AVG. $\frac{4}{4}$
+57.85Put up CF^A and cycle.

cycle EXAMPLE: 7 sec @ up 1" travel; no slow speed; cycle time = 27 sec

LN = .008

"A" = 10×10^{-10} @ 29

Run #22

Removed CF^A. Added dummy

Measure Positive Period

* Ch "A" Tripped = LN .02 "A" = 45×10^{-10} * " " " = LN .055 "A" = 45×10^{-9}

Positive Period = +57.64

57.4

58.12

+57.72 #

1.

Run # 23 add $[2\frac{1}{2}'' \times 2\frac{1}{2}'' \times \frac{1}{4}'']$ to center top.
use dummy Cf source -

¢
7.85

Pitte = +67.3 ¢
66.5 } +67 ¢
67.2 }

Put up Cf A and cycle

slow

⊙ 10x10-10
⊙ 3x10-9

72 ¢

74

DATE		SAFETY CHECK					
TIME	09 ³⁰	AM	BY TAYLOR-MITALCZO				
CHANNEL	A	B	C	D	E	F	
RANGE	10X10 ⁻¹²	OPR	L-10	X	900	900	
SCOUTER DIST.	2'	OK	5'	X	5"	OK	
% F. IN TYP	100	-	-	90	100	100	
BLEED / NORM	✓	✓	✓				
AUX	✓	-	✓				
SEVERE COND	N & H					✓	
TABLES	✓	✓	✓	✓	✓	✓	

Run #24 Same fuel loading as Run #23. Remove CFA & put up CF chimney.
 Up position = 20.965 VBT: +10, +10

Rhette = +67.1 } Avg +67.0[±]
 +66.9 }

Using "remote control" source and cycling.
 (See Log D Pg 47 STM)
 cycle EXAMPLE: 4.2 sec up time; 1" travel; No slow speed; ≈ 50 sec cycle time

$$h_v = 1.02$$

$$A = 10 \times 10^{-9} @ 14 \text{ psk.}$$

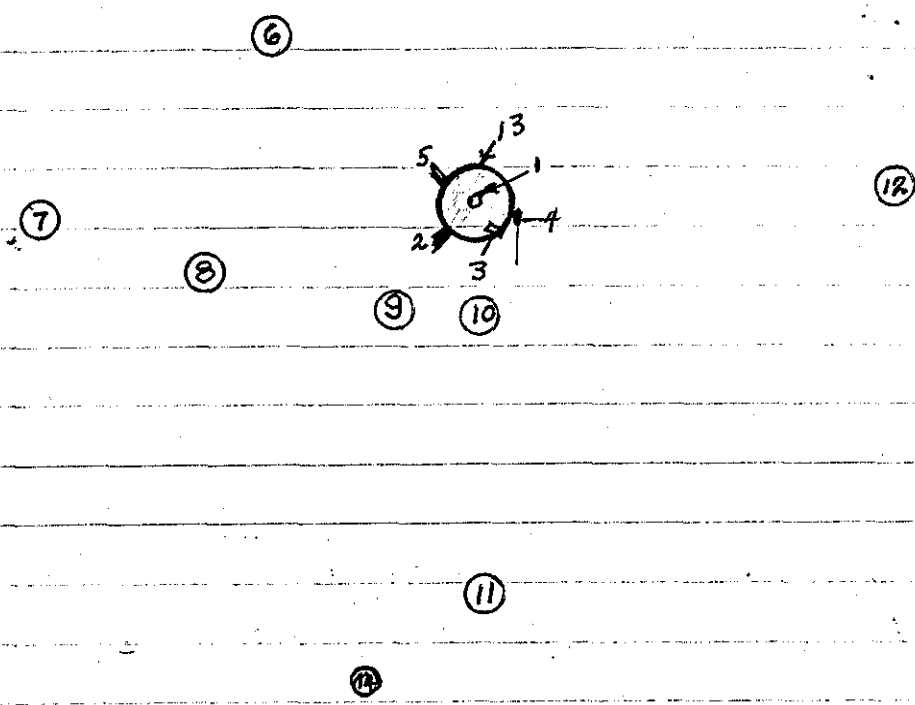
Table down for lunch @ 11:48.
 (cont Pg 76)

Restart cycling @ 13:25

Stopped @ 15:00 (Ref Log Pg D-56)

CONFIGURATION, EQUIPMENT POSITIONS

BLDG NORTH



No.	ITEM	DISTANCE FROM	
		FUEL (HORIZ)(FT)	FUEL (VERT)(FT)
1	CF SOURCE	TOUCHING TOP CENTER OF FUEL	
2	HE ³	ON THE DIAPHRAGM	
3	AL SHIM	OVER (NEAR) TOP OF FUEL	
4	POPE (REMOTE)	OUTER EDGE OF FUEL	
5	SCIN	OUTER EDGE OF FUEL	
6	LOG N	5'	-1'
7	BF ₃ #1	7	-7
8	RHOETTE	5	-2
9	CH. A	3	-7
10	CH. E	3	-6
11	BF ₃ #2	7	-7
12	BF ₃ #3	7	-7
13	FUEL	0	0
14	CH C	17	-5

NOTE: FUEL IS 9' ABOVE THE FLOOR.

Start cycling again @ 13:25 hrs.
 Stopped @ 5:00 hrs. (Ref Log D-56)

DATE JAN 7 1971		SAFETY CHECK					
TIME	08:25	AM	BY TAYLOR-MITALOZO				
CHANNEL	A	B	C	D	E	F	
RANGE	10×10^{-12}	OPR	h-10		900	900	
SOURCE DIST.	2'	OK	5'		5"	OK	
% F. S. EMP	100	-	-		100	100	
ELEC. ALARM	✓	✓	✓				
AUX CHS.	✓	-	✓				
SCHEM. CORR.	N & A					✓	
TABLES	✓	✓	✓		✓	✓	

Run #25 Same loading. Level with table separated.

→ $h_n = .0005$; $C = 4-17 @ 50$; $A = 10 \times 10^{-11} @ 33$

Table = 20.820"

→ $h_n = .005$; $C = 8-8 @ 50$; $A = 10 \times 10^{-10} @ 45$

→ $h_n = .05$; $C = 11-20 @ 40$; $A = 10 \times 10^{-9} @ 55$; $\rho_{\text{table}} = 1.5 \times 10^{-8}$

∞ kept by using (fine table control).

Run #26 Measure reactivity

$\rho_{\text{table}} = +66.9; +66.7; +67.1; +67.2 = \text{Avg } 67.0^{\pm}$

Cycling with $C \neq A$ (Ref Log D-60)

cycle example: 4.3 sec count; 1" travel; cycle time = 6 sec

$h_n = .005$; $A = 10 \times 10^{-10} @ 16$ peak

Run #27 Remove 2 [2 1/2" x 2 1/2" x 1/32"] from top.
(as run #20)

13:52

cycling with CfA (Ref D-65)
cycle sample: 7.9 sec (count), 1" travel; cycle time = 28 sec
Lv = .005 ; A = 10 x 10⁻¹⁰ @ 20

Measure Reactivity
Rho(t) = +48.2; 48.8; 47.9; 48.0; Avg +48.2

70

see
etc

DATE		SAFETY CHECK					
DATE	JAN 8 1971						
TIME	0900	AM	BY				JAHOR-MITALCZO
CHANNEL		A	B	C	D	E	F
RANGE		10X10 ⁻¹²	OPR.	2-10	Y/N	900	900
SOURCE DIST.		2'	OK	5'		5'	OK
% F. S. TRIP		100	-	-		100	100
BLEG. ALARM		✓	✓	✓			
AUX GENS.		✓	-	✓			
SOURCES USED		N ₂	H		INJECTS		✓
TABLES		✓	LIGHTS	✓	AREA CLEARED		✓

Rhoel ~~OK~~

Run #28 Same loading; Measure reactivity:
 Rhoel = +48.1 F

→ Cycling with CFA
 Cycle example: same as Run #27.

Run

Run

DATE	JAN 12 1971					
TIME	1340		PM	BY Taylor & Lyman		
CHANNEL	A	B	C	D	E	F
RANGE	10X10 ⁻¹²		APR	L40	900	900
SOURCE DIST.						
9" B. S. TRIP	100	-	-	100	100	
SAFETY ALARM	✓	✓	✓			
ARM DISC.	✓	-	✓			
SCRAMS USED	N.B.D.					✓
TABLES	✓					

Sheet 1

Run # 29 Reactivity Measurement - 15" Disc; BARE

HT = $2\frac{15}{16}$ "

27,159

27,203

67,813

37,264

159,439 g-

2886	83	79	75	71
2885	82	78	74	70
87	52	42	36	28
2848	53	45	38	31
60	51			
3058				
84	49	43	2829	29
0104				

54,277 g/in

$\rho = -2.50$

Run # 30 Repeat -

$\rho = -2.50$

80

Run #31

HT (0 → 7") = 3"
 (7 → 15") = 2 10/16"

27,934	2886	83	79	75	30
	2885	82	78	74	68
27,203	87	52	42	36	28
	2848	53			
67,813	60	51	45	38	31
			3058		
37,264			0104		

160,214 g.

P = - #1.45

Run #32

Repeat

P = - #1.48

Run #33

HT = 3"

30,511	66	55	67	37	30
			44	63	68
27,203	87	52	42	36	28
	2848	53			
67,813	60	51	45	38	31
			3058		
37,264	84	49	43	2829	29
			0104		

162,791 g.

54597 g.

P = 56.8 #

Run #34

Repeat

P = - 57.2 #

DATE		SAFETY CHECK					
TIME	0820	AM	BY	Taylor & Lynn			
CHANNEL	A	B	C	D	E	F	Rhetts OK
RANGE	10X10-12	OPR	L-10	10	900	900	
SOURCE DIST.	2'	OK	5'	5'	5"	OK	
% F. S. TRIP	100	OK	OK	0	100	100	
DLG. ALARM	✓	✓	✓				
AUX CTRS.	✓	—	✓				
SOURCES USED	N/A			MAGNETS			✓
TABLES	✓	LIGHTS		✓	AREA CLEARED		✓

Run #35 H_T (0 → 7") = 3" (See p. 62).
 (7 → 15") = 3 $\frac{1}{32}$ "

Cf (dummy) with Amp. in place, Scint with pb and He ctrs also in place.

Al shim on drive for Control. S

Inst. Comp.

$P = + 59.7 \text{ sec}$, $14.15 \text{ } \phi$ - Log N
 $14.0 \text{ } \phi$ Pitte

Run #36 Removed Cf (dummy) and Amp. $P = -14.41 \text{ } \phi$

Run #37 Removed walk planks, ladders and etc.

No Reactivity Change

also inst. moved (ref Pg 75) are: ③ = 5'-8'; ④ = 5'-8'; ⑥ = 8'-5'

up and Down Counting J.T.M.

		SAFETY CHECK					
DATE	JAN 14 1971						
TIME	0920	AM PM	BY Taylor & Lynn				
CHANNEL	A	B	C	D	E	F	
RANGE	10×10^{-12}	OPR	h-10		900	900	
SOURCE DIST.	2'	OK	5'	10'	5"	OK	
% F. S. TRIP	100	-	-		100	100	
BLDG. ALARM	✓	✓	✓				
AUX GRS.	✓	-	✓				
SOURCES USED	N & P			MAGNETS ✓			
TABLES	- LIGHTS -		AREA CLEARED ✓				

Rhoetteck

Run # 38 REACTIVITY CHECK WITH CF (dummy)

Rhoette = ∞ ; BF₃ #1 & #3 → ∞ Run # 39 Put CF^c back on. Make multiple runs taking data with HASL. (Ref Pg D-89 JOM)

DATE	JAN 15 1971					
SAFETY CHECK						
TIME	0820	AM	BY	Taylor and Lynn		
CHANNEL	A	B	C	D	E	F
RANGE	16x10 ¹²	opr	L-10		900	900
SOURCE DIST.	2'	ok	5'	4'	10"	ok
% F. S. TRIP	100			1	100	
BLDG. ALARM	✓	✓	✓			
AUX CTRS.	✓	X	✓			
SOURCES USED	227 + Co			MAGNETS	✓	
TABLES	✓			LIGHTS	✓	AREA CLEARED
					✓	✓

checked OK

Run #40 Reactivity check as per Run 38

∞

- #41 as per Run 39 using Cf^C
- #42 Taking LASL data using Cf^A

DATE	JAN 18 1971		SAFETY CHECK			
TIME	0830	AM PM	BY Taylor - Symm.			
CHANNEL	A	B	C	D	E	F
RANGE	10x10 ⁻¹²	OPR	1-10	✓	900	900
SOURCE DIST.	18"	OK	5'	✓	6"	OK
% F. S. TRIP	100	-	-	0	100	100
BLOS. ALARM	✓	✓	✓			
AUX CRG.	✓	-	✓			
SOURCES USED	N & D		INNETS		✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓

Rhetto OK

Run #43 Reactivity Check Cf (Dummy). ∞

LN = .05

1 min ct	#1	#3
LN = .0007	58,131	46,789
	56,506	45,766
	57,673	46,574
	57,810	47,000

#44 Cf A on ; LASL Data Taking.

Discriminator
Out - No Data Taken

JAN 21 1971

DATE	JAN 21 1971		SAFETY CHECK		
TIME	0825	BY	TAYLOR - LYNN		
CONSEL	A	B	C	D E F	
LAZE #	10X10-12	OPR	2-10	900	900
SCALE DIST.	18"	OK	6'	6"	OK
% F. S. SPD	100	-	-	100	100
CLAS. ALARM	✓	✓	✓	Rhett OK	
AUX EQS.	✓	✓	✓		
SOURCES USED	N & 1		PROBETS	✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED	

Run #45 Repeat Run #43, $L_N = .05$

1 min at	#1	#3
	43476	33581
$L_N = .00075$	43917	34480
	45518	35388
	45330	35422

Run #46 Cf A on ; LASL Data Taking.

EXAMPLE: 10 min (at time); full travel; cycle time = 13 min
 L_N Peak = .0002 ; "A" peak = 10X10-11 @ 27

DATE JAN 22 1971		SAFETY CHECK					
TIME	0820	AM	BY TAYLOR-LYNN				
CHANNEL	A	B	C	D	E	F	
RANGE	10x10 ¹²	OPR	L-10	900	900	900	
SCHEMATIC	2'	OK	5'	6"	6"	OK	
% T. A. W.P.	100	-	-	100	100	100	
BEST	-	-	-	Phetock			
ALS	✓	-	✓				
SEARCH	NEA					✓	
TABLE	✓		✓			✓	

Run #47 Reactivity Check. Cf (DUMMY).

∞ Lag N = .06

1 Min Cts #1 #2

#48	28,212	30,072
	28,770	30,367
	28,509	30,371

Run #48 Cf^A on : LASL Data taking
see Run 46

Run #49 Cf^C on : LASL Data taking.

DATE		SAFETY CHECK					
TIME	0830	AM	BY TAYLOR - LYNN				
CHANNEL	A	B	C	D	E	F	
RANGE	10X10 ⁻¹²	OPR	L-10	✓	900	900	
SOURCE DIST.	18"	OK	5'		6"	OK	
% F. S. TRIP	100	-	-		100	100	
ELECT. TEST	✓	✓	-	Rhett OK			
ADJ. PROC.	✓	-	-				
SOURCE CTD	N & N					✓	
TABLES	✓		✓	TEST CLEARED		✓	

Run #50 Cf amplifier moved from center top to lateral surface.
 He³ + Scint same -
 Al skin control in place for leveling - $\rho = -14.14 \%$



Run #51 Move Al skin for more reactivity.

40 Sec cts	#1	#3
	42,491	43,938
	44,082	45,553
	43,742	45,302



Run #52 CFA on ; Data Collection

#53 CFC on ; Data Collection

DATE	SAFETY CHECK					
TIME	0820	AM	BY TAYLOR & LYNN			
CHANNEL	A	B	C	D	E	F
RANGE	10 ¹⁰ 10 ⁻¹²	OPR	6-10	11	900	900
SOURCE DIST.	18" OK	6'			6" OK	
% F.S. TRIP	100	-	-		100	100
BLDG. ALARM	✓	✓	✓		Rhoetto OK	
AIR FLOW	✓	-	✓			
SIGNALS	N & M					✓
TABLES	✓		✓			✓

Run #54 Reactivity Check. Cf (Dummy)

	#1	#3	∞	LN = .05	Ru
40 Sec cts	27,353	26,950			
Run #54	27,269	26,186	LogN = .0006		
	27,482	26,558			

Run #55 Cycling using Cf^c (Ref Log D Pg 164)
 Cycle example: ct time = 53.6 sec, 1" travel,
 cycle time = 1.23 min; A peak = 10×10^{-12} @ ≈ 80

Had a plant wide power failure causing a
 SCRAM of the CTR. Routine re-startup.
 Time of (SCRAM & Power Out) = 14:34 Power
 back on @ 14:48

DATE	JAN 27 1971					
TIME	0830		AM	BY	Taylor & Lynn	
CHANNEL	A	B	C	D	E	F
RANGE	10x10 ⁻¹²	OPR	6-10	X	900	900
SOURCE DIST.	20"	OK	6'		6"	OK
% F. C. TRIP	100	-	-		100	100
RECORD PLACED	✓	✓	✓			
APPROVED	✓	✓	✓			
SEARCHED	N/A					✓
TABLES	✓					✓

05 Run #56 Reactivity check. cf (dummy). ∞ Log N = .05

6 40 Sec cts RS #1 #3
~~17,749~~ ~~18,027~~ Log N = .0006
 17,789 18,143
 18,224 18,344

64) Run #57 Cf^C cycling -

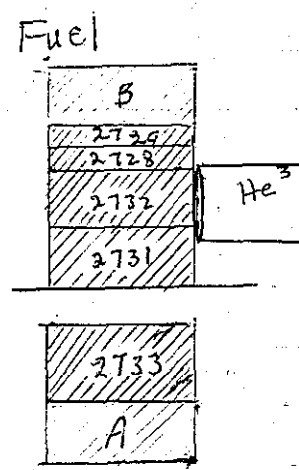
2 P. 2n Run #58 Cf^A cycling -

DATE JAN 28 1971		SAFETY CHECK					
TIME	10:55	AM	BY Taylor & Lynn				
CHANNEL	A	B	C	D	E	F	
RANGE	10x10 ⁻¹²	200	h.70	900	900		
SCORING ENCL.	18	200	6'	6"	OK		
% F. C. TEMP	100	-	-	100	100		
BLOC. ALARM	-	-	-	Photo OK			
AUX. PWR.	-	-	-				
SCORING CARD	N & D						
TABLES	-	-	-	-	-	-	

CA. 7" Sandwich Run 1
 1" C Top + Bottom Time 11:08 AM
 Purpose Critical assembly for Rossi & measurement

Run #1 7" dia U disc. Ht = 4 1/4"
 1" Carbon Top and Bottom.

1 1/2" = RAM
 2 3/4" = Draft k < 1
 He³ Counter in place



19,225
 19,237
 + 3
 + 1

Run #2 Fuel = 4 5/16"
 Some Plugs out k < 1.

Run #3 Fuel = 4 5/16"
 Added center plug to #2733 + .1/2" Radial to #2732, k < 1

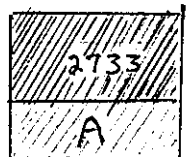
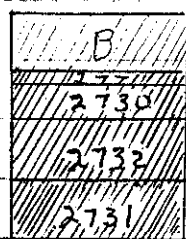
Run #4 Added All plugs. $k > 1, - + 12 \phi$
 11:50 AM Al Shim on drive = ~~out~~

Run #5 Removed plugs from #2733.
 Al Shim = $\sim 6 \phi$ $k < 1, -10 \phi$

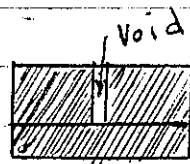
Run #6 Added center plug to #2733.

$k > 1, + 7 \phi$

\therefore Center Plug = 17ϕ
 #2733



Run #7 Only void is 1" in center
 of #2733.



on Al Shim

N ↑

"REMOVE" AL SHIM



HE³ CTR.

(Ref Log D-181)

He³

DATE JAN 29 1971

MIHALCZO & THOMAS

QTY	SIZE	UNIT	QTY	SIZE	UNIT
0	900	900	0	900	900
12"	4"	4"	2"	OK	
100			100	100	
✓	✓	✓			
✓	✓	✓			

NOX ✓

THOMAS ✓

Run #8 Fuel = $4 \frac{5}{16}$ " , has 1" void as per Run #7.
 1" C Top and Bottom
 Data Collection Rose & log N = .0005

Run #9 14:34 - Lost Magnet Current.
 Start up again - Reached 15" Lost Current again.

Ru
Ru
Ru
Ru

DATE FEB 1 1971		SAFETY CHECK					
TIME	08 ²⁵	AM	BY	Faylor & Lugin	EM		
CHANNEL	A	B	C	D	E	F	
RANGE	10x10 ⁻²	EPIC	L-10		900	900	
SOURCE DIST.	20" OK	6'			6" OK		
% E. S. TDR	100	-	-		100-100		
BLDG. ALARM	✓	✓	✓				
AUX GTAC	✓	-	✓		Rhetto OK		
SOURCES USED	N.d.p.					✓	
TABLES	✓	LIGHTS	✓	AREA	CLEANED	✓	

7" dia Sandwich, 2" Carbon

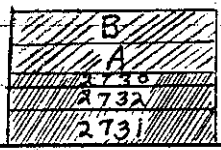
Run #10

Fuel = 4 1/16"

Rem = 1 1/2", 1" of center plug out of #2733.

Diaph = 2 9/16", He³ center in place.

k < 1



Run #11

Fuel = 4 1/16" Complete.

made alignment adjustment.

k > 1, Log A = +15.4

Little = 13.68⁺ (5x10⁻¹⁰ Low Power)



Run #12

Repeat Run #10.

k ∞, on Al shim.

Run #13

Peer control
Removed 1/8" length plug from #2733 center.

Same control problem. Determined Table Not Closed.

Run #14

Made flange adjustment.

k > 1, + 0.5⁺

Run #15

Center Plug #2733 out

k ∞, on Al shim.

DATE FEB 2 1971		SAFETY CHECK					
TIME	0930	ALL BY	Taylor & Lynn				
CONTROL	A	B	C	D	E	F	
BASE	10X10 ¹²	OPR	6-10	OK	900	900	
CONTROL	16"	OK	6'	OK	6"	OK	
CONTROL	100	-	-	OK	100	100	
CONTROL	-	✓	✓	✓	Phetteck	OK	
CONTROL	✓	-	-	-	✓	✓	
CONTROL	M227 & Co	-	-	-	✓	✓	
TAGS	✓	-	-	-	✓	✓	

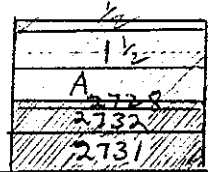
7" Dia Sandwich, 3" Carbon

Run #16 Fuel = $3 \frac{3}{8}$ "

Ram = $1 \frac{1}{2}$ " less plugs

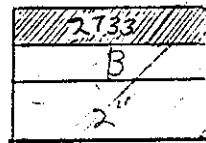
Depth = $2 \frac{3}{8}$ "

$k < 1$



Run #17 Add plugs

$k < 1$



Run #18 Fuel = $3 \frac{5}{16}$ " , less all plugs.

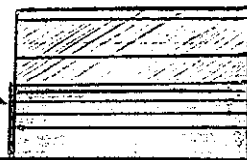
→ Removed # 2732, Added # 2730, 2770 & 2771.
 $k < 1$

Run #19 Added All Plugs.

$k < 1$

Run #20 Added 2 pcs $2 \frac{1}{2}$ " x $2 \frac{1}{2}$ " x $\frac{1}{32}$ " to lateral surface, resting on diaphragm.

$k \infty$, on a thin



DATE		FEB 3 1971		SAFETY CHECK-	
TIME	10:40	Taylor & Lyman			
CHARGE					
NO. OF	10x10 ⁻⁴ opt	L-10	900	900	
DEPTH	20" ok	5'	6"	ok	
SP. GR.	100	100	100+	100+	
TEMP.	✓	✓	✓		
WIND	✓	-	✓		
SAMPLES USED	N	# 8			✓
TABLES	✓		✓		✓

11" Dia. Sandwich, 1" Carbon

Run #21 Fuel = 2 1/16"

Ram = 1", less plug of # 2732

Depth = 1 1/16"

2767	2737	2730
2779	2770	2771
2778	2774	2770
2742	2730	2728
2803		
# 2776, 2762 + 2731		

k > 1, + 14.5%

Run #22 Fuel = 2 1/16"

RAM Fuel Now → # 2745, 2738, 2732
with all plugs out.

AL Shim = 4.5%

k < 1

Run #23 Added 1" radial plug to # 2732, at center.

AL Shim in

k < 1, ~ 5%

Run #24 Added another 1" to # 2732.

Then 2nd pc = ~ 9%

k > 1, + 0.5%

Run #25 Removed 3/8" of plug in # 2732.

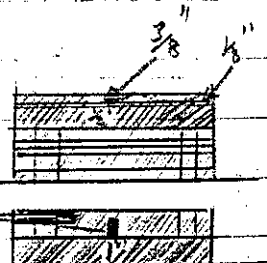
Radial Void = 3 5/8" from edge

Vert. void = 7/8" from Bottom

k ∞, on al Shim

Ref D-194

Void



TYPICAL FRANGE SETTING SITUATION:

Ram down separation: longest = 19.642";
 shortest = 19.630"; Flange to stop button = 19.678"
 Flange to bottom of frame (set) = 19.700";
 Down Selsyn = 00.000" · Slow relay @ 18.290";
 Up Selsyn = 19.678" · Flange (VDT4)^{WEST} should be
 separated about 10 mils more than flange
 (VDT3)^{EAST} in order for them to read out the same.

Ru

DATE	FEB 4 1971					
SAFETY CHECK						
TIME	08 ²⁰		AM	BY	Taylor & Lippman	
CHANNEL	A	B	C	D	E	F
RANGE	10x10-12	OPR	L-10	✓	900	900
SOURCE DIST.	15" off	30"	✓	6"	ok	
% F. S. TRIP	100			100	100	
BLDG. ALARM	✓	✓	✓	Rhett OK		
AUX. CTES.	✓	-	✓			
SOURCES USED	A	B		MAGNETS	✓	
TABLES	✓	LIGHTS	-	AREA CLEARED	✓	

678"
0"
2L
same.

Run #26 Repeat Run #25.
 Crit @ 08:40 AM ∞ at skin
 Down

FEB 5 1971

DATE	FEB 5 1971		SAFETY CHECK			
TIME	AM	BY				
CHANNEL	A	D	C	D	E	F
RANGE	10x10 ⁻¹² opt L-10		900		900	
SOURCE DIST.	18"	OK	30"	6"		OK
90 F. S. TRIP	100	100		100 ⁺		-
BLOS. ALARM	✓	✓	✓			
AUX CDS.	✓	-	✓			
SERVICES USED	Co 60		MAGNETS		✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓

CTU - Table speed checks.

Condition	Press ^(FEED)	wt lbs	Speed
Fast	70	75	15.20 in./min
"	"	"	15.38 "
Slow	"	"	0.28 "
"	"	"	0.29 "
Normal	"	"	37.6 "
Down	"	0	17.5 "
Fast	"	0	35.1 "
Down	"	0	

Run #27 11" dia. Sandwich, 2" Carbon

HT = 2 ³/₈" 0 → 7 rings

2 ¹¹/₃₂" 7" → 11" "

all plugs out.

k < 1, -10 φ

Run # 28

~~11" to Report~~

Added center plug to # 2732.

$k \infty$, on skin.

Run # 29

Restack :

HT = (0 → 7") = $2 \frac{5}{16}$ " + 2 pos $2 \frac{1}{2} \times 2 \frac{1}{2} \times \frac{1}{2}$ at center
 (7" → 11") = $2 \frac{3}{8}$ "

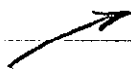
All plugs in.

$h < 1$, - 25¢

1/2"		
1 1/2"		
46	73	
49	68	70
79	75	
42	36	30
78	74	71
2803		

45	38	32
2"		

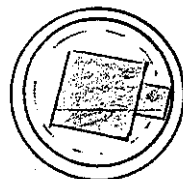
Run # 32
 P. 100



DATE		FEB 3 1971		SAFETY CHECK	
TIME	08:20	Lynn & Taylor			
OP	10x10 ⁻²	opr	k-10	900	900
OP	15"	OK	24"	6"	OK
OP	100	-	100	100+	-
OP	✓	✓	✓		
OP	✓	✓	✓		
OP	✓				✓
OP	✓				✓

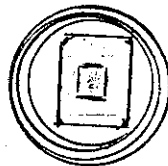
Run# 30 Hit (0 → 9) = 2 $\frac{5}{16}$ " + 2 pc 5" x 5" x $\frac{1}{32}$ "
 + 2 pc 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " x $\frac{1}{32}$ "
 (9 → 11) = 2 $\frac{3}{8}$ "

k < 1, Est. -10¢



Run# 31 Hit (0 → 7) = 2 $\frac{5}{16}$ " + 1 pc 5" x 5" x $\frac{1}{32}$ " + 1 pc 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " x $\frac{1}{32}$ "
 (9 → 11) = 2 $\frac{3}{8}$ "

k < 1, Est. -12¢



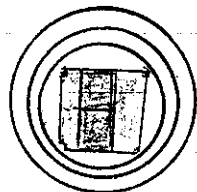
Run# 32 added 1 pc 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " x $\frac{1}{32}$ " to top.

k ∞, on al skin

Crit 09:25-

Down 16:05

SEE p. 99



11" dia. 3" CARBON SANDWICH 101

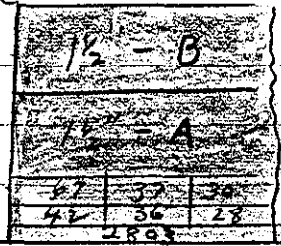
DATE	FEB 9 1971	SA.	CHECK
TIME	0840	AM	BY Taylor & Lupin
CHANNEL	A	B	E F
RANGE	10X10 ⁻¹²	OPR	A-10 900 900
SOURCE DIST.	18"	OK	2" 6" OK
% F. S. TRIP	100	-	100 100
BLDG. ALARM	✓	✓	✓ Shedd OK
AUX CTNS.	✓	✓	✓
SOURCES USED	N/A	✓	MAGNETS ✓
TABLES	✓	LIGHTS	✓ AREA CLEARED ✓

Run #33 Same as Run #29 Pg 46 except all plugs are out except (3/8" is in vertical center of #32).
 $k > 1 \Rightarrow \approx +3\phi$ (shin out)

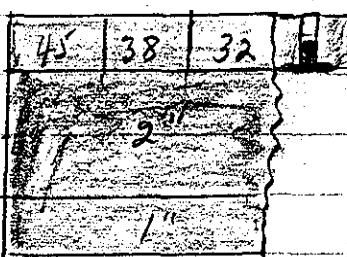
Run #34 Removed 1/2" of center plug of #32
 on Al Shien.

Crit 09:20 AM
 Start 9:33 AM

#28 plugs out



#32 plugs out except 3/8" at center



DATE		SAFETY CHECK					
TIME	0830	AM PM	BY				Taylor & Lynn
CHANNEL	A	B	C	D	E	F	
RANGE	10x10 ⁻¹²	1PR	2-10	4	900	900	
SOURCE DIST.	15" OK	2'	4	6"	OK		
% F. S. TRIP	100	-	100	100	100	100	
BLES. ALARM	✓	✓	✓	Shuttle OK			
AUX CTS.	✓	✓	✓				
SOURCES USED	4	4	HEAVYS	✓			
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓		

* Neutron source not used as per ECR.

Run #35

@ DC cont LASH data taking.

crit: 08:50 AM

Data Start @ 09:00 AM (Ref. Rpt. D-202)

Down 16:12 PM

Sandwich
15" Diameter, 1" Carbon

DATE	FEB 11 1971		CHECK	
TIME	09:55	AM	Taylor & Lynn	
CHANNEL	A			
FARE	10X/D	0.10	900	900
SIDE F. DIST.	30"	OK	6"	OK
S. T. S. TRIP	100	—	100	—
BEEL ALARM	—	✓	—	—
BEEL OFF	—	✓	—	—
SAMPLES USED	227 + C ⁶⁰		✓	
TABLES	✓	LIGHTS	✓	✓

Run #36 Fuel Ht (60 → 7) = $2\frac{4}{8}$ " ; Dia (7 → 15) = $1\frac{7}{8}$ "
 (7 → 15) = $2\frac{5}{16}$ " ; Ram = $\frac{3}{8}$ "

Critical @ 10:20 A Up Position = 20.275 (5th #1)
 Data Start @ 10:35 A

∞, oval skin

- 9/16
- 3/8
- 1/4
- 1/2
- 1/4
- 3/8

1" - B					1/16" Void
66	55	67	37	62	
85	50	79	75	32	
2895	82	78	74	62	
60	51	43	2829	29	
3058					
84	47	42	38	28	
1" - A					

DATE FEB 12 1971		SAFETY CHECK					
TIME	0825	BY	Taylor & Lynn				
CHANNEL	A	B	C	D	E	F	
RANGE	10x10 ⁻¹²	EPR	h-10	900	900		
SEARCH DIST.	2' OK	6'		6"	OK		
% F. S. TSP	100	-	-	100+	100+		
BLOC. PLATE	✓	✓	✓				
AUX. CIRC.	✓	-	-	Rhett's	OK		
SOURCES USED	M227 - H					✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓	

Run #37 Cont 15" to 1" C (LAL data) Ref (D-205)
 Critical @ 0845 $L_m = .00014$
 Down @ 1620 hrs.

FEB 16 1971

15" Diameter Sandwich, 2" Carbon 105

DATE: FEB 16 1971		CHECK	
TIME: 08:50	Lynn + Taylor		
10X10 ²	OP L-10	900	900
15"	OTL 6'	6"	OK
100	100	100	---
✓	✓	✓	
✓	✓	✓	
N	Y		✓
✓	✓		✓

Run #38 HT = $1\frac{15}{16}$ " , Diaph = $1\frac{7}{16}$ "
 Ram = $\frac{3}{8}$ "

$k > 1$, + 50¢

Run #39 HT (0 → 7") = $1\frac{7}{8}$ " + 5" x 5" x $\frac{1}{32}$ " pc
 (7" → 15") = $1\frac{15}{16}$ "

$k < 1$, ?

Run #40 HT (0 → 7) = $1\frac{15}{16}$ "
 (7 → 11) = $1\frac{29}{32}$ "
 (11 → 15) = $1\frac{15}{16}$ "

$k > 1$, + 40¢

Run #41 HT (0 → 7) = $1\frac{15}{16}$ "
 (7 → 9) = $1\frac{29}{32}$ "
 (9 → 11) = $1\frac{7}{8}$ "
 (11 → 15) = $1\frac{29}{32}$ "

$k < 1$, - 8¢

Run #42

$(0 \rightarrow 7) = 1 \frac{15}{16}''$
 $(7 \rightarrow 9) = 1 \frac{29}{32}''$
 $(9 \rightarrow 11) = 1 \frac{7}{8}''$

$(11 \rightarrow 13) = 1 \frac{29}{32}''$
 $(13 \rightarrow 15) = 1 \frac{13}{16}''$

$k \infty$, Al shim. (No Data Taken)

Down @ 13:40

Run #43

Repeat Run #42.
critical 14:15 P

Start Data @ 14:20

$\log N = .0005$

Down @ 16:22

$\frac{1}{32}''$ Voids
 $\frac{1}{16}''$ Void

1" - C				
1" - B				
66	3215	78	3217	30
2885	52			68
60	51	45	38	70
3058				
84	49	42	36	28
1" - A				
1" - D				

DATE		SAFETY CHECK					
TIME	08:20	AM	BY	Taylor & Lynn			
CHANNEL		A	B	C	D	E	F
RANGE		10x10 ⁻¹²	APR	L-70	⊗	900	900
SOURCE DIST.		15"	✓	6'	✓	6"	OK
% F. S. TRIP		100	=	100	✓	100	100
BLEED. ALARM		✓	✓	✓	Rhoctok		
AUX CTRS.		✓	✓	✓	Rhoctok		
SOURCES USED		N & D			MAGNETS	✓	
TABLES		✓	LIGHTS	✓	AREA CLEANED	✓	

Run #44 Cont Run #43, Log N = 100014
 Critical (∞) @ 0835 (Ref Log D Pg 207)

Start Data at 08:45

DATE		SAFETY CHECK					
DATE	FEB 18 1971						
TIME	0850	AM	BY Taylor & Lynn				PM
CHANNEL		A	B	C	D	E	F
RANGE		1010-12	APR	L-10	X	900	900
SOURCE DIST.							
% F. S. TWP		100	-	100	X	100	100
BLDG. ALARM		✓	✓	✓			
AUX GSS.		✓	-	✓			
SOURCES USED		N & P					
TABLES		-	LIGHTS	-	AREA CLEARED	✓	

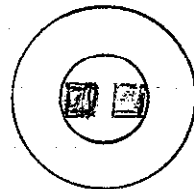
Ref Log D-210
for AMS data.

Run #45 Fuel Ht (0-7) = $1\frac{1}{16}$ " $\frac{3}{8}$ " is on Ram
(7-15) = $1\frac{23}{32}$ "
Up Selam = 18.295 $R < 1 = -17\text{¢}$

Run #46 Add 2 ($2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{32}$) pieces to the center fuel.
 $R > 1 = +6\text{¢}$

Run #47 Add Shim ($2\frac{3}{8} \times 2\frac{3}{8} \times \frac{1}{4}$) = 3¢
Spread and Removed $\frac{1}{4}$ plug from Center.

$R > 1 = +2\text{¢}$



Run #48 Removed $\frac{3}{8}$ " plug from Ram Center.

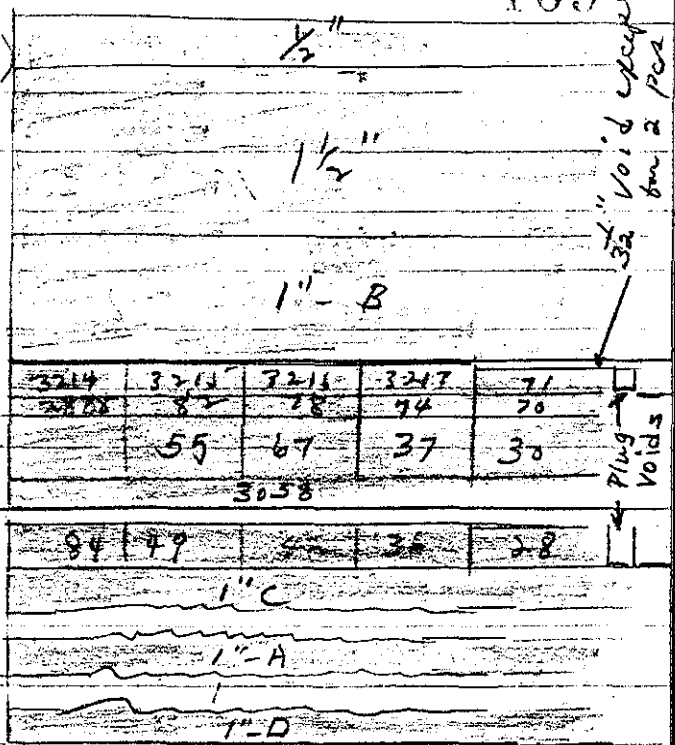
crit @ 10:05 A

Data Start 10:18 A

Down 16:15 P

$(0-7) = 1 \frac{1}{16} + 2(2 \frac{1}{2} \times 2 \frac{1}{2} \times \frac{1}{32})$
 $(7-15) = 1 \frac{23}{32}$

-210
Data



nd.

7" CYLINDER (BARE)

DATE	FEB 19 1971		SAFETY CHECK			
TIME	10:30	AM	BY	Taylor & Lynn		
CHANNEL	A	B	C	D	E	F
RANGE	10X10 ⁻¹²	CPR	6-10	900V	900V	
SOURCE DIST.	20"	OK	6"	16"	OK	
% F. S. TRIP	100	-	100	100	100	
BLDG. ALARM	✓	✓	✓			
AUX CTRS.	✓	✓	✓	Rhett OK		
SOURCES USED	N & H			MAGNETS	✓	
TABLES	✓			LIGHTS	✓	AREA CLEARED
						✓

Reference
log E_g ≈ 14

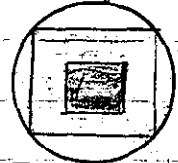
Run #49

$$H_4 = 4 \frac{15}{16} + 5" \times 5" \times \frac{1}{32} + 2 \frac{1}{2}" \times 2 \frac{1}{2}" \times \frac{1}{32}$$

1" on Ram ; He³ Counter at center of Stack

up #1 = 20.625

k > 1, + 5^f

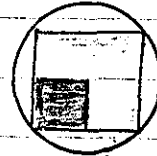


Top View

Run #50

Moved 2 1/2" x 2 1/2" x 1/32"

k > 1, + 0.5^f

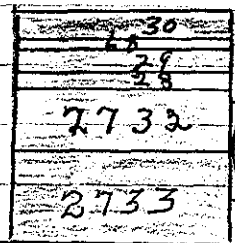
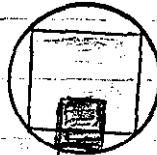


Top View

Run #51

Again

k > 1, + 0.5^f



Run #52

Again

crit @ 11:40^A

