

BOOK16R

Notes:

-This is a "paper copy" of a logbook previously copied by someone other than myself.

-"Book 5" hand-written on page 1.

Blank pages: 2, 81, 100, 142, 146-149, 151.

Scanned by:

Sheila Finch

RSICC /Oak Ridge National Lab.

July 30, 1999

1

3

2

BOOK 5

	Page	Ross
2-15-3*	7	*
2-11-3 ¹ / ₄	28, 103	
2-11-3 ⁵ / ₁₆	43, 101, 113	
2-11-3 ³ / ₈	52	
2-15-3	73	
Pette Calibration		
1-11-3 ³ / ₁₆	104	
1-11-3 ¹ / ₈	108	
1-11-3.0	110	
1-11-2 ⁷ / ₈	112	
1-		
1-11-2 ³ / ₄	114, 118	
1-11-2 ⁵ / ₈	114	
1-11-2 ¹ / ₂	115, 117, 118	
1-11-2, 2 ¹ / ₄	116, 140	
2 ¹ / ₈	140	

15" dia Pitte calibration

$2\frac{7}{8}$ "	-	p. 120, 136	2"	-	p. 132, 138
$2\frac{5}{8}$ "	-	122, 135	$1\frac{7}{8}$ "	-	133
$2\frac{1}{2}$ "	-	127	$1\frac{9}{16}$ "	-	134
$2\frac{3}{8}$ "	-	128	$2\frac{3}{4}$ "	-	136
$2\frac{1}{4}$ "	-	130	$2\frac{15}{16}$ "	-	137
$2\frac{1}{8}$ "	-	131			

7" dia Pitte calibration

4"	-	p. 123
$3\frac{5}{8}$ "	-	124
3"	-	126

Rossi & Countess ^{location} ~~well~~ ^{manuscript} ~~located~~ this Book.

138

J.7
J.
J.

2886	2783	2779	2775	2771
15" x 1/4" # 3058				
2766	2755	2746	2773	69
3214	3215	43	36	29
2767	2781	78	74	70
58	80			
85	45	48	41	34
35	56			
11" x 1/4" # 2803				

1/32" GAP

10 mil SS Diaphragm

2848	2754	2744	2763	2768
		42	2829	28
2787	53	47	2740	33
86	52			
60	51			
39	57	76	62	31

15 13 11 9 7

2 (15" dia cyl)
Separation = 51.5"

Piggy Back Diaphragms

J. T. Michalczo
 J. J. Lynn
 J. R. Taylor

2 (15" cyl) EXPT. 69 RUN C-1
 Date 5-14-65 3:30 PM
 Purpose: Critical Separation
 2 - 3" Thick, 15" dia cyl
 except (15" x 11") of Top
 Stack which is 2 $\frac{31}{32}$ " SEE p. 6

C-1 SEPARATION $\approx 44"$

RAM = 2 $\frac{1}{2}$ " Fuel, Bottom Diaph = $\frac{1}{2}$ " Fuel

Top Diaph = 2 $\frac{1}{2}$ " less $\frac{1}{32}$ " (15" x 13")

Top Plate = $\frac{1}{2}$ " up # 1 = 15.250

Pos Period - #1 = 15.035

#2 = 15.073

Parallel Shim

35 ϕ

∞ - #1 = 15.066

#2 = 15.102

Pos Period #1 = 15.086

#2 = 15.124

20 mils
 8 ϕ

Lower Tables Normal = - #2

Pos Periods - #1 = 15.234

+ 20 ϕ 2 $\frac{1}{32}$ " #2 = 15.273

#3 = 0

#4 = -16

Top $\frac{1}{4}$ " P. late

-1.25

Tables + P. late = -10

INSTRUMENT CHECK

M-226 + Y

MAY 7 1965

8:30 ~~PM~~

Lights - OK

Tables - OK

Magnets - OK

Alarms - OK

Area Cleared

F $\frac{10}{1000}$ apr x $\frac{10}{1000}$ 900V
 OK 8" OK 4' 2" 6"
 95 ✓ 100 95 100+

3:46

2 (15" cyl) Exp. 69 Run. C-2

Date 5-17-65 9:00 AM

Purpose Critical Separation

2-3" stacks, less $\frac{1}{32}$ " (15" x 18")
 of Top STACK

C-2

SEPARATED - 1"

SEPARATION ≈ 44.5 " ∞

#1 = 14.085

#2 = 14.130

up Poo Period

#1 =

#2 =

42.8 ~~sec~~log N = 17.75 ϕ

C-3 Increased Separation 2" Now @ 46.5"

Removed walk planks, Pette Chamber on floorExcess 95.5 sec, 10 ϕ

log N

K
K
K
K

C-4 Placed Scintillation Counter in place for Rossi α , to see reactivity change

Log N.
Poo Period - 97.7 sec 9.82 ϕ

3:45^{PM} C-5

Increased Spacing 3" Now at 49.5"
Rossi α Counter in place -
Walk planks up.

Log N Poo Period = 172.6 sec
+ 6.18 ϕ

Sebyn^{#1} = 12.240 lite

on floor

DATE	MAY 18 1965		SAFETY CHECK			
TIME	8 ³⁰	AM	BY TAYLOR & LYNN			
CHANNEL	A	B	C	D	E	F
RANGE	10 ¹⁰⁰⁰	OPR	x	10 ¹⁰⁰⁰	900V	850V
SOURCE DIST.	8"	✓	5'	2"	6"	✓
90° F. S. TRIP	90	✓	100	95	100+	100
BLDG. ALARM	✓	✓	✓			
AUX CTDS.	—	—	✓			
SOURCES USED	Pu226 & Ra 248		MAGNETS		✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓

69 RUN C-6
 2(15" dia cyl) Date 5-18-1965 Time 8:40 AM
 Purpose: Reactivity measurement for 1 1/2" additional separation.

Specia
 Run
 A

C-6 SEPARATION $\approx 51"$
 #1 = 10.72
 #2 = 10.762
 #3 = 0
 #4 = -9

Log N - Pos Period - 758 sec = 1.60 ϕ

Inerted Servo Shim - Pos Period - 132 sec
 (on top of bottom stack) + 7.73

C-7 Removed walk planks, some unit. strut, etc
 trying for Resie & sum
 moved servo shim to bottom of bottom stack

Specia
 Run
 B

log N Pos + 1019 sec, 1.2 ϕ
 Servo Shim in + 244 sec, 4.6 ϕ

C-8 SEPARATED 1/2"

New @ = 51.5"

up #1 = 10.223

#3 = +1

#2 = 10.266

#4 = -22

log N = .00032 (Stair way)

∞ on Servo @ 2.50 D = 58 ¹⁰⁰/₁₀₀

Down to put repaired Ctr in place

Special Run A

Data collection started @ 2:12 PM

3 min at Rack 7 = 9⁴⁴ 6 = 9⁶⁸ 5 = 512²⁵ with cable

BF₃ Ctr = 1616 Reg./10 min, PHS=40

Scale = 256

Log N = .00032

"C" = 37 @ TAPE on fine

"D" = 58 ¹⁰⁰/₁₀₀ Servo 550 units

"A" = 45.5 ¹⁰⁰/₁₀₀

TIME @ END OF 1000 CTS. ACCUMULATION = 3¹²

1 min 208590 - 1 min triggering detector
Rack 7 = 1¹⁸² 6 = 2⁷⁸ 5 = 171⁹⁰ without cable

Special Run B

DATA Collection started @ 3³⁰ PM ENDED @ 3⁵⁴ PM

BF₃ ctr = 609¹⁶⁰ Reg./5 min. PHS 40 (256)

log N = .00022 ; "C" = 24 ; "D" = 40.6 ; "A" = 33

ROSSI ALPHA 15" DIA - 51.5" SPACE

DATE		SAFETY CHECK					
MAY 19 1965		TAYLOR & MIHALCZO					
TIME 5:45 AM							
CHANNEL	A	B	G	D	E	F	
RANGE	10/1000	OPR	X	10/1000	900	850	
SOURCE DIST.	8"	✓	4'	3"	7"	✓	
% F. B. TRIP	90	✓	100	90	100*	100	
BLDG. ALARM	✓	✓	✓				
AUX CTRS.	—	—	✓				
SOURCES USED	R ₂₂₆ & R ₂₄₈		MAGNETS		✓		
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓		

3" HIGH EACH
 2-15" DIAMETER
 CYLINDERS SPACED
 ~ 51.5" APART.
 PERIOD FOR
 ROSSI ALPHA RUN.

SCIN. LOCATED ON
 TOP OF TOP DIAPH.

A WITH END 2" FROM EDGE OF STACK. 2 FISS. CTS.
 ON TOP OF BOTTOM STACK & 1" FROM CENTER.

BEGIN COLLECTING DATA @ 6:14 AM STOP 1:22 PM

* Set same equivalent power level as yesterday's
 $\log N (.00032)$ by using BF₃, A, D, C channels.

BF₃ RACK 5 = 162 REB./MIN.

$\log N = .00034$ * (REFERENCE ABOVE)

A = 46 @ 100/100 ; B = ∞ ; C = 38 ; D = 59 @ 10/1000

SELSYN #1 = 10.223 ; #2 = 10.268 ; #3 = +1 ; #4 = -22

AT END OF RUN TRIGGERS = 194000/min

RELATIONAL STABILITY CHECK OF INSTRUMENTS.

∞ VIA SHIM & DOG 10/1000.

ELAPSED TIME →	0	1 HR.	2 HRS.	3 HRS.	4 HRS.	5 HRS.
$\log N$.00034	.000315	.00032	.00031	.00032	.00034
A	46	46	46	46	46	46
VDY#3	71	68	71	72	73	73
C	38	38	38	38.5	38.5	38.5
D	59	58.5	58.5	59	59	59
BF ₃	162	176	177	176	179	179

RECALIB. LOG N

B 5-ET Reg. in Rack #7 = 1440 > morning Run 13
 #6 = 1450

1:50 PM Moved Spiral fission counters to bottom of top stack. 1" from center

Returned to morning power level.
 Data Collection started 2:15 PM
 Stopped 7:33 PM

#1 = 10.222 #3 = +1
 #2 = 10.262 #4 = -

Registers: Rack #7 = 2450
 at finish of Count #6 = 2508
 Tray Rate 217,887/min
 10 m after shutdown 75000 T.P.M.

6 +151 / 5 min
 10 +39 / 5 min

RECALIB. LOG N

5 HRS.	6 HRS.	2:15 P.M.	4:45 P.M.	7:33 P.M.
00039	00040	00039	00036	00036
46	46	A - 45.5	50.5 (52.4) ^{B row}	46
38.5	38.5	C - 4.00	41	41
59	59	D - 59	59	59
179	160	BF ₃ - 162/min	174/min	872 / 5 min

DATE	MAY 20 1965		SAFETY CHECK		
TIME	6 ¹⁵	AM	BY MIHALCZO & TAYLOR		
CHANNEL					
RANGE	$\frac{10}{1000}$	OPC	X	$\frac{10}{1000}$	900 950
SOUL. DIS.	8"	✓	4"	4"	6" ✓
SP. DIS.	90	✓	100	90	100+ 100
ELSD. ALARM	✓	✓	✓		
AUX. REL.	-	-	✓		
SOURCES USED	Pu 226 & Ra 248		MAGNETS		✓
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓

2-15" DIA. cyl cont

Put spiral fiss. cts on top of top stack

CUT 5 FT

START: 7¹⁶ AM

219000/min trig. ; BF₃ = 162 reg/min ; A = 46 ; B = ∞ ; C = 39 ;
D = 59 ; log N = .00032 (30 min after power level reached)

INSTRUMENTS MONITORED THROUGHOUT RUN.

END: 1¹³ PM

198625/min trig ; BF₃ = 170 reg/min ; A = 46 ; B = ∞ ; C = 39 ;
D = 59 ; log N = 00030

D 1:30 PM
T-T 5-585
Move spiral fission counters to Bottom of Bottom Stack
Data Collection Started 2:10 PM

BF₃ = 174 reg/min A = 41.5 $\frac{100}{100}$, C = 39, D = 59 $\frac{10}{1000}$

Log N = .00028

BF₃ - 3:00 PM, 4:30 PM, 6:00 PM, 8:00 PM
1 min 174 176 174 171

Down to @ 8:15 PM

#1 = 10.22
#2 = 10.258
#3 = 0
#4 =

ent
ctro
ick

DATE		MAY 24 1965						SAFETY CHECK					
TIME	5 ⁴⁵	AM	BY MIHALCZO & TAYLOR										
CHANNEL	A	B	C	D	E	F							
RANGE	$\frac{10}{1000}$	OPR	X	$\frac{10}{1000}$	900	850							
SOURCE DIST.	8"	✓	3'	2"	7"	✓							
% F. S. TR	90	✓	100	95	100 ⁺	100							
BLDG. ALARM	✓	✓	✓										
AUX CTRS.	-	-	✓										
SOURCES USED	P-226 & RA-248		MAGNETS		✓								
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓								

15
↓

1-15" DIA. CYL.
(BOTTOM ONLY)
+ [POBE SOURCE
(1.9×10^7) @
OUTER EDGE.]
SCIN. LOCATED
UNDER BOTTOM
DIAPH. # 2

T-B 5-BB

SPIRAL FISSION CTS. LOCATED @ $\frac{1}{2}$ UP UNDER FUEL.
POBE SOURCE BORROWED FROM BUZZ @ TSF.

- STARTED ROSS; ALPHA RUN @ 6⁰⁰ AM

TRIGGERS = 3500/min ; $\log N = .00031$; $BF_3 = 163$ rev/min ;
 $A \frac{100}{100} = 41$; $B = \infty$; $D = \frac{100}{100} = 84$; $C = 34$; $SEL \#1 = 10.223$;
 $\#2 = 10.270$; $VDT \#3 = 0$; $\#4 = -21$

- STOP @ 10⁵⁵ AM

TRIGGERS = 21300/min ; $\log N = .00022$; $BF_3 = 174$ rev/min ;
A-B-C-D = Same. BF_3 AFTER FUEL SEPARATION = 14/min

9;

Stack

3

$\frac{10}{1000}$

T-T 5-TT

T-T S-TT

C. 2 (15" dia upper) 70 Rev 1
 1 - 3"
~~1 - 2 3/4"~~ + Date 5-24-67 1:45 P.M.
 Purpose: 235 Zl Foil Exposure

Across Top of Upper Stack

Foil Run

$S \leftarrow$ -7.32, $-6\frac{1}{2}$, $5\frac{1}{2}$, $4\frac{1}{2}$, $3\frac{1}{2}$, $2\frac{1}{2}$, $1\frac{1}{2}$, 0
 # 21, 22, 23, 24, 25, 26, 27, 28

+1, +2, +4, 6, 7 $\rightarrow N$
 # 29 #30 31 #32 #33

Normal = #102

#1 = 10.10
 = 0.0

#2 = 10.135 ∞
 = 0.044 down

Log N = .04

"A" = 66 $\frac{1000}{1000}$

"D" = 85 $\frac{1000}{1000}$

Time = 28 min

"E" = .50 @ 690 V

"F" = 5.60 @ 850 V

Down 2:25 PM

MAY 25 1965

8:00

Lynn + Taylor

$\frac{10}{1000}$	oper	x	$\frac{10}{1000}$	900	850
8"	✓		5"	2"	7" ✓
90	✓		100	90	100+ 100
✓	✓		✓		
					✓
					✓

Pa 226 + Rm 248

2 (15" dia cyl)

MAY 25 1965

Rosi α

(Repeat) p.13

N #102

min 690 V 850 V

A Rebeck

Spiral Fission Counters Under Bottom of upper stack. Scintillator = 2 1/2" from Top Stack

11:50 AM

BF3 = 164 Req. Triggers = 210,100/min

Data Collection Started @ 8:30 AM

A = 4.8 $\frac{100}{100}$

Log N = .0003

"C" = 4.1

"D" = 59 $\frac{10}{1000}$ Inverts @ 5.55

Down @ 12:17 PM

2 (15" dia cyl)

3*

Date 5-25-65 12:40 PM

Pasci &

G
5-55
F-BMoved Spiral Fission Counters Under
Lower Stack.Scintillator - Under Lower diaphragm
2 1/2" from South edge of stack

30 min run ending @ 1:30 PM

Charlie 42 up to 48 over 30 min period.

H
5-55
F-B2 - 3" x 15" DIA. CYLINDERS SPACED @ $\approx 5 1/2$ "2 SPIRAL FISSION COUNTERS NOW ON TOP OF BOTTOM FUEL
STACK. SCINT. LOCATED UNDER BOTTOM DIAPHRAGM 3"
FROM CIRCUMFERENCE ON SIDE.

BEGIN RUN 2:45 STOP 4:05

BF₃ = 168 ug/min; C = 38; B = ∞; D = 58; A = 45

hoan = .00029; Selwyn #1 = 10.220; #2 = 10.261; #3 = +1.

@end of run BF₃ = 192; C = 41; D = 63; A = 49; hoan = .00030

DATE	MAY 20 1965		SAFETY CHECK			
TIME	8 ¹⁵	AM PM	BY	TAYLOR & LYNN		
CHANNEL	A	B	C	D	E	F
RANGE	10/1000	OPR	X	10/1000	950	850
SOURCE DIST.	8"	✓	5'	2"	8"	✓
% F. S. TRIP	90	✓	100	95	100 ⁺	100
BLDG. ALARM	✓	✓	✓			
AUX CTRS.	-	-	✓			
SOURCES USED	Ra226 & Ra248			MAGNETS	✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓	

lock

I
T-B 5-T
2 {15" dia disc, 3"
2 3/4"}
Spiral Fission Ctrs on Top of Upper Stack
Scintillator as per Run H.
START DATA COLLECTION @ 8⁵⁵ AM (Same "Ups").
A: 47; B: ∞; C: 38; D: 59; E: -; F: -; BF₃ = 163
STOP @ 11²² AM
A: 47; B: ∞; C: 39; D: 59; BF₃ = 175

nr FUEL
1.3"

J.
T-B 5-BT
CTRS (SPIRAL) under Bottom of TOP diaph.
START @ 11⁵⁵ AM END 2⁵⁵ PM
7.2 x 10⁶ triggers AT Peak point. C_{pk} = 58
A: 47; C: 39; D: 59; BF₃ = 174; h₀₀N = 100031
TOTAL Peak time Down to Up & Down Down: 15 min
EXTRA ITEM { A critical 15" dia Solid is 3 1/32" high; 479 gm = 30.7
TOP STACK ALONE ≈ \$1.00 sub
BOTTOM Stack alone (3") ≈ 50¢ sub

15
+ 1.

30

20 J₂

3:00 PM

Withdrew servo skin.

Negative Period - Log N =

$$BF_3 = -1082 \text{ sec}$$

$$-1.22 \phi$$

J₃ Added 100 gm wt on bottom diaph
Simulate source from "TSF"

neg. Period -

$$BF_3 = -1220 \text{ sec}$$

$$-1.08 \phi$$

J₄ moved wt top diaph.

neg. Period -

$$BF_3 = 1100 \text{ sec}$$

$$-1.2 \phi$$

J₅ Removed ~~at~~ Passes & Counters + wt,

neg. Period -

$$BF_3 = 335.4 \text{ sec}$$

$$-4.3 \phi$$

Measured Separation -

TOP
E - 51.465"

Bottom (down)
10.142

S - .438

.145

N - .494

.147

W - .490

.158

Avg: 4.72"
51.472"

10.148
Avg: 10.105

C = 10.105

5.27-65

MAY 27 1965

SAFETY CHECK

21

TIME	9:30	Taylor & Lynn				
FRONT		A	B	C	D	E
DEPTH		10/1000	8/20	x	19/1000	900V 850V
DEPTH DIST.		7"	8'	2"	6"	✓
DEPTH OF TRIP		90	✓	100	95	100+ ✓
DEPTH ALARM		✓	✓	✓		
DEPTH TRIP		-	-	✓		
SOURCES		Pa 226 + 8		MAGNETS	OK	
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓	

CA 2 (15" dia cyl) 70 Run 2
 3" - 3" - Date 5-27-65 Time AM PM
 Purpose Foil Exposure
 235 TL .365" dia, 1/4" long
 1/8" long

Vertical at ϕ in Lower Stack, from bottom:
 Position - 1, 2, 3, 4, 5, 6, 7, 8, 9
 # 107 83 82 61 75 60 73 98 105

* 10, 11, 12 N = # 76
 113 (1/8") 106 69

Log N = .0284
 "A" = 50 ¹⁰⁰⁰/₁₀₀₀
 "D" = 60 ¹⁰⁰⁰/₁₀₀₀

Time = 15 min

0.105

2 (15" dia cyl) 70 Run 3
 3" - Date 5-27-65 Time 1:25 PM
 Purpose Vertical fail Exposure
 at # in upper stack
 1/4" x .365" dia falls

Fail Position from Bottom

Pos. #1, 2, 3, 4, 5, 6, 7, 8, 9, 10
 # ~~79~~ 79, 80, 81, 87, 95, 96, 97, 98, 101, 103, 104
 58, 91

{ .25" OD
 .067" ID center of gap. N = #109

Log N = .0150

"A" =
 "D" =

Time = 17
 Down @ 1:45 PM

2 (1 1/2" dia) Expt. 70 Run 4
 3" -
 3" - Date 5-27-1965 Time 2:50 PM

Foil Exposure thru gap

235 u foil

.25" OD

1.067" ID

Foil Pos. from top diaphragm

Pos. 3/4", 1 3/4", 2 3/4", 4 1/4", 5 3/4", 7 3/4", 9 3/4",

54 51, 42, 53, 21, 35, 47

11 3/4", 13 3/4", 15 3/4"

N = #7

55 24 36

2" { .25" OD
 10 { 1.067" ID

3:10 PM

Inst. Scream - Scale Change (J.J.L.)

1000 → 100 (Reed)

Log N = 1.02

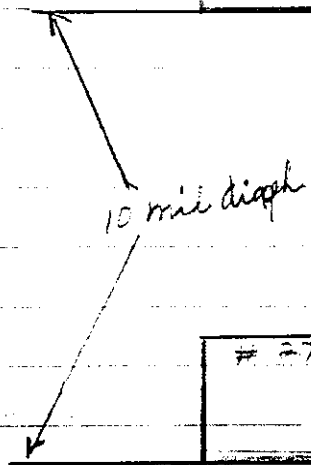
D

10
 104
 9
 7

1" DIA

2744	2763	2764
3" - # 3078		
2745	2739	2752
48	41	34
4" # 2803		

3.25"



# 2776	# 2762	# 2751
43	36	2770 68
42	2829	28
47	2740	33

3.25"

DATE JUN 11 1965

TIME 8:15 JLL + JTM

CHANNEL				
RANGE	$\frac{10}{1000}$ open x	$\frac{10}{1000}$	900V	850
APERTURE	12" OK	3' 3"	8"	L
% F.S. T	95	✓ 100	95	root
PLUG ALARM	✓	✓	✓	
AUX. CTS.	-	-	✓	
SOURCES USE	M-266 + 8			✓
TABLE	✓	LIGHTS	✓	✓

Ch. 2(11" disc) Expt. 71 Run 1a
 3 3/4" Date 6-11-1965 Time 9:00 AM
 Purpose ~~Crit. Height Determination~~
 Crit. Separation.
 Now @ ~13.5"

1a Top 1/2" - out = 14.70 in = 24.78
 #1 = 16.105 ? Pas. Period
 #2 = 16.304 + 56.4 sec
 #1 = 16.080 ∞ 14.7 φ
 #2 = 16.278

1b Separation @ ~14.0"
 #1 = - #2 = 15.840 ∞
 #v = 16.937 } up. Pas. Period
 #3 = + 2 } 99.9 sec
 #4 = - 1 } 9.66 φ

Lowered 20 mils (2 pc Separation).
 .011 φ / min
 Selection #2 = 0.035 down

1c Separation $\cong 14.5''$

up positions #1 = —
 #2 = 15.427
 #3 = +5
 #4 = +3

neg. period $\cong 10\%$

1d. ~~Adjusted~~ Mounted Rossi α Counters
 Scintillator and 2 spiral fission ctors
 on Top of Top on top of Bottom

2-11-3 $\frac{1}{4}$
 T-T S-TB

Le adjusted counters to increase reactivity

Rate Collections started 12:45 PM

Log N = 100031

BF₃ = 147 Reg/min

"A" = 41 $\frac{100}{100}$

"E" = 0

"D" = 53 $\frac{10}{1000}$ Servo @ 515

"F" = 0

TRIGGERING RATE = 218500 CPM

up #2 = 15.454

WMA

DATE	JUN 14 1965		TIME	8:05		AM/PM	JRT + JTM	
CHANNEL								
RANGE	$\frac{10}{1000}$	OPV	X	$\frac{10}{1000}$	900V	800V		
SOURCE DIS	8"	✓	3'	2"	10"	OK		
% F. S. TRIF	95	✓	100	92	100+			
HLDS. ALARM	✓	✓	✓					
AUX GTRS.			✓					
SOURCES USED	M-226 + X		MAGNETS		✓			
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓		

2
1

2 (110 Die) EXDP. 71 Run 20
 3 1/4" Dia. 6-14-65 Time
 Part: Rasid 2

2a T-T + S-BT

Data Collection Started @ 8:50 AM

Log N = .00033
 "A" = 43 %/100
 "D" = 53 %/1000

BF₃ = 148 Reg/min

Triggering Rate = 217000 cpm
200,000

Separation for
 Basin 1
 ↓

Down @ 12:32 PM
 Measured Separation - Bottom of top
 diaphragm to top of bottom fuel.
 N = 14.561" N = 14.567" E = 14.582"
 E = .596" E = .551" (Average = 14.555")

Core	2(11" dia. dia.)	72	Run	La
	3 1/4"	Date	6-14-1965	Time 2:00 PM
Purpose	230U Foil Exposure			
	Vert @ Φ of Top, Plus			

From bottom of top

1a Position 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
74, 84, 86, 90, 89, 93, 71, 99, 80, 121, 112

From bottom of bottom

Position - 10, 11, 12, 13

N = #100

83, 20, 88, 120

on bottom of top @ 5" radius # 115 ✓

on top of bottom @ 5" radius # 111 ✓

Sub critical

+ adjusted separation, 220 mils closer.

Sub crit.

DATE JUN 18 1965 SAFETY CHECK

TIME 8:20 AM BY JRT & JH

CHANNEL	A	B	C	D	E
RANGE	$10/1000$ CPR	X	$10/1000$	900V	850V
SOURCE DIST.	8"	-	5'	2"	10" ✓
% E. S. TRIP	95	✓	100	95	100+
BLDG. ALARM	✓	✓	✓		
AUX CTTS.			✓		
SOURCES USED	M226 & RA248		MAGNETS	✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓

1
12
100

2(11" disc) Exp. 72 Run 1c

3 1/4" Date 19 Time

Same as Run 1c

Separation = 14.25"

Some file on p. 28 # 2 = 15,691

Log N = .016

"A" = 56 Time = 18 min

"D" = 43

"F" = 1.0 @ 850 V.

C.A. 2011" disc Expt. 72 Run 1 d
3 1/4" Date 6-15-65 11:50 AM

Purp: 235 U. Feil exposure

Vert. in Center of bottom

Pcs from bottom

1, 2, 3, 4, 5, 6, 7, 8, 9
 # 106, 61, 105, 69, 60, 86, 78, 77, 97

Log N = .012

N = #76

"A" = 40

"D" = 51

"F" = 1.0

Time = 22 min

Down @ 12:18 PM

at 5" Radius

Top of Top #38

Bottom of Bottom #34

DATE	JUN 1 1965	SAFETY RECORD				
TIME	9:00	BY JTM + JRT				
QUANTITY		R	G	B	Y	
WATER	$\frac{10}{1000}$	opr	X	$\frac{10}{1000}$	900V	850
WATER UNIT	8"	OK	3'	2"	9"	OK
WATER PRESS	95	✓	100	95	100+	-
WATER TEMP	✓	✓	✓			
AIR PRESS	-	-	✓			
SOURCES USED	M-226 + 8	MAGNETS		OK		
TABLET	OK	LIGHTS	OK	AREA CLEARED	OK	

ca. 2(11" disc) 73 No. 1a

3 1/4" Date 6-16-65 Time 9:10

Purpose: Support Evaluation

Separation = 14

1a Base Run up # 2 = $15.5^{\frac{710}{}}$

Neg. Period # 3 = +1.5

BF₃ = 3300 sec = 0.39

Log N = 1650 sec = 0.79

-0.59 ≠ Base Reactivity

8 Added Lower diaphragm (vs 1a)

Neg. Period # 3 = -8.5

BF₃ = 218.8 sec = -7.16 # 4 = +2.5

Log N = 212.8 sec = -7.41

-7.29 ≠

Lower Diaphragm = -6.70

c. upper diaphragm evaluation. (on top of lower slab)
(vs 1a)

Pos Period -

$$\begin{array}{r} \log N = 121.6 \quad 8.26 \phi \\ BF_3 = 121.1 \quad 8.28 \phi \\ \hline + 8.27 \phi \end{array}$$

$$= + 8.86 \phi$$

d. added lower supports stand legs. (vs 1a)

$$\begin{array}{r} \text{Pos Period} - \log N = 54.3 \text{ sec} \quad 15.12 \phi \\ BF_3 = 55.3 \text{ " } \quad 14.92 \\ \hline \text{Legs} = + 15.61 \phi \quad + 15.02 \phi \end{array}$$

e. added support stand base ($\frac{1}{2}$ " x 18" al)
(vs 1a)

$$\begin{array}{r} \text{Pos Period} - \log N = 47.8 \text{ sec} = 16.50 \phi \\ BF_3 = 48.14 \text{ " } = 16.42 \phi \\ \hline + 16.46 \phi \end{array}$$

$$\text{Base} = 1.44 \phi$$

e2 supported base

$$\begin{array}{r} \text{Pos Period} - \log N = 49.4 \text{ sec} \quad 16.13 \phi \\ BF_3 = 48.8 \text{ " } \quad 16.27 \\ \hline 16.20 \phi \end{array}$$

Sillaym #2 = 0.024 down

f. SS Table Top mock-up (1" x 18" dia)
1" SS Blocks placed on Support Stand Base)

∞ SS = 0.

g. Base Run (Repeat 1a)

∞

h. Added 2 sets Diaphragm Support Rings.

Pos Period	Log N = 226 sec	4.90¢
	BF ₃ = 226.6 sec	4.90
		<hr/>
		4.90¢

Diaphragm = 4.90¢

i. added support post mockup - (vs 1 h)

Pos Period -	Log N = 212 sec	5.18¢
	BF ₃ = 208.4 "	5.25¢
		<hr/>
		5.22¢

Post = 0.3¢

Measured Separation -

7 pc	N = 14.300	Bottom	15.553
	E = .285		.551
	W = .309		.566
	S = .292		.568
	Avg = 14.2965		<hr/>
			Avg = 15.5595"

Selayn #2 = 0.024 down
= 15.708 up
15.684"

j. Spacing Reactivity measurement

Closed spacing 0.374"

$$\begin{array}{r} \text{Pos Period } \log N = 53.2 \text{ sec } 15.2\% \\ \text{BF}_3 = 52.1 \text{ " } 18.56 \\ \hline + 15.38\% \end{array}$$

0.0411 %/mil

Measured Spacing -

2 pcs

$$N = 13.926$$

$$E = .910$$

$$W = .934$$

$$S = .920$$

$$\text{Avg} = 13.9225$$

Bottom

$$\Phi = 15.917\%$$

$$\Phi = 13.948\%$$

$$\text{Selym \# 2} = 16.068 \text{ up}$$

$$\text{Down} = 0.024$$

$$\hline 16.044$$

DATE JUN 28 1965

TIME 10³⁰ TAYLOR & LYNCH

	$\frac{10}{1000}$	OPV	Y	$\frac{10}{1000}$	900V	823V
DEPTH	8"	OK	7'	2"	5"	OK
90° T. S. UNIT	90	✓	100	90	100+	-
ELDS. ALIGN	✓	✓	✓			
AUX. C.S.S.	-	-	✓			
SOURCES USED	226 + 8			MAC		✓
TABLES	-	LIGHTS	-	AREA CLEARED		-

C.A. 11" dia Expt. 74 Run 1a

3 1/4" Date 6-28-1965 Time AM

Purpose: Reactivity measurement
of 1 section of assembly

1a Stack bottom section (Rpm + lower diaph)
as shown on p. 24.

Measured negative reactivity with Rhette

2	2	+	3	0	3	4	5	6
2	2	+	3	0	3	4	4	5
2	2	+	3	0	3	3	3	3

11" Expt. 7th No. 2a
 3 1/8" Date 6-25-65 1:30
 Measure reactivity of
 3 1/8" stock

1a Reduced stock to 3 1/8"

Pitte = - \$6.537

29 1965
3:35 — Mihalego & Lyne

$\frac{10}{1000}$ gm	\times	$\frac{10}{1100}$	900V	830V
12" OF	4'	4"	5"	OTC
80	-	100	85	100+
✓	✓	✓	✓	✓
226 + 8				✓
TAGE	✓	FIG TS	✓	ADP 81.1.1.2

11" dia
Extr. 75 Run 10
3 1/4" Date JUN 29 1965 Time 3:45 PM
Purpose: Reactivity Check of upper section, p. 24

1a Mounted CH₂ reflector on beam to achieve critical -

Negative - # 3.2172
Log N = .02

(New Air Cond. System installed in 217 during summer)

WPT 11/72

DATE JUN 30 1965 ACTIVITY CHECK

TIME 8:50 Mihalcz + Lynn

CHANNEL	$\frac{10}{1000}$	OPV	X	$\frac{10}{1000}$	900	850
COIL DIST.	8"	OK	7'	2"	4"	OK
SAFETY TRIP	85	-	100	80	100+	-
LEDS. MARM	✓	✓	✓			
AUX. TRS.	-	-	✓			
SOURCE LEED	226	+	X	MAGNETS		✓
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓

C.A. 11" dia Exp. 75 1 lb

3/4" Date JUN 30 1965 Time AM

Purpose: Reactivity check of top section p. 24

Repeat Run 1a at different Power Levels.

	Power P _{eff}	log N	
b -	 	.028	
c -	2×10^{-8}	.0018	- 3.4490
d -	5×10^{-8}	.0038	- 3.5675
e -	10^{-8}	.006	- 3.6658
f -	2×10^{-8}	.011	- 3.6074
g -	$\sim 3 \times 10^{-8}$.017	- 3.478

Average - # 3.55

DATE	JUL 12 1965	SHEETS BAKER				
TIME	12:35	TAYLOR & HYND				
ROTOR		L	C	D	E	F
SCALE	10/1000	CPR	x	10/1000	900	850
CORRECT DIST.	5"	OK	6'	1 1/2"	5"	OK
E. S. TRIP	90	-	100	90	100	100
LOG. ALARM	✓	✓	✓			
AUX. DEVS.	-	-	✓			
SOURCES USED	P-226 & P-248		MAGNETS		✓	
TABLES	✓	LIGHTS	✓	AREA COVERED	✓	

2(11" dia) ~~Exp.~~ 76 RUN 1a
 3 1/4" ~~Dev.~~ 7-1-65 TIME 11:40 AM
 Reactivity Check for
 Rossi L

FUEL = SEE p. 24

- #1 = 16.568
- #2 = 16.601
- #3 = + 2.5
- #4 = - 11

"D" = 54 ¹⁰/₁₀₀₀^o
 "A" = 41.5 ¹⁰/₁₀₀₀
 "C" = 40
 Servo = 530
 Log N = .00032
 BT₃ = 147 Req.

ls.
0
5

DATE	TIME	OPERATOR	NO.	NO.	NO.	NO.
NOV	1965	Michalsky, Taylor				
START	8:00					
STOP						
RANGE						
	9"	OK	31	3"	6"	OK
	90	✓	100	95	100+	
	✓	✓	✓			
	-	-	✓			
SOURCES USED	226 + 8		MAGNETS			✓
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓

2 (11" dia cyl) exp. 76 Run 18
 3 1/4" Date NOV 1965 Time 12:55 PM
 Purpose Rossi α
 S - BB
 T - BB

#1 - 16.56 "A" = 42 $\frac{10}{1000}$
 #2 - 16.591 "D" = 56 $\frac{10}{1000}$ Servo @ 558
 #3 - +1.0 Log N = .00032
 #4 - -12.0 BF₃ @ 166 Reg/m.v (256 scale)

3 1/2 hr.

Horizontal plug (3") \sim 95 gms
 missing for these measurements.

6 July 1965 SAE
 6:20 AM BY Michalczko + Logan TAYLOR 0800

10/1000	B	C	D	
opr	x	10/1000	900V	850
7"	OK	4'	3"	4" OK
90	-	100	90	100+ -
✓	✓	✓		
		✓		
226 + 8				✓
✓	LIGHTS	✓	APPROX	✓

2(11" dia cyl) 76 Run 1C
 3 3/4" Date 6 July 1965 Time 6:30 AM
 PURPOSE: Rese &
 S-TB
 Tr-BB

#1 = 16.565" "A" = 30 10/1000
 #2 = 16.596 "D" = 56 10/1000 Servo @ 555
 #3 = +2 Log N = .00035
 #4 = -12

Data Collection started 6:50 AM STOP @ 9:45 AM

2-11-3.25 T-BB S-BT Start 10²⁸ AM Stop 1⁰⁸ PM
 BF₃: 166 rpm - Other Insts. are same as above.

2-11-3.25 T-BB S-TT Start 1⁴⁶ PM Stop 4²¹ AM
 all inst. same.

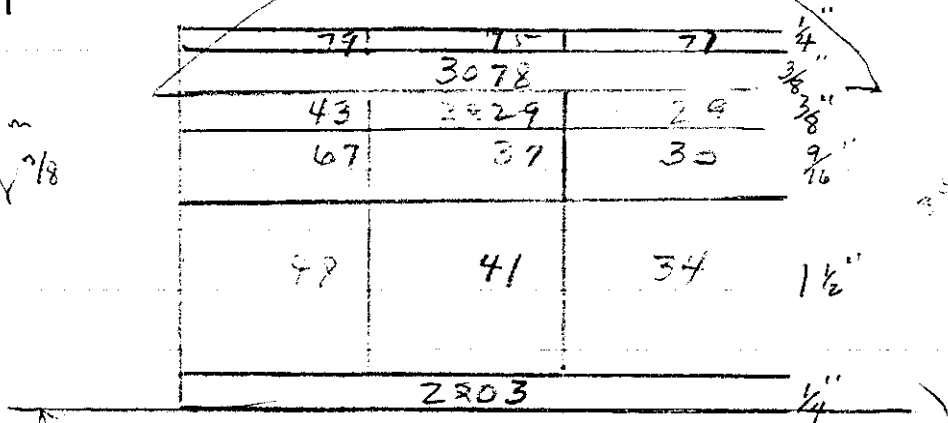
D.A.

Swing

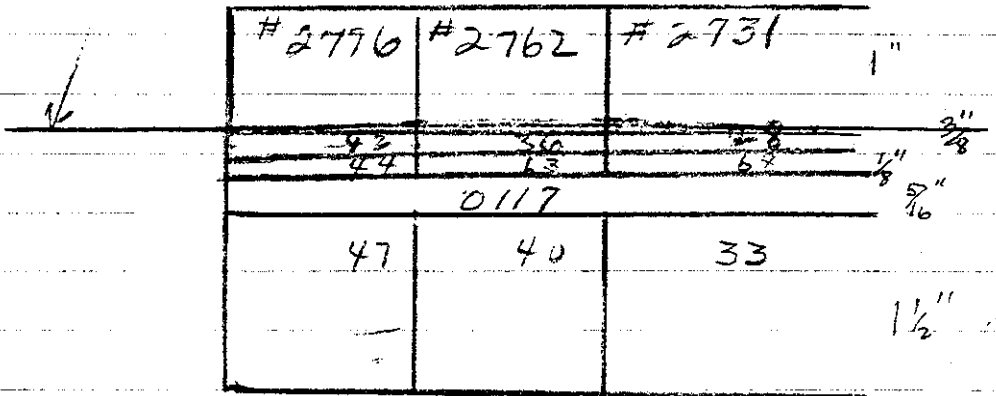
Top

8/3/65

looks like
the 9/16 in
top of 7/8



10 mil diaph



Bottom

JUL 1965

2:35

TAYLOR + LYNN

$\frac{10}{1000}$	qpr	x	$\frac{10}{1000}$	900	850
8"	OK	5'	2'	5"	OK
90	-	100	95	100+	-
✓	✓	✓			
-	-	✓			
226 + 8					✓
✓	✓	✓			✓

2(11" dia cyl)

77

Run

A₁

3 $\frac{5}{16}$

JUL

1965

Critical Separation

A₁ Separation @ 29 $\frac{3}{4}$ " - Sub Critical.

B₂ Separation @ 25 $\frac{3}{4}$ " - Sub Critical

B₃ Separation @ 22 $\frac{3}{4}$ " - Sub Critical

DATE	JUL 8 1965	SAFE	
TIME	8:15	Taylor & Lynn	
CHANEL			
	$\frac{10}{1000}$ apr	$\times \frac{10}{1000}$	900 850
	7" OK	10' 2" 6" OK	
	90	- 100	90 100+ -
BLIND ALARM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ADJ. TIME	-	-	<input checked="" type="checkbox"/>
BOUNDS USED	266 + 8		<input checked="" type="checkbox"/>
TABLES	<input checked="" type="checkbox"/>	LIGHTS <input checked="" type="checkbox"/>	AREA CLEARED <input checked="" type="checkbox"/>

2(11" dia cyl) Expt.	77	Run	A3
3 $\frac{5}{16}$ "	Date	JUL 1965	Time 11:10 AM
PURPOSE:	Critical Separation		

A3 Separation @ ~ 20.75"

Neg. Period - Log $N = 215$ sec - 7.31
 [Plank + ladders up] $\beta F_3 = 229$ " - 6.76
 - 7.04 ϕ

A4 Added all supports (2 diaph, 2 side rings on lower support)

Pos. Period - Log = 65.7 sec + 13.22 ϕ
 $\beta F_3 = 61.5$ " 13.90 ϕ
 + 13.56 ϕ

Supports = + 20.6 ϕ

A₃ Chan Run - Separation = $\frac{20.680}{.75}$
 #1 = 22.495 #2 = 22.508
 Neg Period - Log N = 178.1 sec - 9.36
 BF₂ = 182.4 " - 9.08
 - 9.22

Measured separation Q = 20.700
 N = 20.677 .702
 S = .672
 W = .690
 E = .660
 Avg = $\frac{20.75}{20.650}$

Low section separation = Q = 22.406
 .408
 22.407

A₂ Closed separation ~ 250 miles
 #1 = 22.770 #2 = 22.776

Neg. Period - Log N = 387 sec - 3.66 †
 BF₂ = 372 " - 3.82 †
 - 3.74 †

269 miles = 5.48 †
 or 0.02 †/mil

A₇ Bossi & Centers in place
 Separated ~ 130 miles
 Pos Period ~ 11 †

JUL 1965

8:30 AM

$\frac{10}{1000}$	opr	x	$\frac{10}{1000}$	Proc	850
9"	OK	5'	2"	6"	OK
90	100	90	100		

TABLES

LOGS

AREA

2(11" dia eye) 77 Run As
 3 $\frac{5}{16}$ " Date JUL 9 1965 Time
 Purpose Crit Separation for
 Rossi α
 Separation ≈ 21.5 "

As

$$\text{Log } N = .00037$$

$$\text{"A"} = 36 \frac{10}{1000}$$

$$\text{"D"} = 60 \frac{10}{1000} \text{ Surv @ } 5975$$

$$BF_3 = 166$$

$$\# 1 = 21.809$$

$$\# 2 = 21.858$$

$$\# 3 = +2$$

$$\# 4 = +2$$

DATE: JUL 1 1965

TIME: 9:00

LAB: Taylor + Lyman

1000	cpv	✓	1000	900V	850V
10"	OK	5'	2"	6"	OK
90	-	100	90	100+	-
✓	✓	✓			
AUX	-	-	✓		
SOURCES	COEN	226 + 8	AGENTS	✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓

CA 2 11" (dia cyl) Exp. 77 Run A9

3 5/16" Date 7-12-65 Time

Purpose Raise &

Separation \approx 21.5"

9
58

A9 #1 = 21.853 Log N = 100034 T-BB

#2 = 21.853 "A" = 51 ¹⁰⁰/₁₀₀₀ S-BB

#3 = +3.5 "D" = 60 ¹⁰/₁₀₀₀

#4 = +2.5 BF₂ = 170

started @ 9:55 AM Tr = 3.53 x 10⁷

Down @ 12:45 PM

A10 2-11- 3.3125" - T-BB S-TB

Inst - Same

Start 1:25 PM

Down 4:17 PM 3.1 x 10⁷

DATE	7-13-65		SAFE	
TIME	8:15	AM	Taylor & Lynn	
DEPTH	10/1000	OPN	x	10/1000
WIND E. DIST.	8"	OK	5' 2"	7" OK
WIND S. THIP	90	-	100	90 100+ -
DEEG. ALARM	✓	✓	✓	
REMARKS	-	-	✓	
DEPTH	226	✓	8	MAGNETS ✓
TABLES	✓	LIGHTS	✓	AREA REARED ✓

A₁₁ 2-11-3.3125" - T-BB S-BT
 Just same as p. 47

Data started 8:43 AM BF₃ = 171
 Down 10:35 AM @ 10:35 AM
 on 11:33 AM
 Down 1:00 BF₃ = 173
 T = 4.06 X 10⁷

A₁₂ 2-11-3.3125" - T-BB S-TT

Started 11:45 PM BF₃ = 171
 T_r = 3.05 X 10⁷

2 (=)
 for Box
 ✓

DATE	7-14-68					
TIME	8:30 AM BY Taylor + Lynn					
CHANNEL	A	B	C	D	E	F
RANGE	$\frac{10}{1000}$	OPR	X	$\frac{10}{1000}$	900V	850
SOURCE DIST.	5"	OK	10'	2"	6"	OK
% F. S. TRIP	90'	-	100	90	100+	-
BLDG. ALARM	✓	✓	✓			
AUX GTRS.	-	-	✓			
SOURCES USED	226 + 8			MAGNETS		✓
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓

A13 Sub-critical Run (Using Source) for instrument checkout. $BF_3 = 134 \text{ reg/min}$; $D = 53 \text{ } \frac{1}{1000}$; $A = 47 \text{ } \frac{110}{100}$
 $\log N = .00031 \quad \approx 21.5 \text{ r/syr} \# 1$

A14 "Digital Equipment Corp." data run: ((PDP-4))
 $BF_3 = 134$; $D = 50$; $A = 42$; $h_n = .0003$
 Up Positions: 1 = 21.845; 2 = 21.847; 3 = 75; 4 = 73
 Start Data Collection @ $\approx 10^{45} \text{ AM}$ STOPPED 3^{20} PM
 Configuration: 2-11-3.3125 TBB - STB

2 (3 $\frac{7}{16}$ ") Bottom Section separation (tables down)
 $k = 21.711$ $N = 21.718$ $S = 21.746$
 .707 $E = .713$ $W = .747$

for Basis of 2 pc Separation (measured)
 $k = 21.400$ $N = 21.373$ $S = 21.359$
 .396 $E = .359$ $W = .381$

JUL 15 1965					
8:30			Taylor + Lynn		
10/1000	cpw	X	10/1000	900V	800
8"	OK	8'	2"	6'	OK
90	+	100	90	100+	-
	✓	✓	✓		
	✓	-	✓		
SOURCES	226 + 8		MAGNETA		✓
TABLES	✓		AREA COVERED		✓

A15 2-11-3,3125 ~~5~~ T-BB 5-TB
 Digital Equip. Corp. Equipment -
 PDP - 4

#1 = 21.83 Log N = .00035
 #2 = 21.854 "A" = 42 ¹⁰/₁₀₀₀
 #3 = + 3.5 "D" = 53 ¹⁰/₁₀₀ SERVO 525
 #4 = -8 BF3 = 133

Data Collection started - 9:40 ~~AM~~ Stop @ 1:35 PM

A16 2-11-3,3125 T-BB 5-TB
 Same as above except increased trigger
 a factor of $\times 4$ to 3600/sec
 start @ 1:42 PM Print out 3:30
 All settings near same.

Tr. = 2.26×10^7

2.5
 4
 4
 4
 2.5
 2.5
 2.0
 2.0
 1.0
 1.0
 5x10⁻⁹
 5.0
 2.0
 2.0
 1.0

DATE JUL 19 1965 SAFETY CHECK 51

TIME 9:30 BY TAYLOR & LYNN

1% ORC	X	1% ORC	90V	80V
8"	OK	10"	2"	6" OK
90	-	-	90	100+ 100
✓	✓	✓		
			✓	

SOURCES USED Barb A 248 TABLES ✓ LIGHTS ✓ AREA CLEAN ✓

B₁ 1T-11-3.3125 \checkmark One (1) 11" disc, $3\frac{5}{16}$ " thick
 re(Pitte) =

Pitte reactivity

		2.5×10^{-8}	5×10^{-9}	2×10^{-9}	1×10^{-9}	5×10^{-10}	2×10^{-10}	Log N
2.5 $\times 10^{-9}$	1		2.108	2.161	2.128	2.104	2.036	.029
"	2		2.123	2.131	2.130	2.134	2.111	.029
"	3	2.050?	2.121	2.137	2.131	2.124	2.145	.029
"	4		2.104	2.117	2.115	2.076	2.029	.029
35 M	2.5 $\times 10^{-9}$.042
	2.5		2.118	2.132	2.127	2.128	2.150	.029
	2.0		2.101	2.132	2.144	2.134	2.140	.024
	2.0		2.085	2.148	2.127	2.168	2.107	.024
	1.0			2.148	2.186	2.190	2.265	.0135
	1.0			2.153	2.199	2.227	2.359	.0135
	5 $\times 10^{-9}$			2.095	2.209	2.226	2.356	.0075
	5.0			2.134	2.218	2.237	2.431	.0075
7	2.0				2.095	2.2148	2.338	.0033
	2.0				2.139	2.204	2.195	.0033
	1.0					2.174	2.356	.0016

JUL 20 1965

SAFETY CHECK

Taylor + Lynn

	A	B	C	D	E	F
10/1000	opv	x	10/1000	900	850	
6"	OK	4'	2"	5"	OK	
90	-	100	90	100+	-	
✓	✓	✓				
-	-	✓				

SOURCES USED
TABLES

LIGHTS

MAGNETS
AREA CLEARED

11" dia

77

C1

3 3/8"

JUL 20 1965

AM
-PM

Pit activity
measurements

Removed 3/8" pc 2743, 2829, & 2729 (p.42)
 added 5/16" pc #0117
 1/8" pc 2746, 2773 + 2769

17-11-3.375

(3/4" Poly. on Ran)

2.5 x 10⁻¹⁸ x 5 x 10⁻⁹ 2 x 10⁻⁹ 1 x 10⁻⁹ 5 x 10⁻¹⁰ 2 x 10⁻¹⁰ Log N

50¢	C1	.50	.509	.515	.54	.60	.75	.03
10¢	2							.03
4.00	3	17-11-3.25	(1/8" pc 44)		3.75	3.95	4.00	.03
	4							.03
11.25¢	5	17-11-3 3/16"	(5/16" pc)		5.25	5.75	5.25	.03
5.50	8							.03

-0.2
-1.2

2:10

4:7

5:11

3:00

3:40

4:19

0.25×10^{-8} | 5×10^{-9} | 2×10^{-9} | 10^{-9} | 5×10^{-10} | 2×10^{-10} | 53
 Log N

Run 3+4 - Remund $\frac{1}{8}$ " (pes 274, 73 + 69)

Run 5, ~~6~~ 7+8 - " $\frac{1}{16}$ " (pe 0117 off)

(1" Poly on Ram) added pes 2778, 74 + 70)

1T-11-3 $\frac{3}{16}$ " - ~~$\frac{9}{16}$ " pes off, added $\frac{3}{8}$ " + $\frac{1}{8}$ " pes~~

$-0.25^4 C6$
 $-1.25^5 7.$

.26	.27	.28	.30	.35	.50	.028
1.20	1.25	1.30	1.30	1.30	1.40	.028

1T-11-3 $\frac{1}{8}$ " - $\frac{9}{16}$ " pes off; Add $\frac{3}{8}$ " + $\frac{1}{8}$ " pe

2:10 PM

9.					7.50	7.60	7.60	.03
10.								.03

H 7.60

1T-11-3" ($\frac{1}{8}$ " pes off) (1 $\frac{3}{4}$ " Poly on Ram)

+2)

11					11.00	11.50	11.50	.03
12								.03

H 11.50

1T-11-2.875" ($\frac{1}{4}$ " pes off) ($\frac{1}{8}$ " pes on)

-)

13					15.00	15.00	.03
14							

Log N
03
03

H 15.20

1T-11-2.75" ($\frac{1}{8}$ " pes off) (3" Poly. on Ram)

03
03

3:40 PM

19.50 # 18

19

All FUEL CHANGES made using pes of Top SECTION p.42, except where pe # 0117 is used.

03
03

JUL 23 1965

9:50 AM

Taylor, Lynn

$\frac{10}{1500}$ rpm X	$\frac{10}{1000}$	900	850
9" OK 5'	3"	6"	OK
90 - 100	90	100+	-
✓	✓	✓	

PAGES USED 226+8 ✓
 TABLE ✓ LI. ✓

2 (11" diam cyl) 77 Run D₁
 3 $\frac{5}{16}$ JUL 23 1965: AM
 Rossi & PDP 4 PM

22
 23
 22
 22
 22
 22

2-11-3.3125 TBB STB

#1 = 21.81	"A" = 46 $\frac{10}{1000}$	SERVO 542
#2 = 21.83	"D" = 54 $\frac{10}{1000}$	
#3 = 7	Log N = .0003	
#4 = -15	B F ₃ = 133	

DATE	JUL 26 1965		SAFETY GROUP		
TIME	8 ¹⁵		Mihalczko & Taylor		
PROB.					
COND.	10/1000 OPR	X	10/1000 900	850	
EDGE	6" OK	5' 2"	5" OK		
FA P. L. ENG	90	- 100	90	100+ 100	
BIBB. AB. ENG	✓	✓	✓		
AUX CT.	-	-	✓		
SOURCES USED	✓		MAGNETS	✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓

2-11-3.3125 Exp. 77 Run

3^{5/16}" Date JUL 26 1965 Time 9⁴² AM

Resi Alpha PDP-4

2-11-3.3125 TBB-5TB

Using PDP-4

BEGIN DATA COLLECTION: 9⁴⁹/_{AM} STOP @ 3⁰⁷/_{PM}

#1 = 21.80

A : 10/1000 51

#2 = 21.81

D : 10/1000 62 Sewok 620

#3 = +6

hm : .00032

#4 = -15

BF₃ : 133

TOTAL T = 318 MIN.

5.03 x 10⁵ TRIGGERS

JUL 2 1965

8⁴⁵ TAYLOR-MIHALCZO-ROHRER

10/1000	OPR	X	10/1000	900V	850V
6"	OK	4"	2"	4"	OK
90	-	100	90	100	100
* ✓	✓	✓			
ACT. STIM	-	-	✓		
SOURCES	P226 & RA 24B		MAGNETS	✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED	✓

* Could not get a light, but did get a slight "flick" of light.

2-11-3.3125 TBB-STB Using PDP-4

Peak CTS/HR OF TRIAL ADJUSTMENTS OF ELECTRONICS:

- ① 18 x 4 = 72
- ② 10 x 12 = 120
- ③ 71 x 2 = 142
- ④ 240

START 1³⁶ PM; STOP 2⁴⁰ PM; START 3⁰⁰ PM; STOP 4^{08.5} PM

TOTAL t = 132.5 min Total Jug = 2.27 x 10⁷

A 42.5 10/1000; B ∞; C (how-line) 52; D 52 SERVO 509;
 E not on; F 0.02; h 0.00032; BF₃ 133 rev/min PHS 40 V 1460

Fis. Ct. Rate/min = Small 11⁵⁴ on 256 scale
 Large 5⁴⁴ " " "

JUL 28 1965

8¹⁵ AM

TAYLOR, MIHARCO, ROITZER

A	B	C	E
10/100	OK	X	10/100 950 800
6"	OK	3'	2" 6" OK
90	-	100	96 100 100
✓	✓	✓	

SEARCHED	INDEXED	SERIALIZED	FILED
✓	✓	✓	✓
TABLES			
✓	LIGHTS	✓	AREA CLEARED

CONT RUNS ON 2-11-3.3125 TBB-STB PDP

START COLLECTING DATA 8³⁵ AMSTOP 10³¹ AM (NOISE PROBLEMS)RESTART 10⁴³ AM STOP 11⁰⁰ AM (PRINT OUT NEW). t=133 min.

Also make tape of same.

Cleared memory.

Restart 11²⁹ AM STOP 3³⁸ PM t=249 min

Readings same as R 57

ct. showing on Scales #2: 1083 (256 scale)

small fish: 9(x64); large fish 8(x64)

TOTAL TRIG = 4.48×10^7 No. STOPS = 2.60×10^5

JUL 21 1965

SAFETY CHECK

12:15

MIHALCZO - TAYLOR

	3	4	5	6
10/1000 OPR	X	1/500	900	800
OK	4"	2"	4"	OK
80	100	95	100	100

✓ ✓ ✓

— — ✓

R 220 + RA 248

✓

✓

✓

PDP-4
 Can't run on 2-11-3.3125 TBB - STB on PDP-4

START 12³⁵ AM; STOP 12⁴⁵ AM; START 1⁰⁰ PM STOP 4⁰² PM = 192 min.

in
 A 45¹⁰/1000; B ~~∞~~; C (Lowline) 52; D 52 SERVO 512; E not on;
 F not on; hN 0.00030; DF₃ (HV is BAD). SELSYN^{#1} = 21.81;
 SEL^{#2} = 21.829; VDT^{#3} = +7; VDT^{#4} = -15

in
 TOTAL RUN TIME = 192 min

NUMBER STOPS = 2.20×10^5

TOTAL TRIGGERS = 3.41×10^7

SMALL FISS. CPM = 3.3 (x256)

"LARGE" FISS. CPM = 2.6 (x256)

— accumulation to cont tomorrow.

DATE	30 JULY 65				
TIME	8 ⁰⁰ AM = TAYLOR & MINAREZO				
OPERATOR					
	$\frac{1\frac{1}{2}}{100}$	OP	X	$\frac{1\frac{1}{2}}{100}$	900
	6"	OK	4"	2"	2" OK
	80		100	100	100
	✓	✓	✓		
	—	—	—		
SOURCES USED	P226 & RA 248				MAGNETS ✓
TABLES	✓	LIGHTS	✓	AREA CLEAR	✓

33

Continuing accumulation of Pg 59

11"00

START 8³⁰ AM STOP 10⁴⁵ AM ^(START) (2⁰⁰ AM) (3¹⁹ AM STOP) = 294

A 45¹⁰/₁₀₀₀; B ∞; C (low-hic) 52; D 53¹⁰/₁₀₀₀ SERVO 520;
 E NOT ON; F NOT ON; LN 0.00032; BF₃ 134 REG/MIN.;
 SEL #1 = 21.809; SEL #2 = 21.829; VDT #3 = +5; VDT #4 = -15

GRANT TOTAL DATA:

t(Pg 59) + t(TODAY) = 486 min.

TOT. NO. STOPS = 546828

TOTAL TRIGGERS = 8.4234 × 10⁷

SMALL FISS. CTR. = 13.2 (x64)

"LARGE" FISS. CTR. = 4.1 (x64)

7/30/65 4:35 PM

3 3/16

START 4:35 PM

1.974 x 10⁸ T

1301551 C

STOP 12:40 PM

7/31/65

20hr 5min

BINARY SCALAR

5196 x 256 + 128

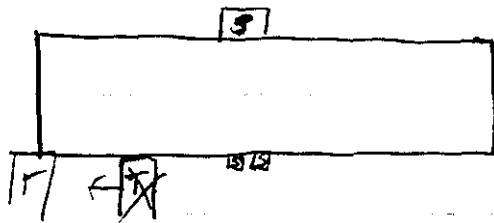
722999 m

2000 72

40 man ch

11" OD

3 3/16



THIS RUN

IS OK

7230

Length of Run 72300 m

TPS 2731

CPS 18

30;

-15

7/31/65 3 3/16 5 m m ch

MAGNET SCREEN OUTR W/BBK RAD.
DURING THIS RUN

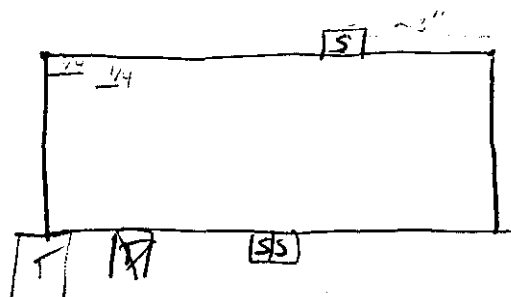
8/

3⁵

8/2/65 A 3 5/16 11" \approx D

START 11:35 AM 8/2/65
 STOP 3:35 PM 8/2/65
 TIME 4 1/2 hr

1/8
 1/8
 3/8
 7/16
 3/8
 1/2
 1/4



Level 145 x 20 - BF₂
 A - 54
 D - 52
 C - 56

3 5/16 \approx

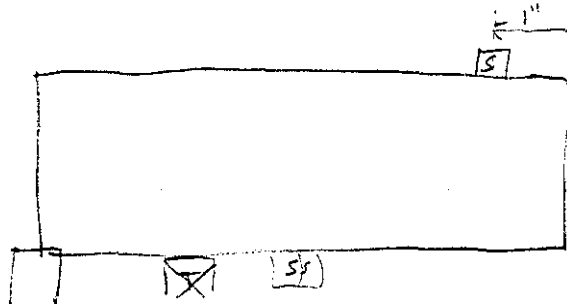
Bunny Scale 2288 x 256 + 200
 TRIGGERS 4.91 x 10⁷
 COUNTS TMC 456715

LENGTH OF RUN 10200 m

TPS 3030

CPS 28

8/2/65 - B



START 4 PM 15m 35 min
 STOP 7:35 AM 8/3/65 56,100 mu

LEVEL	BF ₃	77x256	
	A	29	LN .0002
	D	30	
	C	28	

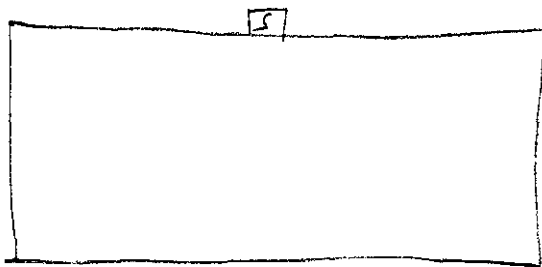
# TRIGGERS	1.423 x 10 ⁸	TPS	2536
# COUNTS INC	1.115946	CPS	19.8

HP PULSE DELAYING SIGNAL
 8 μs + .9 SOMETIMES CAUSING
 Bump IN DATA TAKEN UP TO NOW

Delay in HP CHANGED TO 6 + VERNIER (ALL)
 ~ 6.9

8/3/65 3 1/4" H

1/8
1/8
3/8
→ 5/16
9/16
1 1/2
1/4



LEVEL BF₃ 92x254
A 34
B 34 00018
C 34
D 34

START 9:30 AM 20 mm ch.
STOP 3:42 TO PRINT DATA
START 3:53 TO COLLECT DATA
STOP 7:20 AM - 8/4/65

6.19
15.27

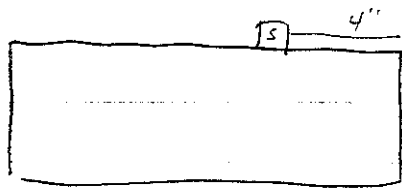
21 km 39 mm
7774 m

TR 160 Pcs 2.174 x 10⁴ 2789 cps
Counts Time 2,075,974 25.6

ALL)

8/4/65

35/66



SAMPLE LOADING
AS P42 ON TOP

40 mm ch.

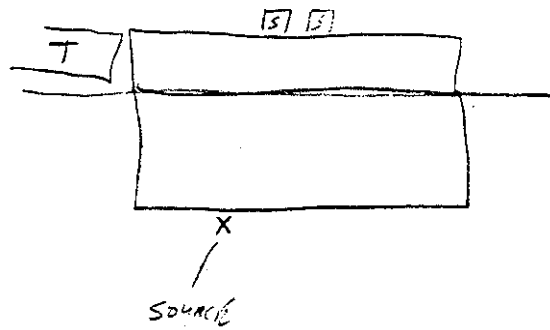
LEVEL	A	54
	B	-0004
	C	60
	D	54
	BF ₃	148

START	8:37	Am	7.3 m
STOP TO PRINT	3:42	pm	15.15
	DATA		22 km 18 m.

START	3:45	
STOP	7 Am	8/5/65

TRIGGERS	2.176×10^8
SIGNAL	332.1775

8/5/65 A 3 5/16 BOTTOM



1/4" NE 102
USED FOR
STOP

NE 102 STOP

T rate ~ 2500 cps

S rate out of HP pulse delay 500 cps

START 9:40 1/2 AM

1.305

STOP 11.17 AM

STARTS

1.400487 x 10⁷

STOPS FROM HP

2522079

LEVEL

A 38

B 55

C 48

B 00025

BF₃ 139

3 5/16 BOTTOM

FUEL ON RAM PROPPED UP BY UNISTRUT
 AND STEE CHANNEL. NO SCRAM PRESSURE ON
 CTU - NO BUILDING PRESSURE.

START 2:49

SPIRAL FISSURES AS

STOP 5:11

STOP 6:00 AM 8/6/65

TRIGGERS 1.4288×10^8

SIGNALS 1923091 out of HP Delay

LEVEL A - 40

B -

C 56

D 60

BF₃ 160

8/1/65

A

NE 102-114 FINE SIGNAL

3 5/16

40 mm

START 6:20 1/2 AM

STOP 7:51 AM

TRIGGERS 1.476×10^7

COUNTS 2545839

3 1/8 A ON TOP OF CTU PILES

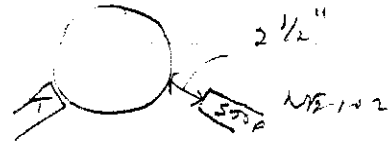
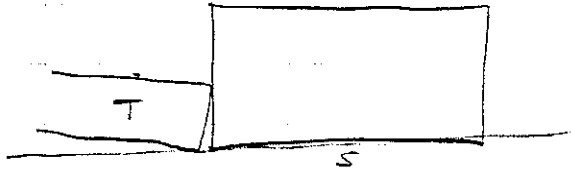
7

3 1/8 B ON TOP OF CTU PILES

8/9/65

3" 11 OD

Lower displacement in plane about 58" from
one on top More mark in top displacement



START 3:47 1/2 PM 8/9/65

STOP 8:35 AM 8/10/65

16m

LEVEL BF₃ = 97x64 cpm

TRIGGERS 1.49588×10^8 1450 V

SIGNALS 1.987007×10^6 ~890 V

$\frac{1.49588 \times 10^8}{62.4}$

8/9/65 2¹³/₈₆ 11 00

2200 TPS

433 cps

START 4:05 PM 8/12/65

STOP 8:07 AM 8/11/65

T- 7.5607 x 10⁷

S- 2.5139 x 10⁷

Q

PLATE 5/16		
PLATE		
43	2820	2720
48	41	37
114		

114

TAPED TUBES

on Hanger

2886	2783	79	75	71	1/4"
3058					1/4"
85	50	3078			3/8"
35	56	43	2829	29	3/8"
84	49	48	41	34	1 1/2"
87	53				
2885	2782	2803			1/4"

diaphragm

50"

86	52	46	73	69
		42	36	28
66	55	67	37	30
58	80	44	63	68
0104				
60	51			
39	57	47	40	33



AUG 1 1955

12:45

PM

Mihalcey + Lynn

$\frac{10}{1000}$	opt	x	$\frac{10}{1000}$	900	850
61	rk	41	3"	4"	072
85	-	100	85	100 ⁺	-
✓	✓	✓			
✓	✓	✓			

226 + 8

TABLES ✓

IGN ✓

✓

S.A. 2 (15" dia) Expt. 78 Run A₁
3" Date AUG 1 1955 Time 1:08
 Purpose Critical Separation

Separation ~ 56"

Tower Source on diaph

A₁ - Sub Crit

A₂ - Operating Source in use
plastic Shim up.

Neg Period = - 102 sec
- 25.6¢

27/8 11" OD on TOP DIAPHRAGM

27	2742	2736	2728
27	2903		
27	2743	2729	2729
11	2748	2741	2734
12			

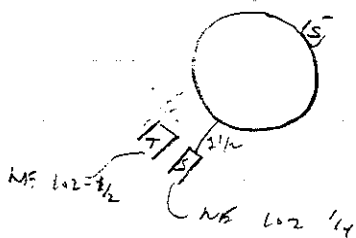
2 PAIR pins on edge
of diaphragm

By Count. T 428. cps 1450 V
 S 1.9 cps 975 V
 T 183 cps 1400 V
 START 4:19 1/2 8/11/55
 STOP 7:43 8/12/55

T - 1383×10^8 1425 V
 S - 27438×10^7 ~ 990 V

8-12-65 3" - 15" dia on top diaphragm
 Run a See p. 72

Data Collection Started ~~10:40~~ AM
 12:20 PM



T - 1375 m

S - 1000 V

A - START 12:16 T = 6.677×10^6
 STOP 1:24 S = 5.680×10^5 7640 cpm

B - High counts

START 1:25 T = 2.084×10^6
 STOP 1:55 S = 7.220×10^5 3130 cpm

C DIFFERENT REACTIVITY BY RAISING PLATE
 UNTIL POWER DROPPED FACTOR OF 2

START 20% 69 min T - 4.5144×10^6
 STOP 3.16 S = 6.96×10^5

D RAISE TRIGGER RATE

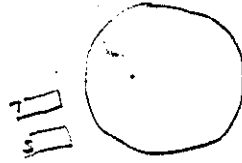
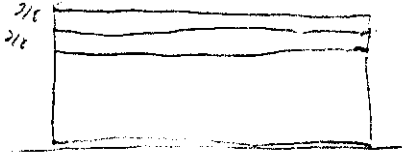
START 3.25 1/2 19 min run T - 2.5998×10^6
 STOP S - 2.77×10^5

T6

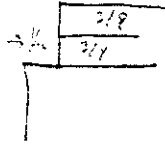
8/12-13/05

NIGHT RUN 15" 00 2³/₄ SAME AS p 72
BUT WITH 1/4" OFF TOP OF HANGING PLATE

START 4:16 PM T 9.6517 X 10⁷
STOP 7:37 AM S 3.07 X 10⁷



Try 3/8" PLATE SCOOTER 1/16



8/13/65 A

3" 15" 50



START 1.55

STOP 3.28

E T 11132×10^7 1390 ✓S 2641×10^6 1025 ✓

8/13/65 B Random Count

y mm m

START 4:12

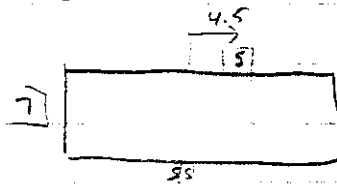
FLAT RESPONSE

STOP

8/13-14/65

2 SF

15" 2 7/8



20 mm chiller

SFL

START 453

STOP 303 8/15/65

TRIGGERS 3515 338 x 10⁶

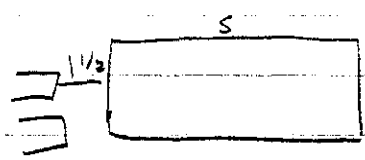
SUMMS 1.5 / 4 x 10⁶

8/15/16/05 15" 276

START 3:75 NE 1-2 1/4
 STOP 4:34 20 min
 T 8.108×10^2
 S 1.8×10^6

8/15-16/05 5 min ch NE 1-2 277
 15" 278

START 5:50 PM
 STOP 7:27 AM
 T 68976×10^7
 S $2,5479 \times 10^7$



8/16/65 3.00 or top 4.00 SEC.

START 8:59

STOP 12:44

T 296 71 X 10⁷

S 137480

8/16/65 2.5' 15" 20 T NF 100 1/2

START 5 51 1/2 pm

STOP 8 AM 8/17/65

T 9.9 x 10⁶

S 2.126 x 10⁷ ?

AUG 16 1965 SHEET 31

PM Taylor Lynn

$\frac{10}{100}$	op	x	$\frac{10}{100}$	90	80
9"	rk	5'	3'	5"	rk
90	✓	100	90	100	
	✓	✓			

226 + 8

TABLE ✓ LIGHT ✓

CA. 15" OD Exp. 78 Run B₁

3" Date 8-16-65 3:50

Purpose Reactivity Measurement

Top Section p. 72

2 - Scintillators in place

B₁ Pette = - ~90°

AUG 17 1965
~~AUG 16 1965~~

9:10 AM Taylor + Lynn

$\frac{10}{1000}$	OK	X	$\frac{10}{1000}$	900	858 V.
12'	OK	8'	3'	6"	
90	-	100	90	100+	
✓	✓	✓			

226 + 8 ✓

TABLES ✓

B₂ Repeat p. 83 Scintillators removed.

3 Repeat - Level too High

4 Repeat

5 added (15" x 13") x 1/8" fuel ring to top.
 ✓ ~ - 85¢ $3 \times (15 \times 13) \times 1/8$

6 added (13" x 11") x 1/8" fuel ring to top
 ~ - 45¢ $3 \times (13 \times 11) \times 1/8$

7 Level - $\text{Log}N = .038$

$$"A" = 56 \frac{1000}{1000}$$

$$"D" = 51 \frac{1000}{1000}$$

$$"E" = .5 \quad 690 \text{ V.}$$

$$"F" = 3.6$$

$$C = 62$$

Removed pe added for run 5.

$\sim -58 \text{ \#}$

$$3^{(13 \times 11) \times \frac{1}{8}}$$

15" 00 Exp 78 Time B8
 3" Date 8-17-1965 Time 1:40
 Purpose: Reactivity measurement
 of bottom section, p. 72

1B-15-3

B8 ~ -75¢ ? line up

B9 ~ -86¢ ? line up? Removed (15x13)x1/8
 1B-15-[3-(15x13)x1/8] from BB

B10 Line up good.
 1B-15-[3-(15x13)x1/8]

Low Power Start for measurement

DATE	8-18-65						SAFETY CHECK					
TIME	8:00			BY			TAYLOR + LYNN					
CHANNEL	A	B	G	D	E	F						
RANGE	$\frac{10}{1000}$	OPR	X	$\frac{16}{1000}$	900V	850V						
SOURCE DIST.	12"	OK	4'	2"	5"	OK						
% P. S. TRIP	90	-	100	90	100+	-						
BLDG. ALARM	✓	✓	✓									
AUX CTDS.	-	-	-									
SOURCES USED	226 + 8			MAGNETS			✓					
TABLES	✓	LIGHTS	✓	AREA CLEARED			✓					

(3) x 1/8
BB

15" OD ~~78~~ Run B11
 3 - (15x12) x 1/8 ~~8-18-1965~~ 8:10 AM
 Repeat B10 p. 86

B11 ~ -86 ♀

C.A. 15" DIA 79 A1
 1T-15-3 (15X13) 1/2
 1B-15-3 (15X13) 1/2 8-18-65
 PURPOSE Critical Condition
 of 2 stack
 SEPARATION = $\sim 52\frac{1}{2}$ "

A ₁	#1	#2	#3	#4
	22.986	23.016	0	0

$$\text{Neg Period} = \text{Log } N = 14.7 \pm$$

A₂ Added 40 gm Al shim to top and bottom.

$$\text{NEG} = -3.5 \pm$$

A₃ adj. shims $P_{00} = 2.1 \pm$

A₄ Adj. shims to ∞

A₅ added Counters, Scint + 2 Spirals.
Removed top Al' shim.

A₆ Sero up
moved bottom Al shim to

$$\infty \text{ Log } N = .0032$$

$$A = 44 \frac{10}{1000}$$

$$D = 54 \frac{10}{1000}$$

$$C = 52 \checkmark$$

SERVO
520

DATE	AUG 19 1965					
TIME	6 ³⁰ AM					
BY	TAYLOR MINALCZO					
CHANNEL	A	B	C	D	E	F
RANGE	10 ¹⁰⁰⁰	OK	X	10 ¹⁰⁰⁰	200	450V
SOURCE DIST.	12"	OK	4'	2"	5"	OK
% F. S. DEF	90	OK	-	90	10 ⁺	100
BLDG. ALARM	✓	✓	✓			
AUX CHRG.						
SOURCES USED	226 & 6			MAGNETS		
TABLES	✓		LIGHTS		✓	
	AREA CLEARED ✓					

T-TT (TOP @ 1/2 and only) some of the top of
 5-BT (2 FT @ 4' 7 taped to bottom of
 top die plunger)
 OTHER = wood shims covering top of
 bottom stack. Small additional
 shims (to make top # 40) = 80
 located under bottom # 40
 bottom. This shims are
 about 4" square @
 1/4"

ROSSI ALPHA DATA WITH TMC
 2-15- 3.0 [+ (15x13x1/2) ON TOP AND - (15x13x1/2) ON BOTTOM]
 TOP & BOTTOM ARE INDIVIDUALLY ALONE & - 85# EACH *
 T-T (side) 5-BT

START 7¹⁰ AM STOP 12⁵⁰ PM START 1¹¹ PM STOP 1¹⁴ PM START 1⁴⁰ PM STOP 3³⁰ PM

A 45¹⁰/₁₀₀₀; B - ; C (low line) 52; D 54¹⁰/₁₀₀₀ SERVO 520;
 ENT ON SCALE; F BELOW SCALE; LN 0.00029; SEL #1 = 22.986;
 SEL #2 = 23.000; VDT #3 = 0; VDT #4 = 0

TIME = 340 min + 3 min + 100 min } 443 min
 TRIGGERS = 5.58 x 10⁷ + 1.71 x 10⁷ } 7.29 x 10⁷
 Peak cts = 12100 - TOTAL = 16,110 } 16110 cts

Counts Stopped @ 3:20 PM

down @ 4:00 PM

* Rhoette discrepancy casts some doubt on this No.

20 Aug 65

1 T-15-3.0 (+ 1/8 x 15 x 13)

T-TT SBT

6³⁰ AM

END 15 1/2"

SCIN.

from STACK



TOWER SPOKE @ 1 3/8" from edge
of stack on TOP.

2 F.C. TAPED @ ± UNDER DIAPHRAGM

TOTAL MASS = 16454.5 gm

START 7⁰⁴ AM

2 49 min

14940 rev

STOP 1113 1/2

TRIG = 4×10^7

trig/rev = 267.7

A 67¹⁰/₁₀₀₀; B ∞; C (Kouslin) 73; D 65¹⁰/₁₀₀₀; L 0.00050

Peak/Trig = 24.5 ie 11535/470

Peak to Sta = 2780

TOP CALC. FROM COMPUTER = -66.3 †

1B-15-3.0 (-1/3 x 1573)

T-BB S-TB

← 2 F.C. @ 4 ATOP STACK

END IS
1/2 1/2 1/2
stack

SCIN.



← TOWER SOURCE 2 1/2" diam. edge
of stack on bottom.

TOTAL MASS = 160990 gms

START 1 42 PM STOP 2 15 PM

Gen. ?

A 61/1000; B ∞; C (level line) 87; D 86/1000; L 0.00056

TOTAL TIME =

TOTAL TRIGGERS =

TRIG/SEC =

Peak cts/hr =

Peak / Background =

BOTTOM CALC. FROM COMPUTER = -65.0 #

20 Aug 65 Some other "unsuccessful" runs were made.

23 Aug 65 1B-15-3 (-1/8 15x13) TBB STB,
conf. as Pg 91

A $33 \frac{100}{200}$; B ∞ ; C (low line) 92; D $51 \frac{100}{200}$; hN .00050
#1=22985; #2=23016; #3=+3; #4=+3

AUG-24 1965 SAFETY CHECK

— P. Mihalczo + Taylor

	D	G			
$\frac{10}{1000}$	OK	X	$\frac{10}{1000}$	900V	850V
10"	OK	5'	3"	5'	OK
90	—	100	90		
✓	✓	✓			
CIRCUIT		226 + 8	MAGNETS		✓
TABLES		✓	LIGHTS		✓
			AREA CLEARED		✓

15" Dia Expt. AUG 24 1965 A7
 T 3" +
 B 3" -
 Date _____ Time _____ AM/PM _____

Repeat of p. 89
 for Reactivity Check

A7 $T = TT$ $S = BT$
 Log N = .00038 $D = 56 \frac{10}{100}$ SERVO = 520
 A = 46 $\frac{100}{100}$

A8 Moved counters to bottom stack.
 $T = B$ ^{side} $S = BB$ (About 1 \leftrightarrow 2 $\#$)
 All shim moved from ~~bottom~~ BB } Reactivity loss.
 to TT.
 START @ 9 ⁴⁵ AM

50 A 44 $\frac{10}{100}$; B ~~side~~; C (low line) 51; D 56 $\frac{10}{100}$ SERVO 520; Ln 0.00036
 stop 6:15 PM
 Count Rate
 ± 2 ± 3 1 min
 60 act 250 + 181

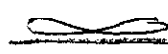
8-25-65		SAFE	
BY Mihalezo + Taylor			
10 1000	opr	X	10 1000
8'	OK	5'	2'
90	-	100	90
✓	✓	✓	
SOURCE	226 + 8		✓
TASK	✓	✓	✓

A9 Counters moved
T-B (side) S-TB

Inst. ≈ Same as
p. 93

START	7:50 AM	STOP	9:30 PM	1:42 time
	10:20		1:37 PM	3:12
	1:55:30		3:00 ±	<u>1:05</u>
				5.59

DATE	26 Aug 65		OPERATOR	
TIME	6 ³⁰	AM	TAYLOR & MIHALCZO	
TYPE				
NO.				
1000	OPR	X	1000	900V
8"	OK	5'	2"	4" OK
90	~	100	90	100 ⁺ 100
BLDG.	✓	✓	✓	✓
DATA	✓	✓	✓	✓
SOURCES	✓	✓	✓	✓
TABLES	✓	✓	✓	✓
LIGHTS	✓	✓	✓	✓
AREA CLEARED	✓	✓	✓	✓

A₁₀ Period meas. with [A₉ configuration (servo shim in out position)] → 

A₁₁ Remove the 2 spiral fission counters.
 $ln = 338 \text{ sec} \quad -4.26\%$
 $BF_3 = 303 \text{ sec} \quad -4.83\% \quad \rightarrow -4.55\%$

A₁₂ Place 25gm Al shim on top of bottom stack.
 $ln = 1385 \text{ sec} \quad -0.94\%$

A₁₃ Add 2 fission ctrs to bottom of top. Make "small" shim change to compensate.
 $ln = +310 \text{ sec} \quad +3.7\%$

A₁₄ Remove "compensating" shim from top completely.
 $ln = +1170 \text{ sec} \quad +1.05\%$

A15 Removed vertical plugs @ $\pm = 1\frac{7}{8}$ " @ 3" out = $\frac{3}{8}$ "
 Horizontal plugs 15" dia = 1"

$$L_m = -249 \text{ sec} \quad \underline{-6.1}^{\text{f}}$$

A16 Readjust plug situation so that now the top is shy the following plugs.

Vert \pm now short $\frac{7}{8}$ "

Vert @ 3" now short $\frac{1}{8}$ "

Horiz @ 15" OD short $\frac{1}{2}$ "

$$L_m = -577 \text{ sec} \quad \underline{-2.3}^{\text{f}}$$

A17 Readjust plugs $\pm = -\frac{5}{8}$ "
 @ 3" = $-\frac{1}{8}$ "

$$L_m = -1010 \text{ sec} \quad \underline{-1.32}^{\text{f}}$$

This compares to A12 run.

\therefore Top & Bottom stacks are equal essentially in reactivity.

Can't this run for Rossi-Alpha data.

2-15-3* T-B (side) - 5-BT

START 11:55 STOP (SCRAM) 12:40

lightning bolt*

Printed out this part.

* Had ^{momentary} power failure and resultant Scram at 12:40
 no damage to experiment was noted, power @ 1257
 power went off and stayed off.

Power back on @ 2:48 ^{PM}

Inst Check - OK

Reactivity Check - OK

Inst Zero Shift -

$$\log N = .0062$$

$$"A" = 65 \frac{100}{100}$$

$$"D" = 75 \frac{10}{1000} \quad \text{Servo @ 700}$$

AUG 27 1965

6⁴⁰_{AM} JAYLOR & MITCHELL

	$\frac{10}{1000}$	012	X	$\frac{10}{1000}$	900V	150V
	90	✓	150	90	100	100
	✓	✓	✓			
AUX			✓			
SOURCE	226 d p					✓
TABLES	✓	EVENTS	✓	AREA CLEARED		✓

A18 2-15-3* TB(side) S-BT

START @ 7¹²_{AM} STOP @ 12³⁰

A 49¹⁵⁰/₁₀₀; B ∞; C (low line) 59; D 65¹⁰/₁₀₀₀; E ✓; F ✓;
 BF₃ 81 Rev/min (256 ACME); SEL #1 = 22.99; #2 = 23.009;
 VDT #3 = +4; #4 = 0; SERVO = 605

A19 2-15-3* TB(side) S-TT

START 1³⁰_{PM} STOP @ 6:25 PM

A 49¹⁰⁰/₁₀₀ D 65¹⁰/₁₀₀₀
 BF₃ 81 Rev/min

8 SEPT 65

1T-11-3.25

T-SIDE

S-B

SOURCE OPP. SIDE

Go To Log "Sub-Critical"

MAR 3 1966

10:10 AM Taylor & Lynn

	A	B	C	D	E	F
Pressure	1000	1000	1000	900	750	
Temp	8"	OK	30"	2"	6"	OK
Flow	90	-	150	90	105	-
Check	✓	✓	✓			
Notes						
Remarks						
Operator						
Supervisor						
Material						
Time						
Location						
Remarks						
Checked by						
Approved by						
Remarks						
Operator						
Supervisor						
Material						
Time						
Location						
Remarks						
Checked by						
Approved by						
Remarks						

PuBe 226 + γ

B → Y

11 dia Exp. XI Run 1
 1- 3.3125" Date MAR 3 1966 Time 10:35 AM
 Pitte Calibration
 Comparing reactivity with
 that given by Rossi α

See p. 12

Achieved critical with 8 1/2" dia XI" Al on Ram

- Loading - Same as top p. 42
 Pos #1 = 22.980 Log N = 81.4 sec 11.3¢
 ∞ Log N = .018 "A" = 44 ¹⁰⁰⁰/₅₀₀
 Pitte = 2 x 10⁻⁸ "D" = 46 ¹⁰⁰⁰/₅₀₀

3 5/16"

Drop Ram by pushing magnet trip
 and normal run down switch.

Pitte = Normal paraffin pig. 40" from
 Center of Stack

2. Loading - Same.

Exchanged Shields pipe - Log N
and Pitte, 48" from center of stack.
Poo Period - # $\frac{1}{2}$ = 23.00.
 ∞ - Scrammed System

$$\text{Log N} = .03$$

$$\text{Pitte} = 2 \times 10^{-8}$$

$$\text{Pitte} = \# -2.086$$

$$\infty = 0.015 \neq$$

3 Repeat = # -2.088

$$\infty = +0.0028 \neq$$

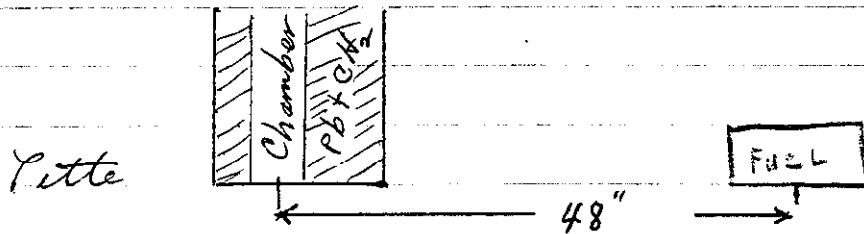
$$\text{"A"} = 70 \quad \frac{1600}{500}$$

$$\text{"D"} = 70 \quad \frac{1000}{500}$$

$$\text{"C"} = \text{H-18, } 90$$

$$\# -2.09$$

$$\# -2.09$$



Co. 11" dia Expt. XI Run. 4
 1- 3.25" Date 8 Mar 66 Time 1:35 PM

Purpose Cont'd Pitte Calibration.

4. Loading - See Top p. 24
 Achieved Crit with Al as p. 101.
 3 1/4" except stroke $\frac{9}{16}$ " closer -

Pos Period = #1 = 23.29
 ∞ , Pitte, 2×10^{-8}

$$\log N = .03$$

$$\infty = 0.0015 \neq$$

$$\text{Pitte} = -\$3.796 \quad -3.80$$

5 Repeat

$$\infty = \infty$$

$$\text{Pitte} = -\$3.774 \quad -3.77$$

dia 11" dia cor. XT Run 6
 1-3.1875" 8 Mar 1966 Time 2:40 P.
 Purpose: Cont'd Pitte Calib.

Get critical by using ram
 when at desired level, scram [ram]

6 Loading -

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

#0117 - 11" dia
 235u $\frac{5}{16}$ " Thick
 on Ram
 to get critical

44	63	67
= 3078		
43	28	29
67	37	30
48	41	34
#2803		

Pos Period - #1 = 22.13

Scram -

Pitte = -#5.87

7. Repeat with Pitte lowered 4 ft.

Pos Period

"A" = 90 $\frac{1000}{500}$

∞

, $\log N = 036$

"C" = 80, A-20

Scram

Pitte = -#4.18

8. Repeat Run 6 using 11" dia x 1" graphite in place #0117.
Pitte as p. 102

Pos Period - + 15¢
∞ - ∞.

Scam - Pitte = - \$5.66

7

+

1000
500

A-20

MAR 1966

DATE	MAR 9 1966	SAFETY SHEET			
TIME	8:40	BY Taylor + Lynn			
GRAND					
RANGE	$\frac{10}{1000}$	SPR L-14	$\frac{10}{1000}$	950	750
SCALES USED	8" OK	4" 2"	6"	OK	
% F. S. TEST	90	-	100	90	100 ⁺
BLDG. ALARM		✓	✓	✓	
AUX. STRE.		✓	-	✓	
SOURCES USED	Pub 226 & Y	MAL			✓
TABLES	✓	LIB	✓		✓

CA. 11" dia Exp. XI Run 9
 Date MAR 9 1966 Time 8:40
 Purpose Cont'd Pitte Calib.
Pitte bare and above fuel.
added shielding to "A" + "B"

Pitte
BARE CHAMBER

42 1/2"

9. Repeat Run 8, except for Pitte position.

→ "A" out of trip circuit
 Poop Period #1 = 21.515 ~ 15¢
 ~ ∞ # = 21.465 #0.016
 Scram - Pitte = - \$4.730 \$4.74

3 3/16

"F" = 0.5 750 V Log N = ~~0.2~~
 Pitte = 1.8×10^8 "A" = 80 $\frac{1000}{1000}$
 Bldg Alarm "A" = 500 MR "D" = 26 $\frac{1000}{1000}$
 "C" = 42 L-28
 "E" = 30 660 V

10. Repeat Run 9, with #0117 on ~~graphite~~
 ram replacing the graphite.

Raised Pitte 2 1/4"

Pos Period #1 = 22.11, +15#

$\infty = 0.005$

Scram, Pitte = -#4.93

-4.93

11. Repeat Run 10 with 2" X 8" X 8" (2" Thick)
 pb immediately under Pitte.

Pos Period, +15#

$\infty = +0.01$ Scram Pitte = -#5.039

*
-5.05

11" dia Expt. XI Run 12
 L-11-3.125 Date 9 Nov 1966 Time 3:00
 Purpose Cont'd. Pitte calibration

12. Loading - Diaphragm

$3\frac{1}{8}$ "

Ram - #0117 = $\frac{5}{16}$ "

42, 36, 28 = $\frac{3}{8}$ "

$\frac{11}{16}$ "

46	73	11	$\frac{1}{8}$
3074			$\frac{3}{8}$
44	72	71	$\frac{1}{4}$
42	70	69	$\frac{3}{8}$
40	68	67	$\frac{1}{2}$
-503			$\frac{1}{4}$

Pos Period #1 = 21.33 ; +18¢

∞ = +\$0.016

Screw, Pitte = -6.974

-6.98

13. Repeat Run 12

Pitte adjusted 1 division down

Pos Period #1 = 21.33 ; +18¢

∞ = ∞

Screw, Pitte = -7.08

-7.08

14. Loading - See Run 6 p. 104 on diaphragm

Ram as in Run 12 above

Sub crit.

Stops set too short.

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

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

MAR 10 1966

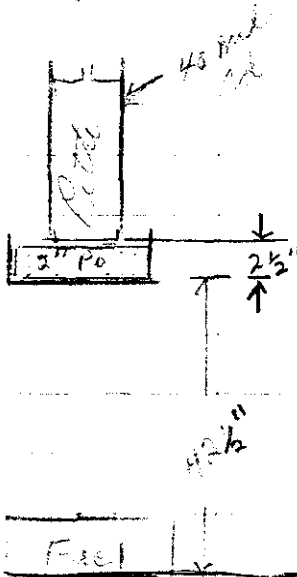
APERTURE

TIME 8:15 AM

Taylor + Lynn

	A	B	C	D	E	F
TABLES	$\frac{10}{1000}$	OPY L-14	T000	900	750	
TABLES USED	4"	OK 3'	0	6"	OK	
TABLES USED	90	- 100	90	100+	-	
TABLES USED	✓	✓	✓			
TABLES USED						
TABLES USED						
TABLES USED						
TABLES USED						
TABLES USED						
TABLES USED						

"A" + "D"
Extra Shrinkage



11" dia Ex. XI
1-11-3.1875 MAR 10 1966 8:30 AM

Purpose Cont'd Petite Calib.

15. Repeat Run 14. Stops adjusted 1".
Pos Period #1 = 20.8

3 3/16"

$\sigma = 0.003$
Scram, Petite = -5.228
-5.23

16 Repeat Run 15.
Pos Period = +19.4

$\sigma =$
Scram, Petite = -5.228
-5.23

Cr 11" dia Expt XI Run 17
 1-11-3.0" 10 Mar 1966 Time 10:00
 Purpose Cont'd. Pitte Calibration

3'

17. Loading - Diaphragm
 - Ram Same Run 12

3.0"

5078		
48	41	34
2803		

Pos Period - + 18 ϕ

$\infty = 0.0078$

Seram, Pitte (x 20) = - 5.22

~~10.45~~

1:00 PM 18. Repeat Run 17.

40 mil cd around Pitte Chamber, and
 under and around sides of brick.



Pos Period = + 16 ϕ

$\infty = 0.022$

Seram, Pitte (x 20) = - 5.22

$\leq 5 \times 10^{-9}$

Log N = .65

~~10.45~~

Alarms

"A" = 2K

"A" = $\frac{1000}{1000}$
 "D" = 42

"B" = 500 MR

"Q" = 75 H-28

"C" = 500 MR

"E" = 75 600 \checkmark

"F" = 75 630 \checkmark

19. Repeat Run 18. adjusted Inst. for higher power-

Pos Period = $+12 \text{ \#}$ "E" = 3 alarm "A"
 ∞ "F" = 6 6K

3"

Scram, Title = X10. - 9.999

20. Repeat.

Pos Period = ~~F~~ 22.15 \# alarm "B"
 ∞ = $\# 0.001$ log N = 1.0 1.5K

Scram, Title = (X20) - 5.11 "B" = 2.0K
 $\#$ - 10.22

45

V
 V.

11" dia XI Run 21
1-11-2.875" Date 10 Mar 1966 Time 3:10
 Purpose Cont'd Pitte Calib

21. Loading - Diaphragm

Ram - $\frac{11''}{16} + \frac{1}{4} [71, 75, 79]$
 $\frac{13''}{16}$

2 7/8"

Pos Period = +20 #

$\infty = 0.0018$

Scram, Pitte = -6.86

3078		
40	57	67
73	77	79
43	2829	79
48	41	34
2903		

22 Repeat -

- #13.72

Pos Period - #1 = 21.89, +20 #

$\infty = +0.0045$

Scram, Pitte = -#6.932 (x20)

- #13.88

DATE MAR 1 1966 SAFETY CHECK
 TIME 8:15 BY Taylor + Mikalego
 HANDED 10/1000 OK L-14 1000 660 620
 SOURCE 2" OK 3' 0 2' OK
 % F. S. 90 - 110 90 100+ -
 ELEC. ALARM ✓ ✓ ✓ - - -
 AUX. CTRS. ✓ ✓ ✓ - - -
 TOOLS USED P, Bz + Y - - - - -
✓ LIGHT ✓ - - - - -

Cal. 11" dia MAR 7 1966
1-11-3.3125 23 AA
 Purpose Pette Calib.
8:31

3 ⁵/₁₆ "

23 Loading - Diaphragm - See Top p. 42

Ram
2352 (¹³/₁₆)

79	75	71	14"
42	36	28	3/8"
# 0117			5/16"

Pette as p. 109

Pos Period #1 = 18.07, +19¢

Alarms ∞ = ∞ Log N = 1.6 "A" = Trig
 A = 5K "E" = 2.5 "D" = 55 ¹⁰⁰⁰/₁₀₀₀
 B = 1.8K "F" = 6.1 "C" = -
 C = 3.K Scram = -190

"E" + "F" Near South wall in 2" pt.

88

Cal. 11" Expt. XL Run 24
1-11-2.75 Date 11/20/36 Time 10:25
 Purpose Fitte Calib

24. Loading - Diaphragm - Same as p.112 less
 Ram - $\frac{1}{8}$ " x 7" disc $\frac{1}{8}$ " [69,73,46]
 added to p.113

$\frac{3}{4}$ "

$\frac{15}{16}$ "

Pos Period = #1 = 22.16 + 22¢
 $\infty = \infty$

Scram, Fitte = $-8.534(x20) = -\frac{\$17.06}{17.17}$

25. Repeat - Pos Period - 20¢

$\sim \infty = 10076(x20)$ Scram, Fitte = $-\frac{\$17.02}{17.03}$

12:45 PM 26. Loading - Diaph →

Ram - $\frac{1}{4}$ " [70,74,78]
 added to p.113

3078		$\frac{3}{8}$	
46	73	69	$\frac{3}{8}$
43	2829	29	$\frac{3}{8}$
48	41	34	$1\frac{1}{2}$
2403		$\frac{1}{4}$	

Pos Period = 29¢, #1 = 22.06
 ∞ , Scram, Fitte = $-\frac{\$4.192(x50)}{20.96}$

27. Repeat, Pos Period

Scram, Fitte = $-\frac{\$4.875}{20.88}$
 Pos Period - x10, x20, x50
 28.93¢, 28.74¢, 28.52¢
 Granted $-\frac{\$2.117}{21.17}$

2:05 PM 28. Loading - Diaphragm

2 1/2"

ON Ram

2 1/2"

1 7/16"

44	43	42
48	47	46
42	41	40
42	36	33
0117		

3078		
43	2829	29
48	41	34
2803		

Pos Period #1 = 21.78 + 24¢

∞, Scram, Pitte (x50) = - 4.799 #23.97

Corrected #24.48

29 Repeat - Pos Period #1 = 21.85 + 22¢

∞, Scram, Pitte (x50) = - 4.812

#24.06

Corrected - 24.49

for

Pitte scale change

346

3

18

14

(x50)

96

88

75

11 0955

DATE	MAR 4 1966		SAFETY CHECK			
TIME	8:40	AM	BY Taylor & Lynn			
CHANNEL	A	B	C	D	E	F
RANGE	1000	600	X	1000	660	620
SOURCE	2"	OK	3'	0	2"	OK
% F. S. ...	90		100	90	100+	-
BLDG. ALARM	✓	✓	✓			
AUX. GYRS.	✓	✓	✓			
CONROLS USED	✓			MAGNETS		✓
TABLES	✓			LIGHTS	✓	AREA CLEARED

C.A. 11" dia Expr. XI Run: 30
1-11-2.25 Date MAR 4 1966 Time 9:10 AM
 Purpose Little Calib.

30 Loading - Diaphragm →

2 1/4"

Ram

1 15/16" →

43	2829	29
74	25	21
76	62	31
0117		

3078		
48	41	34
2803		

Pos Period - #1 = 21.38 , + 21.5¢
 ∞ , Scram, Pitte = -5.24 (x50) #
 -26.20
 Pos Period - x10, x20, x50
 21.49¢, 21.46¢, 21.10¢ Corrected # 26.66

31 Loading - Diaphragm →

2"

Ram - as Run 30 + #3078 or 2 5/16"

Pos Period #1 = 20.69, #2 = 20.81

78	74	70
48	41	34
2803		

∞ , Scram, Pitte = -4.616 (x50)
 -23.08

11" dia XI 32
1-11-2.50 14 Nov 1966 10:55
purpose: Zero Run for Reactivity Meas.

32. Repeat Run 28, p. 115.

Ram loading

$\frac{7}{16}$ "

44	63	68
76	62	31
0117		

2.5"

Pos Period, #1 = 22.14, + 27¢
 #2 = 22.255"

∞ , Scram, Little = -4.833 (x50) [#]-24.16
 Corrected [#] 24.59

33. Scintillator Evaluations -

2 Scint. and source mockup as in the Rossi & measurements.

Pos Period -

∞ , Scram, Little = -4.81 (x50) [#]-24.03
 Corrected - 24.46

Counters + Source = +13¢

34. Support Rings and Diaphragm up.

Pos Period = $\frac{\times 10}{24.89 \text{¢}}$, $\frac{\times 20}{25.06 \text{¢}}$, $\frac{\times}{24.89 \text{¢}}$

∞ Scram, Little = -4.679 (x50) [#]-23.39
 - 23.81

Rings + Diaph = 78¢

VS Run 32

20

16

35 Repeat Run 32.

Pos Period $\#4 = 22.14$

∞ , Scram, Pette = $-4.762 (x50) = -23.81$
 $\# -24.23$

Support Rings + Diaph = 42 ϕ
 vs Run 34

2 1/2

36. Repeat Run 24 p. 114

	3078	20	3/8
DiAPH.	43	2829	29 1/4
LOADING \rightarrow	48	41	34 1/2
	2803		1/4

Ram - Same as Run 32

Pos Period $\#1 = 21.53$, 21. ϕ

∞ , Scram, Pette = $-3.514 (x50) = -17.57$
 $\# -17.57$

2 3/4

37 Repeat - Pos Period =

$\infty \#1 = 21.51$, Scram, Pette = $-8.796 (x20) = -17.59$
 $\# -17.70$

38. 2 Scintillators + Source Thock up.

Pos Period -

$\infty \# =$ Pette = $-8.859 (x20) = -17.72$
 $\# -17.83$

Detectors + Source = 11 ϕ

39. Support Rings and Diaphragm.

Pos Period -

∞ , Pette = $-8.828 (x20) = -17.65$
 $\# -17.76$

40 Repeat 2 hrs. Run 36 + 37

Pos Period

$$\infty, \text{Scram } \text{Pit} = -8.816 \text{ (x20)} = -17.63$$

$$\text{(10000)} \quad \# - 17.74$$

23.81

4.23

3/8

1/4 3/8

1/2

1/4

7.57

d) =
17.59

7.70

72

83

6

15" Dia

DATE MAR 15 1966 SAFETY CHECK

TIME 10:40 BY Taylor & Lyman

CHANNEL	B	C	D	E	F	
RANGE	$\frac{10}{1000}$	OK	L-74	$\frac{1}{1000}$	660	620
SOURCE	2"	OK	3'	0	2"	OK
% F. S. TCR	90	-	100	90	100	-
BLDG. ALARM	✓	✓	-	-	-	-
AUX CTRS.	✓	✓	✓	-	-	-
SOURCES USED	✓	✓	✓	MAGNETS	✓	✓
TABLES	✓	✓	✓	LIGHTS	✓	AREA CLEARED

C.A. 15" dia Expr. XV Run 1

1-15-2.875 Date MAR 15 1966 Time 10:20 AM

Purpose Plate Calibration of
15" dia 235 u Slab

1. Loading - Diaphragm

2 7/8"

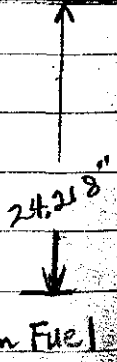
RAM - 235 u (1/4")

2886 | 83 2803

1/4	2885	82	78	74	70
1/4			3058		
1/8	57	80	44	62	68
3/8	64	49	42	36	28
1/2	66	55	67	37	30
1/2	86	52			
3/4	60	51	45	38	31
7/16					# 0104

Positive Period - 20 # #1 = 21.625
#2 = 21.753
∞, Scram; Plate = 4.703

24.218
21.625
2.593 Separation for Pos Period



Ram Fuel

$$\text{Diaph to } C = 23.968''$$

$$\frac{21.96}{2.008}$$

#2

2. Repeat Run 1, using $\frac{1}{2}'' \times 15''$ graphite on ram to get to power.

Pos Period - #1 = 21.96 #2 = 22.089

∞ #1 = 21.85

#2 = 21.980

2 1/8

Scream, Little = $-\$5.18$ ← ✓

3. Repeat with al on Ram ~ $1\frac{3}{8}''$ Thick

Pos Period - #1 = 23.07 22 #

∞ #1 =

Scream, Little = $-\$4.55$

70

28

35

31

18

e1

C.N. 15" dia Expt. XV Run 4
L-15-2.625 Date 15 May 66 Time 2:30 PM
 Purpose ptle Calibration

4. Loading - Diaphragm

2.625"

Ram = 235 u ($\frac{3}{8}$ ")

84 49 42 36 28

2885	82	78	74	70
3058				
2886	83	79	75	71
66	55	67	87	30
86	52			
60	51	45	38	31
0104				

Pos Period #1 = 23.2 #2 =

∞ , Scram Pitte = -2.533 (x50)

#12.67

↑ 24.093"

↓ RAM Down

24.093
 23.20

 0.893
 on Pos Period

7"

MAR 16 1966

DATE MAR 16 1966 SAFETY BY Taylor & Lynn

TIME 9:15

WST.	$\frac{10}{1000}$ 2" OK	L-14	$\frac{1}{1000}$ 3'	660	620
TRIP	90	-	100	90	100+
ALARM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BTNS.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NO. ROLS USED	PABE + 8				
TABLES	<input checked="" type="checkbox"/>	LIGHT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

C.A. 7" Exp. VII Run 1

1-7.0-4.0" Do. MAR 16 1966 Time 9:25 AM

Purpose Pette Calibration

0

30

31

↑ 4.093"

↓

4M on

1. LOADING - DIAPHRAGM 10.18 cm

4" RAM = # 2732 4"

2352 (1")

31
34
2733

Sub Crit., Clamps for Ram fuel required
1/4" gap.

- Added 1/8" (#2769) to Ram. Sub Crit
- Added 1/4" (#) to Ram, US Ram

Distance from Ram fuel to diaph 23.44"

Pos Period #1 = 23.1

Scram, Pette = -6.30 (x20)

-12.60

4. 2 Scintillators, source, diaphragm and Support rings added.

Pos Period #1 = 22.99 #2 = 23.120 + 23¢

∞ #1 = 22.97 #2 = 23.086

Scram, Pette = -6.195(x20) = #12.39

Log N = 1.0

"E" = 350

Alarms "A" = 6K

"H" = out Trip

"F" = 700

"B" = 2K

"D" = 55 $\frac{1000}{10000}$

"C" = 3K

ctrs, etc = 21¢

5 Loading - Diaphragm

Ram -

$\frac{13}{16}$ "

2730
2771
2732

2770
2729
2734
2733

9.23 cm

$3\frac{5}{8}$ "

$3\frac{5}{8}$ "

Positive Period #1 = 22.44 #2 = 22.58

∞ , Scram, Pette = -3.801 (x50) = -19.00
 - #19.80

22.88"

RAM Down

6. Added 2 Scint., source, diaph and Support rings -

Pos Period = #1 22.43 + 25¢

∞ #1 = 22.41

Scram, Pette = -3.70 (x50) = -18.50

(1.0425) = #19.78

x10 = 25.23¢

x20 = 24.80

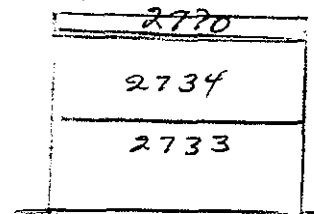
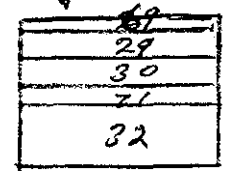
x50 = 24.20

Pette

3:05 PM 7. Loading - Diaphragm

+23 1/4
 12.39
 K
 K
 K
 1.23 cm
 3 5/8"
 2.88"
 AM
 Down
 .78

RAM
 2 7/16"



8.28 cm
 3 1/4"

Pos Period #1 = 21.95 #2 = 22.076
 Little (x10) = # 15.22 (x20) = 15.26 (x50) = 16.20
 Scram, Yette = - 4.772 (x50) = - 23.86
 (1.1425) - 27.26

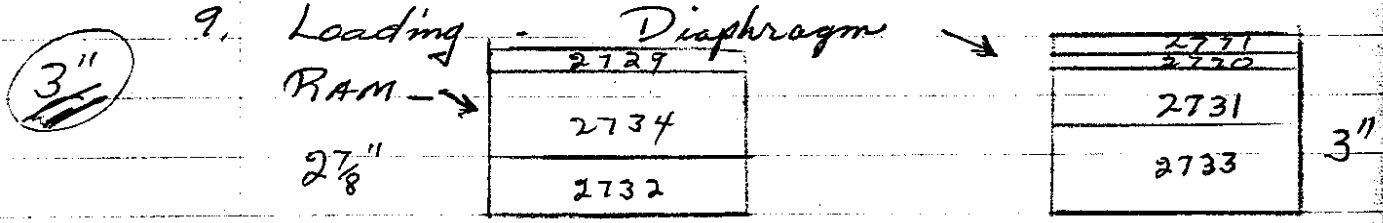
8. added 2 scint source, diaph + support rings

Pos Period - #1 = 21.92 #2 = 22.05
 Scram, Little = - 4.752 (x50) = - 23.76
 (1.1425) 27.14

7" dia

DATE	MAR 17 1966		SAFETY CHECK			
TIME	8:40	BY TAYLOR + LYNN				
CHANNEL		B	B	D	E	F
RANGE	1000	opr	L-14	1000	660	620
SOUNDING	2"	opr	3'	0	2"	OK
% F. ...	90	*	100	90	100+	
BLDG. / LARM	✓	✓	✓			
AUX. BIRS.	✓	✓	✓			
SOURCES USED				MAGNETS		
TABLES		LIGHTS		AREA CLEARED		

CA. 7" Expr. VII Run 9
 L-7-3.0" Date MAR 17 1966 Time 9:00
 Purpose Patte Values
Supports on



Pos Period - #1 = 21, + 31⁺
 ∞, Sram, Patte = -4,612 (x 50) = -23,060^{*}

40 71

2.5"

15"	XV	5
1-15-2.5"	Date 17 Nov 66	2:20
Pette Calibration		

5. Loading - Diaphragms

RAM -

85	82	78	74	70
84	49	43	29	28

66	55	67	37	30
60	51			
39	57	47	40	33
0104				

+26¢

Pos Period - #1 = 22.66 #2 = 22.797 ↑ 23.79"

∞ #1 = 22.63 #2 = 22.258 ↓

Scram, Pette = - 8.229 (x20) = - 16.45 RAM

6. Added 2 Scint., source, diaph + support rings.

Pos Period - #1 = 22.63 #2 = 22.763

+ ∞ #1 = 22.595 #2 = 22.719

Scram, Pette, = - 8.085 (x20) = 16.17

Supports - 28¢

∞ Run 5
 vs
 Pos Run 6 = 30.91¢

1.2" Separation
 @ Crst.

3"

40 mil

* 23.06

128
MAR 1966

DATE		SAFETY CHECK					
TIME	8:20	Taylor + Lynn					
CHANNEL							
RANGE	$\frac{10}{1000}$	opr	L-14	$\frac{1}{1000}$	660	620	
SOURCE	1	OK	3'	0	1"	OK (Low)	
% F. S. TIME	90	-	100	90	100+	-	
BLDG. ALARM		✓	✓	✓			
AUX CTRS.		✓	✓	✓			
SOURCES USED	Pa Be + Y			MAGNETS		✓	
TABLES	✓	LIGHTS	✓	AREA CLEARED		✓	

ca. 15" Expt. XV Run 7
 1-1572, 375" Date MAR 1 1966 Time AM
 Purpose Pette Calibration

7. Loading - Same as p. 127 less the top $\frac{1}{8}$ "

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

Poo Period - #1 23.05 #2 =

∞ #1 = 23,105 #2 = 23,234

Scram, Pette = - 4,014 (x 50) = 20.08

Separation @ crit = 0.7"

8. Supports on - 2 ctrs, drop, Seave + Kings-

Pos Period - #1 = 23.105 #2 = 23.234

∞ #1 = 23.075 #2 = 23.202

Scram, Title = 3.982 (50) = \$19.91

Supports = 17.10 \$

Run 7 ∞

Run 8 ^{u.s} Positive = 28.6 \$

MAR 2 1966

DATE MAR 2 1966 SAFETY CHECK
 TIME 9:20 BY Taylor + Lynn
 CHANNEL A B C D E F
 RANGE 1000 1000 4-14 1000 660 620
 INSTR. SET 1" OK 3' 0 1' OK
 SE. F. S. TAP 90 - 100 90 100+
 FREQ. ALARM ✓ ✓ ✓
 AUX. STRS. ✓ ✓ ✓
 SOURCES USED Pa BERT ✓ MAGNET ✓
 TABLES ✓ LIGHT ✓ AREA READER ✓

#1 =
#2 =

C.A. 15" diam. XV Run 9
1-15-2.25" DATE MAR 2 1966 Time AM
 Purpose Little Calibration

2

2 1/4"

9. Loading - Diaphragm
 RAM ↓ 1"

54	47	42	36	28
66	55	67	37	30
86	52			
60	51	45	38	31

24 54 76 67 32
 87 3

0104

23.43
 22.25
 1.18"
 SEPARATION

Pos Period #1 = 22.28 #2 = 22.404
 ∞ #1 = 22.25 #2 = 22.376

Scream, Little = Lost magnet current
 while ∞, no obvious reason.

23.43
 ↓
 Ram

10. Repeat - Magnet drop again
 Due to "F" - Brick not put on after
 Instrument Check.

*

16. Covered "F" - Repeat
 Pos Period = 29.8

∞, Scream Little = -4.828 (x50)

24.14

12. Supports One - 2 Seint, diaph, source & rings.

Pos Period: - 31.11⁺ (x10), 30.90⁺ (x20) 30.43⁺ (50)
 #1 = 22.251 #2 = 22.349
 #2 = 22.377
 Scram Little = - 4.82 (50) = -24.10

Run 9 vs Run 12 = 31⁺ Supports

13. Loading - Diaphragm

2 1/8"

Ram - Same
 1"

2885	82	78	74	70	1/4"
					9/16"
Same as p. 130					1"
					7/16"

Pos Period #1 = # 2 =
 ∞ #1 = # 2 =

Scram, Little = - 5.726 (x50) = -28.63

14. Repeat

Pos Period = #1 = 22.625 #2 = 22.757
 ∞ = 22.605 22.736

Scram, Little = 5.614 (50) = 28.07

23.43
 - 22.60

 0.83"
 Separation

↑
 23.4
 ↓
 Ram
 14

15. Loading - Diaphragm

2.0"

Ram - Same
1"

51	80	44	63	68	1/8"
				30	9/16"
Same as p.					1"
					5/16"

23.43
22.92
0.51"
Separation

Pos Period - #1 = 22.938 #2 = 23.062
∞ = 22.920 = 23.045

Scram, Little = 5.964 (x50) = 29.82

16. Repeat -

Pos Period - #

∞ = #1 = 22.925 #2 = 23.045

Scram, Little = 6.023 (x50) = 30.12

24.3
22.1

SE

LABOR

3 1/8"
9/16"
1"
5/16"

DATE MAR 20 1966

TIME 8:20 AM Taylor + Lynn

MODEL A

1000	apr	L-14	1000	660	620
1"	AK	31	0	1"	OK
90	-	100	90	100t	-

TRIP

ALARM

STGS.

USED PuBe + Y Area 2

TABLES ✓ LIGHTS ✓ Magna ✓

17/8"

CA. 15 dia Expr. XV 17

1-15-1.875 Date MAR 20 1966 8:30 AM

Purpose Pitte Calibration

17. Loading - Diaphragm

Ram 51

82	44	63	68
1 1/8" 2848	54	76	62
87	53		32

66	55	67	37	30
86	52			
60	51	45	38	31

0104

24.30
22.83
1.47"
SEPARATION

Poo Period #1 = 22.850 #2 = 22.977 ↑

∞ #1 = 22.830 #2 = 22.954 24.30"

Scram, Pitte = -6.157 (50) = -30.79 ↓
RAM

18 Loading - Diaphragm

$\frac{9}{16}$ "

RAM = $1\frac{1}{2}$ "

84	49	42	36	28
51	50	44	53	68
2848	57	76	62	32
87	53			

2885	82	78	74	70
86	52			
60	51	45	38	31
0104				

Poo Period +31#

#1 = 22.36 #2 = 22.487

Scram, Ptte = - 7.066 (50) = +35.33

↑ 23.92
↓ RAM

23.92
22.36

0.56
Separation

2

24.08
23.10

0.98
Separ

MAR 23 1966

DATE	MAR 23 1966					
TIME	9:00 AM BY Taylor + Lynn					
CHANNEL						
RANGE	$\frac{10}{1000}$	6PT	L14	$\frac{1}{1000}$	660	620
SOURCE	1"	AK	31	0	0	OK
% F. S. TR	90	-	100	90	100+	-
BLCG. ALARM	✓	✓	✓			
AUX CTRS.	✓	✓	✓			
SOURCES USED	Pulse +		Y	MAGNETS		✓
TABLES OK	LIGHTS	✓	AREA CLEARED	✓		

↑ 23.92
↓ RAM

C.A. 15" dia Expt. XV Run 19
1-15-2.625" Date MAR 23 1966 Time 9:10 AM
 Purpose Little Calibration

2 5/8"

24.087
23.102
0.985

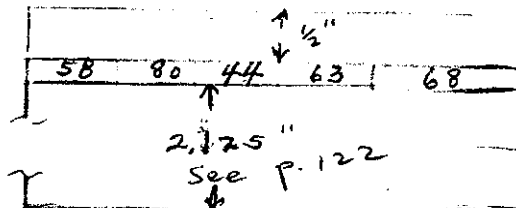
Separation

19. Loading - See p. 122.
 Pos Period - #1 = 23.142 #2 = 23.262
 ∞ 23.102 23.222
 Scram, Little = -6.188 (x20) - #12.38
 20. Supports - 2 Seint, diaph, source + rings.
 Pos Period - #1 = 23.102 #2 = 23.231
 ∞ #1 = 23.065 #2 = 23.193
 Scram, Little = -6.150 (x20) - #12.30
 Supports Run 19 vs Run 20 = 22.54¢

D.A.P.H.
↑ 24.087
↓ RAM

21. Loading - Diaphragm-

Ram - Same
(3/8")



2 3/4"

SEPARATION
1.81"

Pos Period - #1 = 22.340 #2 = 22.471 +22.15¢
 ∞ #1 = 22.278 #2 = 22.402
 Scram, Pitte = -8.81 (x10) -8.81

22. Repeat (x20)

Pos Period #1 = 22.340 #2 = 22.472 +27.53¢
 ∞ #1 = 22.272 #2 = 22.400

Scram, Pitte = -4.387 (x20) = -8.77

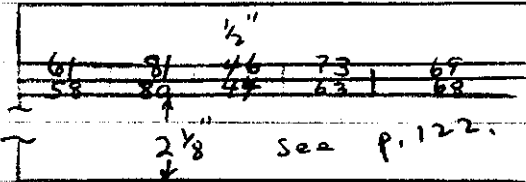
23. Repeat (x50)

Pos Period #1 = 22.34 #2 = 22.472 +27.05¢
 ∞ #1 = 22.276 #2 = 22.402

Scram, Pitte = -1.772 (x50) -8.83

24. Loading - Diaphragm

Ram - Same
(3/8")



2 7/8"

SEPARATION
3.26"

+ Period #1 = #2 =
 ∞ #1 = 20.82 #2 = 20.948

Scram, Pitte = -4.84 (x10) -4.84

25. Supports - 2 scint, source, dioph + rings

+ Period #1 = 20.82 #2 = 20.948
 ∞ #1 = #2 =

Scram, Pitte = -4.63 (x10) -4.63

Supports Plan 24 vs Plan 25 = 24.16¢

SWIFT
19

MAR 24 1968

137

10	2000	11	OK	31	OK	1000	660	620
90	-	100	100	90	100	100	100	100
100	100	100	100	100	100	100	100	100

only + only

8:30

24 Mar 68

15" dia. Exp. XV Run 26
 1-15-2.9375 Date MAR 24 1968 Time 8:45 AM

Pette Calibration

2 15/16

26 Loading - Diaphragm -
 RAM - 13/8" Al

(x50) + 19.45
 (x20) + 19.74
 Pos. Period (x10) + 19.87

#1 = 21.948

#2 = 22.078

#1 = 21.79

#2 = 21.919

Scram, Pette = - 2.727 (x10) # 2.73

27 Supports, 2 Seint, Source, diaph + Rings.

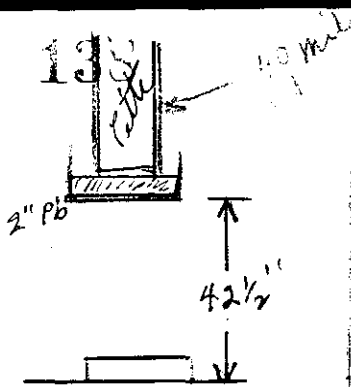
Supports
19.65

+ Period (x10) 19.65 # (x50) = 19.09 #
 #1 = 21.948 (x20) 19.59 #
 #2 = 21.922

Began to level, "F" was not recovered
 with Pb after Inst. check, was high
 enough to trip magnet, causing Scram

2885	80	78	74	70
		3058		
84	49	42	36	28
58	80	44	63	68
85	50	43	2829	29
2886	83	79	75	71
86	52			
60	51	45	38	31
			0104	

68
 22,15 \$
 81
 7.53 \$
 .77
 27.05 \$
 83
 4.84 \$
 4.63



15" dia Exp. XV Run 28
 2-15"-2.0" Dia 24 marble Time 1:18

Reactivity measurements
 of 2 fuel stacks with
 pitte at different locations
 Supports on - to give near equal height.

28. Loading - Diaphragm

85	50	43	2879	29
84	49	42	36	28
2848	54			
87	53	76	62	32 ← RAM
3058				

66	56	67	37	30
58	80	44	63	68
86	52			
60	51	45	38	31
0104				

+ Period #1 = 21.380 #2 = 21.489

+ 24.18

∞
 Scram, no pitte print

29. Repeat + Period #1 = 21.380 #2 = 21.489

∞ #1 = 21.355 #2 = 21.460

+ 23.05

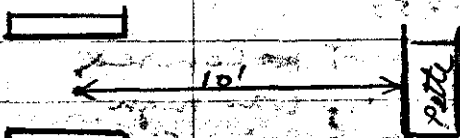
Scram, Pitte = - 5.299 (x50) - #26.50

30. Moved pitte detector from normal position to a position 10 feet from stack on a plane in center of the two stacks

+ Period = #1 = Same #2 = Same

∞ = Same

Scram, Pitte = - 4.933 (x50) = - 246.7



31. Placed Pette detector in ^{wrapped in cd} 1 Pb-CH₂ pig.
Positioned as in Run 30.

+ Period #1 = 21.382 #2 = 21.484 + 22.92¢
∞ #1 = same #2 = same

Scram, Pette = -5.448 (50) # 2724

fact.

4.18

489
460
05
.50

K

+2335

4.67

140

11" Dia.

MAP

1966

MAP 1966

SAFETY CHECK

9:45 AM Taylor + Lynn

CHARGE	10				
WIND	1000	over	L-14	1000	660 620
COUPLER	1"	OK	3'	0	0 OK
W.P.C.	90	-	100	90	100+
ALDS. ALARM	✓	✓	✓		
EX. OTS.	✓	✓	✓		
RECORDS USE	PuBe + 8				✓
TALCO	✓		✓	AREA CHECKED	-

2 1/8
23.
72.
0
Seg

11 dia Expt. Run 41
 1-11-2.28 Date MAR 25 1966 Time 9:55
 Purpose Pitte Calibration

2 1/4"

41. Loading - Diaphragm

RAM 1 7/16" →

76	62	32
9117		

3078			3 1/8
46	73	69	
48	41	34	1 1/2
2903			1/4

+ Period #1 = 23.83 #2 = 22.959 +32.75F
 ∞ #1 = 22.81 #2 = 22.942

23.40
 22.80
 .6"
 Separation

Scram, Pitte = - 5.77 (x50) - 28.85

42 Supports + 2 Scint, diaph, parre + rings

+ Period #1 = 22.81 #2 = 22.940 +24.37F
 ∞ #1

Scram, Pitte = - 5.806 (x50) 29.03

Supports (Run 41 vs Run 42) = 24.37F

2 1/8"

Run 43. LOADING - DIAPHRAGM - Same as Run 41 less 1/8"

Rem - Same as 41 plus 1/8" \rightarrow [69, 73, 46]
or 1 7/16"

23.28"
22.70
0.58"
Separation

+ Period - #1 = 22.725 #2 = 22.858
 #1 = #2 =

Scram, little = - 6.135 (x58) - # 30.67

1/8
1/2

32.257

8.85

10

+24.37

0.3

Mihalczgo
Lynn
Taylor

20 Jan 67

11:03

Taylor & Lynn

$\frac{10}{1000}$	opt	1-16	$\frac{10}{1000}$	900	750
14"	ok	30"	2"	4"	ok
90	-	100	90	100+	-
✓	✓	✓			
✓	✓	✓			
M-226	+ 8				✓
✓	✓				✓

11" dia

RU 42

2-11-2.625

Critical Condition
(Safety demonstration)

42. Leading - on Ram

#1 = 0.300 down pos

76	62	32
3078		
45	38	31
2803		

on Diaphragm

14.55" down separation

67	37	30
47	40	33
0117		

Poo Period #1 = 11.685

+10.4 ϕ #2 = 11.392

43. Repeat - Inst. removed from paraffin figs - "A", "D", & Log N.

Poo Period =

∞

#1 = 11.65
#2 = 11.357

44. Repeat - After Support Stand Change -
Fuel Conditions Same.

Pos Period. #1 = 11.640

+15¢ #2 = 11.338

∞ Ln = 0.034

45. Repeat. ^{magnet} Push ¹ Scram = -
and table drive immediately afterwards.

∞ #1 = 11.610

#2 = 11.305

Push ^{magnet} Scram = - #18.10
and table drive as above

46. Repeat -

∞ #1 = ~~11.610~~ 11.610

#2 = 11.305

Pushed magnet Scram
and table drive as above - #18.25

47. Repeat - ∞ #1 = 11.610

#2 = 11.30

Pushed magnet + table drive
as above. #19.50

11" cyl Expt. Run 48
 2-11-2.875" Date 20 Jan 67 Time 2:00
 Purpose Crit. Separation
 Safety Study

48. Leading - on Bam

#1 = 0.30 down indication

Flange = 9.75"

on Diaph.

$L_n = 0.033$

#1 = 9.74

#2 = 9.429

 -10.44

78	77	70
76	67	32
3079		
45	38	31
2803		

↑
 14.55" down Separation

42	36	28
44	63	68
67	37	30
47	40	33
0117		

Hit magnet trip and down drive as p.144

49. Repeat -

$L_n = 0.33$

#1 = 9.74

#2 = 9.42

tripped as above #10.40

50. Repeat - $L_n = 0.025$

#1 = 9.74

#2 = 9.42

tripped as above #10.40

2-11-2.875

3078			3/8
78	74	70	1/4
76	62	32	1
45	38	31	1
2803			1/4

↑
14.56" F TO F
↓

42	36	28	3/8
44	63	68	1/8
67	37	30	9/16
47	40	33	1 1/2
0117			5/16

83.8 K each

reduce from 100' to 50' for SCRAM pumps.

150

152

1628/52 Spiral Fission ctr

8-25-65