

MARSHALL ISLANDS FILE TRACKING DOCUMENT

Record Number: 384

File Name (TITLE): Diary of Harry H. Haight

Document Number (ID): 68991

DATE: 1/1980

Previous Location (FROM): CIC

AUTHOR: H. Haight

Additional Information: _____

OrMIbox: 21

CyMIbox: _____

Copy placed in
CAPT Harry H HAIGHT's file

2 January 1980

68991

MEMORANDUM FOR THE RECORD

Subj: Receipt of a Diary of Harry H. Haight while he
was with the AEC

1. Mrs. Helen H. Hockings, previous wife of Harry H. Haight
CAPT MC USN, forwarded to this office on 27 December 1979
a diary kept by CAPT Haight while he was involved with
atmospheric nuclear tests. Having worked with the AEC
for a portion of this period (approximately 1951-1954)
he was apparently aware of weapon design information and
some environmental and shipboard radiation monitoring
surveys.

2. Due to the possible classified nature of some of this
data, the diary has been placed in an envelop which has
a classified identifier and has been placed in the
classified safe in the CASTLE section.

R.T. Bell
R. T. BELL

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DECLASSIFIED BY ACTING CHIEF ISC/M
SIGNATURE John S. Bilye Sr.

Handwritten notes:
3/24/89
84D
62



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, D.C. 20350

IN REPLY REFER TO
Ser 981T1A/1002
3 January 1980

Mrs. Robert B. Hockings
815 Erie Avenue
Crystal Falls, MI 49920

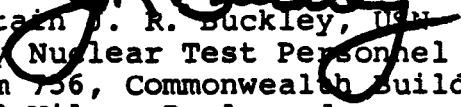
Dear Mrs. Hockings,

Your kindness in forwarding Captain Haight's diary regarding the atmospheric nuclear testing period is most appreciated. It includes some data that we did not have and may prove most helpful to us.

Personal data such as this has often been instrumental in providing new insight regarding specific details of these atmospheric nuclear tests. They are all the more important when provided by an individual as highly qualified and as involved as Captain Haight.

Thank you for sharing these records with us.

Sincerely,


Captain J. R. Buckley, USN
Navy Nuclear Test Personnel Review
Room 756, Commonwealth Building
1300 Wilson Boulevard
Arlington, VA 22209

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MADE
B&P NO. 3810½
IN U.S.A.

H. H. HAIGHT

A Diary diary
kept while with
the A & C.

Thanks for your
kindness.

Cdr.

Helen H. Hocking

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1 mile/hr = 1.4667 feet/sec.

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3 April 1952

BERYLLIUM CONFERENCE

Mr. Eisenbud -

Commission had over 50 deaths from Berylliosis by 1947. Oxide, sulfate, chloride, fluoride, etc. all involved but BeO seems to be bad actor.

Above 1 milligram/cu meter, incidence was 100%. At 8 μ gms, there were no cases. At 100 μ gms, there were some. MPE was put arbitrarily at 2.5 μ gms/meter³.

Only 1 case of acute pneumonitis in past 4 1/2 years.

Clifton oxide was more toxic than Bruch oxide. Crystalline structure differed. Clifton oxide is no longer made.

Known cases in population of Ohio city were caused by 1 μ gms/m³ as calculated & measured at 1/4th mile

0.01 μ gms/m³ is therefore set as MPE for working conditions & living
2 μ gms/m³ is MPE in plants.

inside the plant - 1700 employees
only 6 cases in 10 years - No one
employed longer than 4 months
developed chronic disease. These
cases were all exposed to BeO.

Disease can be reproduced in
laboratory animals but with difficulty.

Most fatal cases died on 25th day
acute Recoveries occurred in 4 mos.

2713 workers

90 acute - 10 deaths.

5 chronic

121 Tracheo bronchitis

95 Dermatitis. (7.5%)

Chronic case - girl c breast carcinoma
who later developed Be & was diagnosed
metastasis in Milwaukee & Mayo.

2nd case apparently improved with
later pneumonia

Chronic case in Sunday worker
looks exactly like silicosis. Dr. Sander
Milwaukee
Dr. Harriet Hardy - classification

① Asymptomatic

② Non-disabling.

③ Disabling disease.

④ Severe.

Recessions & exacerbations
nonfatal resembling T.B.

④ Recovery - (Spontaneous - 3).

Kidney stone
in 2nd case
com.

Pragmatic

Noted -

Auth. Act of Congress
9 April 1943

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Wednesday - 30 July.
Fall-out studies for Ivy.
50 Stations in US + 50 Sta. elsewhere.
Mobile teams to follow cloud at
2-500 miles to determine max
fall-out as a base line.

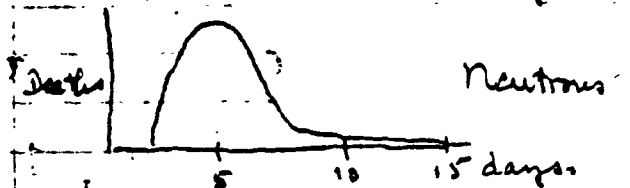
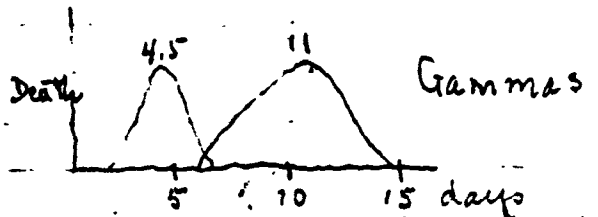
(3) single individuals at Hawaii,
Kwaj., + Guam. Each of these
should be supported by 5-6
enlisted monitors.

Dr. Palmer is under contract to
AF to furnish 70 hr forecast
of trajectory of cloud.

Guess.

Max - 4 r/hr. at 180 mi. in 10 hrs.

Air Transport - VRI
Patuxent, Md. - Capt. Campbell
Cdr. Marcus - Exec.



$$1.37 \times 10^{10} \text{ n/cm}^2/\text{sec} = 1 \text{ Rem.}$$

Biological effectiveness of thermal
neutrons by 5 methods = 1.7

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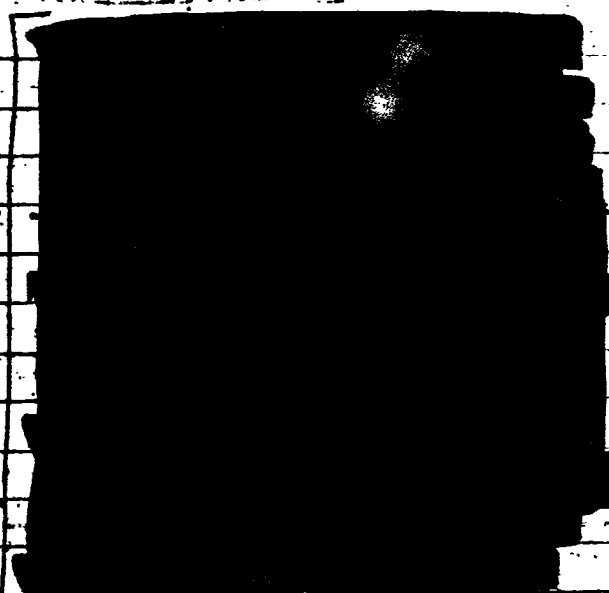
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Proposed to be done

1. Hazard of flying thru cloud
2. Air blast studies
3. Biological materials - corn, etc.
4. Survival studies - mice
5. Flash blindness
6. Noise problem
7. Effects on field hospital
8. QM uniform experiments
9. Chem Corps - residual radiation
10. Bu. Standards - X-ray spectrum

Dr. Shipman's notes

200,000 r - all dead in tunnel
 150,000 r - dead in hour
 100,000 r - all dead in 1 hr
 25,000 r - 2-3 days
 Blood WBC's to 10x normal
 no tissue pathology



	Natural decay - fission products	Rwl
1 hr = 300 r/day		300
1 day = 60 r/day		296.8
4 hrs = 0.64 r/day		278.4
1 mo = 0.011 r/day		252.9
2 yrs = 0.004 r/day		227.4
10 yrs = 0.0004 r/day		201.9

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Tolerance limits established for fall-out at 3r integrated over 1/2 wh. period. on basis of $\frac{1}{2}$

1 hr = 400 mr/hr.

1 da = 17 mr/hr.

1 wk = 2 mr/hr.

10 wk = 0.025 mr/hr.

According to Gabor Gelli calculations, 1 KT has an activity of 300 mega curies -

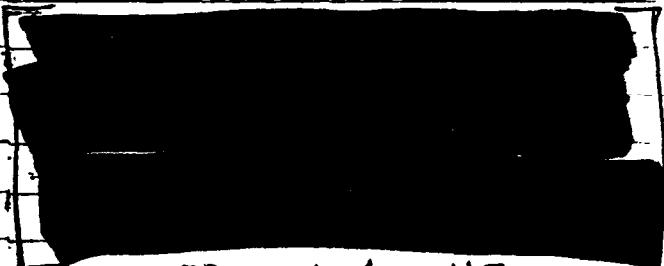
1 KT = 200 Curies of Si^{90}
= 300 mega " of total fission

Saturated fission product activity is about 7 curies per watt of reactor power.

There are 3 R₀is = surges of 3r within an area enclosed by an infinity zone line of R roentgens.

Time table of events - 20 kt -

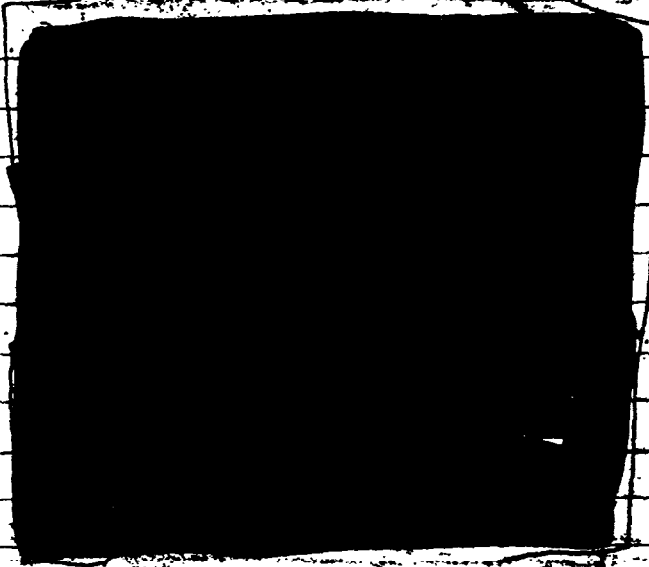
T (sec) Event



Surface: HE

0.4	Fireball's max. radius
0.4	Shock wave @ 500 yds.
1.29	" " " 1000 "
6.44	" " " 3000 "
12.0	" " " 5100 "
12.0	Fire ball reaches 2000 ft.

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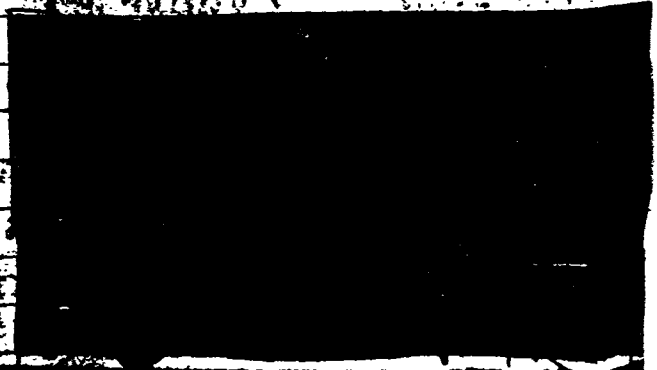


King - with agreement Raymond -
AFOTC classified - B.M. note
11 Station overleaf State Dept.
Station are "confidential"

legality of flying over
Malaysia -

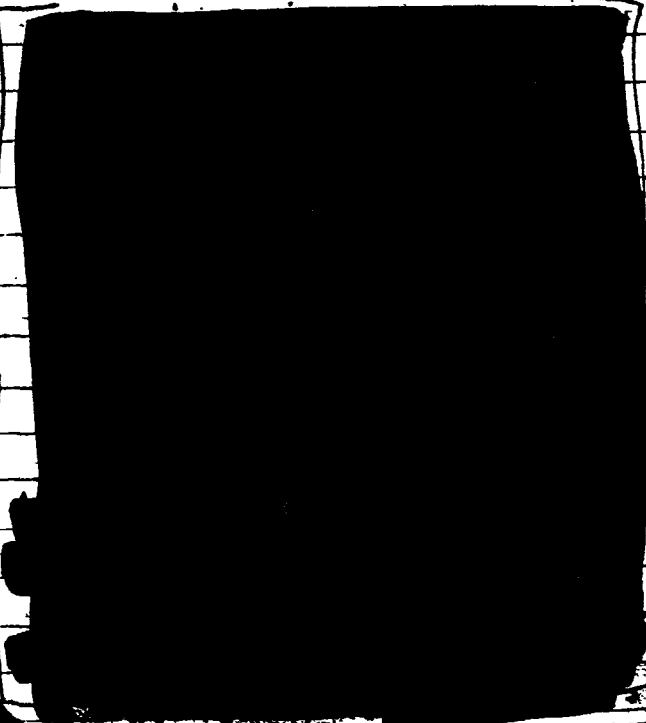
X.F. 1/5 TC 432
A.C. 2/4 TF 432
K.K. TC 432

Station no - al - danna - tenatu



July - Fall '53
LASL - 6 Towers + 3 Dura
2. Mike
3. Possibly 2 smaller

Upshot Spring '53
LASL -



Demons - Spring '54

LASL - 6 Towers + 3 Dura
WURL - 2 Towers

Redwing - Fall '54

LASL - About the same
WURL - 2 Towers?

- AEC-43/591 - Subject Matter for Mutual discussion of British & C
1. Declassifiable Subject Matter
 2. Health & Safety
 3. Radioactive & stable isotopes
 4. Nuclear & extra nuclear properties of all the Elements
 5. Detection of Distant Explosions
 6. Fundamental properties of Reactor Materials
 7. Extraction Chemistry
 8. Design of nat. U. fission reactors
 9. Research & Dev. prior reactor

? End result of Col.
Walter Hill - USMC -
captured on Guam
for Mrs. Shipman -

Los Alamos - Sept 1952 -

1. Young says to see Smedal
re blood agglutination.
2. Wright Loughran says relation
of military + Shipman are all
ironed out and very satisfactory
No further action needed. Trauberg
has ASSUP letter to be used in
future if needed.
3. ? name of Navy Op 11th.
now studying cataracts @ San

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Conference Biol + med. - 10-8-52

- ? Maynard's plans for 600 mi
- ? Use of helicopters for some of this

Eisenbud may have to take over. Has 12 air triggering devices in 5 gal. jaint can available. All work.

20th air born sampler - 12 are made of KI crystals + (4) have recorders - double tape. These had to be flown at 2000' in Nevada because of sensitivity. Reddily adapted to Copter use.

9-17-52 - JTF-132 - 61010

Capt. Batiste Lt Wise -

Stan Burris - J-Div. Los Alamos
132.1

Cul. Sacketon is Rus. Maynard's Co:

Forwarding address: -

Cdr JTF 132 Feb. - Encurtel

Atomic Defense Officer Pea.
Lt. Morton - 24205

Dr. Krugz - Defense School
Hessler - instructor
Krugz to be on LST
@ Ujaling.

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Mike SHOT - 1 Nov 52

30 min Base 52000
Peak 76000

45 min Peak 116000
1 hr 140000

2 hrs. - Navon - Lenti + Lidg OK

Sampler plane got 70 r/hr
in wing tanks. Peak
intensity 500 r/hr. at 42,000.
300 seconds from 1r to 1r

Pilot dose 3.4 r
Crate almost 1 1/2 mi. x 50-60'
Palm snapped off at 5 mi.

King - 16 Nov 52

Bombs + shrapnel back in Laguna 143
Rad left recovery missions
completed 1530 A+H readings
barely above + miles except
No. end zero -

Estimated 425
Max $5.4 \frac{r}{hr} = 3.4$ low readings
cloud deny very exposure -

NEPA - on dump

10 min	1 hr	1 day	10 da
8.6×10^5	5×10^5	1.1×10^5	1.9×10^5

Inside shield 0.25 r/hr -
(Assume 50:50 mixture of n.)

LD₅₀³⁰ - Apes appears to be 5501

Crew shield = $25000 \frac{r}{hr} = 10''$ Boron
impregnated rubber + 1/2" Lead.

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1153 Advisory Panel?

Lipman
Holtzman
Buzler
Andrews
Haight

Claus - Health Physics -
Dunham - Indust. Medicine -

SFOO-14 Jan 1953. Albuquerque

Tyler - Elliott - Graves - Mastik
Houston - Campbell - Cole - Hayward.
Cox - Eisenbud - Buzher - Salisbury
Clark

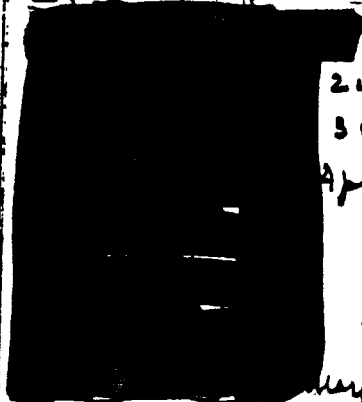
Short range hazard. - Air born dust
5/7 Ogden $45,000 \text{ d/m}^3 \text{ ex. m.}$
(100 m)
This is equivalent to 5 days of
inhalation of natural radon in air.

Similarly, the total fall out to date
is much less than the total radium
in the earth crust.

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Upshot

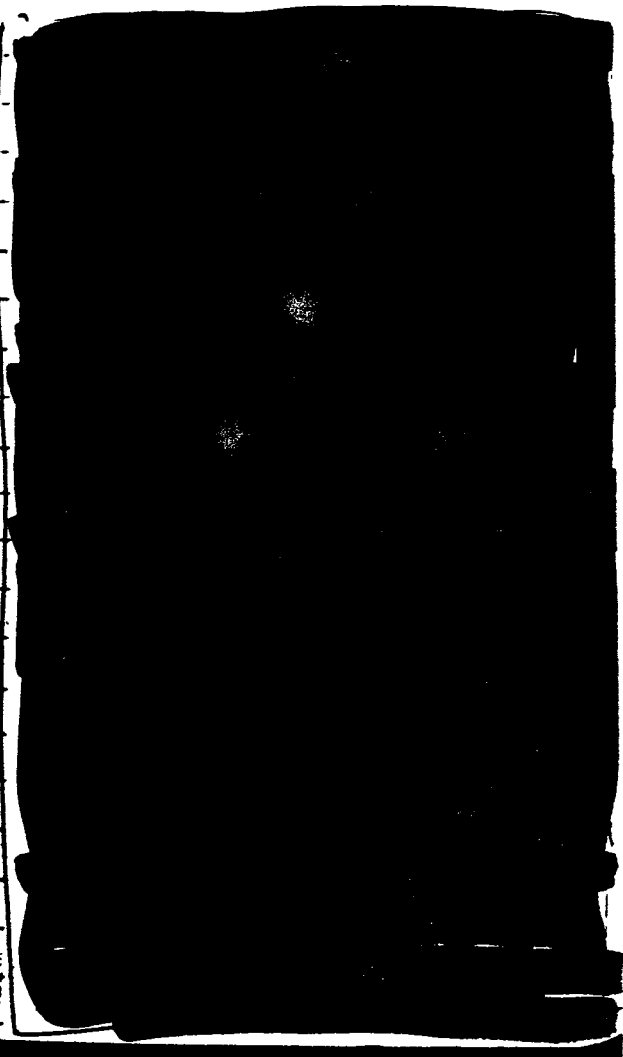


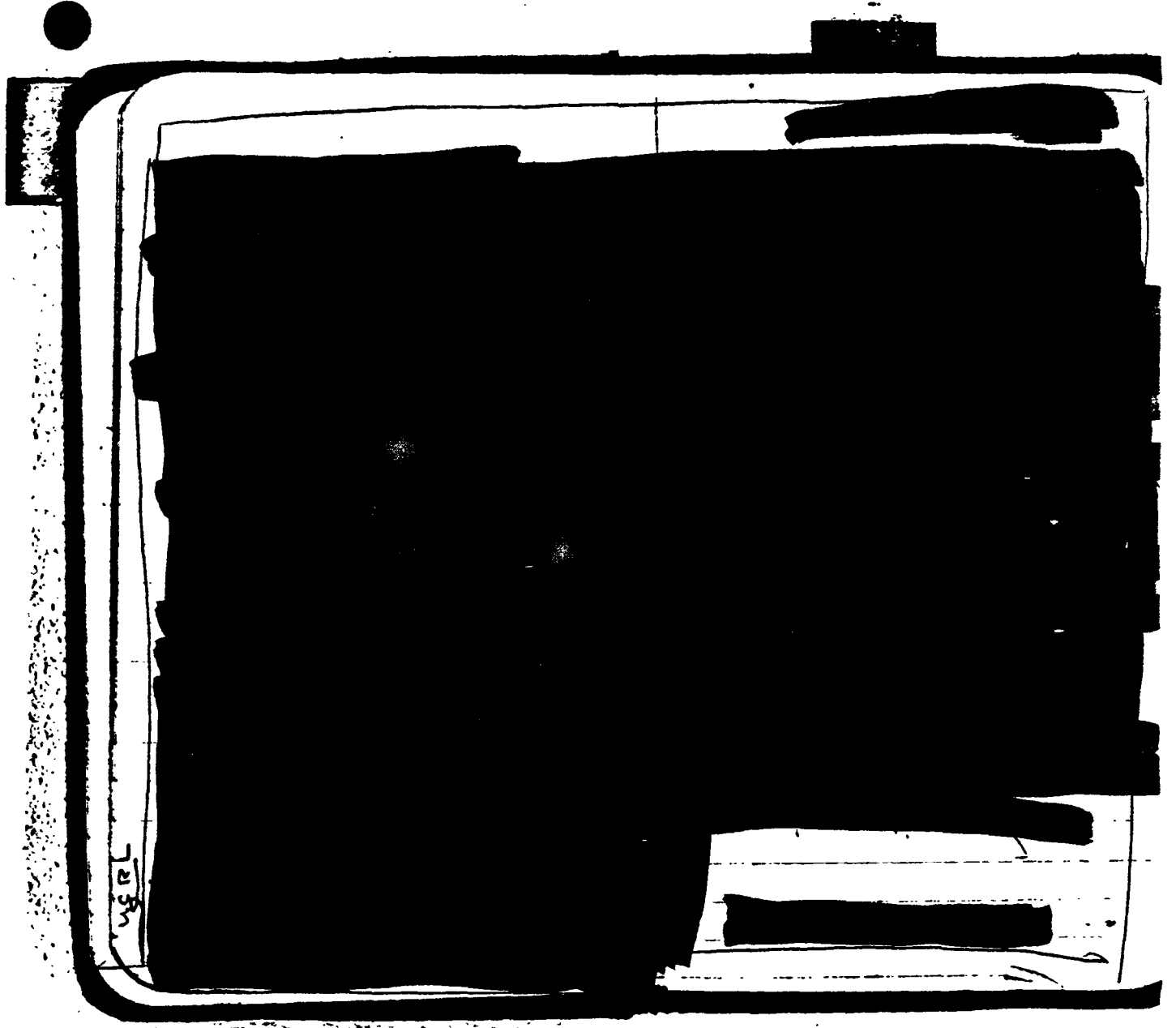
16⁵
15 80' Tower
24 35-40' Tower
31 2-3 Tower
Apr 6 11²⁰ Air Drop
11 5-10' Tower
18 1/3 50' Tower
25 35-4' " "
May 23 30' " "

Knothole



May 4 Air Drop
May 7 30 2420 Drop
May 21 500' Burst





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UCLA
243
Feb 53

Larson's Report on Snappers

Based on Sta 25 (Typical Station)
on Snapper #6 where fall-out occurred

Early (1.45 hrs), the air corrected
to mid point of total operational
period was calculated to be $0.0386 \mu\text{c}/\text{m}^3$
of air. A normal individual
breathing $20 \text{ l}/\text{min}$, and out down
24 hrs/day and assuming 5% of
inhaled activity retained in the
body, would retain $0.009312 \mu\text{c}/24 \text{ hrs}$.

An individual could therefore
exist for 100 days (assuming no
decay) in this atmosphere before
obtaining a MPE of the most
serious (Strontium) of the
fission products.

Approximately $3.7 \mu\text{c}/\text{ft}^2$ of
principally β will give a reading of
1 mr/hr gamma! (Same report)

	Elevati
Dispensary rd-	3760'
Pass	4100'
Frenchman	3075' Lake
Yucca pass	4050'
Yucca lake	3914'

To Change from Kelvin to F
Subtract 273
multiply by $9/5$
add 32'

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$100 \mu\text{c}/\text{m}^3$ is the max. permissible
as set by the Jangle Feasibility
Committee

HAIL STORM - WASHINGTON

26 May 1953.

NRL + NBS. -

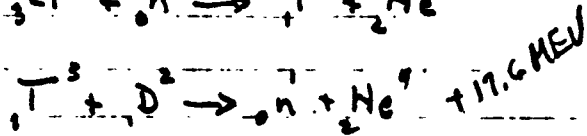
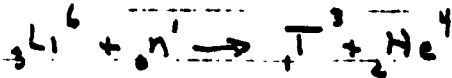
Water
from 5×10^{-4} $\mu\text{e}/\text{cc}$ - (38)
Hail
stones (Tolerance $\text{H}_2\text{O} = 10^{-7}$)

Air 10^{-14} - 10^{-15} curies/cc 10^{-8} $\mu\text{e}/\text{cc}$
(Tolerance air = 10^{-9})

Spring 1953 - upshot - knot hole.

	13 wk	00	Backlog
St. George -	5.1	6.1	0.6
Rockville -	2.8	4	2.8
Santa Clara -	1.9	2.7	2.6
Bunkerville -	1	180 mi	8.
Hurricane -	3.8	5.2	2.5
Springdale -	4.	5.	1.0

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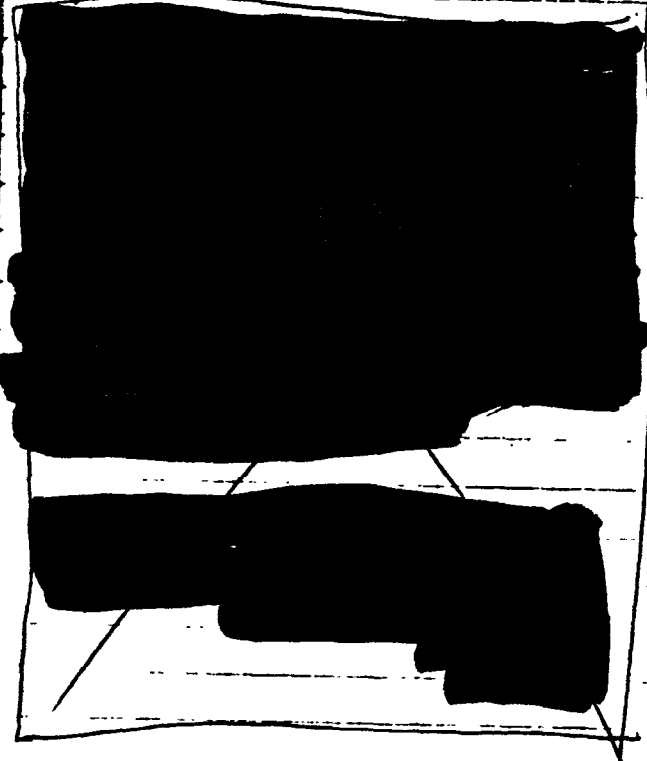


83% total, 61% gamma -

11% of Total Energy is
in potential fall-out.

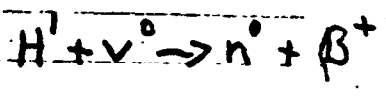
1 fission $\text{U}^{235} \rightarrow 150-200 \text{ MEV}$

Upland Series -



$$1 \text{ Kev} = 1.16 \times 10^7 \text{ K}^\circ$$

Neutrino
detection



Sheep Problem

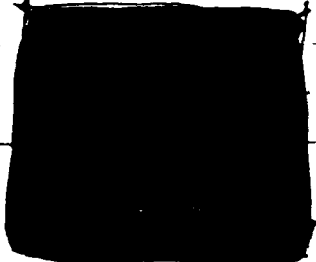
Send 10-12 sheep to ORNL.
? some to Hanford-

- 1 from Cincinnati USPHS.
- 1 Rocky Mt. Lab.
- Vienstra - NRDL.
- Thompson - Los Alamos.
- 1 PH.S. Utah - Div of Disease Control - Dr. J. J. Enders.

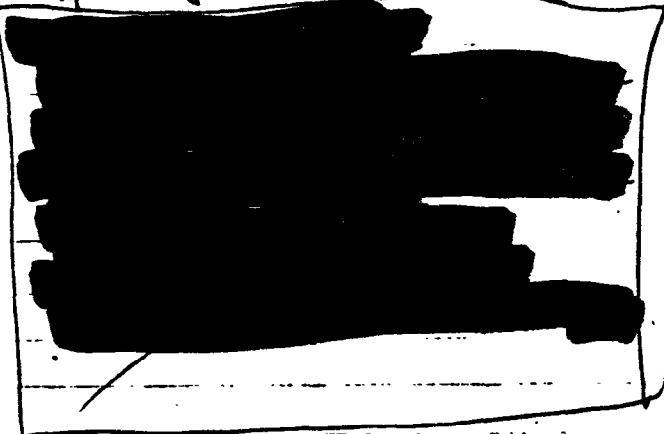
Did all dead sheep have β ?
" any live " " " ?

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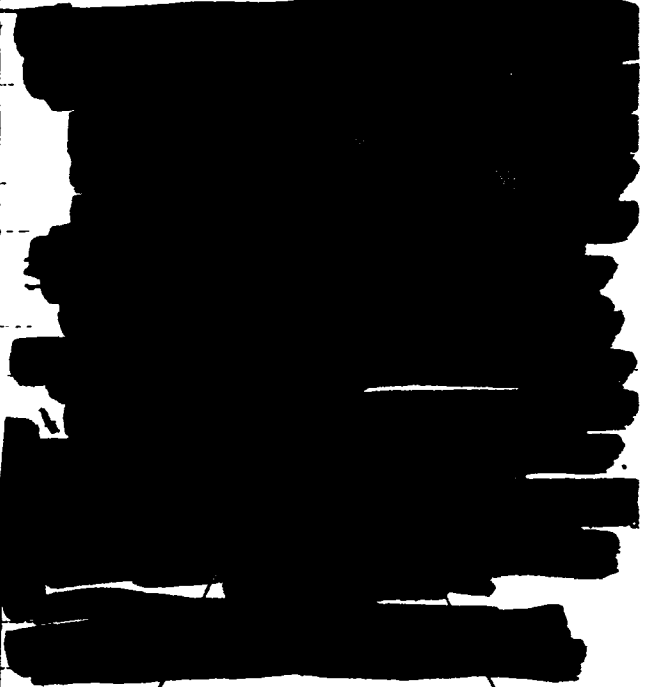
16 June 1953 - Castle
2 Shof's at Eniwetok + 4 at Bikini



July 20th forecast -



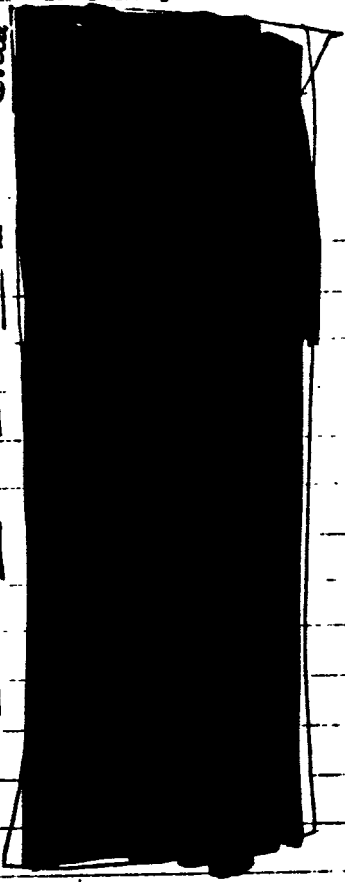
23 July - A1 Graves at AEC - Castle-



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U. K. - 1 Mar - 9 Jun

Probable Yield
Estimated Yield
WT
Diam
Length

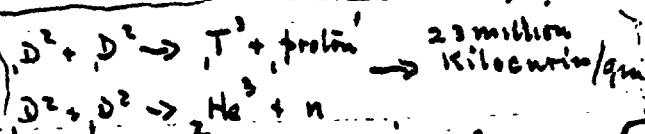


	Population	Reading of
Alamo, Nev		0
Bunkerville Nev.	202	5-8
Caliente Nev.	1000	0.15
Cedar City Utah		0.5
Crystal Nev.	7	7.
Crystal Spring Nev.	1200	0
Dry Lake Nev	354	0.6
Gardendale Nev.	15	0
Groton Mine Nev.	3	0.6
Hiko Nev.	6	0
Hurricane Utah	1500	7.7
Lincoln Mine Nev.	270	3.5
Littlefield, Ariz	50	1.8
Louisdale Nev.	350	0
Mesquite Nev.	600	1.9
Moapa Res. Nev.	250	0
Overton Nev.	600	0
Overton Landing	150	0.01
Panaca Nev.	300	0.25
Pioche Nev.	2000	0
Riverside Cabins Nev.	14	12-13
Rockville Utah	300	6.
St. George Utah	5000	4.75

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D^2 is part to 9350 parts of H^1 in water. One gal of water contains $\frac{1}{8}$ gm of D^2 . If consumed in thermal nuclear reactor, this would yield seven million kilocuries or 220 times the energy from 1 gal. gas.



which is 200,000 times the combustion of H^1 .

Stelator - Perhapsatron -

SHOT EASY

- 22 hemisphere sta - 675 - 1650
- 105 double + 29 Single Cyl. - 1075 - 1440 - ^{258 lines}
- 7 Phantom 900 to 2267
- 6 Thermal - 62 animals 1350 to 5564
- 6 High dose - 300-800

174

140 dogs -

167 Swine

6000 mice

62 anaesthetized for thermal.

Ranges - 675 yds to 5564 yds.



[REDACTED]

[REDACTED]

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Operation Castle - Mar 1954
Kwai - Adm Green - Dr Use Hall
Warrant Spangler - Capt (Exec)
Dave Sooy -

Utirik - 154
Reading at 32 hrs 160 mr
total exposure for 5 days
max = 175 -

Rongelap 66 + 16 = 82
first positive known reading
at 14 + 51 hrs = 1,400 to 1,500 mr/hr
Total exposure - 48 hrs =
min 140 - AV = 170, max 190

Rongerik - 28 weather men
film badges average ~ 40r

Recheck on Rongelap by
personnel of PBM with

four instruments - readings
taken at 36 hrs = 1400 mr
Max dose ~ 130 r.

Barrako	0830	236 mr
Ester	"	100 "
Curtis	0740	10-30
Phillips	0945	0-1
Renshaw	1230	3-4
PC 1546	1300	3-4
Sioux	1402	8-12
Coerpa	1330	5-14
Apache	1400	5-15
Gypsy	1303	10-13
Belle Grove	1645	100

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Weather Group -

3 Army -

25 Air Force -

Av.	Neut	Lymph	Neut	Lymph
8000	57	39	2 Mar 8916-62-34	
6600	64	34	8 " 6664-64-33	
5800	68	28	10 " 5476-61-32	
5966			11 " 6300	

Barrolo - fall out start 0704
 lasted 12 min. - looked like
 "Tide" Reading top side = 5r nr
 below deck = 300 nr/hr -
 Total top side = 5r
 " below = 1.2 r.

Scupper debris readings
 on d-day = 25 r/hr -

KWAJ Friday - 19 Mar ? date Kwaj.

- 1 - 73 yr old man ± deceased is sick -
- 2 adults + 8 children ± fatalities
- WBC av. 6270 - range 2000 - 13450.
- 19 below 5000
- 6 below 4000

Questionable oral lesions de wt follow lowered WBC.
 Some smears seem to show early regeneration - Peculiar type of cells.
 Mother unhappy about taking blood from children.
 Refuse to have anything done in Lungs.

? Rectal lesions.

Opinion - max possible hosp. necessary = 30; max time needed = 2-4 weeks.

uteric sick call over Rongelap because of lack of atten? over

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Average urine output for
A natives 400-500 cc/day. Probably
80 due to habit of water saving.
60 99% literacy -

Weather people parallel Rongelap
to some extent but none
diverse.

23-mar

Tree climbing episode + coconut

5 Rong 4 Urnik near team

7 Biopsis of skin lesion
taken yesterday -

See page after next -

Gabriel - assume 8000
Distribution

Gabriel: 20-90,000 MT

Sunshine I - >1000 MT

Sunshine II - >25,000 MT

1 gm Sr⁹⁰ KT w/ bone-

K1-90 $\xrightarrow{335}$ Rb⁹⁰ $\xrightarrow{2.7m}$ Sr⁹⁰

MPE = 1 μ C Sr⁹⁰ fixed in bone

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FRANK E. GARRETT, MD
APO # 187 (HOW)
c/o P. MASTER S. F.

Home
308 W. MAHONEY
WINSLOW, ARIZ

Dr. Garrett and Dr. Cusick
at Pamy-

Dr. W. Hall @ Kwaj - does
not want to go to
Hawthorne, Nevada.



Thurs - 25 Mar 1954 - Kwaj M.F.

Lesions appearing on dorsum of feet.

Neck lesions not advancing
no ulcerations to date -

WBC on rise, platelets further
depressed. No hemorrhage, no
illness.

4.1 want calculator, slide rule,
1000 haematocrit tubes,
Majuro control studies; all
animals (domestic + otherwise)
on Rongelap.

Friday - 26 Mar -

31 Epilating
40 Skin lesions - neck - feet
+ scalp.

CBC - same -

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A
24
6
5

1 Megacurie / mi² on flat
surface = 4 r/hr.
300 megacuries / KT equiv.
1 hr. after burst

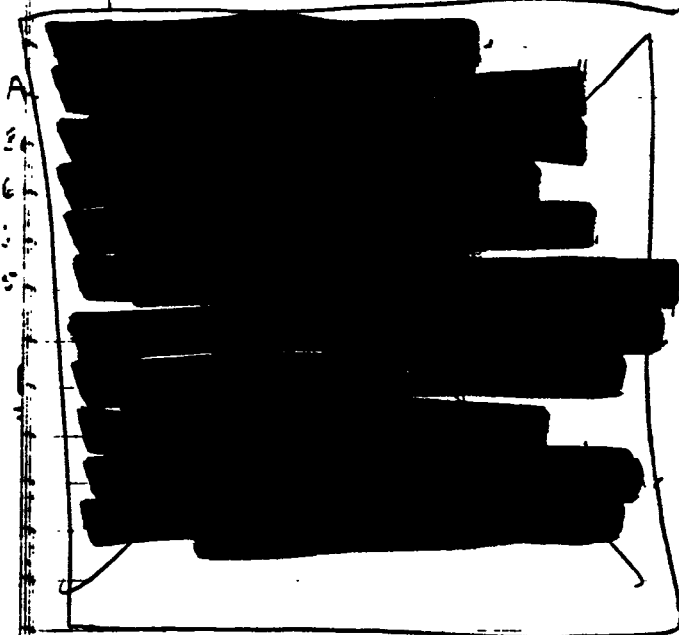
Between 1 hr and 7 hrs, the
activity falls 10 times.
Between ~~7 hrs~~ 2 wks +
80 days - 10 times again.

[REDACTED]

Natural decay of fission products

1 hr.	= 300 r/day
1 da.	= 60 r/day
1 wk.	= 0.64 r/day.
1 mo.	= 0.11 r/day.
2 mo.	= 0.04 r/day.

Proposed LASL.



Brennon - Prompt: delayed = 20:1
 Delayed have been detected as late as 11

Andrews - γ	100%	1.5m
	80%	10 S
0.5-5 mev.	80%	1 S

400r dose - γ only -		
Air Burst	1 Kt - 2600'	0.7 mi ²
	100 kt - 5600'	3.5 mi ²
	1 Mt - 7400'	7.4 mi ²

Surface	1 Kt 2400'	0.6 mi ²
	100 kt 5500'	3.4 mi ²
	1 Mt 6500'	4.8 mi ²

Dose in 1 hr. from Surface -

	Surface	Underground
1000r -	13 mi ²	7 mi ²
400r -	21 mi ²	11 mi ²
100r -	28 mi ²	20 mi ²

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HARRIS

Spleen thymus studies
on female mice -

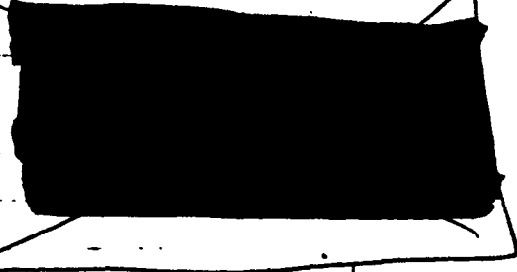
$$1 \times 10^8 \text{ n/cm}^2 = 1 + 250 \text{ Kup Kr}$$

$$\text{RBE } 14 \text{ mev } \bar{n} = 1.6$$

$$\text{RBE } 7 \text{ mev } \bar{n} = \text{"between"}$$

ORNL - Energy released
for fission in U: $190 \pm 5 \text{ MeV}$

A
8
6
5



15 knot wind

Yield	Length	Width	Area
1MT	52	12	470
10MT	150	84	3400
15MT	180	40	5400
60MT	340	70	18000

Linear dimensions + container values
as 'yield's and areas as y^2/s

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Energy Equiv. of Fission of
1 Kg of U 235

20,000 Tons TNT

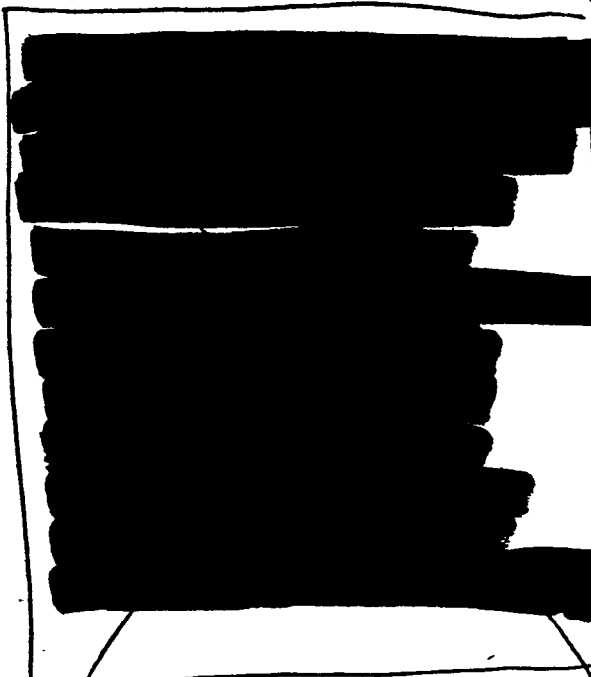
2×10^{13} Calories

8.4×10^{20} Ergs

6.2×10^{13} foot pounds

2.3×10^7 Kilowatt hrs.

TEAPOT



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301 Harrie - Sayles

Garage doors -
Basement screen
Basement floor
Toilet in basement - ? Shower
Relec - 2nd floor
Hand rail - staircases -
Rail - tub.

? Benefit Ins. -
? Omaha -
? Medicare? 9th Naval Dist. -

Randozzo Lass -
Purden (Dont),
Lane
Denny
Bannock

sherrif Hild

22 some 1960 Start max 65

Newberry State Hospital
Box #9 Newberry, Michigan.
T.W. Thompson M.D. Supr.
W.R. Purmort M.D. Asst Supr
Angus J. Nault - Business Exec.
Ext 600.

Lyon Movers - Mr. Hedman.
Lyon Van Lines Inc
2030 Dexter Ave. (9)
AT-2-9000

U.S. Naval Supply Dept
Bldg 57, Seattle 98 Wash
Tel AT-3-5200 Ext 286-287
Household Goods

Realtors - Dolores Edgerton
North End Brokers Assn
Bothell Way
Tel - EM 2-4420 Mrs. Reese

Frisqno 5-4485

Bank - Seattle 1st National
Lake City Branch -
Power of Atty -

U.S. Navy Finance Center
Cleveland 14 Ohio - 61034

Storage

Frost Moving Storage

301 Ann St. Soo -

ME-2 - 6707

Veterans Adm. Regional office

Tower Bldg

Seattle, Wash.

~~Friday P.M. Mod. So -~~

~~Riccia 7 201~~

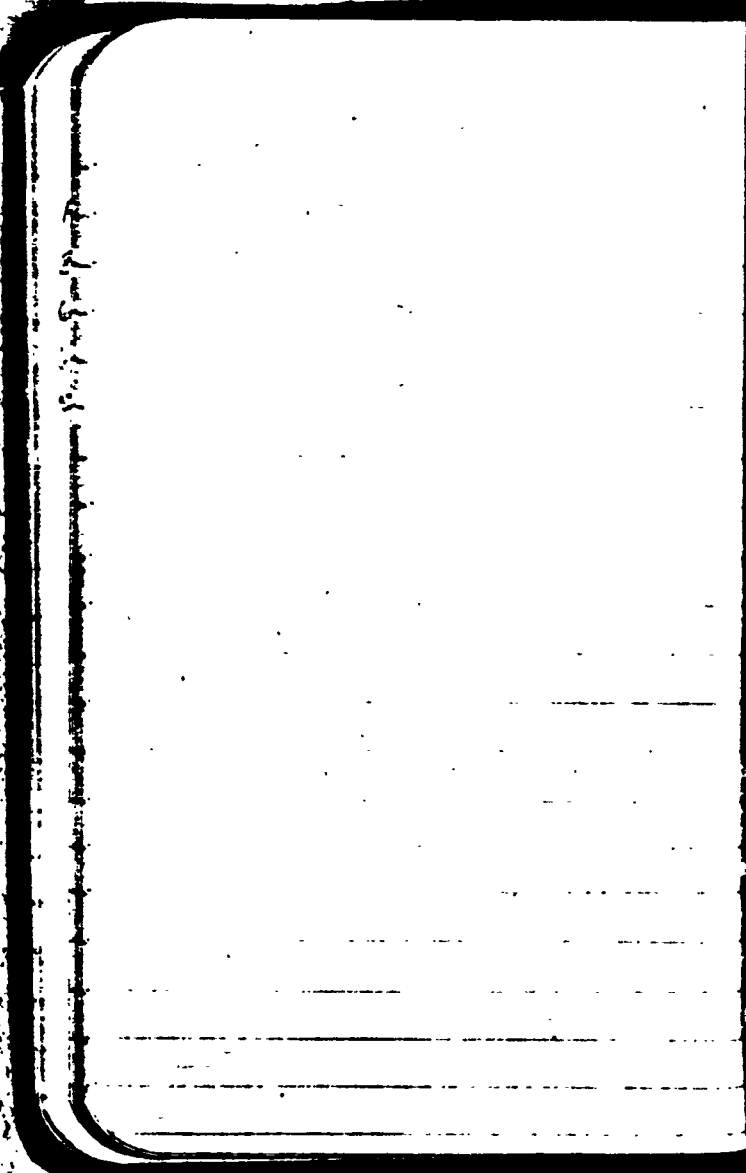
McKenzie.

Thompson - Drummond - 7 m.

~~St. Vincent - International?~~

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	Wt	Vel	Eng-
40-70 -	330	1258	1100
2 w/ 60's & 40-90 -	370	125	1175
Sharps	38-55 -	255	1320 - 985
300 Sav.	180 -	2370	2240
20 ga.	364 -	1573	1552

Sighting 22 - hi-vel -
1" high at 50 yds = center 25 + 75 yds
2" low at 100 yds. -



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Trinity	1
Hiroshima	1
Nagasaki	1
Cross roads	2
Sandstone	3
Ranger	5
Greenhouse	4
Bath - Jangle	7
Tumbler - Snapper	8
Dog -	2
Up shore tenitude	11
Castle -	6



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>1 March - 1 Apr 1954

Hickam 14 hrs 15 min

Alameda " " ~~40~~

Actually arr - 11 hrs -

Fairly cold - Blankets on

take off - Blankets all the way -

Alameda to Kirtland, 4 hrs - 15 min

Kirtland to Washington

Retirement -
Cdr - Robert S. Gray
G - 827

Alice Pronger

Art

904 Oakland.

Shipman - phone, sent to 3:50
if no answer, call hostling 2-52
collect. Told to my secretary,
Lynn Anderson. During flight

Tom may leave mid
next week - depends on
weather. Hopes to be
home week end of 11th

Lv. Washington Wed
Ar Wtch - 36 hrs -
Lv Wtch 1400 - 31 Mar
Ar Wtch 0930 1 Apr

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There was a young girl fr. Madras
 She had a remarkable ass
 Not rounded & pink as you might
 think

But away, had long ears & ate
 grass

Long man fr Madras
 whose balls were of musical glass
 When they tinkled together
 They played stormy weather
 A pink spark flew out of his ass.

Everything you like to do is
 either immoral or fattening.

We're hen and shyster lawyer
 We're hen clucks defiance

Kentucky Col's idea of heaven
 - fit full of Bourbon.
 Xs + Surplus.

Red Hill
 20 Tanks 100' x 250'
 = 6 million bbls.

Poison Ivy lotion

- Liq. Alum Acetate 45.
- Phenol 2.
- Mersethol 1.
- Zn O 20.
- Starch 20.
- lime water qt 240.

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Avoqadro key word ALL

A. (All equal volumes of gases have
the same no. of molecules)

All The Same

Boyle key word Barometer

B. The volume of any gas
varies inversely as the pressure

$$\frac{V_1}{V_2} \propto \frac{P_2}{P_1}$$

More Equals less

Charles key word Centigrade +273

C. The volume of a gas varies directly
as the absolute Temp. $\frac{V_1}{V_2} \propto \frac{T_1}{T_2}$

More equals more

Dalton key word Different

D. The total pressure exerted by a
mixture of confined gases is equal to
the sum of the Different pressures
each would exert if separately
confined.

Gay Lussac & gases combine in the
ratio of small whole numbers

Gas
Law

Don't you want to
know the difference between

No 2 story where house
- Stop this f-- overline

Table of Conversion
Factors for Engineers

The Dorr Co. - Engine
570 Lexington Ave.
New York City.

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Cooney - AEC - 6265WA

Ser 0073 - 25 Aug. 52

Fr. CinCPac

To. CinCUSPac Fd.

Subj: Security & Safety JTF 152
during operations there of ...

$$1 \text{ mi/hr} = 87' / \text{min} \\ = 1.46' / \text{sec}$$

$$1 \text{ Kt} = 3 \times 10^8 \text{ curies}$$

$$\text{Vol inspired air} = 0.834 \text{ m}^3$$

Sister Mister,
Sextra Special -
A Stimulating Discussion
Scylla Inc.