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): OIC

AUTHOR: H. Haight

Addditional 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 Hiaght 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

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,

J R Buckley

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

BEST AVAILABLE COPY

MADE
B&P NO. 3810½
IN U.S.A.

H. H. HAIGHT

a Diary Harry
kept while with
the A E C.

Thanks for your
kindness.

Cdr.

Helen H. Hockings

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1 Mile/hr = 1.4667 feet/sec.

3 April 1952

BERYLLIUM CONFERENCE

Mr. Eisenbud -

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

Above 1 milligram/cu meter, incidence was 100%. At 8 μgms, there were no cases. At 100 μgms, there were some. MPE was set arbitrarily at 25 μgm/meter³.

Only 1 case of acute pneumonitis in past 4½ years.

Clifton oxide was more toxic than Brush oxide. Crystaline structure differed. Clifton oxide is no longer made.

Known cases in population of Ohio city were caused by 1 μgm/m³ as calculated - measured at ¼th mile

0.01 μgm/m³ is therefore set as MPE for working conditions + living 2 μgms/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.

acute Most fatal cases died on 25th day

Recoveries occurred in 4 mos.

2713 workers

90 acute — 10 deaths.

5 chronic

121 Tracheobronchitis

95 Dermatitis. (7.5%)

Chronic cases - girl s breast amputation who later developed Be + was diagnosed metastasis in Milwaukee + Mayos.

2nd case apparently confused with lobar pneumonia

Chronic case in foundry worker looks exactly like sarcoid. Dr Sander Milwaukee

Dr. Harriet Hardy - classification

1. Asymptomatic
2. Non-disabling.
3. Disabling disease - Febrile.

Remissions & exacerbations resembling T.B.

Kidney stones in some of cases

4. "Recovery" - (Spontaneous?).

Pneumatic

Notary -

Auth. Act of Congress

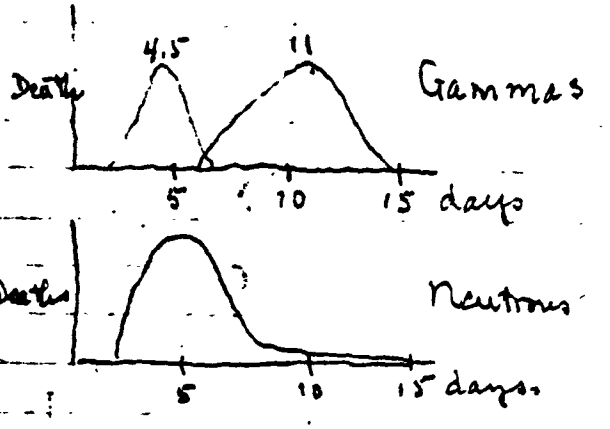
9 April 1943.

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 - VR I
Patuxant, Md. - Capt. Campbell
Cdr. Marcus - Exec.



1.37×10^{10} nt/cm²/sec = 1 Rem.

Biological effectiveness of thermal neuts by 5 methods = 1.7

Proposed for U.K.

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 - γ ray spectrum

[redacted]

Dr. Shipman:

200,000 r - all dead in minutes
150,000 r - dead in hours
100,000 r - [illegible]
25,000 r - 2-3 days
Blood K - 4 to 10x normal
no gross pathology

Natural decay - fission products	RW
1 hr = 300 r/day	300
1 day = 60 r/day	296.8
1 week = 0.64 r/day	278.4
1 mo = 0.11 r/day	227.9
2 mo = 0.04 r/day	[illegible]
[illegible]	

Tolerance limits established for fall-out at 3r integrated over 10 wk. period. On basis of $\frac{1}{T}$

1 hr = 401 mr/hr.
1 da = 17 mr/hr.
1 wk = 2 mr/hr.
10 wks = 0.025 mr/hr.

According to Gabriel Felix calculations, 1 KT has an activity of 300 mega curies.

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

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

There are 3.3×10^{-2} curies of Sr^{90} within an area enclosed by an infinite line of R reading.

Time table of events - 20 kt -

T(sec)	Event
[redacted]	
	r = 0 surface = HE.
0.4	t = fire ball = max. radius
0.4	Shock wave @ 500 yds.
1.29	" " 1000 "
6.44	" " 3000 "
12.8	" " 5100 "
13.0	Fire ball reaches 2000 ft.

[redacted]

Kung - will argument transport -
AFOTE clearing - B.M. note
"Station overlap State Dept.
Station are "Confidential"

Legality of flying over
Malaysia -

[redacted]

°F = 9/5 °C + 32
°C = 5/9 °F - 32
°K = °C + 273.15

[redacted]

Ivy - [illegible]
LASL - [illegible]
2. Mike [illegible]
3. Possibly 2 [illegible]

Upshot Spring '53 [illegible]
LASL - [illegible]

Castle - Spring '54
LASL - 6 Towers + 3 drops
UCRL - 2 Towers.

Redwing - Fall '54
LASL - About the same -
UCRL - 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 proper
of all the Elements.
5. Detection of Distant Explosi
6. Fundamental properties of
Reactor Materials
7. Extraction Chemistry
8. Design of nat. U. power reacto
9. Research + low power reactor

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

Los Alamos - Sept 1952 -

1. Tracing rays to see Sandal re blood agglutination.

2. Wright Langham says relations c military + Shipman are all ironed out and very satisfactory. No further action needed. Bradbury has ABSWP letter to be used in future if needed.

3. ? name of Navy Ophth. now studying cataracts @ Sat

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

9-17-52 - JTF-132 - 61010
Capt. Batiste Lt Wise -
Stan Burris - J-Div. Los Alamos
132.1
Col. Sackton in Rus. Maynard & Bo:

Forwarding address: -
Cdr JTF 132 Tech. - Enewetok

Atomic Defense Office Pea:
Lt. Morton - 24205

Dr. Kruze - Defense School
Hessler - instructor
Kruze to be on LST
@ Ujalang.

Mike SHOT - 1 Nov 52

30 min Base 52000
Peak 76000

45 min Peak 116000
1 hr 140000

2 hrs. - Nasson - tests + decays OK

Sampler planes 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
Crater almost 1½ mi. x ? 50'-60'
Palms snapped off at 5 mi.

King - 16 Nov 52
Boats + ships back in lagoon 143
Rad safe recovery missions
complete 1530 AtH readings
barely above + Niles exceptions
No. end Zero -
Estimate 425
Max 5.4 mr = 3.4 low readings
cloud decay max exposure -

NEPA - on dumps

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

Inside shield 0.25 r/hr -
(Assume 50x50 mixture γ + n.

LD_{50}^{30} - Apex appears to be 5501

Crew shield = 25000# = 10" Boron impregnated rubber + ½" Lead.

1953 Advisory Panel ?
Shipman
Hiltzman
Bugher
Andrews
Haight

Claus - Health Physics -
Dunham - Indust. Medicine -

SFOO - 14 Jan 1953. Albuquerque

Tyler - Elliott - Graves - Mastik
Houston - Campbell - Cole - Hayward
Cox - Eisenbud - Bugher - Salisbury
Clarke

Short range hazard. - Airborn dust
5/7 Ogden 45,000 d/m/cu.m (100 mr)
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

[redacted]

15 160' Tower
24 35-40' Tower
31 2-3 Tower
Apr 6 (1-20) Air Drop
11 35-40' Tower
18 1/3 50' Tower
25 35-40' " "
May 2 37 300' " "

Knothole

9. [redacted] May 4 Air Drop.
10. May 30 2420 Drop
11. May 21 H 500' Burst

[redacted]

[redacted]

UCLA
243
Feb 53

Larson's Report on Snapper.

Based on Sta 25 (Typical Station) on Snapper #6 where fall-out occurred early (1.45 hrs), the air corrected to midpoint of total operational period was calculated to be 0.0388 μc/m³ of air. A normal individual breathing 20 x/min. and out doors 24 hrs/day and assuming 5% of inhaled activity retained in the body, would retain 0.009312 μc/24 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.

100 μc/m³ is the max. permissable as set by the Jangle Feasibility Committee

Approximately 3-7 μc/ft² of principally β will give a reading of 1 mr/hr gamma! (Same report)

	Elevation	
Dispensary rd.	3760'	
Pass	4100'	
French meadow	3075'	Lake
Yucca pass	4050'	
Yucca Lake	3914'	

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

HAIL STORM - WASHINGTON
26 May 1953.

NRL + NBS. —

Water from Hail Stones 5×10^{-4} $\mu c/cc$ - $\beta\gamma$
(Tolerance $H_2O = 10^{-7}$)

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

$${}_3Li^6 + {}_0n^1 \rightarrow {}_1T^3 + {}_2He^4$$

$${}_1T^3 + {}_1D^2 \rightarrow {}_0n^1 + {}_2He^4 + 17.6\,MEV$$

83% Hail, 6% gamma -

11% of Total Energy is in potential fall-out.
1 fission $U^{235} \rightarrow$ 180-200 MEV

Spring 1953 - upshot-Knothole.

	13 wk	∞	Backlog
St. George -	5 r	6 r	0.6
Rockville -	2.8	4	2.8
Santa Clara -	1.9	2.7	2.6
Bunkerville -	1	180 mr	8.
Hurricane -	3.8	5.2	2.5
Springdale -	4.	5.	1.0

Uranium Series -

[redacted]

1 Kev = 1.16×10^7 K°

Neutrino detection $H^1 + \nu^0 \rightarrow n^0 + \beta^+$

Sheep Problem:
Send 10-12 sheep to ORNL -
? some to Hanford -

1 from Cincinnati USPHS.
1 Rocky Mnt. Lab.
Veenstra - NRDL -
Thompsett - Los Alamos -
1 PHS - Utah - Div of Disease Control - Dr. Spendlove -

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

1 16 June 1953 - Castle

2 Shots at Eniwetok + 4 at Bikini

[redacted]

July 20th forecast -

[redacted]

23 July - Al Graves at AEC - Castle -

[redacted]

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U.K. - 1 Mar - 9 Jun

	Population	Reading α
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	35+	0.6
Glendale Nev.	15	0
Groom Mine Nev.	3	0.6
Hiko Nev.	6	0
Hurricane Utah	1500	7.7
Lincoln Mine Nev.	270	3.5
Littlefield Ariz	50	1.5
Longdale 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	12-15
Rockville Utah	300	6.
St. George Utah	5000	4.75

Probable Yield

Estimated Yield

Unit

Diam

Length

[redacted]

D^2 is apart to 3350 parts of H^1 in water. One gal of water contains 1/8 gm of D^2. If consumed in thermonuclear reactor, this would yield seven million kilocuries or 220 times the energy from 1 gal. gas.

$_1D^2 + {}_1D^2 \rightarrow {}_1T^3 + {}_1proton$ → 23 million Kilocurie/gm

$_1D^2 + {}_1D^2 \rightarrow {}_2He^3 + n$

which is 300,000 times the combustion of $_1H^1$.

Stelerator - Perhapsatron -

SHOT EASY

22 hemisphere sta - 675 - 1650

105 double + 29 Single Cyl. - 1075 - 1440 - 258 linear

7 Phantoms 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]

[redacted]

[redacted]

Operation Castle - Mar 1954
Kwai - Adm Green - Drue Hall
Warrant Spangler - Capt (Exec)
Jave Sooy -

Utirik - 154
reading at 32 hrs 160 mr
total exposure for 5 days
max = 17r -

Rongelap 66 + 16 = 82
first positive known reading
at 14 + 51 hrs = 1,400 to 1,5000 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 ~ 130r.

Barroko	0830	236 mr
Estes	"	100 "
Curtis	0840	10-30
Phillips	0945	0-1
Renshaw	1330	3-4
PC 1546	1300	3-4
Sioux	1402	8-12
Cuerpa	1330	5-14
Apache	1400	5-15
Gypsy	1303	10-13
Belle Grove	1645	100

Weather Group -

3 Army -

Av.	Neuts	Lymphs
8000	57	39
6600	64	34
5800	68	28
5966		

25 Air Force -

	Neuts	Lymphs
2 Mar	8916	62 - 34
8 "	6664	64 - 33
10 "	5976	61 - 32
11 "	6300	

Bairoko - fall out start 0504
Lasted 12 min. - looked like "Tide" - Reading topside = 5r/hr
below deck = 300 mr/hr -
Total topside = 5r
" below = 1.2r.

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

KWAJ Friday - 19 Mar ? date Kwaj.

1 - 73 yr old man & diarrhea is sick -
2 adults + 8 children epilating
WBC av. 6270 - range 2400 - 13450.
19 below 5000
6 below 4000
Questionable oral lesions do not follow lowered WBC.
Some smears seem to show early regeneration - Peculiar type of cells.
Mothers unhappy about taking blood from children.
Refuse to have anything done on Sundays.
? Rectal lesions.
Opinion - max possible hosp. necessary = 30; max time needed = 2 - 4 weeks.
Uterick sick call over Rongelap because of lack of attn? (over)

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

Weather jungle parallel Rongelap & same extent but none
Devoe.-
23-mar
Tree climbing episode + coconut.

5 Rong 4 Utirik wear lens

7 Biopsies of skin lesions
taken yesterday-

See page after next-

Gabriel - assume [illegible]
Distribution
Gabriel: 20 - 90,000 MT
Sunshine I - >1000 MT
Sunshine II > 25,000 MT.

1 gm Sr^{90} / KT of bomb-

$Kr^{90} \xrightarrow{33 s} Rb^{90} \xrightarrow{2.7 m} Sr^{90}$

MPE = 1 μc Sr^{90} fixed in bone

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

Home
308 W. MAHONEY
WINSLOW, ARIZ

Dr. Garrett and Dr Custer
at Parry -
Dr. Wm Hall @ Kwaj - does
not want to go to
Hawthorne, Nevada.

[redacted]

Thurs - 25 Mar 1954 - Kwaj Mpx

Lesions appearing on dorsum of feet.
Necklace lesions not advancing
no ulcerations to date -
WBC on rise, platelets further
depressed. No hemorrhage, no
illness.
4.1 wants calculator, slide rule,
1000 haematocrit tubes,
Majuro control studies, all
animals (domestic & Micronesian)
on Rongelap

Friday - 26 Mar -

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

CBC - same -

1 Megacurie / mi^2 on flat surface = 4 r/hr.
300 megacuries / KT equiv.
1 hr. after burst

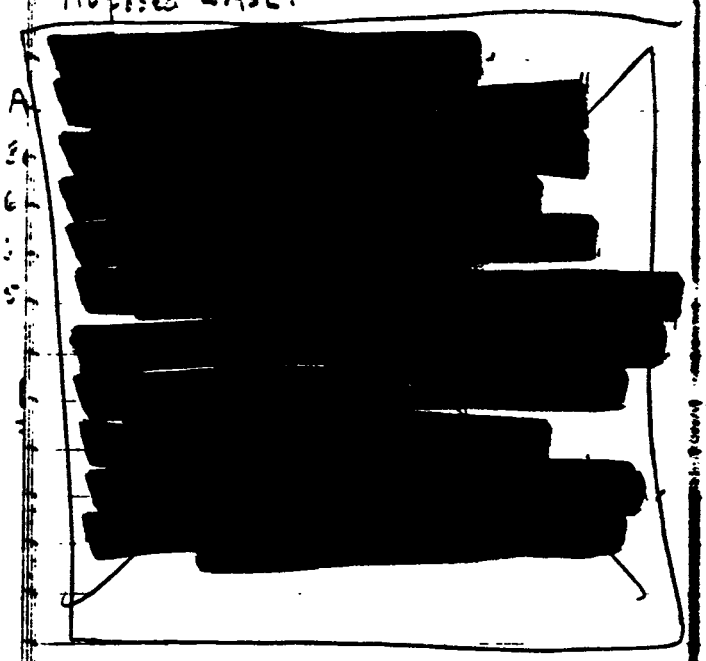
Between 1 hr and 7 hrs, the activity falls 10 times.-
Between ~~7 hrs +~~ 2 wks + 80 days - 10 times again.

[redacted]

Natural decay of fission product

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.



Brennan - Prompt : delayed = 20:1
Delayed have been detected as late as 1 s

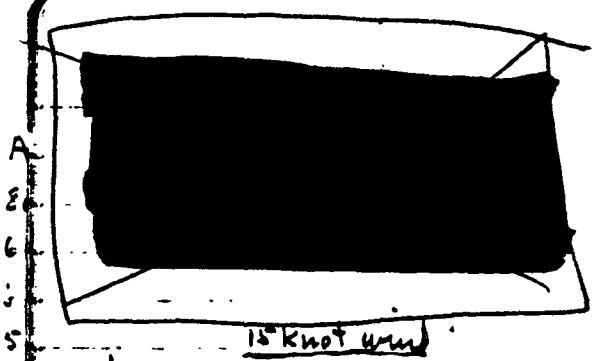
Andrews - γ 100% 1.5 m
0.5-5 mev. 80% 10 s
50% 1 s

400 r dose - γ only -

		rad	area
Air Burst	1 KT	2600'	0.7 mi²
	100 kt	5600'	3.5 mi²
	1 Mt	7400'	7.4 mi²
Surface	1 Kt	2400'	0.6 mi²
	100 kt	5500'	3.4 mi²
	1 Mt	6500'	4.8 mi²

Dose in 1 hr. from Surface - [redacted]

	Surface	Underground
1000 r	13 mi²	7 mi²
400 r	21 mi²	11 mi²
100 r	28 mi²	20 mi²



Yield	Length	Width	Area
1 MT	52	12	470
10 MT	150	34	3400
15 MT	180	40	5400
60 MT	340	70	18000

Linear dimensions + contour values as "yield$^{1/3}$ and areas as $y^{2/3}$

Harris

Spleen thymus studies on female mice –

1×10^8 n/cm^2 = 1 r 250 Kvp Kv

RBE 14 mev n = 1.6
RBE 7 mev n = "between 1-

ORNL – Energy released for fission in U: 190 ± 5 MEV

Energy Equiv. of Fission of
A 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

[redacted]

301 Harrie - Sayles

Garage doors -

Basement screen

Basement floor

Toilet in basement - ? Shower

Redec.. 2nd floor

Hand rail - staircases. -

Rail - tub.

? Benefit Ins. -

? Omaha -

? Medicare? 9th Naval Dist. -

Randozzo Lass -

Purdey (Dont).

Lane

Denny

Bannock

Sherrif Hild

22 Sept 1966 Start mov 10

Newberry State Hospital
Box 89 Newberry, Michigan.
T.W. Thompson M.D. Supt.
W.R. Purmort M.D. Asst Supt
Angus J. Kault - Business Exec.
Ext 600.

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

U.S. Naval Supply Depot
Bldg 57, Seattle 99 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

Frisanco 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
304 Ann St. Soo -
ME-2 - 6707
Veterans Adm. Regional office
Tower Bldg
Seattle, Wash

~~Finley P.M. Mot - Sro -~~

~~Riculta ? 2p.~~
~~McKenzie~~.
Thimpson - Drummond - 7 m

~~St Vincent's Hospital?~~

		Wt	Vel	Eng-
	40-70 -	330 -	1258	1160
Buffalo &	40-90 -	370	125	1175
Sharps	38-55 -	255 -	1320 -	985
	300 Sav.	180 -	2370 -	2240
	20 ga. -	364 -	1713 -	1552

Sighting 22 - Hi-vel -
1" high at 50 yds = center 25 + 75 yd
8" Low at 100 yds. -

Trinity	1
Hiroshima	1
Nagasaki	1
Crossroads	2
Sandstone	3
Ranger	5
Greenhouse	4
Buster-Jangle	7
Tumbler-Snapper	8
Ivy	2
Upshot-Knothole	11
Castle	6

[redacted]

31 March - 1 Apr 1954

Hickam 14 hrs 15 min
Alameda 11 " "
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 - Robt S. Guy
G - 827

Alice Pronger

Apt
904 Oakland.

Stipmen - phone, Santa Fe 3-50
if no answer, call Los Alamos 2-52
collect. Talk to my secretary,
Lynn Anderson, During office h.

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

Lv. Washington Wed
Ar Wetch - 36 hrs -
Lv Wetch 1900 - 31 Mar
Lv. Wash 0930 1 Apr

There was a young girl in Madras
She had a remarkable ass
Not rounded & pink as you might think
But gray, had long ears & ate grass

Young man from Madras
Whose balls were of musical glass
When they tinkled together
They played stormy weather
A pink sparks flew out of his ass

Everything you like to do is
Either immoral or fattening.

Wet hen and shyster lawyer
Wet hen clucks defiance

Kentuckey Col's idea of heaven
— tit full of Bourbon.
Xs & Surplus.

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

Poison Ivy Lotion

Liq Alum Acetate	45.
Phenol	2.
Menthol	1.
ZnO	20.
Starch	20.
Lime water qs	240.

Avagadro 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

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

More Equals less

Charles key word Centegrade +273

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

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.

Gas Laws

Guy Lussac x [illegible] Lind

"Gases combine in the ratio of small whole numb

[illegible]

[illegible]

No 2 story wooden house

Stop this f-- overlea

Table of Conversion Factors for Engineers

The Dorr Co. - Engine

570 Lexington Ave.

New York City.

October 1952

Lv Washington 2210 EST 12 Nov
Ar. Frisco 0500 PST 13 Nov
$1.25 Limousine to Federal Bldg.
Lv. Frisco 2100 PST 13 Nov
Ar Pearl 0915 HST 14 Nov
Lv Pearl 1645 HST 17 Nov
Ar. Kwaj. 0515 KST 19 Nov
Lv. Kwaj 0830 KST 21 Nov.
Ar. Eniwetok 1100 EST 21 Nov
Embark Estes 1330 " 30 Nov
Dis " Estes 1500 " 3 Nov.
Lv. Wake 1201 " 18 Nov.
Ar. Hickham 1000 HST 18 Nov.
Lv. Oahu 0200 HST 19 Nov
Ar. Travis 1600 20 Nov
Lv. Frisco 2125 20 Nov (x $15 baggage)
Ar. Wash. 1100 24 Nov.

	Weight - 100	Weight - 100	100'	200	300
.5 - 1.0	2160	1950	1.0	4.5	11.5
1.5 - 1.75	2370	2090	0.9	6.0	10.
2.0 - 2.30	2210	2425	0.8	3.5	9.0
3.5 Rem - 200	1870	2100	1.0	5.0	13.0

300 Saw - 150	+3	+1	-9	-24
30-06 - 150	+3	+3	-5	-22
30-M - 150	+3	+3	-2	-14
300 Magnum 180	+3	+3	-2	-26
270 - 150	+3	+3		

Quarters Available

300 Saw	300	400	500	
30-06	300	400	500	
30-M	300	400	500	
300 Magnum	300	400	500	
270	300	400	500	

[redacted]

{ 5-10 % PABA
5 % Titanium Oxide
Oint base

Sunburn lotion

Na PABA	5.
Tween 80	2.
Aq. + Alcohol	ad 100.

Cream -

Na PABA -	5.
Cetyl alcohol	15.
Cera alba	1.
Propylene glycol	10.
Sodium lauryl Sulph	2.
Water	72.

$H^3 + H^3 \rightarrow He^4$ 2n + 11.4 Mev
$H^3 + H^2 \rightarrow He^4 + n + 17.6$ Mev.
$H^2 + H^2 \rightarrow He^3 + H^1 + 4$ Mev
$\searrow H^3 + H^1 + 4$ Mev -

$T^3 \rightarrow \beta$ e^{max} .018 mev - e^{av} = 0.00
$t_{1/2}$ = 12.4 yrs -

5 mg. T^2O approaches 5-600 rep.

Thermonuclear weapon

[redacted]

Dr. Herbert M Clark - Prof of Physical + Nuclear Chem - Rensselaer, Troy N.Y. - Civil Defense Group -

Cooney-AEC-626SWA

Ser 0073- 25 Aug. 52

Fr. CinC Pac

To. CinC USPacFlt-.

Subj: Security & Safety JTF 132 during operations phase of Op

1' mi/hr = 87'/min
= 1.46'/sec

1 Kt = 3×10^8 curies

Vol insfind air = 0.834 m^3

Sister Mister,

Sextra Special -
A Sintillating Sexcursion
Scylla Inc.