





although a few received higher exposures and many received none at all. Exposures at these low levels have long been thought to involve negligible health risk. For many years (and still today) Federal exposure standards for radiation workers have generally been set at 3 rem per quarter and 5 rem per year. These values were, in the past, believed to be on the safe side, and many still think this; but some scientists now believe the risks may be greater, and the issue is currently the subject of some controversy in the scientific community.

Recently the President established an Interagency Task Force on the Health Effects of Ionizing Radiation. The Report of this Task Force may serve to put the very slight degree of risk in its proper context. The Report points to national cancer statistics, which show that cancer is the cause of death for about 16 percent of the population. Thus, of the 250,000 DoD personnel who participated in the atmospheric nuclear tests, about 40,000 could be expected eventually to die of cancer which is not related to the nuclear tests. By contrast, the Report notes that if our current data and assumptions are correct, there might eventually be about 12 cancer deaths from among the 250,000 which bear a statistical relationship to test radiation exposure.



letter, which is a complete listing of VA medical facilities and telephone numbers.

Enclosures 2-4 are a postage-paid envelope, a QUICK-RETURN FORM (to tell us whether you want a medical examination), and a QUESTIONNAIRE (to provide us data on your nuclear test participation). If you desire a medical examination, please schedule an appointment with the nearest VA facility, complete the QUICK-RETURN FORM, complete or update the QUESTIONNAIRE, and return them to us in the postage-paid envelope as soon as possible. If you experience difficulty in scheduling an appointment, please advise us so that we can assist you. Should you elect not have the medical examination performed, this does not preclude your requesting an examination at a later date, and we would appreciate your returning the completed QUICK-RETURN FORM and QUESTIONNAIRE for our records.

Enclosure 5 is a letter to the physician who will perform the examination, and should be presented by you to the examining physician at the time of your appointment. The attachment to the letter for the physician is a MEDICAL HISTORY FORM. You can save time and provide valuable assistance to the examining physician if you use the MEDICAL

HISTORY FORM to review your medical history and have pertinent information readily available during the examination.

It is possible that medical conditions previously unknown to you will be discovered--as might be the case in any routine medical examination. Should this occur, it would not necessarily indicate a cause-and-effect relationship between the ionizing radiation exposure and the medical condition. It will take a number of years before enough information will be available to make a meaningful analysis of any possible relationship between low-level ionizing radiation and long-term health patterns. Follow-up medical management for any newly discovered condition should be accomplished by your normally utilized health care provider or facility.

Additionally, veterans who feel they have a service-connected medical condition may file a claim for medical care, benefits, or compensation with the VA. A brief explanation of requirements is enclosed (Enclosure 6), and more information, if desired, can be obtained from your local VA regional office. Should you desire to submit a claim, we will be glad to help you with research into the circumstances of your atmospheric test exposure.



The results of your medical examination and any information supplied by you will be protected according to the Privacy Act of 1974. Your cooperation in this important health study will be appreciated.

Sincerely,

6 Enclosures

1. Locations, VA  
Medical Facilities
2. Return Envelope
3. QUICK-RETURN FORM
4. QUESTIONNAIRE (Nuclear  
Test Participation)
5. Letter to Examining  
Physician
6. VA Claims

APPROPRIATE SIGNATURE

Sponsoring Military Department  
(NTPR Team Chief)  
(Surgeon General or Assistant)





The Defense Nuclear Agency (DNA) is DoD's Executive Agent for the NTPR program, which involves research and assistance teams in each of the four Military Services. The magnitude of the effort is illustrated by programmed costs of about \$6 million per year and personnel commitments of about 150 person-years per year (Tab A).

Progress of the NTPR program to date has been significant. Of the estimated 250,000 DoD participants in the tests, over 145,000 have been identified by name, and preliminary dosage information has been recovered for over 45,000. A significant aid to our research has been information supplied by the participants themselves. In February 1978, DoD established toll-free telephone lines and advertised widely for test participants to call in, establish two-way contact, and provide information on test participation and current status. To date about 30,000 have called in or written, many of whom have supplied the names of other participants, old copies of orders, rosters, and the like. The research continues and currently consists of reconstructing rosters from morning reports and ships' logs, searching medical records and other radiation dosage repositories, and reconstructing dosages (using calculational methodologies) for personnel for whom film badge data cannot be located. It is estimated that the NTPR program will continue for about two more years.

Based on current research, it is apparent that most exposures to DoD personnel during the tests were quite low--averaging on the order of about one-half a rem. Of course, many received no exposure at all, and some received more. Nevertheless, indications are that only a very small percentage exceeded 5 rem per year, the current Federal guideline for most radiation workers. One of the principal sources of exposure data is the file of the Reynolds Electrical and Engineering Company (REECO), a contractor of the Department of Energy (DoE) (formerly the AEC), which is the official master repository of dosage records for the atmospheric nuclear weapons tests. A summary of whole-body gamma radiation dosages from REECO for the years 1945-1962, some 232,000 entries, is enclosed (Tab B). While this file includes both DoD and non-DoD personnel, our research indicates it is quite representative of the distribution of DoD personnel exposures alone. Backup REECO statistics for continental testing, oceanic testing, and both combined are enclosed (Tab C).

The NTPR program is making extensive efforts not only to recover all film badge data, and to cross-check badge readings among members of units which maneuvered in close proximity to each other, but also to reconstruct exposures from original data in order to verify film badge readings and to provide dose estimates for those individuals whose film badge readings cannot be recovered. Initial reconstruction efforts have been quite promising. For example, Tab D contains an analysis of Task Force WARRIOR, the primary maneuver element at Shot SMOKY. The close correlation between actual film badge data (575 millirem average) and the calculated dosage (480 + 135 millirem) gives confidence in film badge accuracy. (Pages 5-8 of Tab D summarize the findings.)

The NTPR program is also intensively investigating other potential types of radiological exposure. Since film badges measure only external gamma radiation (and some beta radiation), the possibility of exposure to prompt neutrons at the instant of detonation and the possibility of long-term dose commitment due to inhalation or ingestion of alpha-radiation-emitting radioisotopes has been a subject of much concern. Dosage reconstruction efforts to date indicate that if any significant neutron exposure occurred, it was confined to several small, well-defined groups which are being investigated in great detail (Tab E). Additionally, all research to date indicates that internally deposited radionuclides were not a problem for DoD test participants. However, since complete resolution of this issue is vital, this research is being aggressively continued (Tab F).

In addition to DoD's general public awareness program aimed at all atmospheric nuclear test participants, the NTPR program has undertaken a specific, individual notification and medical examination program for all individuals who received doses in excess of the annual levels allowed by today's Federal guidelines. This program has been carried out in three segments, as described in the three paragraphs below:

In March 1979, a notification and medical examination program was initiated for all DoD test participants with cumulative exposures from atmospheric testing in excess of 25 rem. The threshold of 25 rem was selected for this pilot program because it is the current Federal guideline for one-time, planned exposures under emergency conditions. We have identified a total of 39 DoD personnel in the over-25-rem group, with exposures ranging from just over 25 rem to a high of 98 rem (Tab G). Most of these were exposed through an unexpected wind shift at Shot BRAVO, Bikini, 1954. Four of the 39

are known to be dead (one suicide, one auto accident, and two heart attacks). Of the remaining 35 who were notified, 14 desired physicals, one is undecided, five do not want examinations, and 15 have not responded. Of the 14 examinations which have been scheduled, we currently have received the results of seven. No adverse health effects associated with radiation exposure, including cancer of any type, were found during these examinations.

In May 1979, the notification and medical examination program was expanded to include the DESERT ROCK Volunteer Observers (Officer Volunteers). The volunteers received exposures ranging from a few millirem to about 17 rem; however, they were closer to ground zero than any other participants at the time of detonation, and some could have received neutron exposures. There were 43 officer volunteers (Tab H). Subsequent research has shown that this count includes one person who participated in three shots and was listed three times, thus our current officer volunteer list contains the names of 41 individuals. Formal notification is scheduled to begin on July 31, 1979. Outside of this formal program, however, we have established informal contact with 16 of the officer volunteers over the past year. Twelve of these contacts came through toll-free telephone lines; one was contacted for aid in research; one was identified through his reputation (a recently retired Army Lieutenant General); and two were located through medical records. Two are known to be deceased--one by kidney tumor in 1967 (survivors awarded VA compensation in 1968), and one by heart attack in 1978. Eight are known to be, or have indicated that they are, in good or fair health. Three have indicated that they have developed medical problems that are not related to radiation. One has indicated he has cancer. The health status of two is unknown.

In June 1979, after careful evaluation to ensure the pilot over-25-rem program was functioning well, the notification and medical examination program was expanded to include all participants with annual exposures in excess of 5 rem. This threshold was chosen because 5 rem is the current Federal guideline for most radiation workers and is the best single standard to represent permissible exposure levels for most DoD personnel at the time of the tests. Notification will be based not only on film badge records, but also on dose calculations or dose estimates which show a possible over-5rem exposure. It is initially estimated that about 783 DoD personnel will be involved in this program (Tab I). Initial notifications are programmed to begin in early August 1979, and the notification process will continue as NTPR research identifies additional personnel with over-5-rem exposures. A sample of the notification packet is enclosed (Tab J).

It is worthy of note that even today--20-30 years after the testing, and 2-3 years after CDC's initial identification of a possible increased incidence of leukemia among Shot SMOKY participants--that this single anomaly is the only indication we have of a possible health problem. The CDC epidemiological study of SMOKY participants continues. Although the leukemia incidence among this group appears abnormal, the incidence of all other cancers currently appears to be about as expected. The CDC epidemiological study is attempting to determine the cause of this increased leukemia incidence, whether it be radiation exposures at nuclear tests or some other cause such as medical X-rays or environmental carcinogens. It is hoped that the DoD/DoE-sponsored morbidity/mortality study by the National Academy of Sciences will show whether the SMOKY statistics are an isolated phenomenon, or whether other groups of test participants may also display an increased incidence of disease.

In any case, there is a current problem with public perceptions. If there actually is an increased level of risk for test participants, it is very slight. Yet the alarmist publicity of the past year or two has blown it all out of proportion, and has unduly frightened many test participants. In an attempt to place the problem in proper perspective, the President's Interagency Task Force on the Health Effects of Ionizing Radiation has recently presented, in comprehensive fashion, all available scientific information pertinent to the issue. The Task Force Report points out that, of the 250,000 DoD test participants, some 40,000 would be expected to die of cancer from causes not related to radiation exposure from the tests. In contrast, the Report states that if current estimates of exposure are correct, the accepted views of medical science indicate that there might eventually be 12 cancer deaths from among the 250,000 which are statistically related to test radiation exposure. Thus, national efforts to handle the health aspects of atmospheric test participants must be carried out without alarming the great majority. The publicity programs and notification programs of DoD's NTPR effort are designed to do this.



NTPR PROGRAM  
COSTS AND MANPOWER ESTIMATES

PERSON - YEARS					
ORGANIZATION	FY 78	FY 79	FY 80	FY 81	TOTAL
DNA	43	63	85	79	270
ARMY	10	29	36	36	111
NAVY	15	55	54	26	150
AIR FORCE	2	10	25	24	61
MARINE CORPS	4	9	1	0	14
TOTAL	74	166	201	165	606

*COSTS (in THOUSANDS OF DOLLARS)					
ORGANIZATION	FY 78	FY 79	FY 80	FY 81	TOTAL
DNA	1,816	3,315	4,781	3,746	13,658
ARMY	206	458	562	513	1,739
NAVY	277	1,697	1,851	707	4,532
AIR FORCE	27	305	1,070	860	2,262
MARINE CORPS	85	104	98	0	287
TOTAL	2,411	5,879	8,362	5,826	22,478

\* A recapitulation of portions of total estimated costs, FY 78-FY 81, by major NTPR subprogram follows:

- 23% - - Dosimetry file purification, update, and correction; medical records search.
- 19% - - NTPR report writing and associated research.
- 19% - - Salaries of civil service and military NTPR team members.
- 14% - - Data collection (via letter and toll-free telephone) from participants, and associated technical support.
- 13% - - Dosage reconstruction (for test participants who did not receive film badges or for whom film badges or film badge records were lost or destroyed).
- 3% - - Medical follow-up studies by the National Academy of Sciences. (Will extend beyond FY 81 and require additional funds. DNA and DOE are jointly funding; DOE funds are not included.)
- 9% - - Miscellaneous and new NTPR initiatives.

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April 1979

SUMMARY OF  
MASTER DOSIMETRY FILES  
OF THE  
REYNOLDS ELECTRICAL AND ENGINEERING COMPANY  
(1945-1962)

DOSAGE RANGE	TOTAL ENTRIES	PERCENT
Zero	96,942	41.7%
less than 1.0 rem	204,952	88.2%
less than 3.0 rem	225,765	97.2%
less than 5.0 rem	230,984	99.4%
over 5.0 rem	1,319	0.6%
TOTAL	232,303	100.0%

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TOTAL	232,303	100.0%

TAB B



± Yearly File Entries by Dose (rem)

April 1979

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YEAR	0.01-		0.5-1	1-1.5	1.5-2	2-2.5	2.5-3	3-4	4-5	5-10	10-15	15-20	20-25	25-50	50-75	75-100	TOTAL
	0	0.5															
1945	269	131	86	52	24	15	9	22	6	8	0	0	0	0	0	0	622
1946	4,436	100	8	10	0	0	0	0	0	0	0	1	0	0	0	0	10,552
1947	4	18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	23
1948	715	659	51	20	14	7	6	4	2	6	0	1	0	0	0	0	1,485
1949	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	4,320	10,379	936	456	413	168	157	314	199	296	11	2	1	0	0	0	17,652
1952	979	3,134	316	212	147	110	72	46	15	18	7	2	0	0	0	0	5,058
1953	853	2,520	521	283	169	129	94	188	59	60	0	0	0	0	0	0	4,876
1954	5,210	5,222	2,765	1,099	765	527	365	504	369	287	9	3	0	11	2	6	17,144
1955	7,262	5,055	504	267	135	94	64	160	28	13	6	2	2	1	0	0	13,593
1956	1,294	7,987	4,744	1,692	905	858	1,027	1,774	787	362	10	5	0	1	0	0	21,446
1957	9,386	17,055	1,536	679	345	275	139	96	39	31	2	0	0	0	1	0	29,584
1958	11,356	12,509	4,930	2,735	2,611	1,170	387	275	54	85	9	0	0	0	0	0	36,121
1959	6,127	1,642	152	53	29	33	6	1	0	0	0	0	0	0	0	0	8,043
1960	6,831	958	39	20	14	4	2	3	5	0	0	1	0	0	0	0	7,877
1961	10,434	1,032	147	95	72	144	94	60	26	0	0	0	0	0	0	0	12,104
1962	25,905	17,361	1,084	594	431	351	157	107	76	35	15	6	0	1	0	0	46,123
TOTAL	96,942	90,098	17,912	8,265	6,084	3,885	2,579	3,554	1,665	1,201	69	22	4	14	3	6	232,303

f Yearly File Entries by Dose (rem)

April 1979

YEAR	0.01-		0.5-1	1-1.5	1.5-2	2-2.5	2.5-3	3-4	4-5	5-10	10-15	15-20	20-25	25-50	50-75	75-100	TOTAL
	0	0.5															
1945	269	131	86	52	24	15	9	22	6	8	0	0	0	0	0	0	622
1946	4,436	100	8	10	0	0	0	0	0	0	0	1	0	0	0	0	10,552
1947	4	18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	23
1948	715	659	51	20	14	7	6	4	2	6	0	1	0	0	0	0	1,485
1949	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	4,320	10,379	936	456	413	168	157	314	199	296	11	2	1	0	0	0	17,652
1952	979	3,134	316	212	147	110	72	46	15	18	7	2	0	0	0	0	5,058
1953	853	2,520	521	283	169	129	94	188	59	60	0	0	0	0	0	0	4,876
1954	5,210	5,222	2,765	1,099	765	527	365	504	369	287	9	3	0	11	2	6	17,144
1955	7,262	5,055	504	267	135	94	64	160	28	13	6	2	2	1	0	0	13,593
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1957	9,386	17,055	1,536	679	345	275	139	96	39	31	2	0	0	0	1	0	29,584
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1959	6,127	1,642	152	53	29	33	6	1	0	0	0	0	0	0	0	0	8,043
1960	6,831	958	39	20	14	4	2	3	5	0	0	1	0	0	0	0	7,877
1961	10,434	1,032	147	95	72	144	94	60	26	0	0	0	0	0	0	0	12,104
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TOTAL	96,942	90,098	17,912	8,265	6,084	3,885	2,579	3,554	1,665	1,201	69	22	4	14	3	6	232,303

NEED FASTER DOSIMETRY FILES - CONUS  
 (Number of Yearly File Entries by Dose (rem))

April 1979

149

YEAR	0.01-		0.5-1	1-1.5	1.5-2	2-2.5	2.5-3	3-4	4-5	5-10	10-15	15-20	20-25	25-50	50-75	75-100	TOTAL	
	0	0.5																
1945	269	131	86	52	24	15	9	22	6	8	0	0	0	0	0	0	0	622
1946	14	120	12	2	0	0	0	0	0	0	0	0	1	0	0	0	0	149
1947	4	18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
1948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	4,185	9,070	401	160	82	27	15	8	7	2	0	0	0	0	0	0	0	13,957
1952	515	1,639	198	126	105	78	48	37	14	9	0	0	0	0	0	0	0	2,769
1953	847	1,710	430	266	160	120	91	184	59	60	0	0	0	0	0	0	0	3,927
1954	103	151	6	4	0	1	0	0	0	0	0	0	0	0	0	0	0	265
1955	1,122	2,044	295	178	125	89	63	155	28	13	6	2	2	1	0	0	0	4,123
1956	227	627	18	7	3	0	0	0	1	0	2	1	0	1	0	0	0	887
1957	9,386	15,949	1494	670	345	274	137	94	39	31	2	0	0	0	1	0	0	28,422
1958	4,298	3,424	458	177	104	59	44	24	3	5	2	0	0	0	0	0	0	8,598
1959	5,512	1,390	118	45	24	23	6	1	0	0	0	0	0	0	0	0	0	7,119
1960	6,792	957	39	20	14	4	2	3	5	0	0	1	0	0	0	0	0	7,837
1961	10,434	1,032	147	95	72	144	94	60	26	0	0	0	0	0	0	0	0	12,104
1962	14,418	4,061	780	403	311	223	108	97	70	14	0	0	0	0	0	0	0	20,485
TOTAL	58,126	42,323	4,483	2,205	1,369	1,057	617	685	258	142	12	4	3	2	1	0	0	111,287

(Number of Yearly File Entries by Dose (rem))

April 1979

YEAR	0.01-																TOTAL
	0	0.5	0.5-1	1-1.5	1.5-2	2-2.5	2.5-3	3-4	4-5	5-10	10-15	15-20	20-25	25-50	50-75	75-100	
1945	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1946	5,983	4,316	88	6	10	0	0	0	0	0	0	0	0	0	0	0	10,403
1947	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	715	659	51	20	14	7	6	4	2	6	0	1	0	0	0	0	1,485
1949	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1951	135	1,309	535	296	331	141	142	306	192	294	11	2	1	0	0	0	3,695
1952	464	1,495	118	86	42	32	24	9	1	9	7	2	0	0	0	0	2,289
1953	6	810	91	17	9	9	3	4	0	0	0	0	0	0	0	0	949
1954	5,107	5,071	2,759	1,095	765	526	365	504	369	287	9	3	0	11	2	6	16,879
1955	6,140	3,011	209	89	10	5	1	5	0	0	0	0	0	0	0	0	9,470
1956	1,067	7,360	4,726	1,685	902	858	1,027	1,774	786	362	8	4	0	0	0	0	20,559
1957	0	1,106	42	9	0	1	2	2	0	0	0	0	0	0	0	0	1,162
1958	7,058	9,085	4,472	2,558	2,507	1,111	343	251	51	80	7	0	0	0	0	0	27,523
1959	615	252	34	8	5	10	0	0	0	0	0	0	0	0	0	0	924
1960	39	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
1961	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	11,487	13,300	304	191	120	128	49	10	6	21	15	6	0	1	0	0	25,638
TOTAL	38,816	47,775	13429	6,060	4,715	2,828	1,962	2,869	1,407	1,059	57	18	1	12	2	2	121,016

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TAB D

SAI REPORT

D

## EXPOSURE TO PROMPT NEUTRON RADIATION

A relatively small percentage of the 250,000 atmospheric test participants were exposed to neutrons, and it can generally be clearly determined whether or not an individual was so exposed. For those so exposed, their neutron dose can be calculated with good accuracy, and all such neutron exposures are believed to have been low (less than a rem--generally much less), with the possible exception of participants in the Volunteer Observer Program (officer volunteers).

Neutron exposure can occur only at the time of detonation (prompt radiation). Contact with fallout (delayed radiation) will not cause exposure to neutrons. Thus, the possibility of exposure to neutrons can be determined with relative accuracy, since individuals' locations are known with more certainty at times of detonations than at other times--and were controlled with utmost rigor. Additionally, neutrons from a detonation are rapidly attenuated in air. For example, at a distance of two miles from an atmospheric nuclear detonation in Nevada, the neutron dose to a totally unprotected individual would be less than one rem. Of course, no personnel were ever permitted in such an exposed location for close-range detonations of significant yield. Finally, neutrons are severely attenuated by earth--for example, by a factor of six in an open trench, or by a factor of 100 behind three feet of earth. Since all personnel at the Nevada Test Site who were within several miles of a detonation were protected in trenches, any neutron exposures that did occur were not only below one rem, but generally in the low millirem range.



SAI REPORT

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The exposure of individuals to neutrons can be estimated by using computer-assisted calculational techniques to ascertain the interactions of neutrons with the environment as they move from the point of detonation to the locale of interest. The neutron output of the nuclear device itself can be determined from calculations made by the DoE weapons design laboratories. Additionally, for many of the devices tested, these calculations of neutron output can be verified by records of experimental measurements of the neutron fluence at varying distances from the detonation. Given the neutron output, computers are used to model environmental interactions as the neutrons move through the atmosphere and as they are affected by the ground-air interface.

An example can be cited to show the results of a neutron calculation. During the preparation for Shot SMOKY, Task Force WARRIOR participants observed Shot DOPPLER (11 kilotons) from trenches about 2900 yards from ground zero. The neutron fluence in the trenches was calculated, and application of an average quality factor produced a neutron dose of 0.23 rem to individuals.

In the special case of the officer volunteers, who were closer to ground zero at the time of detonation than any other participants, prompt neutron dosages may have been higher than discussed above. Officer volunteers participated in Shots NANCY (March 1953), BADGER (April 1953), SIMON (April 1953), and APPLE II (May 1955) in trenches located at ranges of 2,000-2,600 yards from ground zero. Officer volunteers also participated in Shot JOHN (July 1957), a low-yield, high-altitude shot, from an open position on the ground below the detonation. Detailed calculations of neutron exposures to officer volunteers are currently underway.

## INTERNAL EXPOSURE TO ALPHA RADIATION

Since alpha particles can be stopped by a few inches of air, or a sheet of paper, or skin, the primary concern is whether the test participants may have received internal doses as a result of inhalation or ingestion of radioactive fallout. The NTPR research effort has found no evidence to date to indicate that significant internal doses of alpha radiation occurred. We have not ruled out the possibility, and we are continuing our search; but available evidence makes the likelihood of significant internal alpha doses appear low for the following reasons:

1. A relatively small percentage of the 250,000 DoD participants were in a position where inhalation of alpha particles would have been possible.
2. Numerous precautions were taken at the time to insure that participants did not inhale or ingest alpha particles. Troops, ships, etc., invariably were positioned or maneuvered upwind; monitoring for alpha activity was done when it was anticipated; face masks were available for those with greatest potential for exposure; rapid evacuation procedures were planned for those who might need them, and other precautions were taken.

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3. In reports of exercises researched to date, very few references to the possibility of internal exposures have turned up, and in these cases follow-up generally showed no contamination. On the other hand, many references have been found which indicate that at the time it was not necessary to exercise available contingency plans for particulate radioactivity.
4. Several studies, some of which were conducted during the testing and others which were conducted subsequent to the testing, have shown that in many types of circumstances, if any significant amount of alpha particles had been inhaled the film badge readings for gamma radiation would have been quite high.
5. The very nature of the alpha-emitting isotopes' long radiological half-life and long biological half-life, which leads to a long-term dose commitment when taken internally, also permits detection long after inhalation or ingestion. If alpha particles had been inhaled by participants during the 1950's at levels which are thought to result in biological effects, clear evidence could be found in their bodies today through bioassay and whole-body measurements of radioactivity.

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6. The Center for Disease Control has made measurements on 16 of the more likely candidates for inhalation that took part in Shot SMOKY (1957). No activity in excess of typical background levels found in men not exposed to weapons test was detected. The exams were performed by the Center for Human Radiobiology at Argonne National Laboratory in Chicago.
  
  7. Additionally, an extensive autopsy was performed on one of the Shot SMOKY participants who died. The individual was diagnosed as having acute myelocytic leukemia and was awarded compensation by the VA. Analysis of pathological specimens did not reveal radioactive isotopes in excess of the general background level found in all individuals.

OVER 25 REM  
PILOT MEDICAL EXAMINATION PROGRAM

DoD personnel with single or cumulative exposures in excess of 25 REM from atmospheric nuclear weapons testing.

TYPE EXPOSURE	CIRCUMSTANCES	Service			TOTAL
		Army	Navy	Air Force	
SINGLE	Rongerik Atoll fallout, Pacific, 1954	3	0	25	28
	Navy boat pool reentry personnel, Pacific, 1954	0	3	0	3
SUBTOTAL, SINGLE DOSE		3	3	25	31
CUMULATIVE	Air Force Scientist	0	0	1	1
	Army Civilian Scientist	1	0	0	1
	Air Force Cloud Samplers	0	0	6	6
SUBTOTAL, CUMULATIVE DOSE		1	0	7	8
TOTAL		4	3	32	39

FLEET MEDICAL EXAMINATION PROGRAM

DoD personnel with single or cumulative exposures in excess of 25 REM from atmospheric nuclear weapons testing.

TYPE EXPOSURE	CIRCUMSTANCES	Army	Navy	Air Force	TOTAL
SINGLE	Rongerik Atoll fallout, Pacific, 1954	3	0	25	28
	Navy boat pool reentry personnel, Pacific, 1954	0	3	0	3
SUBTOTAL, SINGLE DOSE		3	3	25	31
CUMULATIVE	Air Force Scientist	0	0	1	1
	Army Civilian Scientist	1	0	0	1
	Air Force Cloud Samplers	0	0	6	6
SUBTOTAL, CUMULATIVE DOSE		1	0	7	8
TOTAL		4	3	32	39

TAB G

24

DESERT ROCK  
VOLUNTEER OBSERVER PROGRAM  
(OFFICER VOLUNTEERS)

SHOT	DATE	YIELD	DISTANCE FROM GROUND ZERO (YDS)	NUMBER OF OBSERVERS				
				ARMY	NAVY	AIR FORCE	MARINES	TOTAL
NANCY	24 Mar 53	24 kt	2500	4	4	1	0	9
BADGER	18 Apr 53	23 kt	2000	5	0	0	6	11
SIMON	25 Apr 53	43 kt	2000	7	1	0	0	8
APPLE II	5 May 55	29 kt	2600	10	0	0	0	10
JOHN	19 Jul 57	2 kt	0*	3	0	2	0	5
TOTAL				29	5	3	6	43

\*High-altitude shot, 14,500 feet above the desert.



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\*High-altitude shot, 14,500 feet above the desert.

OVER - 5 - REM  
NOTIFICATION AND MEDICAL  
EXAMINATION PROGRAM

Initial estimates of the numbers of personnel that will be involved in this program follow:

Army	50
Navy	350
Air Force	370
Marine Corps	13
TOTAL	783

OVER - 5 - REM  
NOTIFICATION AND MEDICAL  
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TOTAL	783

TAB I

26

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

OVER-5-REM LETTER

OVER-5-REM LETTER



12

27

Letter of Notification to Participants

(Over-5-rem Group)

Date

Name  
Address  
City, State Zip Code

Dear (Name of Participant):

The Department of Defense (DoD) is presently reviewing the radiation exposure record of DoD personnel who took part in atmospheric nuclear weapons testing, 1945-1962. The purposes of this program are to assist individuals involved and to obtain radiation exposure data, so that detailed research can be conducted to determine if there is any correlation between exposure to low-level external ionizing radiation and subsequent incidence of certain diseases.

Our records and current research indicate that radiation exposures to the approximately 250,000 DoD test participants were quite low. The average dosage was on the order of about half a rem (a rem is a unit of radiation dose in man),



1

although a few received higher exposures and many received none at all. Exposures at these low levels have long been thought to involve negligible health risk. For many years (and still today) Federal exposure standards for radiation workers have generally been set at 3 rem per quarter and 5 rem per year. These values were, in the past, believed to be on the safe side, and many still think this; but some scientists now believe the risks may be greater, and the issue is currently the subject of some controversy in the scientific community.

Recently the President established an Interagency Task Force on the Health Effects of Ionizing Radiation. The Report of this Task Force may serve to put the very slight degree of risk in its proper context. The Report points to national cancer statistics, which show that cancer is the cause of death for about 16 percent of the population. Thus, of the 250,000 DoD personnel who participated in the atmospheric nuclear tests, about 40,000 could be expected eventually to die of cancer which is not related to the nuclear tests. By contrast, the Report notes that if our current data and assumptions are correct, there might eventually be about 12 cancer deaths from among the 250,000 which bear a statistical relationship to test radiation exposure.

As a service to test participants, and as an initial effort in obtaining medical data, the DoD implemented a pilot medical examination program in March 1979. Individuals with recorded film badge exposures attributable to atmospheric nuclear tests in excess of 25 rem were contacted and offered the opportunity to request medical examinations in Government facilities. The program is now being expanded to include participants with exposures in excess of 5 rem per year. According to our records, you received (number) rem during (period of time). While there is no indication that this is a medically significant dose, it does represent a value which may have been in excess of some standards. Therefore, you may wish to avail yourself of this expanded medical examination program.

If you wish to have a status report on your health and to assist us in obtaining medical data, you may request a medical examination by calling the nearest medical facility of the Veterans Administration (VA). You may determine the closest facility by referring to Enclosure 1 to this letter, which is a complete listing of VA medical facilities and telephone numbers.



Enclosures 2-4 are a postage-paid envelope, a QUICK-RETURN FORM (to tell us whether you want a medical examination), and a QUESTIONNAIRE (to provide us data on your nuclear test participation). If you desire a medical examination, please schedule an appointment with the nearest VA facility, complete the QUICK-RETURN FORM, complete or update the QUESTIONNAIRE, and return them to us in the postage-paid envelope as soon as possible. If you experience difficulty in scheduling an appointment, please advise us so that we can assist you. Should you elect not have the medical examination performed, this does not preclude your requesting an examination at a later date, and we would appreciate your returning the completed QUICK-RETURN FORM and QUESTIONNAIRE for our records.

Enclosure 5 is a letter to the physician who will perform the examination, and should be presented by you to the examining physician at the time of your appointment. The attachment to the letter for the physician is a MEDICAL HISTORY FORM. You can save time and provide valuable assistance to the examining physician if you use the MEDICAL HISTORY FORM to review your medical history and have pertinent information readily available during the examination.

It is possible that medical conditions previously unknown to you will be discovered--as might be the case in any routine medical examination. Should this occur, it would not necessarily indicate a cause-and-effect relationship between the ionizing radiation exposure and the medical condition. It will take a number of years before enough information will be available to make a meaningful analysis of any possible relationship between low-level ionizing radiation and long-term health patterns. Follow-up medical management for any newly discovered condition should be accomplished by your normally utilized health care provider or facility.

Additionally, veterans who feel they have a service-connected medical condition may file a claim for medical care, benefits, or compensation with the VA. A brief explanation of requirements is enclosed (Enclosure 6), and more information, if desired, can be obtained from your local VA regional office. Should you desire to submit a claim, we will be glad to help you with research into the circumstances of your atmospheric test exposure.

The results of your medical examination and any information supplied by you will be protected according to the Privacy

Act of 1974. Your cooperation in this important health study will be appreciated.

Sincerely,

- 6 Enclosures
1. Locations, VA  
Medical Facilities
2. Return Envelope
3. QUICK-RETURN FORM
4. QUESTIONNAIRE (Nuclear  
Test Participation)
5. Letter to Examining  
Physician
6. VA Claims

APPROPRIATE SIGNATURE  
Sponsoring Military Department  
(NTPR Team Chief)  
(Surgeon General or Assistant)

Enclosure 1

LOCATIONS, VA FACILITIES

Enclosure 1



LOCATIONS AND PHONE NUMBERS  
VA MEDICAL FACILITIES

ABBREVIATION CODE:

H - Hospital Care  
OC - Outpatient Clinic (Independent)  
OCH - Outpatient Clinic (Physically separated  
from hospital)

ALABAMA

Birmingham (H) 35233  
700 S. 19th St.  
(205) 933-8101

Montgomery (H) 36109  
215 Perry Hill Rd.  
(205) 272-4670

Tuscaloosa (H) 35401  
Loop Rd.  
(205) 553-3760

Tuskegee (H) 36083  
(205) 727-0550

ALASKA

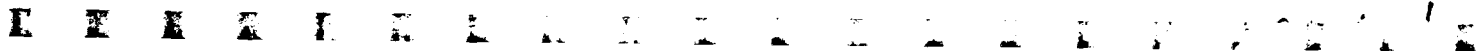
Juneau (OC) 99802  
Federal Bldg., U.S. Post  
Office and Courthouse  
709 W. 9th St.  
(907) 586-7466

ARIZONA

Phoenix (H) 85012  
7th St. & Indian School Rd.  
(602) 277-5551

Prescott (H) 86313  
(602) 445-4860

Tucson (H) 85723  
3601 S. 6th Ave.  
(602) 792-1450



ARKANSAS

Fayetteville (H) 72701  
1100 N. College Ave.  
(501) 443-2301

Little Rock (H) 72206  
300 E. Roosevelt Rd.  
(501) 372-8361

CALIFORNIA

Fresno (H) 93703  
2615 E. Clinton Ave.  
(209) 227-2941

Livermore (H) 94550  
(415) 447-2560

Loma Linda (H) 92354  
11201 Benton St.  
(714) 824-0850

Long Beach (H) 90822  
5901 E. 7th St.  
(213) 498-1313

Los Angeles (H) 90073  
Sawtelle & Wilshire Blvd.  
(213) 478-3711

Los Angeles (OC) 90013  
425 S. Hill St.  
(213) 688-2000

Martinez (H) 94553  
150 Muir Rd.  
(415) 228-6800

Palo Alto (H) 94304  
3801 Miranda Ave.  
(415) 493-5000

San Diego (H) 92161  
3350 LaJolla Village Dr.  
(714) 453-7500

San Diego (OCH) 92108  
Palomar Building  
2022 Camino Del Rio North

San Francisco (H) 94121  
4150 Clement St.  
(415) 221-4810

Sepulveda (H) 91343  
16111 Plummer  
(213) 894-8271

COLORADO

Denver (H) 80220  
1055 Clermont St.  
(303) 399-8020

Fort Lyon (H) 81038  
(303) 456-1260

Grand Junction (H) 81501  
2121 North Ave.  
(303) 242-0731

CONNECTICUT

Newington (H) 06111  
555 Willard Ave.  
(203) 666-6951

West Haven (H) 06516  
W. Spring St.  
(203) 933-2561

DELAWARE

Wilmington (H) 19805  
1601 Kirkwood Highway  
(302) 994-2511

DISTRICT OF COLUMBIA

Washington, D.C. (H) 20422  
50 Irving St., N.W.  
(202) 483-6666



FLORIDA

Bay Pines (H & OCH) 33504  
1000 Bay Pines Blvd., N  
(813) 391-9644

Gainesville (H) 32602  
Archer Rd.  
(904) 376-1611

Lake City (H) 32055  
S. Marion St.  
(904) 752-1400

Miami (H) 33125  
1201 N.W. 16th St.  
(305) 324-4455

St. Petersburg (OCH) 33731  
144 First Ave., S  
(813) 893-3706

Tampa (H) 33612  
13000 N. 30th St.  
(813) 971-4500

GEORGIA

Augusta (H) 30904  
(404) 733-4471

Decatur (H) 30033  
1670 Clairmont Rd., N.E.  
(404) 321-6111

Dublin (H) 31021  
(912) 272-1210

HAWAII

Honolulu Clinic 96801  
P.O. Box 3198  
680 Ala Moana Blvd.  
(808) 546-2176

IDAHO

Boise (H) 83702  
5th and Fort St.  
(208) 342-3681

ILLINOIS

Chicago (H) 60611  
333 E. Huron St. (Lakeside)  
(312) 943-6600

Chicago (H) 60680  
(West Side)  
820 S. Damen Ave.  
(312) 666-6500

Danville (H) 61832  
(217) 442-8000

Hines (H) 60141  
(312) 343-7200

Marion (H) 62959  
(618) 997-5311

North Chicago (H) 60064  
Downey  
(312) 689-1900

INDIANA

Fort Wayne (H) 46805  
1600 Randalia Dr.  
(219) 743-5431

Indianapolis (H) 46202  
1481 W. 10th St.  
(317) 635-7401

Marion (H) 46952  
E. 38th St.  
(317) 674-3321

IOWA

Des Moines (H) 50310  
30th & Euclid Ave.  
(515) 255-2173

Iowa City (H) 52240  
(319) 338-0581

Knoxville (H) 50138  
1515 W. Pleasant St.  
(515) 842-3101



KANSAS

Leavenworth (H) 66048  
4201 S. 4th St., Trafficway  
(913) 682-2000

Topeka (H) 66622  
2200 Gage Blvd.  
(913) 272-3111

Wichita (H) 67218  
5500 E. Kellogg  
(316) 685-2221

KENTUCKY

Lexington (H) 40507  
(606) 233-4511

Louisville (H) 40202  
800 Zorn Ave  
(502) 895-3401

LOUISIANA

Alexandria (H) 71301  
(318) 442-0251

New Orleans (H) 70146  
1601 Perdido ST.  
(504) 568-0811

Shreveport (H) 71130  
510 E. Stoner Ave.  
(318) 221-8411

MAINE

Togus (H) 04330  
(207) 623-8411

MARYLAND

Baltimore (OCH) 21201  
31 Hopkins Plaza  
Federal Building  
(301) 962-4610

Baltimore (H) 21218  
3900 Loch Raven Blvd.  
(301) 467-9932

Fort Howard (H) 21052  
(301) 477-1800

Perry Point (H) 21902  
(301) 962-4725

MASSACHUSETTS

Bedford (H) 01730  
200 Spring Rd.  
(617) 275-7500

Boston (H) 02130  
150 S. Huntington Ave.  
(617) 232-9500

Boston (OC) 02108  
17 Court St.  
(617) 223-2020

Brockton (H) 02401  
945 Belmont St.  
(617) 583-4500

Northampton (H) 01060  
N. Main St.  
(413) 584-4040

West Roxbury (H) 02132  
1400 VFW Parkway  
(617) 323-7700

MICHIGAN

Allen Park (H) 48101  
Southfield & Outer Drive  
(313) 562-6000

Ann Arbor (H) 48105  
2215 Fuller Rd.  
(313) 769-7100

Battle Creek (H) 49016  
(616) 965-3281





MICHIGAN (Continued)

Iron Mountain (H) 49801  
(906) 774-3300

Saginaw (H) 48602  
1500 Weiss St.  
(517) 793-2340

MINNESOTA

Minneapolis (H) 55417  
54th St. & 48th Ave., South  
(612) 725-6767

St. Cloud (H) 56301  
(612) 252-1670

St. Paul (OCH) 55111  
Fort Snelling  
(612) 725-6767

MISSISSIPPI

Biloxi (H) 39531  
(601) 388-5541

Jackson (H) 39216  
1500 E. Woodrow Wilson Ave.  
(601) 362-4471

MISSOURI

Columbia (H) 65201  
800 Stadium Road  
(314) 443-2511

Kansas City (H) 64128  
4801 Linwood Blvd.  
(816) 861-4700

Poplar Bluff (H) 63901  
(314) 686-4451

St. Louis (H) 63125  
915 N. Grand Blvd.  
(314) 652-4100

MONTANA

Fort Harrison (H) 59636  
(406) 442-6410

Miles City (H) 59301  
210 S. Winchester  
(406) 232-3060

NEBRASKA

Grand Island (H) 68801  
2201 N. Broadway  
(308) 382-3660

Lincoln (H) 68510  
600 S. 70th St.  
(402) 867-6011

Omaha (H) 68105  
4101 Woolworth Ave.  
(402) 346-8800

NEVADA

Reno (H) 89502  
1000 Locust St.  
(702) 329-1051

NEW HAMPSHIRE

Manchester (H) 03104  
718 Smyth Rd.  
(603) 624-4366

NEW JERSEY

East Orange (H) 07019  
Tremont Ave. & S. Center  
(201) 676-1000

Lyons (H) 07939  
(201) 647-0180

Newark (OCH) 07102  
20 Washington Place  
(201) 645-3491



NEW MEXICO

Albuquerque (H) 87108  
2100 Ridgcrest Dr., S.E.  
(505) 265-1711

NEW YORK

Albany (H) 12208  
113 Holland Ave.  
(518) 462-3311

Batavia (H) 14020  
Redfield Pkwy.  
(716) 343-7500

Bath (H) 14810  
(607) 776-2111

Bronx (H) 10468  
130 W. Kingsbridge Rd.  
(212) 584-9000

Brooklyn (H) 11209  
800 Poly Place  
(212) 836-6600

Brooklyn (OC) 11205  
35 Ryerson St.  
(212) 330-7500

Buffalo (H) 14215  
3495 Bailey Ave.  
(716) 834-9200

Canandaigua (H) 14424  
Ft. Hill Ave.  
(716) 394-2000

Castle Point (H) 12511  
(914) 831-2000

Montrose (H) 10548  
(914) 737-4400

New York City (H) 10010  
1st Ave. at E. 24th St.  
(212) 686-7500

New York City (OCH) 10001  
252 7th Ave. at 24th St.  
(212) 620-6776

Northport (H) 11768  
Long Island - Middleville Rd.  
(516) 261-4400

Syracuse (H) 13210  
Irving Ave. & University Pl.  
(315) 476-7461

NORTH CAROLINA

Asheville (H) 28805  
(704) 298-7911

Durham (H) 27705  
508 Fulton St.  
(919) 286-0411

Fayetteville (H) 28301  
2300 Ramsey St.  
(919) 488-2120

Salisbury (H) 28144  
1601 Brenner Ave.  
(704) 636-2351

Winston-Salem (OCH) 27102  
Federal Bldg.  
251 N. Main St.  
(919) 761-3562

NORTH DAKOTA

Fargo (H) 58102  
2101 Elm St.  
(701) 232-3241

OHIO

Brecksville (H) 44141  
10000 Brecksville Rd.  
(216) 526-3030

Chillicothe (H) 45601  
(614) 773-1141





PUERTO RICO

San Juan (H) 00921  
Barrio Monacillos  
Rio Piedras GPO Box 4867  
(809) 843-5151

RHODE ISLAND

Providence (H) 02908  
Davis Park  
(401) 521-1700

SOUTH CAROLINA

Charleston (H) 29407  
109 Bee St.  
(803) 577-5011

Columbia (H) 29201  
Garners Ferry Rd.  
(803) 776-4000

SOUTH DAKOTA

Fort Meade (H) 57741  
(605) 347-2511

Hot Springs (H) 57747  
(605) 745-4101

Sioux Falls (H) 57101  
2501 W. 22nd St.  
(605) 336-3230

TENNESSEE

Memphis (H) 38104  
1030 Jefferson Ave.  
(901) 523-8990

Mountain Home (H) 37684  
Johnson City  
(615) 928-0281

Murfreesboro (H) 37130  
(615) 893-1360

Nashville (H) 37203  
1310 24th Ave., S.  
(615) 327-4751

TEXAS

Amarillo (H) 79106  
6010 Amarillo Blvd., W.  
(806) 355-9703

Big Spring (H) 79720  
2400 S. Gregg St.  
(915) 263-7361

Bonham (H) 75418  
Ninth & Libscomb  
(214) 583-2111

Dallas (H) 75216  
4500 S. Lancaster Rd.  
(214) 376-5451

El Paso (OC) 79925  
5919 Brook Hollow Dr.  
(915) 543-7890

Houston (H) 77211  
2002 Holcombe Blvd.  
(713) 747-3000

Kerrville (H) 78028  
(512) 896-2020

Lubbock (OC) 79401  
Federal Building  
1205 Texas Ave.  
(806) 762-7415

Marlin (H) 76661  
1016 Ward St.  
(817) 883-3511

San Antonio (H) 78284  
7400 Merton Minter Blvd.  
(512) 696-9660

San Antonio (OC) 78285  
307 Dwyer Ave  
(512) 225-5511

Temple (H) 76501  
1901 S. First  
(817) 778-4811

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TEXAS (Continued)

Waco (H) 76703  
Memorial Drive  
(817) 752-6581

Waco (OCH) 76710  
1400 N. Valley Mills Dr.  
(817) 756-6511

UTAH

Salt Lake City (H) 84113  
500 Foothill Drive  
(801) 582-1565

VERMONT

White River Junction (H)  
05001  
(802) 295-9363

VIRGINIA

Hampton (H) 23667  
(804) 723-6501

Richmond (H) 23249  
1201 Broad Rock Rd.  
(804) 231-9011

Salem (H) 24153  
(703) 982-2463

WASHINGTON

Seattle (H) 98108  
4435 Beacon Ave., S.  
(206) 762-1010

Seattle (OCH) 98104  
Smith Tower, 2nd & Yesler  
(206) 442-5030

Spokane (H) 99208  
N. 4815 Assembly St.  
(509) 328-4521

Takoma (H) 98493  
American Lake  
(206) 588-2185

Vancouver (H) 98661  
(206) 696-4061

Walla Walla (H) 99362  
77 Wainwright Dr.  
(509) 525-5200

WEST VIRGINIA

Beckley (H) 25801  
200 Veterans Ave.  
(304) 253-8383

Clarksburg (H) 26301  
(304) 923-3411

Huntington (H) 25701  
1540 Spring Valley Dr.  
(304) 429-1381

Martinsburg (H) 25401  
(304) 263-0266

WISCONSIN

Madison (H) 53705  
2500 Overlook Terrace  
(608) 256-1901

Tomah (H) 54660  
(608) 372-3971

Wood (H) 53193  
5000 W. National Ave.  
(414) 384-2000

WYOMING

Cheyenne (H) 82001  
2360 E. Pershing Blvd.  
(307) 778-7550

Sheridan (H) 82801  
(307) 672-3473







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Enclosure 4

QUESTIONNAIRE  
(Nuclear Test Participation)

NTPR DATA FORM

1. Completed (if previous contact has been experienced with the individual).
2. Blank (if no previous contact has been experienced with the individual).

Enclosure 4

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REF ID: A66497







SUBJECT: Medical Evaluation of Nuclear Weapons Test  
Participants

logically with approximate dates. Established diagnoses should be authenticated when possible. An extensive medical, personal, and family history form is attached for your use if desired. The examinee has been asked to use this form to review his own history prior to his examination and to have pertinent information readily available.

5. A complete physical examination should be accomplished, with particular reference to the lymphatic system, liver, spleen, thyroid, and cutaneous structure. A complete blood count and differential should be done, with particular emphasis on cell morphology. A routine chest X-ray should not be accomplished unless the individual has not received one during the past year, or unless the most recent X-ray indicated abnormalities.

6. Abnormalities uncovered by the above examination should receive appropriate investigation; i.e., thyroid studies, further hematologic or biochemical investigations, etc. If these more specialized resources are not available at your facility, the usual referral procedures to the medical facility supplying you this support should be utilized.

7. The results of the completed examination should be entered in the examinee's medical record and also forwarded to me and to Dr. Lawrence Hobson, Deputy/ACMO for Research and Development, 810 Vermont Avenue, N.W., Washington, DC 20420. Standard Forms 88, 93, 513, 514, 515, or other appropriate forms should be utilized. If you find a significant change in health status (new condition or significant deterioration of previously diagnosed condition), and if the participant is not eligible for continued medical care by your facility, a copy of the findings should be transferred to the health care provider of the participant's choice. Additionally, the participant should be assisted in filing a claim for care or compensation if he desires.

8. On May 9, 1978, at the direction of the President, the Secretary of Health, Education and Welfare formed an Interagency Task Force on Ionizing Radiation. The DoD, the VA, and many other organizations of the Federal Government are participating as part of the Interagency Task Force, which is conducting an extensive review of current medical knowledge of the biological effects of ionizing radiation as well as Government policy concerning ionizing radiation exposure. Any questions you may have, or any raised by the examinee, which you cannot answer to your satisfaction, should be referred to:

Biomedical Advisor  
Defense Nuclear Agency  
6801 Telegraph Road  
Alexandria, Virginia 22310

Telephone: 202-325-0459 (Commercial)  
8-851-0459 (AUTOVON)







IDENTIFICATION AND PERSONAL HISTORY

(Nuclear Weapons Test Participant)

1. Name and address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Age: \_\_\_\_\_ Sex: \_\_\_\_\_

3. Birthdate: \_\_\_\_\_ Birthplace: \_\_\_\_\_

4. Places lived since birth:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Education:

Grade School: 1\_\_ 2\_\_ 3\_\_ 4\_\_ 5\_\_ 6\_\_ 7\_\_ 8\_\_

High School: 1\_\_ 2\_\_ 3\_\_ 4\_\_

Beyond High School: 1\_\_ 2\_\_ 3\_\_ 4\_\_ 5 or more\_\_

6. Marital Status:

Single \_\_\_\_\_ Widowed \_\_\_\_\_

Married \_\_\_\_\_ Separated \_\_\_\_\_

Divorced \_\_\_\_\_ Remarried \_\_\_\_\_

7. Occupational History:

Professional or office \_\_\_\_\_ Light work (sales or trade) \_\_\_\_\_  
Factory \_\_\_\_\_ Food handling \_\_\_\_\_  
Farming \_\_\_\_\_ Health services \_\_\_\_\_  
Mining \_\_\_\_\_ Retired \_\_\_\_\_  
Custodial \_\_\_\_\_ Carpentry \_\_\_\_\_  
Electrical \_\_\_\_\_ Military \_\_\_\_\_  
Heavy equipment \_\_\_\_\_ Other \_\_\_\_\_

Remarks\* \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(\*Explain occupational experiences that may have involved periods of exposure to radiation, chemicals, dust, etc., at levels above those normally expected for the average population.)



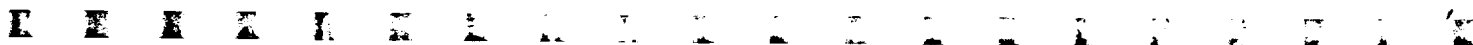
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FAMILY HISTORY

1. Mark which of your blood relatives or spouse you are SURE have experienced any of the following:

MOTHER	FATHER	MOTHER'S MOTHER	MOTHER'S FATHER	FATHER'S MOTHER	FATHER'S FATHER		SISTER (S)	BROTHER (S)	DAUGHTER (S)	SON (S)	SPOUSE
						Diabetes (sugar)					
						Stroke					
						Heart Attack					
						High blood pressure					
						Epilepsy (convulsions, fits)					
						Kidney disease					
						Cancer					
						Mental Retardation					
						Hay fever, asthma, hives, allergy					
						Emphysema					
						Thyroid or goiter trouble					
						Bleeding or blood trouble					
						Gout (a kind of arthritis)					
						Mental disorder, nervous breakdown					
						Suicide					

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2. Check age at death of any relatives if you know it. Circle if death was caused by and accident (e.g. automobile or plane crash)

MOTHER	FATHER	MOTHER'S MOTHER	MOTHER'S FATHER	FATHER'S MOTHER	FATHER'S FATHER		SISTER (S)	BROTHER (S)	DAUGHTER (S)	SON (S)	SPOUSE
—	—	—	—	—	—	Under 30	—	—	—	—	—
—	—	—	—	—	—	30 - 40	—	—	—	—	—
—	—	—	—	—	—	40 - 50	—	—	—	—	—
—	—	—	—	—	—	50 - 65	—	—	—	—	—
—	—	—	—	—	—	Over 65	—	—	—	—	—

PRESENT COMPLAINTS

1. Please mark below the chief health problems which you may have now. Try to mark only most important 2 or 3. Others will be covered in the rest of this questionnaire.

- |                               |                                    |
|-------------------------------|------------------------------------|
| Eyes                          | Kidneys, urine, bladder            |
| Ears                          | Glands (thyroid or other)          |
| Nose                          | Sex organs                         |
| Throat or mouth               | Overweight or underweight          |
| Heart                         | Fever                              |
| Circulation                   | Headaches                          |
| Blood pressure or stroke      | Allergy (hay fever, hives, asthma) |
| Lungs and breathing           | Swollen glands                     |
| Disease of the blood          | Hernia (rupture)                   |
| Stomach and swallowing        | Sex problems                       |
| Gall bladder, liver, jaundice | Cancer                             |
| Intestines and bowels         | Neuritis (sciatic or other)        |
| Muscle or joints              | Tiredness-- Loss of pep or energy  |
| Back (spine and neck)         | Pain                               |
| Skin trouble                  | Other medical problems not listed: |
| Brain or head                 | _____                              |
| Nerves or nervousness         | _____                              |

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2. Including the items you have marked above, mark below how you feel about your general health.

My general health is good.

My general health is fair.

My general health is poor.

My general health interferes with my work or my way of living.

3. When was your last visit to the doctor?

Within the past year

Within 2-5 years

Within 1-2 years

More than 5 years ago

4. Mark the number of days you have been unable to do your usual work in the past year due to illness (being sick).

3 or less \_\_\_ 4-7 \_\_\_ 8-14 \_\_\_ More than 14 \_\_\_

5. Mark the number of days you have been unable to do your usual work in the past year due to an accident or injury.

3 or less \_\_\_ 4-7 \_\_\_ 8-14 \_\_\_ More than 14 \_\_\_

PERSONAL MEDICAL HISTORY

Mark any disease on the list which you have had, and any which caused complications or permanent damage or continuing trouble.

Measles . . . . .	_____	_____	_____
German Measles. . . . .	_____	_____	_____
Mumps . . . . .	_____	_____	_____
Chicken Pox . . . . .	_____	_____	_____
Whooping Cough. . . . .	_____	_____	_____
Scarlet Fever or Scarletina . . . . .	_____	_____	_____
Diphtheria . . . . .	_____	_____	_____
Smallpox. . . . .	_____	_____	_____
Pneumonia . . . . .	_____	_____	_____
Influenza . . . . .	_____	_____	_____
Pleurisy. . . . .	_____	_____	_____
Rheumatic Fever or heart disease. . . . .	_____	_____	_____
Arthritis or Rheumatism . . . . .	_____	_____	_____
Any bone or joint disease . . . . .	_____	_____	_____
Neuritis or Neuralgia . . . . .	_____	_____	_____
Polio or Meningitis . . . . .	_____	_____	_____
Malaria . . . . .	_____	_____	_____
Bright's disease. . . . .	_____	_____	_____

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	Yes	No	Unknown
Gonorrhoea or Syphilis . . . . .	_____	_____	_____
Anemia . . . . .	_____	_____	_____
Jaundice . . . . .	_____	_____	_____
Epilepsy . . . . .	_____	_____	_____
Migraine headaches . . . . .	_____	_____	_____
Tuberculosis . . . . .	_____	_____	_____
Valley Fever . . . . .	_____	_____	_____
Diabetes . . . . .	_____	_____	_____
Cancer . . . . .	_____	_____	_____
High blood pressure or low blood pressure . . . . .	_____	_____	_____
Parasites, worms, amoeba . . . . .	_____	_____	_____
Nervous breakdown . . . . .	_____	_____	_____
Food, chemical or drug poisoning . . . . .	_____	_____	_____
Hay fever or asthma . . . . .	_____	_____	_____
Hives or eczema . . . . .	_____	_____	_____
Frequent infections or boils . . . . .	_____	_____	_____
Frequent colds or sore throats . . . . .	_____	_____	_____
Any other disease . . . . .	_____	_____	_____

ALLERGIES:

Penicillin or sulfa . . . . .	_____	_____	_____
Aspirin, codeine or morphine . . . . .	_____	_____	_____
Mycins or other antibiotics . . . . .	_____	_____	_____
Merthiolate or Mercurochrome . . . . .	_____	_____	_____
Any other drug . . . . .	_____	_____	_____
Any foods . . . . .	_____	_____	_____
Adhesive tape . . . . .	_____	_____	_____
Nail polish or other cosmetics . . . . .	_____	_____	_____
Tetanus antitoxin or serums . . . . .	_____	_____	_____

INJURIES:

Broken or cracked bones . . . . .	_____	_____	_____
Sprains . . . . .	_____	_____	_____
Lacerations . . . . .	_____	_____	_____
Dislocations . . . . .	_____	_____	_____
Concussion or head injury . . . . .	_____	_____	_____
Have you ever been knocked unconscious? . . . . .	_____	_____	_____

TRANSFUSIONS:

Blood or plasma transfusion . . . . .	_____	_____	_____
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SURGERY:

Tonsillectomy . . . . .	_____	_____	_____
Cancer or malignant tumor . . . . .	_____	_____	_____
Non-cancerous disease . . . . .	_____	_____	_____
Removal or loss of a finger, toe, arm or leg . . . . .	_____	_____	_____

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SYSTEMS:

Do you now have or have you ever had:

	Yes	No	Unknown
Any eye disease, injury, impaired sight . . . . .	_____	_____	_____
Any ear disease, injury, impaired hearing . . . . .	_____	_____	_____
Any trouble with nose, sinuses, mouth, throat . . . . .	_____	_____	_____
Fainting spells . . . . .	_____	_____	_____
Loss of consciousness . . . . .	_____	_____	_____
Convulsions . . . . .	_____	_____	_____
Paralysis . . . . .	_____	_____	_____
Dizziness . . . . .	_____	_____	_____
Frequent or severe headaches . . . . .	_____	_____	_____
Depression or anxiety . . . . .	_____	_____	_____
Hallucinations . . . . .	_____	_____	_____
Enlarged thyroid or goiter . . . . .	_____	_____	_____
Enlarged glands . . . . .	_____	_____	_____
Skin disease . . . . .	_____	_____	_____
Chronic or frequent cough . . . . .	_____	_____	_____
Chest pain or angina pectoris . . . . .	_____	_____	_____
Spitting up of blood . . . . .	_____	_____	_____
Night sweats . . . . .	_____	_____	_____
Shortness of breath . . . . .	_____	_____	_____
Palpitation or fluttering heart . . . . .	_____	_____	_____
Swelling of hands, feet or ankles . . . . .	_____	_____	_____
Varicose veins . . . . .	_____	_____	_____
Extreme tiredness or weakness . . . . .	_____	_____	_____
Kidney disease or stones . . . . .	_____	_____	_____
Bladder disease . . . . .	_____	_____	_____
Albumin, sugar, pus, etc. in urine . . . . .	_____	_____	_____
Difficulty in urinating . . . . .	_____	_____	_____
Abnormal thirst . . . . .	_____	_____	_____
Stomach trouble or ulcer . . . . .	_____	_____	_____
Indigestion . . . . .	_____	_____	_____
Appendicitis . . . . .	_____	_____	_____
Liver or gall bladder disease . . . . .	_____	_____	_____
Colitis or other bowel disease . . . . .	_____	_____	_____
Hemorrhoids or rectal bleeding . . . . .	_____	_____	_____
Constipation or diarrhea . . . . .	_____	_____	_____

Has there been any recent change in:

Your appetite or eating habits . . . . .	_____	_____	_____
Your bowel action or stools . . . . .	_____	_____	_____

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HABITS:

Yes No Unknown

Adequate exercise . . . . . \_\_\_\_\_  
 Sleep well. . . . . \_\_\_\_\_  
 Bowels move regularly . . . . . \_\_\_\_\_  
 Diet well balanced. . . . . \_\_\_\_\_

None 1 2 3 More

Meat servings per day . . . . . \_\_\_\_\_  
 Fruit servings per day . . . . . \_\_\_\_\_  
 Vegetables per day. . . . . \_\_\_\_\_  
 Eggs per day. . . . . \_\_\_\_\_  
 Bread, slices per day . . . . . \_\_\_\_\_  
 Potato servings per day . . . . . \_\_\_\_\_  
 Cereal servings per day . . . . . \_\_\_\_\_  
 Milk, glasses per day . . . . . \_\_\_\_\_  
 Coffee, cups per day . . . . . \_\_\_\_\_  
 Tea, cups/glasses per day . . . . . \_\_\_\_\_  
 Soft drinks per day . . . . . \_\_\_\_\_  
 Water, glasses per day . . . . . \_\_\_\_\_  
 Salt used      little      moderate      much  
 Spices, pepper, pickles, etc  
     little      moderate      much  
 Alcoholic beverages  
     none      rarely      moderately      daily

NOTE: Diet  
for an  
average day.

Tobacco:

Cigarettes, pks per day . . . . . \_\_\_\_\_  
 Cigars . . . . . \_\_\_\_\_  
 Pipe . . . . . \_\_\_\_\_  
 Chewing tobacco . . . . . \_\_\_\_\_  
 Snuff . . . . . \_\_\_\_\_

Drugs:

Laxatives . . . . . \_\_\_\_\_  
 Vitamins . . . . . \_\_\_\_\_  
 Sedatives . . . . . \_\_\_\_\_  
 Tranquilizers . . . . . \_\_\_\_\_  
 Sleeping pills. . . . . \_\_\_\_\_  
 Aspirin . . . . . \_\_\_\_\_  
 Cortisone, Acth . . . . . \_\_\_\_\_  
 Thyroid . . . . . \_\_\_\_\_  
 Appetite depressants. . . . . \_\_\_\_\_  
 Treatment for drug habits . . . . . \_\_\_\_\_  
 Insulin . . . . . \_\_\_\_\_  
 Tablets for diabetes. . . . . \_\_\_\_\_  
 Hormone shots or tablets. . . . . \_\_\_\_\_  
 Other (please specify). . . . . \_\_\_\_\_

Work:

Hours per day      4 or less      4 or more      8      9 or more  
     Indoors      Outdoors

01.5



RECREATION:

			Yes	No	Unknown
Participate in sports or hobbies 3 hours a week . . .	_____	_____	_____	_____	_____
	Never	1	2	3	More
Watch TV (hours per day). . . . .	_____	_____	_____	_____	_____
Read (hours per week) . . . . .	_____	_____	_____	_____	_____
Vacations (weeks per year). . . . .	_____	_____	_____	_____	_____

REPRODUCTION AND FAMILY:

		Problems*	No Problems	Unknown
Ability to have children . . . . .	_____	_____	_____	_____
Birth defects or deformations in children or grandchildren. . . . .	_____	_____	_____	_____
*Explain: _____				

WOMEN ONLY:

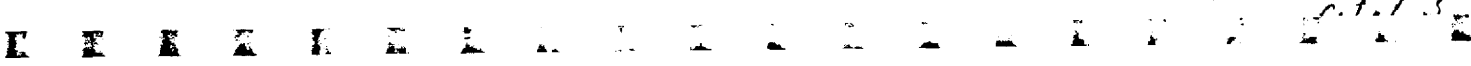
Menstrual History:

Age at onset \_\_\_\_\_ 12 or younger \_\_\_\_\_ 12 or older  
 Regular \_\_\_\_\_ Yes \_\_\_\_\_ No  
 Cycle (start to start) \_\_\_\_\_ 28 days or less \_\_\_\_\_ 28 days or more  
 Duration of days \_\_\_\_\_ 5 or less \_\_\_\_\_ 5 or more  
 Flow \_\_\_\_\_ Heavy \_\_\_\_\_ Medium \_\_\_\_\_ Light  
 Pains or cramps \_\_\_\_\_ Yes \_\_\_\_\_ No

Pregnancies:

	1	2	3	4	5 or more
Number of children . . . . .	_____	_____	_____	_____	_____
Number of stillbirths. . . . .	_____	_____	_____	_____	_____
Number of premature births . . . . .	_____	_____	_____	_____	_____
Number of cesarean sections. . . . .	_____	_____	_____	_____	_____
Number of miscarriages . . . . .	_____	_____	_____	_____	_____
Any complications with any pregnancy .	_____ Yes		_____ No		

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 10-1-52







Normal Abnormal

Head, face, neck & scalp. . . . .	_____	_____
Nose. . . . .	_____	_____
Sinuses . . . . .	_____	_____
Mouth and throat. . . . .	_____	_____
Ears (general). . . . .	_____	_____
Drums.. . . .	_____	_____
Eyes. . . . .	_____	_____
Ophthalmoscopic . . . . .	_____	_____
Pupils. . . . .	_____	_____
Ocular motility . . . . .	_____	_____
Lungs and chest . . . . .	_____	_____
Heart (thrust, size, rhythm, sounds). . . . .	_____	_____
Vascular system . . . . .	_____	_____
Abdomen and viscera . . . . .	_____	_____
Anus and rectum . . . . .	_____	_____
Anoscopy. . . . .	_____	_____
Sigmoidoscopy (disgression of examiner) . . . . .	_____	_____
Endocrine system. . . . .	_____	_____
G-U system. . . . .	_____	_____
Upper extremities (strength and range of motion). . . . .	_____	_____
Feet. . . . .	_____	_____
Lower extremities (strength and range of motion). . . . .	_____	_____
Spine and other musculoskeletal . . . . .	_____	_____
Identifying body marks, scars, tattoos. . . . .	_____	_____
Skin, lymphatics. . . . .	_____	_____
Neurologic. . . . .	_____	_____
Psychiatric.. . . .	_____	_____
Pelvic (females only) . . . . .	_____	_____



LABORATORY FINDINGS

VISION:

DISTANT: Without glasses

Right eye \_\_\_\_\_ Left eye \_\_\_\_\_ Both eyes \_\_\_\_\_

With glasses

Right eye \_\_\_\_\_ Left eye \_\_\_\_\_ Both eyes \_\_\_\_\_

NEAR: Without glasses

Right eye \_\_\_\_\_ Left eye \_\_\_\_\_ Both eyes \_\_\_\_\_

With glasses

Right eye \_\_\_\_\_ Left eye \_\_\_\_\_ Both eyes \_\_\_\_\_

COLOR VISION:

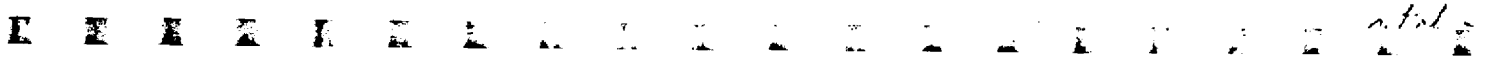
HETEROPHORIA DIOPTERS: Depth perception \_\_\_\_\_

Distance \_\_\_\_\_ Esophoria \_\_\_\_\_ Exophoria \_\_\_\_\_

INTRAOCULAR TENSION: Right eye \_\_\_\_\_ Left eye \_\_\_\_\_

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initials



HEARING:

Audiometer

	250	500	1000	2000	4000	6000	8000
Right	_____	_____	_____	_____	_____	_____	_____
Left	_____	_____	_____	_____	_____	_____	_____

GENERAL LABORATORY TESTS:

CBC

FBS

2 Hour P.P.

SMAC

T-3

T-4

VDRL

Glucose Tolerance (in known diabetes cases)

Electrocardiogram

Chest X-ray (at disgression of examiner)

Urinalysis (complete)

GENERAL FINDINGS AND RECOMMENDATIONS:



