AD-A076 368 REYNOLDS ELECTRICAL AND ENGINEERING CO INC MERCURY NEV F/G 18/6
OPERATION HARDTACK-PHASE II, OFF-SITE RADIOLOGICAL SAFETY REPOR--ETC(U)
AUG 59 O R PLACAK , M S SEAL , J R MCBRIDE AT (29-2)-162
UNCLASSIFIED AEC-OTO-58-6 NL

1 OF 3
AD A076368

PHOTOGRAPH THIS SHEET

AD A076368

DTIC ACCESSION NUMBER

LEVEL

INVENTORY

AEC

OTO-58-6

DOCUMENT IDENTIFICATION

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

DISTRIBUTION STATEMENT

ACCESSION FOR	
NTIS	GRA&I
DTIC	TAB
UNANNOUNCED	
JUSTIFICATION	
Per Htc. on file	
BY	
DISTRIBUTION /	
AVAILABILITY CODES	
DIST	AVAIL AND/OR SPECIAL
A	

DISTRIBUTION STAMP

DDC
RECEIVED
NOV 9 1979
D

DATE ACCESSIONED

DATE RECEIVED IN DTIC

PHOTOGRAPH THIS SHEET AND RETURN TO DTIC-DDA-2

DTIC FORM OCT 79 70A

DOCUMENT PROCESSING SHEET

AD A076368

OTO-58-6

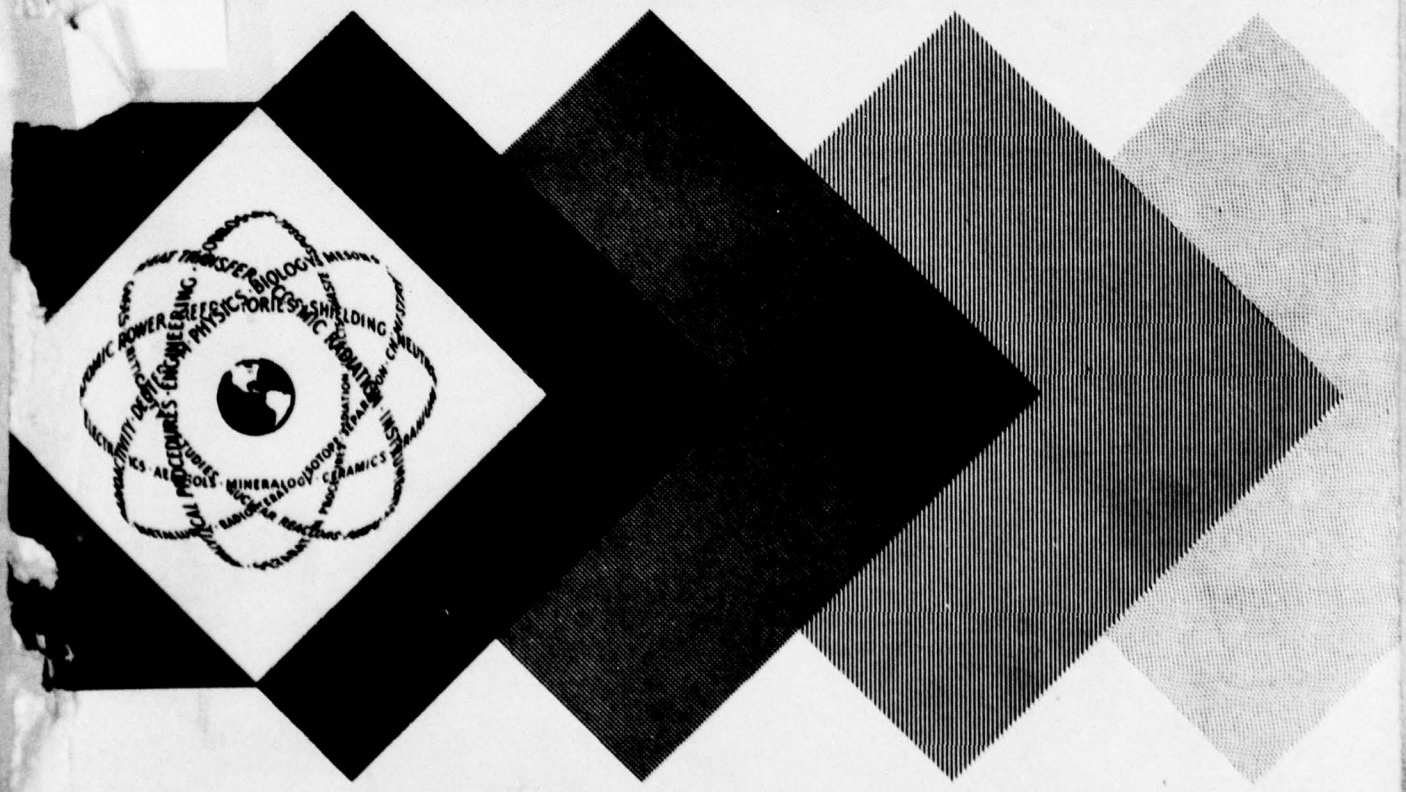
HEALTH AND SAFETY

OPERATION HARDTACK—PHASE II OFF-SITE RADIOLOGICAL SAFETY REPORT, NEVADA TEST SITE, 1958

By
O. R. Placak
M. S. Seal
J. R. McBride
R. A. Gilmore
R. L. Elder
J. S. Silhanek

August 1959
[TIS Issuance Date]

Off-Site Radiological Safety Activities, AEC
Nevada Test Organization



UNITED STATES ATOMIC ENERGY COMMISSION
Technical Information Service

79 11 01 061

LEGAL NOTICE

This report was prepared as an account of Government sponsored work. Neither the United States, nor the Commission, nor any person acting on behalf of the Commission:

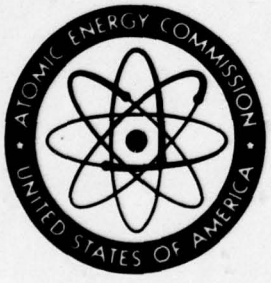
A. Makes any warranty or representation, expressed or implied, with respect to the accuracy, completeness, or usefulness of the information contained in this report, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately owned rights; or

B. Assumes any liabilities with respect to the use of, or for damages resulting from the use of any information, apparatus, method, or process disclosed in this report.

As used in the above, "person acting on behalf of the Commission" includes any employee or contractor of the Commission, or employee of such contractor, to the extent that such employee or contractor of the Commission, or employee of such contractor prepares, disseminates, or provides access to, any information pursuant to his employment or contract with the Commission, or his employment with such contractor.

This report has been reproduced directly from the best available copy.

Printed in USA. Price $3.50. Available from the Office of Technical Services, Department of Commerce, Washington 25, D. C.



AEC Technical Information Service Extension
Oak Ridge, Tennessee

OTO-58-6

OPERATION HARDTACK - PHASE II

OFF-SITE RADIOLOGICAL SAFETY REPORT

NEVADA TEST SITE

1958

PREPARED

BY THE

PERMANENT PUBLIC HEALTH SERVICE OFF-SITE ACTIVITIES STAFF

O. R. Placak, Off-Site Radiological Safety Officer
M. S. Seal, Deputy Off-Site Radiological Safety Officer
J. R. McBride
R. A. Gilmore
R. L. Elder
J. S. Silhanek

PUBLISHED BY
THE SPECIAL SERVICES DIVISION
OF
REYNOLDS ELECTRICAL & ENGINEERING CO., INC.
AEC CONTRACT AT(29-2)-162

INTRODUCTION

The purpose of this report is to present a concise summary of off-site radiological safety activities during Phase II of Operation Hardtack held at the Nevada Test Site during September and October 1958. The report is intended to serve as a source of information to interested AEC and health agency personnel.

It is neither possible nor desirable to include in this report all of the individual data collected by the off-site organization. These data are, however, available in the files of the Las Vegas Branch, AEC.

In order to present the report in easily readable manner, detailed data are shown in the appendices rather than in the main body of the report. Graphs and/or other visual material are included with the narrative description where applicable.

FOREWORD

This report is concerned solely with the activities of the PHS-AEC Off-Site Rad-Safety organization. A committee, "The Test Manager's Committee for the Evaluation of Radiation Doses", has been delegated to consider all information from all available sources and the results of their deliberations will constitute the only official evaluation of dosages to off-site communications.

Every effort has been made to eliminate errors. It is appreciated, however, that in a document containing so many individual items of data, it is virtually impossible to eliminate all errors, typographical or otherwise. If any anomalies are detected, it would be appreciated if they were called to the attention of the Off-Site Rad-Safety organization for checking against the base data.

INDEX

Chapter		Page No
	INTRODUCTION	i
	FOREWORD	ii
	INDEX	iii
	LIST OF FIGURES	v
	AEC RAD-SAFE CRITERA	vii
I	– OPERATIONAL PROCEDURES	1
	1.1 Introduction	1
	1.2 Air Sampling	1
	1.3 Milk and Water Sampling	1
	1 4 Ground Monitoring	2
II	– OFF-SITE RAD-SAFETY ORGANIZATION	3
	2.1 Delineation of Off-Site Area	3
	2.2 Responsibilities of Various Agencies	3
	2.3 Permanent Organization	3
	2.4 Test Period Organization	4
	2 5 Equipment and Methods	4
III	– PUBLIC RELATIONS	8
	3.1 General Procedures	8
	3.2 Movies	8
	3.3 Talks	9
	3.4 Information Booklets	9
	3.5 Personal Public Contact	9
	3.6 Liaison with States	9
	3.7 Visit of Ranchers to Nevada Test Site	9
IV	– MEDICAL PROGRAM	11
	4.1 General Procedures Activities	11
	4 2 Biological Sampling Survey	11
V	– VETERINARY PROGRAM	12
	5.1 Assignment and Responsibilities	12
	5.2 General Procedures and Activities	12
VI	– RESUME OF INDIVIDUAL SHOTS	13
	6.1 Otero	16
	6 2 Bernalillo	20
	6.3 Eddy	24
	6.4 Luna	35
	6.5 Mercury	36
	6.6 Valencia	37
	6 7 Mars	38
	6 8 Mora	39
	6.9 Hidalgo	41
	6.10 Colfax	42
	6.11 Tamalpais	44
	6.12 Quay	45
	6.13 Lea	59
	6.14 Neptune	66
	6.15 Hamilton	67
	6 16 Logan	79
	6.17 Dona Ana	80
	6.18 Vesta	82
	6.19 Rio Arriba	84
	6.20 San Juan	100
	6.21 Socorro	101
	6.22 Wrangell	108
	6.23 Oberon	109
	6 24 Rushmore	110

INDEX (Continued)

Chapter		Page No.
VI –	RESUME OF INDIVIDUAL SHOTS (Continued)	
	6.25 Catron	111
	6.26 Juno	114
	6.27 Ceres	115
	6.28 Sanford	116
	6.29 De Baca	122
	6.30 Chavez	123
	6.31 Evans	125
	6.32 Mazama	126
	6.33 Humboldt	129
	6.34 Santa Fe	130
	6.35 Ganymede	132
	6.36 Blanca	133
	6.37 Titania	135
VII –	AIRBORNE RADIOACTIVE CONCENTRATIONS	136
	7.1 General Procedures	136
	7.2 General Procedures – Iodine Samplers	136
	7.3 Location of Samplers	136
	7.4 Results	137
VIII –	RADIOACTIVITY IN WATER AND MILK	155
	8.1 Water – General	155
	8.2 Water – Results	155
	8.3 Milk – General	155
	8.4 Results	155
IX –	FILM BADGE PROGRAM	156
	9.1 General Procedures	156
	9.2 Distribution of Film Badges	156
	9.3 Film Badge Results	157
	9.4 Film Badge Results in Populated Places	157
	9.5 Interpretation of Results	157
APPENDIX A		
	PART I – Air Sampling Results for Hardtack Phase II	166
	PART II – Iodine Results	213
APPENDIX B		
	PART I – Water Results	215
	PART II – Milk Analysis Results	219
APPENDIX C		220
	– Film Badge Dosage to Populated Places	221
APPENDIX D		
	– Roster Off-Site Personnel	223

LIST OF FIGURES

Figures		*Page No.*
1 1	Approximate Gamma Dose Rates Versus Times After Detonation to Produce One Roentgen Effective Biological Dose	viii
1.2	Gamma Dose Rates Versus Times after Detonation When Personnel be Advised to Remain Indoors	ix
1.3	Gamma Dose Rates Versus Times after Detonation When Decontamination of Personnel is Recommended	x
1 4	Gamma Dose Rates Versus Times after Detonation When Decon tamination of Motor Vehicles is Recommended	xi
1.5	Approximate Gamma Dose Rates Versus Times after Detonation to Produce One Roentgen Estimated Dose	xii
2.1	Off-Site Rad-Safety Organization	6
2.2	Zone Headquarters	7
3.1	Summary of Formal Public Relations Presentations Using Films	10
6 1	Shot Information Operation Hardtack, Phase II	14
6 2	Monitoring Information – Otero	17
6 3	Monitoring Information – Bernalillo	21
6.4	Table of Selected Doses	25
6 5	Monitoring Information – Eddy	26
6.6	Monitoring Information – Mora	40
6.7	Monitoring Information – Colfax	43
6.8	Table of Selected Doses	46
6.9	Monitoring Information – Quay	47
6 10	Table of Selected Doses	60
6 11	Monitoring Information – Lea	61
6.12	Monitoring Information – Hamilton	68
6 13	Monitoring Information – Dona Ana	81
6.14	Monitoring Information – Vesta	83
6.15	Table of Selected Doses	85
6.16	Monitoring Information – Rio Arriba	86
6.17	Table of Selected Doses	102
6 18	Monitoring Information – Socorro	103
6.19	Monitoring Information – Catron	112
6.20	Table of Selected Doses	117
6 21	Monitoring Information – Sanford	118
6.22	Monitoring Information – Chavez	124
6 23	Monitoring Information – Mazama	127
6.24	Monitoring Information – Santa Fe	131
7.1	Alamo Graphic Plot Air Activity	138
7 2	Beatty Graphic Plot Air Activity	139
7.3	Caliente Graphic Plot Air Activity	140
7.4	Cedar City Graphic Plot Air Activity	141
7 5	Ely Graphic Plot Air Activity	142
7 6	Goldfield Graphic Plot Air Activity	143
7.7	Indian Springs Graphic Plot Air Activity	144

LIST OF FIGURES (Continued)

Figures		*Page No.*
7.8	Las Vegas Graphic Plot Air Activity	145
7.9	Lathrop Wells Graphic Plot Air Activity	146
7.10	Logandale Graphic Plot Air Activity	147
7.11	Lincoln Mine Graphic Plot Air Activity	148
7.12	Mercury Graphic Plot Air Activity	149
7.13	Pioche Graphic Plot Air Activity	150
7.14	Tonopah Graphic Plot Air Activity	151
7.15	Warm Springs Graphic Plot Air Activity	152
7.16	Warm Springs Ranch Graphic Plot Activity	153
7.17	Watertown Graphic Plot Air Activity	154
9.1	Film Badge Locations	158
9.2	Distribution of Film Badges From C.P.	159
9.3	Film Badge Distribution by Categories	160
9.4	Dosage Distribution for all Stations	161
9.5	Dosage Distribution for Inhabitants	162
9.6	Dosage Distribution in Populated Areas	163
9.7	Dosage Distribution in Non-populated Areas	164
9.8	Error in Reading Film Badge Dosage	165

AEC RAD-SAFE CRITERIA

The Division of Biology and Medicine is the agency responsible for establishing such criteria for the Atomic Energy Commission deemed necessary to protect the health and welfare of the general populace from consequences of weapons tests conducted at the Nevada Test Site. The operational procedures adopted to meet these criteria during Operation Hardtack – Phase II were the same as those applied during Operation Plumbbob. These procedures were the responsibility of the Test Manager under the direction of the Division of Military Application and were carried out by the Off-Site Rad-Safe organization under the general supervision of the AEC Support Director.

The official criteria, discussed below, did not apply to domestic or wild animals since it is felt that levels of radiation which would be significant to them would have to be higher than those adopted.

Figure 1.1 shows the approximate gamma dose rates versus times after detonation to produce one roentgen effective biological dose. This graph (which incorporates particular factors of weathering, shielding, and biological repair into a single curve) was used in conjunction with the tabular data below to determine the feasibility of large scale population evacuation.

Effective Biological Dose	Minimum Effective Biological Dose that must be saved by act of evacuation (otherwise evacuation will not be indicated).
Up to 30 roentgens	(No evacuation indicated.)
30 to 50 roentgens	15 roentgens
50 roentgens and higher	(Evacuation indicated without regard to quantity of dose that might be saved, providing adequate shelters are not available and the estimated hazards concomitant with the evacuation are acceptable.)

In no case during Operation Hardtack, Phase II did it become necessary to consider having the off-site population either evacuate a locality or remain indoors because of high levels of radiation.

Figure 1.2 (Gamma Dose Rates Versus Times after Detonation When Personnel Be Advised to Remain Indoors) was used to determine when off-site inhabitants would be requested to remain indoors. The gamma dose rates were obtained using survey instruments held three feet above ground.

Figure 1.3 (Gamma Dose Rates Versus Times after Detonation When Decontamination of Personnel is Recommended) was used to determine the advisability of personnel decontamination. The values found in this graph were multiplied by certain factors dependent upon the size of the areas of the exposed body which were contaminated or if only the exterior surface of the clothing was contaminated.

No personnel contamination situation warranted the use of this Graph during the Hardtack, Phase II operation.

Figure 1.4 (Gamma Dose Rates Versus Times after Detonation When Decontamination of Motor Vehicles is Recommended) was used to determine the advisability of decontaminating motor vehicles. The gamma dose rate was obtained by holding the sensitive part of the survey instrument four inches from any readily accessible surface.

No vehicle contamination problems called for the use of this Graph during the Hardtack, Phase II operation.

The basic criterion for the Hardtack, Phase II operation was that the whole-body gamma Estimated Dose for off-site populations should not exceed 3.9 roentgens resulting from the operation. This total dose may result from a single exposure or series of exposures. Figure 1.5 (Approximate Gamma Dose Rates Versus Times After Detonation to Produce One Roentgen Estimated Dose) was used operationally to calculate the gamma dose received by people living in the off-site area. This graph incorporates certain assumptions regarding weathering and shielding of fallout material in the environment.

In those cases where film badges were worn properly by personnel, the values recorded may be accepted as the estimated dose.

The detailed criteria, including background material, are contained in the document, "Atomic Energy Commission Radiological Safety Criteria During Nuclear Weapons Testing at the Nevada Test Site," dated April 1957.

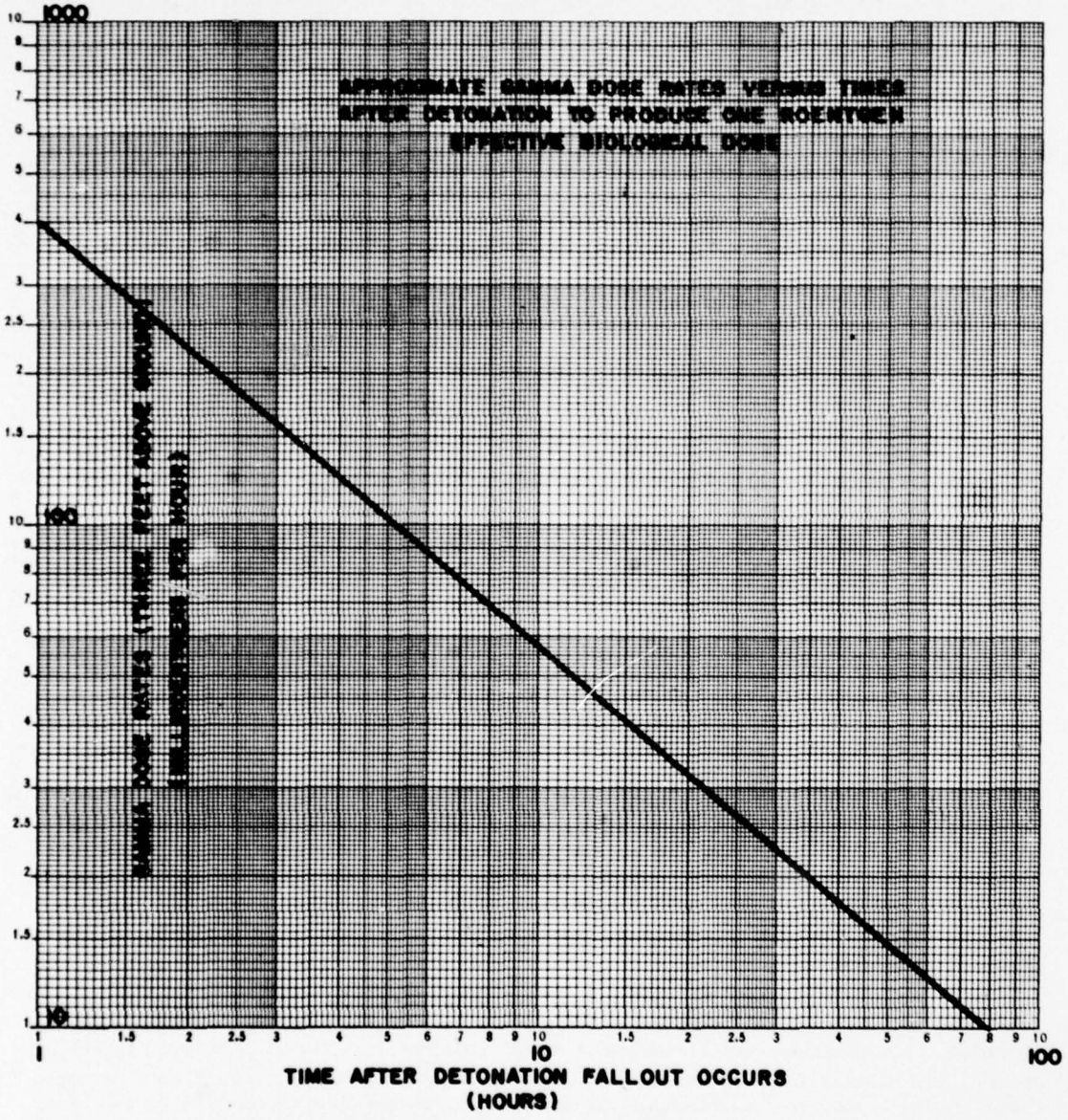


Figure 1.1 – Approximate Gamma Dose Rates Versus Times after Detonation to Produce One Roentgen Effective Biological Dose

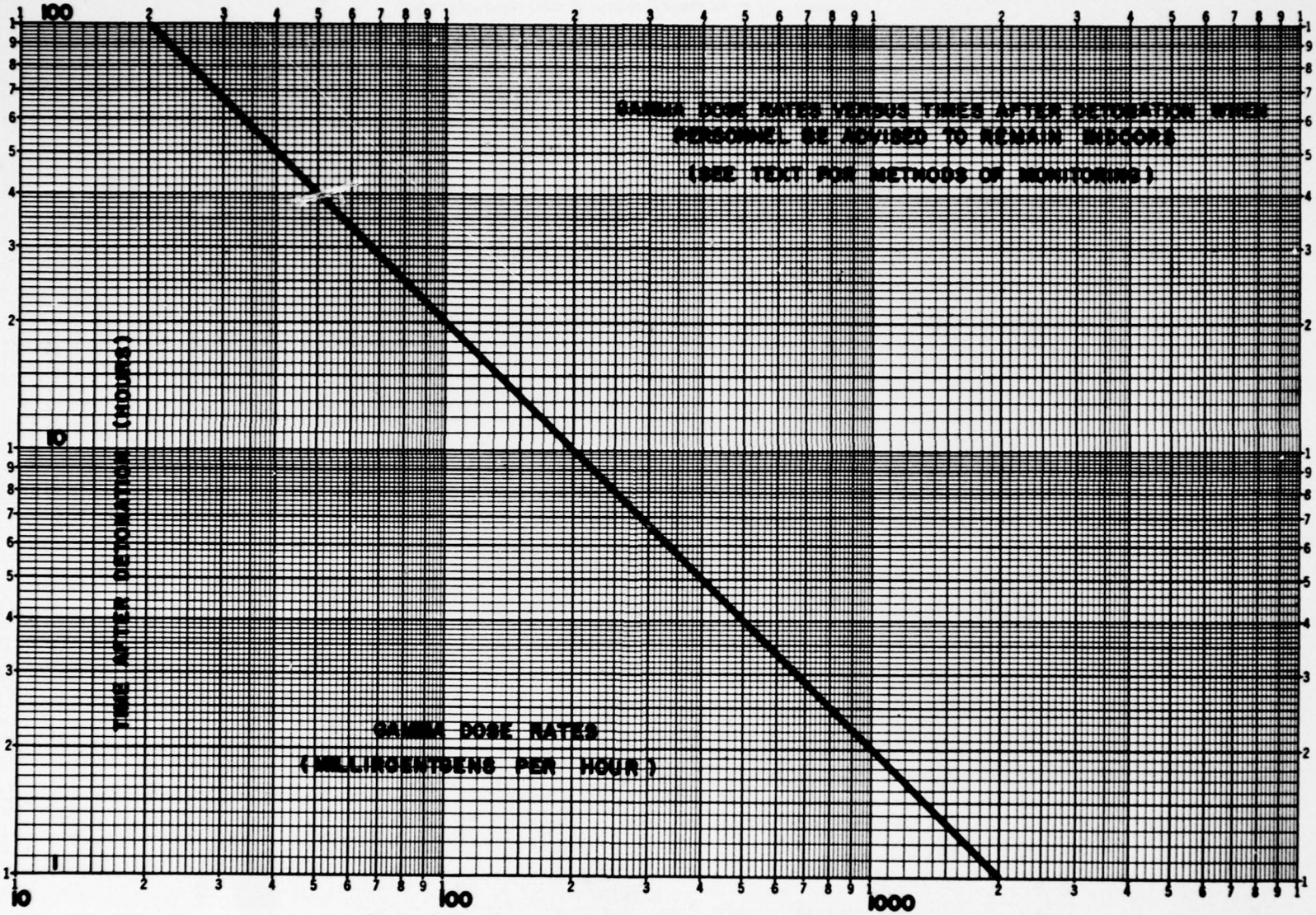


Figure 1.2 – Gamma Dose Rates Versus Times after Detonation when Personnel be Advised to Remain Indoors

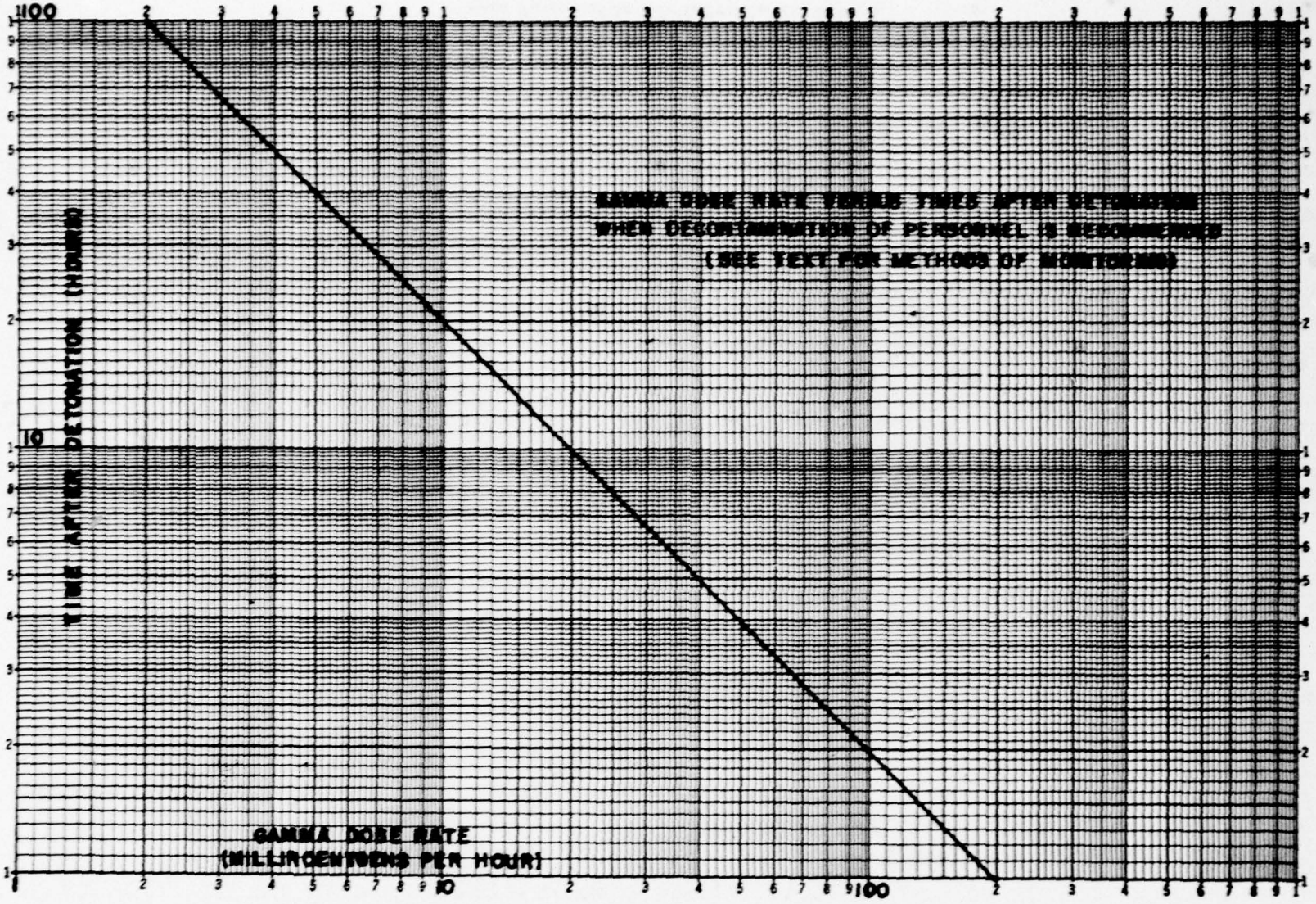


Figure 1.3 – Gamma Dose Rates Versus Times after Detonation when Decontamination of motor Vehicles is Recommended

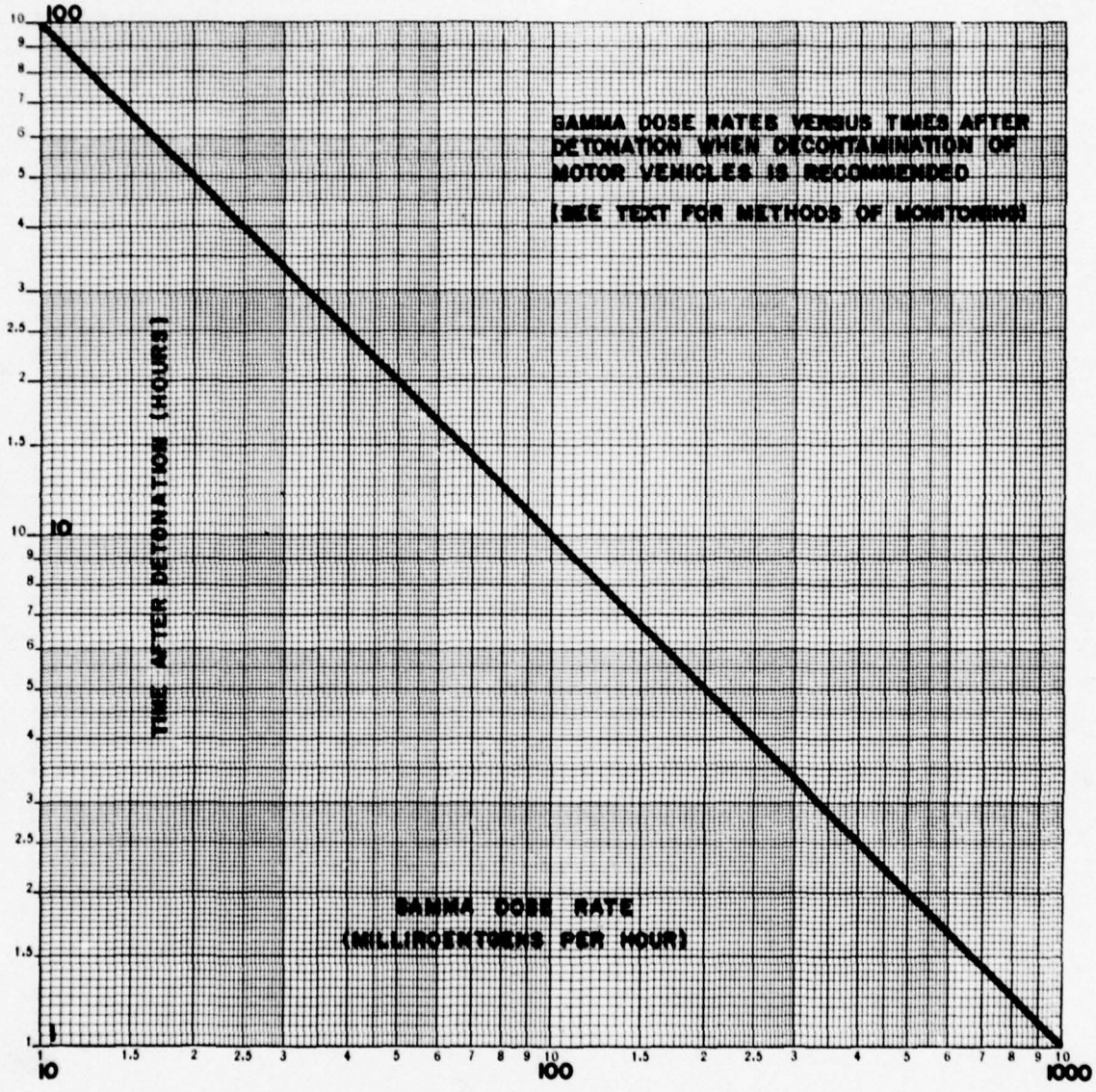


Figure 1.4 – Gamma Dose Rates Versus Times after Detonation when Decontamination of Personnel is Recommended

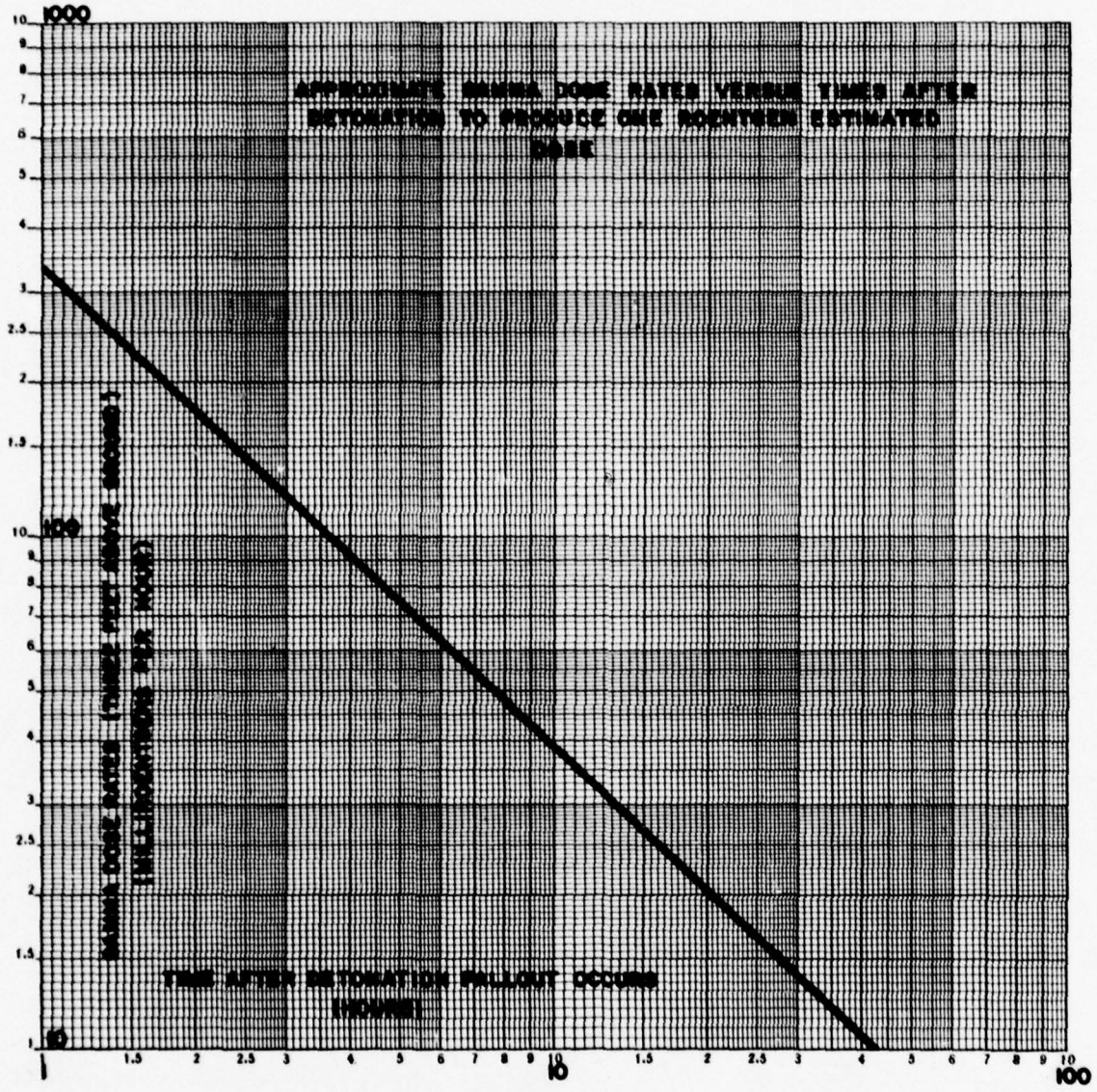


Figure 1.5 – Approximate Gamma Dose Rates Versus Times after Detonation to Produce One Roentgen Estimated Dose

CHAPTER I

OPERATIONAL PROCEDURES

1.1 Introduction.

From the point of view of data collection and data analysis, Operation Hardtack – Phase II was unique in many ways. Perhaps the most striking fact which emerged was the lack of correlation between external gamma as observed by ground monitors and the amounts of airborne radioactivity obtained by air sampling technique. During Hardtack – Phase II, air samples were collected which indicated greater amounts of airborne radioactivity than have ever been observed at populated places during prior test operations at the Nevada Test Site. Yet, during any twenty-four hour sampling it was rare that monitoring readings exceeded background.

Hardtack – Phase II was unique also in respect to the types, yields, and scheduling of the detonations. In previous operations it was generally possible to attribute a particular sample, observation, or result to a specific event. Such was not the case during Hardtack – Phase II, particularly towards the end of the operation; hence, an air sample could represent a composite resulting from as many as four separate events. This situation was unfortunate from an interpretive standpoint but was unavoidable logistically. The milk and water sampling programs were operated on a calendar basis as in the past and were not affected by the character of the operation. The acquisition of a low background counting chamber improved the sensitivity of the laboratory scaler.

1.2 Air Sampling.

Based on prior experience and the anticipated limited scope of Hardtack, Phase II, the off-site area was divided into eight operational zones. Each zone headquarters was equipped with Staplex Hi-volume air samplers which were to be operated on one of two predetermined schedules depending upon the forecast shot trajectories. All zones in a forty-five degree arc on each side of the predicted trajectory operated on a schedule which required filter changes at H-hour, H + 2 hours, H + 4 hours, H + 8 hours, H + 12 hours, and H + 24 hours. All other zones operated on a twenty-four hour basis. In addition, all of the permanent off-site air sampling stations operated on a twenty-four hour basis. It should be mentioned also that the changing of air filters on a schedule by zone personnel was of secondary importance to their primary duties of monitoring. Due to the complex shot schedule it was not reasonable to expect the private citizens who operated the permanent sampling stations on a contract basis to make filter changes at frequent intervals both day and night. Unquestionably, the difficulty of interpreting air sampling data in some cases was enhanced by the inability to sample at more frequent intervals. The major inaccuracy was determining an arrival time at some point throughout a twenty-four hour period, so that it would be possible to extrapolate back to actual air borne radiation levels at the time of peak intensities. When no better information was available, all extrapolations were carried to mid-collection times. It is believed that by this method lung dose calculations will not be in too great an error and a good over-all average will result.

The establishment of arrival times at certain air sampling points was occasionally made possible through the use of continuous gamma recorders operated in conjunction with the staplex air samplers. The lack of servicable recorders seriously hampered this program however, and it was not until towards the end of the series that it was possible to place seven recorders in key locations. It is planned in future operations to equip each permanent station with both instruments.

1.3 Milk and Water Sampling.

The principal differences between the milk and water sampling programs during Hardtack, Phase II, and previous operations was in the sampling schedules and the method of counting.

In the past, water and milk samples were collected following individual events. During the present operation however, samples from the various sampling points were collected monthly on an established schedule and at selected locations as set forth in the permanent water and milk programs. Results indicated that monthly sampling was sufficient, although occasionally additional samples were taken to fulfill specific requests at locations other than those established for the permanent program.

The use of a two inch proportional counting chamber made it possible to lower the sensitivity for counting the gross beta activity of water and milk samples. Background counting rates were lowered from approximately six hundred counts per minute to forty counts per minute. For this reason, it is believed that the results presented in Chapter VIII and Appendix B represent more refined values for what are essentially background levels of radioactivity in off-site milk and water supplies.

1.4 Ground Monitoring.

Experience gained during Hardtack, Phase II, indicates that surface monitoring alone does not always reflect the air born radiation levels. In addition, it was observed on several occasions that the ambient gamma intensities as observed on the MX-5 survey meter fluctuated considerably for many minutes duration. The amount and direction of these fluctuations were such that the changes could not possibly be attributed to fallout occurring or to physical decay. The use of high altitude balloons for shot platforms undoubtedly is primarily responsible in that a considerable percentage of the fission debris occurs as particulates probably not much larger than molecular dimensions. For this reason, the fission debris then appears to have some of the physical properties of particulates and some of the properties of gases. All infinite dose calculations in this report were calculated from maximum readings at any location and therefore represent the worst possible situation. It is believed that actual dosages will normally be less than indicated.

CHAPTER II

OFF-SITE RAD-SAFETY ORGANIZATION

2.1 Delineation of Off-Site Area.

The off-site area of interest was that area outside the Nevada Test Site but within a 250-mile radius from the Control Point. Although within Nevada Test Site, Mercury and Watertown were included in the off-site responsibility. This definition is used to restrict the geographical area only on the basis of limited manpower and equipment available. If a fallout situation were to develop outside of these boundaries the off-site organization could and would function outside this arbitrary boundary.

2.2 Responsibilities of Various Agencies.

2.2.1 The Atomic Energy Commission is the agency responsible for control of hazards due to radioactivity in all phases of the Atomic Energy Program. Overall administration of the program including policy decisions, budget requirements, procurement of materials and supplies, and all other support requirements were functions of the Atomic Energy Commission. The actual operational control of the off-site program was delegated by the Support Director to the Off-Site Radiological Safety Officer.

2.2.2 The operational group (Public Health Service) in order to accomplish rad-safety control within the off-site area and for documentary purposes, had to:

(a) Verify the off-site radiological situation associated with each full-scale nuclear test to insure public safety.

(b) Hold trained personnel in readiness to effectuate emergency measures should an unacceptable situation develop.

(c) Obtain a comprehensive record of the radioactivity in the off-site area caused by full-scale tests.

(d) Establish and maintain public confidence that all reasonable safeguards were being employed to preserve public health and property free of radiation hazards.

(e) Establish and maintain liaison with various local and state officials concerning fallout within their administrative areas.

(f) Investigate reports of incidents attributed to radioactivity which could result in claims against the Government.

(g) Accumulate data regarding the behavior of fallout patterns once they are established to gain a better understanding of cumulative dose to populations.

(h) Record, map, and report the data obtained.

2.2.3 The Reynolds Electrical and Engineering Company was responsible for providing support services including maintenance of electronic and automotive equipment, dosimetry for film badges, engineering services, communications network operation, procurement of supplies, reproduction services, housekeeping, etc.

2.2.4 The United States Weather Bureau at Mercury furnished predicted cloud trajectory maps following each detonation. These maps were used for general information purposes and to brief pertinent state health department personnel.

2.3 Permanent Organization.

Through a memorandum of understanding between the Public Health Service and the Atomic Energy Commission, the Public Health Service has assigned a professional staff on a permanent

basis to the Las Vegas Branch office, AEC. During non-test periods this staff is responsible for conducting a surveillance of the off-site environment and a public relations program on a continuing basis. The surveillance program includes the periodic sampling and specific isotopic analysis of air, water, milk, and food. Chemical laboratory facilities and a low-level counting room are provided at the Nevada Test Site.

2.4 Test Period Organization.

During active test periods the permanent off-site organization is augmented by additional professional personnel assigned by the Public Health Service. These personnel are both regular duty officers and inactive reserve officers called to active duty. Each of these personnel are qualified by previous training or experience in off-site radiological safety operations.

Supplementing the permanent staff an additional 23 personnel were assigned during Operation Hardtack, Phase II. Two active duty PHS Medical Officers were assigned to the Off-Site Radiological Safety Officer's staff on an alternating basis. A veterinarian officer is permanently assigned to the AEC, Las Vegas Branch, by the U. S. Army Veterinary Corps to investigate complaints of ranchers of purported radiation-caused disease or injury to livestock within the off-site area. See Figure 2.1 for the off-site rad-safe organization chart.

Due to the detonation of relatively low-yield devices and the limited duration of the series a total of only eight zones was established during Operation Hardtack, Phase II. Zone headquarters were established at Alamo, Ely, Lincoln Mine, Mercury, Overton and Pioche, Nevada and Cedar City, Utah. Two zone personnel lived in each of these places, except Mercury, and were responsible for all off-site activities within their zones (see Figure 2.2). The remainder of the staff were stationed at Mercury and in addition to handling the zone responsibilities assisted in the laboratory, counting room, data compilation and analyses. They occasionally served as mobile monitors where and when additional assistance was required according to predicted fallout trajectories.

2.5 Equipment and Methods.

Equipment was selected, located and operated in such a manner as to insure maximum effectiveness in the collection of physical data pertaining to:

(a) Surface levels of activity (normally, three feet above ground level) as determined by the use of survey meters.

(b) Concentration of airborne activity.

(c) External gamma dose received by persons and places by the use of film badges.

(d) Beta activity contained in milk and water.

The equipment and procedures for sampling fallout and measuring radiation intensity are described in the respective chapters on air sampling, water and milk, and film badge results.

2.5.1 Portable monitoring instruments were used to measure radiation intensity. These radiation dose rates, along with other pertinent data, were then used to calculate the gamma dose received at a particular point. Each monitoring vehicle was supplied with four survey instruments, two Beckman MX-5's (geiger type) and two AN/PDR-39 instruments (ionization chamber type) having intensity ranges from 0 to 20 mr/hr. and 0 to 50 r/hr., respectively. For general monitoring purposes, gamma readings were made at hip height above the terrain (approximately three feet).

The MX-5 has an adjustable external beta shield which could be used to differentiate gamma intensities from beta plus gamma intensities. All beta-gamma ratios were determined using this particular instrument.

All instruments were checked and calibrated before issue and as frequently as deemed necessary. Cobalt-60 sources were used for calibration both at Mercury and in the field.

During monitoring readings, the instruments in use were left "on" and monitoring was performed from inside the vehicle as long as background only was encountered. When the level reached twice background, monitoring was done outside and at least 25 feet from the vehicle. Readings were recorded at about 10-mile intervals except in populated places or when the dose rate varied considerably with distance. In these cases more frequent readings were made. It was not always possible to comprehensively trace the fallout pattern, particularly in non-populated areas due to firing a large number of shots in one day or to scheduling shots in the late afternoon or evening.

OFF-SITE RAD-SAFETY ORGANIZATION

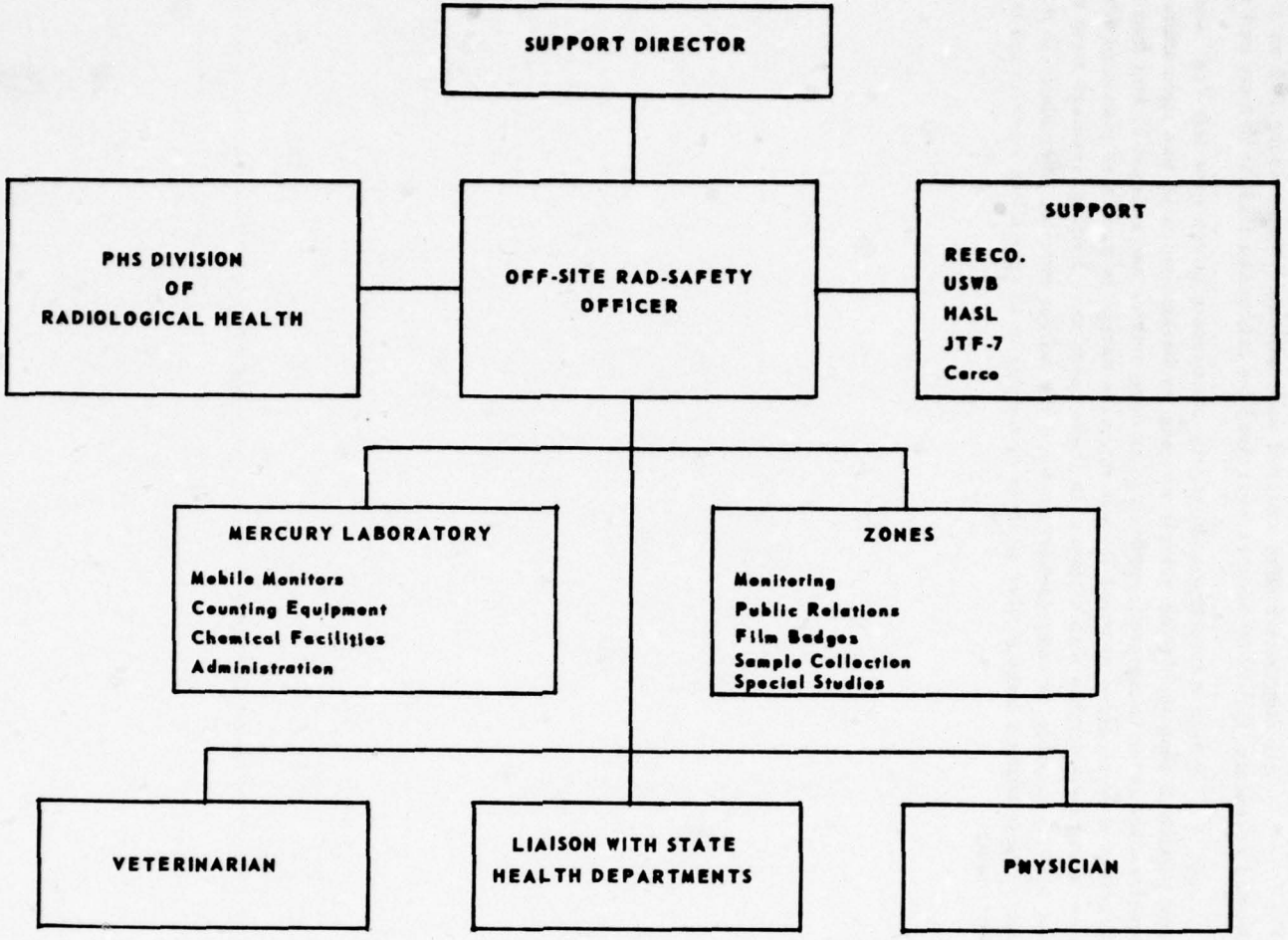


Figure 2.1

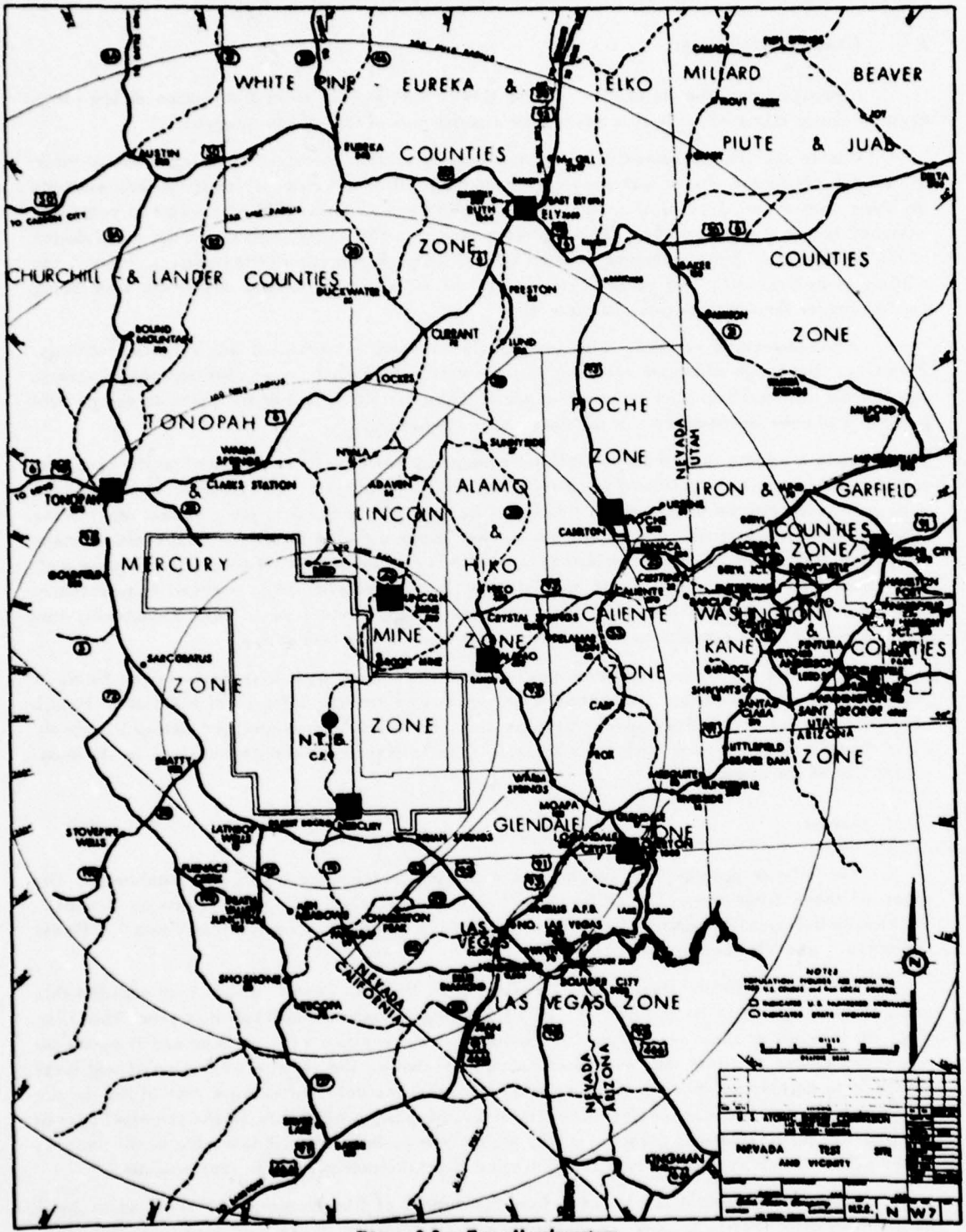


Figure 2.2 – Zone Headquarters

CHAPTER III

PUBLIC RELATIONS

3.1 General Procedures.

Although Operation Hardtack – Phase II was a relatively short-term series of low-yield devices public relations activities again were a major part of the off-site program.

Due to the limited amount of readiness time available to the off-site organization prior to the first scheduled shot it was not possible to have all of the zone personnel at their stations for more than a few days prior to the operation. Several of the PHS permanent personnel assigned to the Las Vegas Branch, AEC, were able to make initial contact in the communities of the off-site area. Local inhabitants were briefed as to the duration of the series, purpose, the testing of relatively low yield devices, and the off-site organization activities were being carried out for their information and protection.

Arrangements were made with individuals to operate permanent air sampling stations. Permanent film badge and water sampling stations were established. Local officials, organizations, news media and ranchers were informed of all of these activities and of the plans to assign PHS personnel to zone headquarters for the duration of the series.

Upon reporting to Mercury the PHS temporary duty personnel were oriented on the operation and the procedures to be followed in carrying out their assignments. No extensive training of the zone personnel was necessary since nearly all had participated in prior series. Most of the individuals were assigned to the same zones they manned during Operation Plumbbob. In many ways this fact aided the public relations activities considerably. These officers were well acquainted with the ranchers, local officials and local populace. They renewed acquaintances and were looked upon by the residents as trusted friends of last year. This undoubtedly was responsible for fewer complaints and a better acceptance of the test series.

All of the zone personnel were professional men, many with long years in the fields of public health and education. Two-thirds were inactive reserve officers of the Public Health Service called to active duty specifically for this short term assignment. As during Plumbbob, many brought their families with them to their zone headquarters and participated in the local social life of the community.

3.2 Movies.

The off-site program had seven films available for showing to off-site inhabitants. The titles of these films were "A is for Atom", "Atomic Energy", "Atomic Tests in Nevada", "Bikini Radiological Laboratory", "Off-Site Monitoring of Fallout from Nuclear Tests", "Power Unlimited", and "Primer on Monitoring".

The film "Off-Site Monitoring of Fallout from Nuclear Tests" was a new addition this year, having been made for the AEC by the PHS during Operation Plumbbob last year. This film, made on location at the Test Site and the off-site area, received wide acclaim and requests for repeat showings. The fact that as a documentary it showed the off-site personnel and local populace in action evidenced a feeling among the local residents of being a part of the testing program. They saw familiar locales and themselves, friends, or neighbors as the principal cast of the film. For public relations purposes a film of this type probably contributes more to the success of the public relations program than those dealing more abstractly with the test program.

Comparisons should not be made from the number of film showings this year as to those during Plumbbob. This series was, of course, of shorter duration; it was held during an "off-year" for operations at the continental proving ground, and, many of the films were seen by large numbers of the off-site inhabitants last year. In addition, films originally scheduled for showing

had to be postponed or cancelled when, during the last month of the series, the frequency of shots required zone personnel to monitor daily leaving little or no time for such showings.

Figure 3.1 lists the film showings made during the operation and the numbers in attendance.

3.3 Talks.

A total of 28 talks were given by zone personnel during the series. As in the case of film showings, additional formal presentations to the public were not possible due to the frequency of shots requiring standby and monitoring runs by these personnel. These talks were presented to parent-teacher organizations, civic clubs, and other formal gatherings. Although the main subject discussed dealt with the test organization, radiation, and health effects, other areas in the field of atomic energy were explained.

3.4 Information Booklets.

Although the booklet "Atomic Tests in Nevada" was available to zone personnel, the extensive distribution given during Plumbbob restricted the demand. Approximately 1,000 copies were distributed as compared to 30,000 copies during Plumbbob.

3.5 Personal Public Contact.

Continuing personal contact was made by zone personnel with ranchers, miners, and others located in relatively isolated areas. This contact undoubtedly is responsible for fewer complaints of radiation injury from these individuals. There were only two complaints from ranchers (other than those of a veterinary nature, see Chapter V) during the series. Both were related to the drying up of springs purportedly caused by the underground shots. These cases were referred to the USGS representatives at the Test Site and Reno, Nevada, who investigated and discussed the complaints with the ranchers concerned.

3.6 Liaison with States.

In addition to the personal visits made to the Governors of adjacent States by the Test Manager and his Rad-Safety Advisor, the State health departments of California, Nevada, Utah, and Arizona were contacted by visit or telephone. They were given a briefing on the series with emphasis on the off-site program within their respective States. Following each detonation, the pertinent State Health Departments were contacted by telephone and briefed as to fallout and predicted trajectories. In addition, continuing telephone liaison was effected with the PHS regional office in San Francisco.

3.7 Visit of Ranchers to Nevada Test Site.

The Test Manager and his staff served as hosts to a group of fourteen ranchers from the off-site area on September 26 and 27, 1958. They were briefed on the operations at NTS by various members of the Test Organization but were unable to view a detonation because of weather postponements. The Off-Site Rad-Safety Officer and his staff explained the off-site program, showed the film "Off-Site Monitoring of Fallout from Nuclear Tests", and reviewed the laboratory and counting room procedures used in analyzing the samples collected by the off-site organization.

SUMMARY OF FORMAL PUBLIC RELATIONS PRESENTATIONS USING FILMS

Title of Film	Number of Showings	Total Number of Viewers
A is for Atom	16	463
Atomic Energy	1	25
Atomic Tests in Nevada	9	256
Off-Site Monitoring from Nuclear Tests	13	842
Primer on Monitoring	1	25
TOTALS	45	1,611

Figure 3.1

There was a total of 28 talks given by the Off-Site Rad-Safe monitors.

CHAPTER IV

MEDICAL PROGRAM

4.1 General Procedures and Activities.

Two PHS physicians, with specific training and experience in radiological health, alternated as the Off-Site Medical Officer during the operation.

During this time they personally visited as many of the local physicians and health officers as possible to explain their roles and indicate their availability for consultation in the event of purported cases of radiation injury or illness.

Several follow-up cases were handled which resulted from Operation Plumbbob. Each of these cases were resolved and clearly established as not being "test connected." Up to the time of this report a total of seven complaints has been investigated. There were no detectable human injuries due to radiation from fallout.

4.2 Biological Sampling Survey.

The Off-Site Medical Officer also initiated preliminary steps to set up a biological sampling survey within the off-site area. This survey is being conducted for the Division of Biology and Medicine, AEC, and is to determine any possible increase over the normal body burden of radioactive material among the local populace. Part of this survey is the collection and analysis of bone specimens for Strontium-90 and possibly other radionuclides in the bone which might be pertinent to the study. This part of the survey will serve as the beginning of an off-site study of epidemiological character and will be correlated with the more or less world-wide study conducted by the Atomic Energy Commission.

CHAPTER V

VETERINARY PROGRAM

5.1 Assignment and Responsibilities.

One veterinary officer, United States Army Veterinary Corps, assigned to the AEC with specific training in the field of radiation, was available as the staff veterinarian to the Off-Site Rad-Safety Officer. This officer was responsible for establishing and maintaining liaison with local veterinarians, investigating all cases of alleged radiation injury to animals, and disseminating pertinent information to all interested individuals on the effects of radiation on animals.

5.2 General Procedures and Activities.

To fulfill these requirements the following procedures were followed:

(1) Individual ranchers or inhabitants of the area were visited as scheduled. In each instance the effects of radiation on animals and the relationship of these effects to fallout were discussed. Ranchers were told if they experienced unusual animal injury or loss which they felt could have been caused by radiation, veterinary diagnostic service would be provided by the AEC to furnish them an accurate and complete answer.

(2) On liaison visits, discussions were held with all personnel on a county, state, and federal level in the area. This included the U. S. Fish and Wildlife Service, the National Park Service, the Nevada Fish and Game Commission, and the Department of Animal Husbandry at the University of Nevada.

A survey in progress and continued during the operation concerned primarily the natural ranging and foraging conditions in the southern Nevada area. It is hoped from this survey that a better understanding of local procedures and problems can be attained.

During the operation there were a total of five inquiries submitted; three of which were considered complaints with the intent to submit claims against the Government. These were investigated immediately and thoroughly. Where required, tissue biopses were obtained and a complete history surrounding the incident compiled. Two of these cases have been closed with no claim filed against the Government. Because the tissue biopsy report has not been received, the third case is not yet closed. It is anticipated there will be no claim filed against the Government. The other two inquiries were answered with no unusual incident, both parties being satisfied with the information presented.

During the test operation the Veterinary Officer was directed to address a group of ranchers and farmers in the southern Nevada area. It was hoped that an explanation of our activities to this group might be highly beneficial. Of prime interest to the group was the NTS off-site animal investigation project conducted on the Nevada Test Site. A great deal of interest has been shown by personnel throughout the area with regard to this project and its impending results.

CHAPTER VI

RESUME OF INDIVIDUAL SHOTS

This section contains a brief summary for each detonation including monitoring results as well as general information pertaining to each shot. Detailed air sampling data is included in Appendix B. Figure 6.1 shows the Shot Schedule including the name of the detonation, date and time (Pacific Standard Time) fired, type of shot, firing area, and assigned numbers used for record purposes. "S" is used to denote Safety Shots and "N" for full scale Nuclear Shots.

SHOT INFORMATION

OPERATION HARDTACK – PHASE II

Number	Event	DESCRIPTION	Station	Lab	Time	Date
1 (S-1)	Otero	500' Deep Well	U 3q	LASL	1300 PDT	9-12-58
2 (S-2)	Bernalillo	500' Deep Well	U-3n	LASL	1230 PDT	9-17-58
3 (N-1)	Eddy	500' Balloon	B-7b	LASL	0700 PDT	9-19-58
4 (S-3)	Luna	500' Deep Well	U-3m	LASL	1200 PDT	9-21-58
5 (S-4)	Mercury	Tunnel	U-12f 01	UCRL	1500 PDT	9-23-58
6 (S-5)	Valencia	500' Deep Well	U-3t	LASL	1300 PDT	9-26-58
7 (S-6)	Mars	Tunnel	U 12f 02	UCRL	1700 PDT	9-27 58
8 (N 2)	Mora	1,500' Balloon	B-7b	LASL	0605 PST	9-29-58
9 (S-7)	Hidalgo	377' Balloon	B-7b	LASL	0610 PST	10-5-58
10 (S-8)	Colfax	500' Deep Well	U-3k	LASL	0815 PST	10-5-58
11 (N-3)	Tamalpais	Tunnel	U-12b 02	UCRL	1400 PST	10-8-58
12 (N-4)	Quay	100' Steel Tower	T-7c	LASL	0630 PST	10-10-58
13 (N-5)	Lea	1,500' Balloon	B-7b	LASL	0520 PST	10-13-58
14 (S-9)	Neptune	Tunnel	U-12e 03	UCRL	1000 PST	10-14-58
15 (N-6)	Hamilton	50' Timber Tower	T-F1	UCRL	0800 PST	10-15-58
16 (N-7)	Logan	Tunnel	U-12e 02	UCRL	2200 PST	10-15-58
17 (N-8)	Dona Ana	450' Balloon	B-7b	LASL	0620 PST	10-16-58
18 (S-10)	Vesta	Gravel Gertie	S-9e	UCRL	1500 PST	10-17-58
19 (N-9)	Rio Arriba	72-½' Timber Tower	T-3s	LASL	0625 PST	10-18-58
20 (S-11)	San Juan	250' Deep Well	U-3p	LASL	0630 PST	10-20-58
21 (N-10)	Socorro	1,450' Balloon	B-7b	LASL	0530 PST	10-22-58
22 (N-11)	Wrangell	1,500' Balloon	B-Fa	UCRL	0850 PST	10-22-58
23 (S-12)	Oberon	25' Timber Tower	T-8a	UCRL	1230 PST	10-22-58
24 (N-12)	Rushmore	500' Balloon	B-9a	UCRL	1540 PST	10-22-58
25 (S-13)	Catron	72-½' Timber Tower	T-3t	LASL	0700 PST	10-24-58
26 (S-14)	Juno	Gravel Gertie	S-9f	UCRL	0801 PST	10-24-58
27 (S-15)	Ceres	25' Timber Tower	T-8b	UCRL	1820 PST	10-25-58
28 (N-13)	Sanford	1,500' Balloon	B-Fa	UCRL	0220 PST	10-26-58
29 (N-14)	De Baca	1,500' Balloon	B-7b	LASL	0801 PST	10-26-58
30 (S-16)	Chaves	52-½' Timber Tower	T-3u	LASL	0630 PST	10-27-58
31 (N-15)	Evans	Tunnel	U-12b 04	UCRL	1600 PST	10-28-58

Figure 6.1

Figure 6.1 (Continued)

Number	Event	DESCRIPTION	Station	Lab	Time	Date
32 (N-16)	Mazama	50' Steel Tower	T-9d	UCRL	0320 PST	10-29-58
33 (N 17)	Humbolt	25' Timber Tower	T-3v	UCRL	0645 PST	10-29-58
34 (N-18)	Santa Fe	1,500' Balloon	B-7b	LASL	1900 PST	10-29-58
35 (S-17)	Ganymede	Gravel Gertie	S-9g	UCRL	0300 PST	10-30-58
36 (N-19)	Blanca	Tunnel	U-12e.05	UCRL	0700 PST	10-30-58
37 (S-18)	Titania	25' Timber Tower	T-8e	UCRL	1235 PST	10-30-58

6.1 Otero.

The first event of this series was a safety shot which was detonated in a 500 foot hole at 1300 on September 12, 1958. The cloud from this detonation reached 9000 feet (MSL) and traveled in a northerly direction.

6.1.1 Monitoring Runs.

Monitoring runs which indicated activity substantially above background were made on the Groom Lake Road from Gate 385 to a point approximately 20 miles east of Groom Lake and westward along the Oak Springs Butte Road between Groom Lake and Oak Springs Butte.

Monitoring runs which indicated only background were made on Highway 25 from Lincoln Mine to Warm Springs (Nye County); at the ranches north of Lincoln Mine – Sharp, Casey (formerly Bardoli), Belew, Uhalde, and Walch; Highway 6 from Tonopah to Warm Springs (Nye County) and return; Highway 95 from Tonopah to Mercury; junction of Highway 25 and the road to Kawich Valley to three miles west of Standard; from Standard to Reed; old Highway 25 from Reed to new Highway 25; Groom Lake Road from a point approximately 20 miles east of Groom Lake to the junction with Highway 25; Highway 25 from the junction with the Groom Lake Road to Lincoln Mine.

An incident of sky shine occurred at Gate 385 between 15 and 20 minutes after the detonation. Readings as high as 200 mr/hr were detected but within five minutes the readings were down to 15 mr/hr.

6.1.2 Air Sampling Results.

The only air sample which had beta activity in excess of 10^{-5} $\mu c/m^3$ was the sample run at Indian Springs, Nevada from 9/13 to 9/14. The beta activity on this sample was 1.98×10^{-5} $\mu c/m^3$. The normal background for the area around the Test Site is of the order of 10^{-6} $\mu c/m^3$. There was no alpha activity above background detected on any of the samples.

MONITORING INFORMATION – OTERO

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
1 mile north of Gate 385	0.4	0.42	5	5	10	10
½ mile north of Gate 385	0.5	0.5	5	5	12.5	7.6
Gate 385	0.5	0.58	9	12	30	18.3
½ mile north of Gate 385	0.5	0.67	5	7.2	18	11.0
1 mile north of Gate 385	0.5	0.68	3	4.4	11	6.7
1.5 miles north of Gate 385	0.5	0.72	2	3.0	7.5	4.6
2 miles north of Gate 385	0.6	0.75	1.8	2.5	7.5	4.6
2.5 miles north of Gate 385	0.6	0.78	1.4	2.0	6.0	3.7
3 miles north of Gate 385	0.6	0.8	1.5	2.2	6.6	4.0
3.5 miles north of Gate 385	0.6	0.83	1.4	2.1	6.3	3.8
4.5 miles north of Gate 385	0.6	0.88	1.2	1.7	5.1	3.1
5 miles north of Gate 385	0.7	0.92	1.2	1.5	5.3	3.2
6.3 miles north of Gate 385	0.7	0.97	1.2	1.6	5.6	3.4
7.0 miles north of Gate 385	0.7	1.0	1.05	1.6	5.6	3.4
7 miles north of Gate 385	0.7	1.08	0.9	1.4	4.9	3.0
8 miles north of Gate 385	0.7	1.1	0.9	1.4	4.9	3.0
9 miles north of Gate 385	0.8	1.17	0.8	1.2	4.8	2.9
10 miles north of Gate 385	0.8	1.2	0.8	1.2	4.8	2.9
11 miles north of Gate 385	0.8	1,25	0.7	1.1	4.4	2.7

Figure 6.2 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
12 miles north of Gate 385	0 9	1.3	0.7	1.2	5.4	3.3
Watertown	1.0	1.33	0 5	0.7	3.5	2.1
Watertown	1 0	1.47	0 4	0.6	3.0	1.8
Watertown	1 0	1.5	0 4	0.65	3.25	2.0
1 mile north of Watertown on Groom Lake	1 0	1.53	0.4	0.7	3.5	2.1
2 miles north of Watertown on Groom Lake	1 0	1.58	0 4	0 8	4.0	2.4
3 miles north of Watertown on Groom Lake	1 1	1.62	0 4	0.28	4 3	2.6
4 miles north of Watertown – Jct Groom Lake Road	1 1	1 67	0.33	0.68	3.74	2.2
5 miles northeast of Watertown on Groom Lake Road	1.2	1.72	0 28	0 5	3.0	1.8
6 miles northeast of Watertown on Groom Lake Road	1 2	1.75	0 18	0 33	1.98	1.2
7 miles northeast of Watertown on Groom Lake Road	1 2	1 8	0 28	0 5	3.0	1.8
8 miles northeast of Watertown on Groom Lake Road	1 6	1 87	0 18	0 25	2.0	1.2
9 miles northeast of Watertown on Groom Lake Road	1.6	1 92	0 18	0 26	2.1	1.2
10 miles northeast of Watertown on Groom Lake Road	1 7	2 0	0 18	0 25	2.13	1 2
13 miles northeast of Watertown on Groom Lake Road	1 8	2 17	0 08	0 11	0 99	0 57
15 miles northeast of Watertown on Groom Lake Road	1 9	2 33	0 08	0 1	0 95	0 56

Figure 6.2 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
18 miles northeast of Watertown on Groom Lake Road	2.0	2.50	0.08	0.1	1.0	0.58
20 miles northeast of Watertown on Groom Lake Road	2.1	2.58	0.08	0.12	1.3	0.75
4 miles west of Groom Lake on Oak Springs Butte Road	0.8	1.08	0.08	0.11	0.44	0.27
6 miles west of Groom Lake on Oak Springs Butte Road	0.8	1.21	0.11	0.18	0.72	0.44
7 miles west of Groom Lake on Oak Springs Butte Road	0.8	1.25	0.6	1.0	4.0	2.4
8 miles west of Groom Lake on Oak Springs Butte Road	0.8	1.31	0.9	1.8	7.2	4.4
9 miles west of Groom Lake on Oak Springs Butte Road	0.8	1.38	0.8	1.6	6.4	3.9
10 miles west of Groom Lake on Oak Springs Butte Road	0.8	1.45	0.7	1.4	5.6	3.4
12 miles west of Groom Lake on Oak Springs Butte Road	0.75	1.55	0.4	0.95	3.5	2.1
14 miles west of Groom Lake on Oak Springs Butte Road	0.75	1.63	0.2	0.5	1.9	1.1

6.2 Bernalillo.

The second event of this series was a safety shot which was detonated at 1230 on September 17, 1958. The shot was in a 500 foot shaft. The cloud from this detonation rose to a maximum height of 7500 feet (MSL) and the trajectory was in a northerly direction.

6.2.1 Monitoring Runs.

Monitoring runs which indicated activity substantially above background were made on the Groom Lake Road from the pass, 1.5 miles north of Gate 385, to a point approximately three miles north of Gate 385.

Monitoring runs indicated only background were made on the Groom Lake Road from a point approximately 3 miles north of Gate 385 to the junction of the Groom Lake Road and the road to Watertown; on Road B and the Kawich Valley Road from Highway 25 to approximately 15 miles west of the junction of B and the Kawich Valley Road; on Highway 25 from the junction of the southeast road to Lincoln Mine to a point approximately 30 miles west of Lincoln Mine.

The maximum infinite dose was 15 mr and was obtained at the pass 1.5 miles northeast of Gate 385 on the Groom Lake Road.

6.2.2 Public Relations.

The State health officers of Arizona, California, Nevada, and Utah were called and informed of the detonation and of the trajectories.

6.2.3 Air Sampling Results.

There was no beta activity in excess of 10^{-5} $\mu c/m^3$ detected on any air filters and no alpha activity above background was detected.

MONITORING INFORMATION – BERNALILLO

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
At pass, 1 5 miles North of Gate 385	.42	.42	1.5	1.5	3.1	3.1
At pass, 1 5 miles North of Gate 385	47	.47	2.0	2.0	4.7	4.7
At pass, 1 5 miles North of Gate 385	48	.48	2.0	2.0	4.8	4.8
At pass, 1 5 miles North of Gate 385	50	.50	3.5	3.5	5.8	3.5
At pass, 1.5 miles North of Gate 385	.51	.52	6.0	6.1	15.1	9.2
At pass, 1 5 miles North of Gate 385	.51	.53	2.5	2.7	9.5	5.8
At pass, 1 5 miles North of Gate 385	.51	.55	0.5	0.55	1.4	.63
At pass, 1 5 miles North of Gate 385	.51	.57	0.4	0.47	1.2	.62
At pass, 1 5 miles North of Gate 385	.51	.58	1.3	1.5	3.8	2.3
At pass, 1 5 miles North of Gate 385	.51	60	1.3	1.5	3.82	2.33
At pass, 1 5 miles North of Gate 385	.51	.62	1.5	1.8	4.59	2.80
At pass, 1 5 miles North of Gate 385	.51	.63	1.5	1.8	4.59	2.80
At pass, 1 5 miles North of Gate 385	.51	.65	1.8	2.6	6.64	4.05
At pass, 1.5 miles North of Gate 385	.51	.67	1.5	2.1	5.36	3.28
At pass, 1.5 miles North of Gate 385	.51	.68	1.0	1.4	3.57	2.18
At pass, 1 5 miles North of Gate 385	.51	.70	0.7	1.1	2.81	1.72
At pass, 1 5 miles North of Gate 385	.51	.72	0.6	.9	2.30	1.40
At pass, 1 5 miles North of Gate 385	.51	.73	0.7	1.1	2.81	1.72
At pass, 1 5 miles North of Gate 385	.51	.75	0.8	1.3	3.32	2.02

Figure 6 3

Figure 6.3 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
At pass, 1.5 miles North of Gate 385	.51	.78	0.4	.7	1.79	1.09
At pass, 1.5 miles North of Gate 385	.51	.80	0.3	.5	1.28	0.78
At pass, 1.5 miles North of Gate 385	.51	.88	1.1	2.2	5.61	3.42
At pass, 1.5 miles North of Gate 385	.51	.90	1.2	2.3	5.87	3.58
At pass, 1.5 miles North of Gate 385	.51	.92	1.3	2.7	6.90	4.21
At pass, 1.5 miles North of Gate 385	.51	.93	1.2	2.5	6.38	3.89
At pass, 1.5 miles North of Gate 385	.51	.95	0.7	1.5	3.83	2.34
At pass, 1.5 miles North of Gate 385	.51	1.03	0.2	.46	1.17	0.71
At pass, 1.5 miles North of Gate 385	.51	1.08	0.2	.50	1.28	0.78
At pass, 1.5 miles North of Gate 385	.51	1.12	0.3	.77	1.96	1.19
At pass, 1.5 miles North of Gate 385	.51	1.13	0.5	1.3	3.32	2.02
At pass, 1.5 miles North of Gate 385	.51	1.15	1.0	2.8	7.15	4.35
At pass, 1.5 miles North of Gate 385	.51	1.17	1.0	2.8	7.15	4.35
At pass, 1.5 miles North of Gate 385	.51	1.18	0.8	2.3	5.87	3.58
At pass, 1.5 miles North of Gate 385	.51	1.20	1.4	3.4	8.68	5.30
At pass, 1.5 miles North of Gate 385	.51	1.22	1.0	2.8	7.15	4.35
At pass, 1.5 miles North of Gate 385	.51	1.23	1.0	2.8	7.15	4.35
At pass, 1.5 miles North of Gate 385	.51	1.30	0.8	2.6	6.64	4.05
At pass, 1.5 miles North of Gate 385	.51	1.32	0.5	1.6	4.08	2.49

Figure 6.3 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
At pass, 1.5 miles North of Gate 385	.51	1.33	0.20	0.58	1.48	0.91
At pass, 1.5 miles North of Gate 385	.51	1.35	0.20	0.58	1.48	0.91
At pass, 1.5 miles North of Gate 385	.51	1.37	0.20	0.59	1.5	0.92
At pass, 1.5 miles North of Gate 385	.51	1.38	0.20	0.59	1.5	0.92
At pass, 1.5 miles North of Gate 385	.51	1.42	0.1	0.35	0.89	0.53
At pass, 1.5 miles North of Gate 385	.51	1.43	0.2	0.60	1.53	0.93
At pass, 1.5 miles North of Gate 385	.51	1.50	1.0	3.8	9.7	5.9
At pass, 1.5 miles North of Gate 385	.51	1.58	1.0	3.9	9.9	6.0
At pass, 1.5 miles North of Gate 385	.51	1.67	0.3	1.25	3.2	1.95
At pass, 1.5 miles North of Gate 385	.51	1.75	0.2	0.9	2.3	1.40
3.0 Miles North of Gate 385	.52	1.92	0.2	1.0	2.6	1.59

6.3 Eddy.

The third event of this series was detonated from a tethered balloon 500 feet above the surface at 0700 on 19 September 1958. The cloud from this detonation rose to a maximum height of 11,000 feet (MSL) and traveled off in a north-northeast direction.

6.3.1 Monitoring Runs.

Monitoring runs which indicated activity substantially above background were made on the Groom Lake Road from a point approximately 6 miles north of Gate 385 to about 11 miles north of 385; on the Oak Springs Butte Road from Groom Lake to 5 miles west of Groom Lake; on Road B from Groom Lake to 10 miles north of Groom Lake; on Highway 25 from one mile east of the junction with Road B to 12 miles east of the junction; on the road through Lincoln Mine from 5 miles north of Highway 25 on the west road to Highway 25 and the east road; on Highway 93 from 84 miles south of Ely to one mile north of Pioche; on Highway 38 from 10 miles north of Crystal Springs to Highway 6; on the Lincoln Mine-Adaven Road from Lincoln Mine Wells to 3 miles north of Lincoln Mine Wells; on the Adaven-Hiko Road from 32 miles southeast of Adaven to 7 miles northwest of Hiko; and on the Rosey Mine Road from the junction with Highway 38 to the mine.

Monitoring runs which indicated only background were made on the Groom Lake Road from Gate 385 to approximately 6 miles north of 385 and from 11 miles north of 385 to the junction with Highway 25, on Road B from 10 miles north of Groom Lake to Highway 25; on Highway 25 from one mile east of the junction with Road B to 11 miles west of the junction, and from 12 miles east of the junction with Road B to the junction of 25 and 38; on the west road to Lincoln Mine from Highway 25 to 5 miles north of 25; on Highway 93 from Alamo to one mile north of Pioche, and from Ely to 81 miles south of Ely; on Highway 38 from the junction of 25 and 38 to 10 miles north of the junction; on the Lincoln Mine-Adaven Road from 3 miles north of Lincoln Mine Wells to Adaven; on the Adaven-Hiko Road from Adaven to 32 miles southeast of Adaven; on Utah 56 from Cedar City to the junction of U-56 and U-98; on Utah 98 from the junction of 56 and 98 to the junction of 98 and U-21; and on Utah 21 from the junction of 98 and 21 to Baker, Nevada.

A table of selected doses in populated places is shown in Figure 6.4.

6.3.2 Public Relations.

The state health officers of Nevada and Utah were called and informed of the detonation and the trajectories.

The state health officer of California was notified of the event and the trajectories through the Public Health Service Regional Office in San Francisco.

6.3.3 Air Sampling Results.

The highest air sample result, 1.95×10^{-3} $\mu c/m^3$ of beta activity at time of count, occurred on the sample run from 0850 – 9/19 to 1000 – 9/20 at Lincoln Mine. The second highest, 1.8×10^{-3} $\mu c/m^3$ of beta activity at time of count was on the sample run from 0900 – 9/19 to 1700 – 9/19 at Pioche.

TABLE OF SELECTED DOSES

LOCATION	Population	Estimated Time of Fall (H + Hours)	Time of Instrument Reading (H + Hours)	Maximum Instrument Reading (Mr/Hr)	Infinite Dose (Mr)	Estimated Dose (Mr)
Lincoln	6	5.4	5.6	3.7	100	54

Figure 6.4

MONITORING INFORMATION – EDDY

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
5.7 miles NW, junction L.M. Rd. & Hy. 25	2.7	2.7	.07	.07	0.95	0.53
5.7 miles NW, junction L.M. Rd. & Hy. 25	2.8	2.8	.10	.10	1.40	0.79
5.7 miles NW, junction L.M. Rd. & Hy. 25	2.9	2.9	.06	.06	0.87	0.49
2 miles E. of junction L. M. Rd. & Hy 25	3.3	3.3	.15	.15	2.49	1.38
3 miles E. of junction L.M. Rd. & Hy. 25	3.4	3.4	.15	.15	2.55	1.41
4 miles E. of junction L.M. Rd. & Hy. 25	3.4	3.4	.15	.15	2.55	1.41
5 miles E. of junction L.M. Rd. & Hy. 25	3.5	3.5	.18	.18	3.15	1.75
3 miles W. of Lincoln Mine	5.0	5.0	2.3	2.3	57.5	31.0
L.M. Headquarters	5.4	5.6	3.5	3.7	99.9	53.7
L.M. Headquarters	5.4	5.7	1.5	1.9	51.4	27.6
L.M. Headquarters	5.4	6.2	0.10	0.13	3.50	1.89
10 miles N. of Crystal Sp. Jct. on #38	4.25	4.250	0.06	0.06	1.28	0.70
15 miles N. of Crystal Sp. Jct. on #38	4.3	4.317	0.27	.27	5.8	3.16
20 miles N. of Crystal Sp. Jct. on #38	4.5	4.532	0.60	.60	13.5	7.35
25 miles N. of Crystal Sp. Jct. on #38	5.0	4.984	1.15	1.15	28.8	15.50
30 miles N. of Crystal Sp. Jct. on #38	5.1	5.134	0.90	.90	23.0	12.36
35 miles N. of Crystal Sp. Jct. on #38	5.3	5.317	0.90	.90	23.9	12.85
36 miles N. of Crystal Spr. Jct. on #38	5.3	5.350	1.08	1.08	28.6	15.40
37 miles N. of Crystal Sp. Jct. on #38	5.4	5.384	1.14	1.14	30.8	16.56

Figure 6.5

Figure 6.5 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
38 miles N. of Crystal Sp. Jct. on #38	5.4	5.417	1.60	1.60	43.2	23.22
39 miles N. of Crystal Sp. Jct. on #38	5.4	5.434	1.40	1.40	37.8	20.33
40 miles N. of Crystal Sp. Jct. on #38	5.5	5.450	1.30	1.30	35.8	19.35
45 miles N. of Crystal Sp. Jct. on #38	5.6	5.617	0.56	.56	15.7	8.45
50 miles N. of Crystal Springs Jct. on #38 (Junction – Road to Pioche)	5.93	5.934	0.40	0.40	11.87	6.37
55 miles N. of Crystal Spr. Jct. on #38	6.08	6.083	0.38	0.38	11.55	6.09
60 miles N. of Crystal Sp. Jct. on #38	6.22	6.217	0.27	0.27	8.40	4.42
65 miles N. of Crystal Sp. Jct. on #38	6.38	6.384	0.14	0.14	4.47	2.35
70 miles N. of Crystal Sp. Jct. on #38	6.48	6.484	0.12	0.12	3.89	2.05
75 miles N. of Crystal Sp. Jct. on #38	6.65	6.650	0.12	0.12	3.99	2.10
80 miles N. of Crystal Sp. Jct. on #38	6.80	6.800	0.12	0.12	4.08	2.15
85 miles N. of Crystal Sp. Jct. on #38	6.92	6.917	0.11	0.11	3.81	2.01
90 miles N. of Crystal Sp. Jct. on #38	7.03	7.034	0.10	0.10	3.52	1.83
95 miles N. of Crystal Sp. Jct. on #38 (On black top road)	7.25	7.250	0.12	0.12	4.35	2.26
100 miles N. of Crystal Sp. Jct. on #38	7.33	7.333	0.12	0.12	4.39	2.28
105 miles N. of Crystal Sp. Jct. on #38	7.92	7.917	0.14	0.14	5.54	2.88
110 miles N. of Crystal Sp. Jct. on #38	8.05	8.050	0.08	.08	3.32	1.79

Figure 6 5 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
115 miles N of Crystal Sp Jct on #38 (Highway #6 Junction)	8 15	8 150	0 11	11	4 48	2 12
120 miles N of Crystal Sp Jct on #38	8 25	8 250	0 10	10	4 12	2 12
125 miles N of Crystal Sp Jct on #38	8 5	8 500	0 09	09	3 83	1 98
130 miles N of Crystal Sp Jct on #38	8 67	8 667	0 07	07	3 04	1 56
135 miles N of Crystal Sp Jct on #38	8 82	8 817	0 11	11	4 85	2 50
140 miles N of Crystal Sp Jct on #38	9 0	9 000	0 11	11	4 94	2 54
6 miles North of 385	9	2 0	09	22	99	0 60
6 5 miles North of 385	9	2 0	16	40	1 80	1 1
7 0 miles North of 385	1 0	2 0	18	41	2 05	1 23
8 0 miles North of 385	1 1	2 0	20	41	2 26	1 36
9 0 miles North of 385	1 1	2 1	19	44	2 42	1 45
10 0 miles North of 385	1 3	2 1	19	35	2 28	1 37
11 0 miles North of 385	1 5	2 1	18	28	2 10	1 26
2 miles North of Watertown	2 0	2 5	0 11	14	1 40	0 80
Junction Groom Lake & OS Rd West	2 0	2 5	0 16	20	2 00	1 20
1 mile West on OS Road	1 9	2 5	0 15	21	2 00	1 18
2 miles West on OS Road	1 8	2 6	09	14	1 26	0 74
3 miles West Groom Lake	1 5	2 7	12	21	1 57	0 94

Figure 6.5 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
4 miles West Groom Lake	1.5	2.7	.07	.16	1.20	0.72
Junction B & Groom Lake	1.9	3.3	.06	.13	1.24	0.73
1 mile NW on Road B	2.0	3.3	.07	.12	1.20	0.71
2 miles NW on Road B	2.0	3.3	.11	.18	1.80	1.06
3 miles NW on Road B	2.0	3.4	.18	.35	3.50	2.07
4 miles NW on Road B	2.0	3.4	.22	.40	4.00	2.36
5 miles NW on Road B	2.1	3.5	.28	.53	5.57	3.20
6 miles NW on Road B	2.2	3.5	.32	.58	6.38	3.67
7 miles NW on Road B	2.2	3.5	.28	.50	5.50	3.16
8 miles NW on Road B	2.3	3.6	.18	.33	3.80	2.18
9 miles NW on Road B	2.5	3.6	.08	.14	1.75	1.01
10 miles NW on Road B	2.6	3.7	.06	.10	1.30	0.74
1 mile East of Junction B & 25	4.6	5.0	.2	.22	5.06	2.74
1 mile East of Junction B & 25	4.6	5.0	.3	.33	7.60	4.10
1 mile East of Junction B & 25	4.6	5.0	.3	.33	7.60	4.10
1 mile East of Junction B & 25	4.6	5.0	.35	.38	8.75	4.73
1 mile East of Junction B & 25	4.6	5.0	.3	.33	7.60	4.10
1 mile East of Junction B & 25	4.6	5.0	.15	.17	3.81	2.06
1 mile East of Junction B & 25	4.6	5.0	.08	.10	2.30	1.24

Figure 6.5 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
1 mile East of Junction B & 25	4.6	5.0	.06	.08	1.84	1.00
1 mile East of Junction B & 25	4.6	5.1	.06	.08	1.84	1.00
5 miles North toward Lincoln Mine	4.6	5.1	1.2	1.3	2.99	1.62
Lincoln Mine Headquarters	4.9	5.7	1.1	1.4	3.43	1.85
Lincoln Mine Headquarters	5.38	7.0	.08	1.13	3.50	1.88
Lincoln Mine Headquarters	5.38	8.0	.06	0.09	2.42	1.30
6 miles SE of Lincoln Mine on LM Road	4.0	4.0	.07	.07	1.4	.76
Junction of LM Rd. & Hwy 25 11 miles SE of Lincoln Mine	4.0	4.0	.15	.15	3.0	1.65
3 miles W. of Jct. of LM Rd. & Hwy. 25	4.1	4.1	.15	.15	3.08	1.68
5 miles W. of Jct. LM Rd. & Hwy. 25	4.3	4.3	.4	.4	8.6	4.69
1 mile W. of TemPiute	4.7	4.7	.15	.15	3.52	1.91
LM Hdq at TemPiute on front of School Hse	4.8	4.8	.2	.2	4.8	2.59
3 miles West of TemPiute	5.5	6.0	.2	.23	6.32	3.40
32 miles SE of Adaven on Road to Hiko	8.6	9.6	.1	.12	5.15	2.65
39 miles SE of Adaven on Road to Hiko	8.25	9.7	.15	.18	7.42	3.82
41 miles SE of Adaven on Road to Hiko	8.0	9.9	.08	.11	4.4	2.29
44 miles SE of Adaven on Road to Hiko	7.64	10.0	.06	.08	3.05	1.59
.2 miles from end of runway – WT	0.9	0.9	0.5	.5	2.27	1.38

Figure 6.5 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
.4 miles from end of Runway – WT	1.0	1.0	3.2	3.2	16.0	9.75
.8 miles from end of Runway – WT	1.0	1.0	2.8	2.8	14.0	8.55
1.2 miles end of runway – WT	1.1	1.1	3.7	3.7	20.4	12.2
1.4 miles from end of runway – WT	1.1	1.1	6.0	6.0	33.0	19.8
2.0 miles from end of runway – WT	1.1	1.1	7.0	7.0	38.5	23.1
2.5 miles from end of runway – WT	1.2	1.2	3.8	3.8	22.8	13.7
3.0 miles from end of runway – WT	1.2	1.2	0.7	0.7	4.2	2.52
3.8 miles from end of runway – WT	1.2	1.2	0.1	0.1	0.6	0.36
0.5 miles Groom Lake & Rd. B. N	1.3	1.3	0.4	0.4	2.6	1.56
1.0 miles S. Groom Lake & Rd. B. N	1.3	1.3	0.2	0.2	1.3	0.78
1.0 miles S. Groom Lake & Rd. B	1.4	1.4	0.08	.08	.56	0.34
2.0 miles S. Groom Lake & Rd. B	1.5	1.5	0.4	.4	3.0	1.80
2.9 miles S. Groom Lake & Rd. B	1.5	1.5	0.8	.8	6.0	3.6
3.6 miles South Groom Lake & Rd. B	1.5	1.5	0.3	.3	2.25	1.35
1.0 miles N. of WT. Groom Lake & Rd. B	1.8	1.8	0.35	.35	3.15	1.86
2.0 miles N. Watertown	1.9	1.9	0.4	.4	3.8	2.24
12.0 miles W. jct. Groom Lake Rd. & Hy. 25	4.5	6.2	0.15	.23	5.18	2.83
13.0 miles W. jct. Groom Lake Rd. & Hy. 25	4.5	6.3	0.10	.15	3.38	1.84
E. entrance, TemPiute – 2 miles ent.	4.6	6.3	0.65	.95	21.9	11.8

Figure 6.5 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
2 miles W. Junction	4.5	6.4	0.35	.54	12.1	6.62
4 miles W. Junction	4.5	6.4	0.3	.46	10.4	5.96
6 miles W. Junction	4.5	6.3	0.15	.23	5.17	2.82
8 miles W. Junction	4.6	6.3	0.07	.12	2.76	1.49
1 mile W. on 25 from Junction with B	4.8	6.6	0.06	.11	2.64	1.45
84 miles S. Ely on US 93	7.5	7.500	0.25	0.25	9.4	4.9
86 miles S. Ely on US 93	7.5	7.534	0.45	0.45	16.9	8.8
88 miles S. Ely on US 93	7.6	7.584	0.50	0.50	18.7	9.7
90 miles S. Ely on US 93	7.6	7.634	0.60	0.60	22.8	11.9
92 miles S. Ely on US 93	7.7	7.700	0.55	0.55	21.2	11.0
94 miles S. Ely on US 93	7.8	7.767	0.50	0.50	19.5	10.2
96 miles S. Ely on US 93	7.8	7.817	0.45	0.45	17.5	9.1
98 miles S. Ely on US 93	7.9	7.884	0.40	0.40	15.8	8.2
98 miles S. Ely on US 93 (diff. inst.)	7.9	7.884	0.15	0.15	5.9	3.1
100 miles S. Ely on US 93	8.0	7.967	0.40	0.40	16.0	8.3
100 miles S. Ely on US 93	8.0	7.967	0.15	0.15	6.0	3.1

Figure 6.5 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
102 miles S. Ely on US 93	8.0	8.034	0.40	0.40	16.0	8.4
102 miles S. Ely on US 93	8.0	8.034	0.10	0.10	4.0	2.1
104 miles S. Ely on US 93	8.1	8.117	0.35	0.35	13.9	7.3
104 miles S. Ely on US 93	8.1	8.117	0.07	0.07	2.8	1.5
106 miles S. Ely on US 93	8.2	8.184	0.35	0.35	14.3	7.35
106 miles S. Ely on US 93	8.2	8.184	0.06	0.06	2.46	1.27
108 miles S. Ely on US 93	8.3	8.250	0.30	0.30	12.4	6.38
13 miles N. Pioche on US 93	9.1	9.050	0.06	0.06	2.72	1.39
15 miles N. Pioche on US 93	9.1	9.100	0.08	0.08	3.64	1.86
17 miles N. Pioche on US 93	9.2	9.150	0.10	0.10	4.60	2.34
19 miles N. Pioche on US 93	9.2	9.200	0.11	0.11	5.05	2.58
21 miles N. Pioche on US 93	9.3	9.250	0.15	0.15	6.95	3.54
23 miles N. Pioche on US 93	9.3	9.300	0.15	0.15	6.95	3.54
25 miles N. Pioche on US 93	9.4	9.350	0.18	0.18	8.45	4.30
27 miles N. Pioche on US 93	9.4	9.400	0.12	0.12	5.65	2.88
29 miles N. Pioche on US 93	9.5	9.450	0.12	0.12	5.70	2.90
31 miles N. Pioche on US 93	9.5	9.500	0.16	0.16	7.60	3.88
35 miles N. Pioche on US 93	9.6	9.600	0.08	0.08	3.84	1.96

Figure 6 5 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
37 miles N. Pioche on US 93	9.6	9.634	0.07	0.07	3.36	1.71
2 miles Rosey Mine Road from jct with #38	3.6	3.584	0.20	0.20	3.60	1.98
4 miles on Rosey Mine Road from jct with #38	3.8	3.833	0.30	0.30	5.70	3.14
6 miles on Rosey Mine Road from jct with #38	4.1	4.117	0.40	0.40	8.20	4.45
8 miles on Rosey Mine Road from jct with #38	4.3	4.250	0.30	0.30	6.45	3.52
10 miles on Rosey Mine Road from jct with #38	4.4	4.384	0.20	0.30	6.60	3.60
Rosey Mine	5.3	5.250	0.10	0.10	2.65	1.43
1 5 miles from Rosey Mine toward Rte. 38	6.3	6.250	0.30	0.30	9.45	5.25
3 5 miles from Rosey Mine toward Rte. 38	6.37	6.500	0.50	0.49	15.6	8.2
5 5 miles from Rosey Mine toward Rte. 38	6.50	7.167	0.35	0.38	12.4	6.5
7 5 miles from Rosey Mine toward Rte. 38	6.65	7.333	0.10	0.12	3.99	2.1

6.4 Luna.

The fourth event of this series was a safety shot which was detonated in a 500 foot shaft at 1200 September 21, 1958. There was no organized cloud from this detonation.

6.4.1 Monitoring Runs.

A monitoring run was made from Watertown to Gate 385 along the Groom Lake Road. No activity above background was detected off-site, therefore, no table of monitoring results is included.

6.4.2 Public Relations.

The state health officers were not notified of this event due to the fact that it was Sunday and also because there was no activity off-site.

6.4.3 Air Sampling Results.

There was no beta air activity in excess of 10^{-5} $\mu c/m^3$ detected and no alpha activity was detected on any of the air samples.

6.5 Mercury.

The fifth event of this series was a safety shot which was detonated in a tunnel at 1500 on September 23, 1958. There was no cloud from this event as the activity was well contained in the tunnel.

6.5.1 Monitoring Runs.

Since the shot did not vent there is no table of selected doses and no table of monitoring results.

6.5.2 Air Sampling Results.

There was no beta activity in excess of 10^{-5} $\mu c/m^3$ and no alpha activity above background detected on any of the air samples.

6.6 Valencia.

The sixth event of this series was a safety shot which was detonated in a 500 foot shaft at 1300 on September 26, 1958. There was no organized cloud from this detonation. The predicted trajectory for this event was in a south-southwest direction.

6.6.1 Monitoring Runs.

A monitoring run was performed on Highway 95 from the Nye County-Clark County line to Lathrop Wells. No activity above background was detected off-site, therefore, no table of selected doses to populated places and no table of monitoring information is included.

6.6.2 Air Sampling Results.

There was no beta activity in excess of 10^{-5}, $\mu c/m^3$ detected on any air filters. No alpha activity above background was detected.

6.7 Mars.

The seventh event of this series was a safety shot which was detonated in a tunnel at 1700 on September 27, 1958. The shot vented through the tunnel however there was no cloud from the detonation.

6.7.1 Monitoring Runs.

There is no table of selected doses in populated places and table of monitoring logs included as no activity above background was detected off-site.

6.7.2 Air Sampling Results.

There was no beta activity in excess of 10^{-5} $\mu c/m^3$ detected on any air filters and no alpha activity above background was detected.

6.8 Mora.

The eighth event of this series was detonated on a tethered balloon 1500 feet above the desert at 0605 on September 29, 1958. The cloud from this event reached a maximum height of 19,000 feet (MSL) and traveled off in a south to south-southwest direction.

6.8.1 Monitoring Runs.

Monitoring runs which indicated activity above background were performed on Highway 95 from 13 miles east of Lathrop Wells to approximately 2.5 miles west of Cactus Springs.

Monitoring runs which indicated only background were made on Highway 95 from Tonopah to 13 miles east of Lathrop Wells, and from 2.5 miles west of Cactus Springs to Las Vegas; on Highway 91 from Glendale Junction, Nevada, to Barstow, California; on Highway 466 from Barstow to Four Corners; on Highway 127 from Death Valley Junction to Baker; on the Tecopa, California – Kingston, California Road from Highway 127 to about 16 miles east of Tecopa; on Highway 52 from Shoshone, California, to Pahrump, Nevada; on Highway 16 from the junction with 95 through Pahrump and Arden to Highway 91; on Highway 12 from the junction with 91 to Logandale; Highway 39 in its entirety; Deer Creek Road; Highway 52 in its entirety; Cold Creek Canyon Road; California 127 and Nevada 29 from Death Valley Junction to Lathrop Wells; and from Mercury to Highway 95 on the Mercury Highway.

No table of selected doses in populated places is included as no readings above background were obtained in such areas.

A table of monitoring information is included as Figure 6.6.

6.8.2 Public Relations.

The state health officers of Nevada and Utah were informed of the detonation and of the predicted trajectories. The state health officer of California was notified through the Public Health Service Regional Office in San Francisco.

6.8.3 Air Sampling Results.

There was no beta activity in excess of 10^{-5} $\mu c/m^3$ detected on any air samples.

MONITORING INFORMATION – MORA

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
2.5 miles W. of Cactus Springs on 95	3.9	4.3	.15	0.17	3.3	1.82
3 miles W. of Cactus Springs on 95	3.8	4.3	.40	0.46	8.75	4.81
3.5 miles W. of Cactus Springs on 95	3.7	4.4	.35	0.42	7.77	4.27
4.0 miles W. of Cactus Springs on 95	3.6	4.4	.25	0.32	5.75	3.16
4.5 miles W. of Cactus Springs on 95	3.5	4.4	.10	0.13	2.3	2.64
Junction Mercury turnoff & 95	3.4	4.5	.32	0.42	7.14	3.95
0.5 miles W. of junction	3.4	4.5	.08	0.09	1.5	0.83
4 miles E. of junction	3.5	5.2	.07	0.09	1.6	0.89
5 miles E. of junction	3.5	5.3	.08	0.09	1.6	0.89
6 miles E. of junction	3.5	5.3	.14	0.23	4.02	2.33
7 miles E. of junction	3.6	5.4	.15	0.25	4.5	2.49
8 miles E. of junction	3.6	5.5	.07	0.09	1.6	0.89

Figure 6.6

6.9 Hildago.

The ninth event of this series was a safety shot which was detonated on a balloon suspended 400 feet in the air at 0610 on October 5, 1958. The cloud from this event rose to a maximum height of 12,000 feet (MSL) and traveled off in an easterly direction.

Approximately two hours following this event, another device was detonated. Due to the short time interval between events, the monitoring information and air sample data presented in this report is, by reference, a part of the report for Colfax (6.10).

6.9.1 Monitoring Runs.

Monitoring runs were performed on many of the desert roads north and east of the test site. The only readings above background were those of residual activity from the Smoky Shot in Operation Plumbbob.

Monitoring runs were made on the Groom Lake Road from Gate 385 to Highway 25; Highway 25 from Lincoln Mine to Crystal Springs; Road B from Highway 25 to Indian Springs; the Ticabou Valley Road; the Nye Canyon Road; Road C; Highway 95 from Tonopah to Mercury; Highway 91 from Las Vegas, Nevada, to Cedar City, Utah; Highway 93 from Alamo to Glendale Junction and from Pioche to Ely; Highway 12 from Overton to junction with Highway 91; and Highway 38 from the junction with Highway 6 to the junction with Highway 25.

No tables of selected doses in populated places or monitoring logs are included since only background readings were obtained.

6.9.2 Air Sampling Results.

The highest beta activity detected on an air filter was 2.61×10^{-4} $\mu c/m^3$. This activity was on the sample collected from 10/5/58 to 10/6/58 at Pioche, Nevada. The activity on this sample could be due to one or both events. There has been no attempt to determine which event caused this increase in air activity.

6.10 Colfax

The tenth event of this series was a safety shot which was detonated in a 500 foot shaft at 0815 on October 5, 1958. The cloud from this detonation reached a maximum height of 5500 feet (MSL) and traveled off in a northerly direction.

6.10.1 Monitoring Runs.

A monitoring run which indicated activity above background was performed on the Groom Lake Road approximately one-half mile north of Gate 385. Several readings were taken at this location and the maximum reading was 0.4 mr/hr.

Monitoring runs which indicated only background are documented in the Hidalgo report (6.9) and are, by reference, a part of this report.

A table of the monitoring results above background is included as Figure 6.7.

6.10.2 Air Sampling Results.

The air sampling results are included in the Hidalgo report (6.9) and are a part of this report by reference.

MONITORING INFORMATION – COLFAX

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
0.4 miles North of Gate #385	1.4	1.4	0.3	0.3	2.1	1.3
0.4 miles North of Gate #385	1.4	1.5	0.4	0.42	2.94	1.76
0.4 miles North of Gate #385	1.4	1.6	0.1	0.12	0.78	0.46
0.4 miles North of Gate #385	1.4	1.7	0.1	0.13	0.91	0.54
0.4 miles North of Gate #385	1.4	1.8	0.07	0.10	0.77	0.46
0.4 miles North of Gate #385	1.4	1.8	0.08	0.10	0.77	0.46
0.4 miles North of Gate #385	1.4	1.9	0.15	0.22	1.54	0.92
0.4 miles North of Gate #385	1.4	2.0	0.15	0.23	1.61	0.96
0.4 miles North of Gate #385	1.4	2.1	0.20	0.31	2.17	1.3
0.4 miles North of Gate #385	1.4	2.2	0.20	0.32	2.24	1.34
0.4 miles North of Gate #385	1.4	2.3	0.15	0.27	1.89	1.14
0.4 miles North of Gate #385	1.4	2.4	0.10	0.18	1.26	0.76
0.4 miles North of Gate #385	1.4	2.5	0.07	0.17	1.19	0.72

Figure 6.7

6.11 Tamalpais

The eleventh event of this series was detonated in a tunnel at 1400 on October 8, 1958. There was a slight venting from this shot but there was no cloud.

6.11.1 Monitoring Runs.

No tables of selected doses in populated places or monitoring results are included as no activity above background was detected off-site.

6.11.2 Air Sampling Results.

The highest beta activity on an air sample was 8.26×10^{-5} $\mu c/m^3$. This activity was on the sample run at Beatty, Nevada, From 1200 – 10/9 to 1200 – 10/10. All other air samples were less than 10^{-5} $\mu c/m^3$.

6.12 Quay.

The twelfth event of this series was detonated on a 100 foot tower at 0630 on October 10, 1958. The cloud from this shot rose to a maximum height of 10,000 feet (MSL) and travelled off in south southwest direction.

6.12.1 Monitoring Runs.

Monitoring runs which indicated activity substantially above background were made on Highway 95 from a point approximately 17 miles west of the Mercury Highway to about 3 miles north of Beatty; on Highway 29 from the junction with Highway 95 to the Nevada-California state line; on Highway 127 from the Nevada-California state line to about two miles north of Shoshone, California; on Highway 58 from the junction with 95 to the junction with 190; on Highway 190 from the junction with 127 to the junction with 6 395; on the road to Bad Water in Death Valley from the junction with 190 to about 50 miles south of Bad Water; on Highway 6-395 from about 17 miles north of Independence, California, to 5 miles south of the junction of 6-395 and 190; and on the Ash Meadows Road from Death Valley Junction to 2 miles north of Ash Meadows.

Monitoring runs which indicated only background were made on Highway 95 from about three miles north of Beatty to the junction with Highway 72, and from the Mercury Highway to about 17 miles west of the Mercury Highway, on Highway 72 from the junction with 95 to the junction with 190; on Highway 6-395 from five miles south of the junction with 190 to the junction with 466; on Highway 466 from the junction with 6-395 to the junction with 127; on Highway 127 from Baker, California, to Shoshone, California; on Highway 52 from Shoshone, California, to Pahrump, Nevada; on Highway 16 from Pahrump to the junction with 95; on the Ash Meadows Road from 2 miles north of Ash Meadows to the junction with 16.

A table of selected doses to populated places is included as Figure 6.8.

A table of monitoring results above background is included as Figure 6.9.

6.12.2 Public Relations.

The state health officer of Nevada was called and informed of the event and the predicted trajectories. The state health officer of California was notified of the event and the trajectories through the Public Health Service Regional Office in San Francisco.

6.12.3 Air Sampling Results.

The highest beta activity detected on any air filter was 1.95×10^{-3} $\mu c/m^3$. This activity was detected on the sample run at Goldfield, Nevada from 10/10 – 10/11.

TABLE OF SELECTED DOSES

LOCATION	Population	Estimated Time of Fall (H + Hours)	Time of Instrument Reading (H + Hours)	Maximum Instrument Reading (Mr/Hr)	Infinite Dose (Mr)	Estimated Dose (Mr)
Furnace Creek Inn, California	50	4.1	4.4	0.50	10	5
Lone Pine, California	1415	7.7	8.0	0.25	10	5
Stovepipe Wells, California	variable	4.5	5.4	0.90	20	10
Beatty, Nevada	550	2.7	7.7	1.40	19	11
Lathrop Wells, Nevada	15	2.5	2.6	2.00	25	14

Figure 6.8

MONITORING INFORMATION – QUAY

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Lathrop Wells	2.5	2.50	1.9	1.9	14.2	8.17
Lathrop Wells	2.5	2.58	1.9	1.9	23.8	13.5
4.5 SE of Lathrop Wells on US 95	2.5	2.62	0.5	0.5	6.25	3.53
Lathrop Wells	2.5	2.67	1.6	1.6	20.0	11.3
Lathrop Wells	2.5	2.75	1.4	1.6	20.0	11.3
Lathrop Wells	2.5	2.83	1.1	1.3	16.25	9.2
Lathrop Wells	2.5	2.92	0.7	0.82	10.25	5.8
Lathrop Wells	2.5	3.00	0.6	0.74	9.25	5.23
Lathrop Wells	2.5	3.17	0.5	0.65	8.1	4.57
Lathrop Wells	2.5	3.42	0.35	0.52	6.5	3.67
Lathrop Wells	2.5	3.50	0.25	0.38	4.75	2.68
Lathrop Wells	2.5	3.75	0.30	0.51	6.37	3.60
Lathrop Wells	2.5	4.00	0.30	0.53	6.62	3.84
Lathrop Wells, Jct. US 95 & Nev. 29	2.5	4.33	0.32	.58	7.25	4.09
2 miles S. of Jct. on Nevada 29	2.6	4.38	0.10	.19	2.47	1.39
4 miles S. of Jct. on Nevada 29	2.7	4.43	0.06	.18	2.43	1.37
6 miles S. of Jct. on Nevada 29	2.8	4.48	0.09	.17	2.38	1.34
8 miles S. of Jct. on Nevada 29	2.9	4.53	0.08	.16	2.32	1.31
10 miles S. of Jct. on Nevada 29	3.1	4.58	0.09	.16	2.48	1.40

Figure 6.9

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
12 miles S. of Jct. on Nevada 29	3.2	4.63	0.08	.15	2.40	1.36
14 miles S. of Jct. on Nevada 29	3.3	4.68	0.07	.14	2.31	1.31
18 miles S. of Jct. on Nevada 29	3.5	4.80	0.07	.13	2.28	1.29
20 miles S. of Jct. on Nevada 29	3.6	4.83	0.08	.13	2.34	1.27
3 miles S. of Death Valley Jct.	4.1	5.17	0.12	0.16	3.3	1.80
5 miles S. of Death Valley Jct.	4.5	5.22	0.16	0.19	4.3	2.34
8 miles S. of Death Valley Jct.	4.6	5.30	0.06	0.07	1.6	0.86
26 miles S. of Death Valley Jct.	5.2	5.75	0.06	0.07	1.8	0.97
24 miles N. of Shoshone, on 127	4.5	6.85	0.11	0.17	3.8	2.07
26 miles N. of Shoshone, on 127	3.9	6.90	0.13	0.25	4.9	2.69
Death Valley Junction	3.8	7.33	0.09	0.19	3.6	1.98
Jct. Death Valley & Ash Meadows Rd.	3.8	7.37	0.10	0.20	3.8	2.09
2 miles NE from Jct. on Ash Meadows Rd.	3.7	7.47	0.08	0.18	3.3	1.82
4 miles NE from Jct. on Ash Meadows Rd.	3.7	7.52	0.09	0.20	3.7	2.03
Ash Meadows Lodge	3.3	7.60	0.07	0.12	1.98	1.10
3 miles SE of Beatty on US 95	2.9	3.33	0.15	0.18	2.6	1.47
2 miles SE of Beatty on US 95	2.8	3.38	0.15	0.18	2.5	1.41
1 mile SE of Beatty on US 95	2.8	3.45	0.10	0.13	1.8	1.02
Beatty	2.8	3.53	0.07	0.08	1.1	0.62

Figure 6 9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Beatty N. City Limits	2.8	3.62	0.15	0.20	2.8	1.58
1 mile N Beatty on 95	2.8	3.70	0.15	0.20	2.8	1.58
2 miles N Beatty on 95	2.8	3.80	0.07	0.08	1.1	0.62
Jct 58 & US 95 – Beatty	2.9	4.58	0.12	0.21	3.1	1.75
1 mile W on 58	2.9	4.62	0.20	0.32	4.65	2.42
2 miles W. of Beatty on 58	2.9	4.67	0.30	0.52	7.52	4.23
3 miles W. of Beatty on 58	2.9	4.71	0.80	1.4	20.2	11.4
4 miles W. of Beatty on 58	3.0	4.75	1.2	2.0	30.0	16.5
5 miles W. of Beatty on 58	3.1	4.78	1.3	2.1	32.5	18.0
6 miles W. of Beatty on 58	3.2	4.80	1.5	2.5	40.0	22.2
7 miles W. of Beatty on 58	3.3	4.82	1.5	2.3	38.0	21.0
8 miles W. of Beatty on 58	3.4	4.85	1.2	1.8	30.6	17.0
9 miles W. of Beatty on 58 (entrance to Death Valley Monument)	3.4	4.88	1.2	1.8	30.6	17.0
10 miles W. of Beatty on 58	3.5	4.92	2.5	3.7	64.7	36.0
11 miles W. of Beatty on 58	3.5	4.93	1.7	2.6	45.5	25.2
12 miles W. of Beatty on 58	3.6	4.95	1.4	2.0	36.0	19.8
13 miles W. of Beatty on 58	3.6	4.97	1.2	1.7	30.6	16.8
14 miles W. of Beatty on 58	3.7	5.00	1.0	1.4	25.9	14.2

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
15 miles W. of Beatty on 58	3.7	5.03	1.0	1.4	25.9	14.2
16 miles W. of Beatty on 58	3.8	5.07	0.80	1.1	20.9	11.5
17 miles W. of Beatty on 58	3.8	5.10	0.80	1.2	22.8	12.5
18 miles W. of Beatty on 58	3.9	5.12	0.80	1.2	23.4	12.9
19 miles W. of Beatty on 58	3.9	5.13	0.70	.92	17.9	9.9
24 miles W. of Beatty on 58	4.2	5.25	0.80	1.0	21.0	11.6
29 miles W. of Beatty on 58	4.4	5.33	0.80	1.0	22.0	12.1
Stovepipe Wells	4.5	5.42	0.70	.88	19.8	10.9
5 miles SW of Stovepipe on Route 190	4.9	5.50	0.70	.8	19.6	10.8
10 miles SW of Stovepipe Wells	5.1	5.60	0.70	.79	20.1	11.1
Lone Pine	7.7	8.00	0.25	.26	10.0	5.5
North of City Limits – Lone Pine	7.7	8.08	0.20	0.22	8.5	4.42
2 miles N. of Lone Pine on Highway 6	7.7	8.17	0.12	0.13	5.0	2.60
7 miles N. of Lone Pine on Highway 6	7.8	8.30	0.12	0.13	5.1	2.65
10 miles N. of Lone Pine on Highway 6	7.9	8.42	0.07	0.08	3.2	1.67
Independence	8.0	8.53	0.09	0.10	4.0	2.08
5 miles N. on Highway 6	8.1	8.67	0.07	0.08	3.2	1.65
10 miles N. on Highway 6	8.1	8.92	0.07	0.08	3.2	1.65
15 miles N. on Highway 6	8.1	9.03	0.06	0.07	2.8	1.44

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
8 miles S. of Independence on 6	7.8	9.67	0.06	0.07	2.7	1.40
2 miles N. of Lone Pine	7.7	9.77	0.06	0.07	2.7	1.40
7 miles S. of Lone Pine	7.8	10.08	0.06	0.07	2.7	1.40
17 miles NW of Mercury Rd. on US 95	2.4	2.65	0.06	.1	1.2	.7
18 miles NW of Mercury Rd. on US 95	2.4	2.68	0.20	.22	2.64	1.5
19 miles NW of Mercury Rd. on US 95	2.4	2.75	0.15	.17	2.04	1.2
20 miles NW of Mercury Rd. on US 95	2.5	2.78	0.20	.23	2.87	1.6
21 miles NW of Mercury Rd. on US 95	2.5	2.80	0.20	.23	2.87	1.6
22 miles NW of Mercury Rd. on US 95	2.5	2.87	0.20	.24	3.0	1.7
23 miles NW of Mercury Rd. on US 95	2.5	2.90	0.15	.18	2.25	1.3
24 miles NW of Mercury Rd. on US 95	2.5	2.93	0.25	.3	3.75	2.1
Lathrop Wells	2.5	3.00	0.50	.62	7.75	4.4
Lathrop Wells	2.5	3.15	0.50	.62	7.75	4.4
Lathrop Wells	2.5	3.42	0.35	.58	7.25	4.1
Lathrop Wells	2.5	3.80	0.30	.52	6.5	3.7
1 mile NW of Lathrop Wells on US 95	2.5	3.87	0.35	0.6	7.5	4.2
2 miles NW of Lathrop Wells on US 95	2.5	3.90	.13	0.21	2.6	1.5
3 miles NW of Lathrop Wells on US 95	2.5	3.93	.07	.08	1.0	.6
4 miles NW of Lathrop Wells on US 95	2.6	3.97	.07	.08	1.04	.6

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
5 miles NW of Lathrop Wells on US 95	2.6	4.02	.07	.09	1.17	.7
6 miles NW of Lathrop Wells on US 95	2.6	4.08	.07	0.09	1.17	.7
7 miles NW of Lathrop Wells on US 95	2.6	4.13	.08	0.10	1.3	.7
9 miles NW of Lathrop Wells on US 95	2.7	4.20	.07	0.10	1.35	.8
10 miles NW of Lathrop Wells on US 95	2.7	4.23	.07	0.10	1.35	.8
12 miles NW of Lathrop Wells on US 95	2.7	4.35	.10	0.17	2.29	1.3
13 miles NW of Lathrop Wells on US 95	2.7	4.40	.20	0.32	4.32	2.4
14 miles NW of Lathrop Wells on US 95	2.7	4.43	.25	0.42	5.67	3.2
15 miles NW of Lathrop Wells on US 95	2.7	4.47	.35	.65	8.8	5.0
16 miles NW of Lathrop Wells on US 95	2.7	4.50	.70	1.3	17.5	9.9
17 miles NW of Lathrop Wells on US 95	2.8	4.55	.80	1.3	18.2	10.3
18 miles NW of Lathrop Wells on US 95	2.8	4.58	.90	1.3	18.2	10.3
19 miles NW of Lathrop Wells on US 95	2.8	4.62	.80	1.3	18.2	10.3
20 miles NW of Lathrop Wells on US 95	2.8	4.65	.90	1.5	21.0	11.9
21 miles NW of Lathrop Wells on US 95	2.8	4.68	.90	1.5	21.0	11.9
22 miles NW of Lathrop Wells on US 95	2.8	4.72	1.0	1.8	25.2	14.2
23 miles NW of Lathrop Wells on US 95	2.8	4.75	1.2	2.1	29.4	16.6
24 miles NW of Lathrop Wells on US 95	2.7	4.78	1.3	2.6	35.1	19.8
25 miles NW of Lathrop Wells on US 95	2.7	4.82	1.4	3.0	40.5	22.9

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
26 miles NW of Lathrop Wells on US 95	2.7	4.85	1.5	3.1	41.8	23.6
27 miles N of Lathrop Wells on US 95	2.7	4.88	1.3	2.7	36.4	20.6
28 miles N of Lathrop Wells on US 95	2.7	4.93	1.1	2.3	31.0	17.5
29 miles N of Lathrop Wells on US 95	2.7	5.03	.30	.65	8.75	4.9
Beatty	2.7	5.25	.20	.46	6.20	3.5
Beatty	2.7	5.67	.10	.24	3.24	1.83
1 mile N of Beatty on US 95	2.7	5.72	.10	.24	3.24	1.83
3 miles N of Beatty on US 95	2.7	5.78	.07	.23	3.10	1.75
1 mile N. of Beatty on US 95	2.7	7.53	.20	.7	9.45	5.3
Beatty	2.7	7.67	.40	1.4	18.9	10.7
1 mile S of Beatty on US 95	2.7	7.75	.70	2.5	33.8	19.1
2 mile S of Beatty on US 95	2.7	7.78	1.0	3.8	51.3	29.0
3 miles S of Beatty on US 95	2.7	7.83	1.6	5.8	78.3	44.2
4 miles SE of Beatty on US 95	2.7	7.85	1.5	5.8	78.3	44.2
5 miles SE of Beatty on US 95	2.7	7.90	1.7	6.0	81.0	45.8
6 miles SE of Beatty on US 95	2.7	7.95	1.2	4.3	58.1	32.8
7 miles SE of Beatty on US 95	2.7	8.08	0.9	3.7	50.0	28.3
8 miles SE of Beatty on US 95	2.7	8.12	0.5	1.8	24.3	13.8
9 miles SE of Beatty on US 95	2.6	8.17	0.4	1.6	20.8	11.8

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
10 miles SE of Beatty on US 95	2.6	8.45	0.5	2.1	27.3	15.4
12 miles SE of Beatty on US 95	2.6	8.50	0.5	2.1	27.3	15.4
14 miles SE of Beatty on US 95	2.6	8.58	0.3	1.3	16.9	9.6
16 miles SE of Beatty on US 95	2.6	8.62	0.25	1.1	14.3	8.1
18 miles SE of Beatty on US 95	2.6	8.67	0.25	1.1	14.3	8.1
20 miles E of Beatty on US 95	2.6	8.75	0.2	1.0	13.0	7.35
22 miles E of Beatty on US 95	2.6	8.80	0.15	.75	9.7	5.48
24 miles E of Beatty on US 95	2.6	8.85	0.15	.75	9.7	5.48
26 miles E of Beatty on US 95	2.6	8.92	0.1	.44	5.4	3.04
28 miles E. of Beatty on US 95	2.6	8.97	0.1	.44	5.4	3.04
Lathrop Wells	2.5	9.00	0.1	.46	5.7	3.22
15.7 miles SE Furnace Crk. Inn on 190	4.0	7.88	.09	.22	4.4	2.4
16.8 miles SE Furnace Crk. Inn on 190	4.0	7.97	.09	.22	4.4	2.4
17.9 miles SE Furnace Crk. Inn on 190	4.0	8.02	.12	.23	4.6	2.5
18.2 miles SE Furnace Crk. Inn on 190	4.0	8.05	.15	.33	6.6	3.6
19.2 miles SE Furnace Crk. Inn on 190	4.0	8.12	.18	.42	8.4	4.6
20.2 miles SE Furnace Crk. Inn on 190	3.9	8.20	.20	.48	9.4	5.2
21.2 miles SE Furnace Crk. Inn on 190	3.9	8.25	.25	.60	11.7	6.4
22.2 miles SE Furnace Crk. Inn on 190	3.9	8.30	.28	.70	13.6	7.5

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
23.2 miles SE Furnace Crk. Inn on 190	3.9	8.37	.24	.58	11.3	6.2
24.2 miles SE Furnace Crk. Inn on 190	3.9	8.42	.25	.61	11.9	6.5
25.2 miles SE Furnace Crk. Inn on 190	3.9	8.47	.25	.61	11.9	6.5
26.2 miles SE Furnace Crk. Inn on 190	3.9	8.52	.30	.75	14.6	8.0
8.5 miles SE from Furnace Crk. Inn on 190	4.0	7.50	.065	0.08	1.60	0.87
9.7 miles SE from Furnace Crk. Inn on 190	4.0	7.55	.08	0.12	2.4	1.32
10.9 miles SE from Furnace Crk. Inn on 190	4.0	7.62	.08	0.12	2.4	1.32
Ryan Turnoff on Highway 190	4.1	7.73	.08	0.12	2.5	1.37
14.9 miles SE Furnace Crk. Inn on 190	4.0	7.82	.08	0.12	2.4	1.32
27.6 miles SE Furnace Crk. Inn on 190	3.9	8.57	.28	0.7	13.7	7.55
2.8 miles N. Death Valley Jct. on Calif. 127	3.8	8.78	.12	0.32	6.1	3.3
3.8 miles N. Death Valley Jct. on Calif. 127	3.7	8.82	.12	0.33	6.1	3.3
2.5 miles N. of Nev-Calif. State Line on Nev.29	3.3	9.00	.08	0.27	4.5	2.5
5 miles N. of Nev-Calif. State Line on Nev. 29	3.2	9.07	.15	0.51	8.2	4.55
7.5 miles N. Nev-Calif. State Line on Nev. 29	3.0	9.17	.14	0.55	8.3	4.6
12.5 miles N. Nev-Calif. State Line on Nev. 29	2.8	9.35	.08	0.26	3.6	2.04
15 miles N. Nev-Calif. State Line on Nev. 29	2.6	9.42	.10	.48	6.3	3.6
Lathrop Wells, Jct. 95 & 29	2.5	9.50	.15	.74	9.3	5.3
2 miles E. Lathrop Wells, on US 95	2.5	9.73	.06	.5	6.3	3.6

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
9 miles W. Death Valley Jct. on 190	4.0	3.57	0.20	Fallout Occurring		
10 miles W. Death Valley Jct. on 190	4.0	3.62	0.45	Fallout Occurring		
11 miles W. Death Valley Jct. on 190	4.0	3.67	0.90	Fallout Occurring		
12 miles W. Death Valley Jct on 190	4.0	3.70	0.65	Fallout Occurring		
13 miles W. Death Valley Jct. on 190	4.0	3.75	0.3	Fallout Occurring		
14 miles W. Death Valley Jct. on 190	4.0	3.78	0.3	Fallout Occurring		
15 miles W. Death Valley Jct. on 190	4.1	3.92	0.3	Fallout Occurring		
16 miles W. Death Valley Jct. on 190	4.1	3.93	0.9	Fallout Occurring		
17 miles W. Death Valley Jct. on 190	4.1	3.97	1.0	Fallout Occurring		
18 miles W. Death Valley Jct. on 190	4.1	4.00	1.3	Fallout Occurring		
19 miles W. Death Valley Jct. on 190	4.1	4.03	0.40	Fallout Occurring		
20 miles W. Death Valley Jct. on 190	4.1	4.07	0.5	Fallout Occurring		
21 miles W. Death Valley Jct. on 190	4.1	4.10	0.6	0.6	12.3	6.70
22 miles W. Death Valley Jct. on 190	4.1	4.13	0.45	0.45	9.24	5.04
23 miles W. Death Valley Jct. on 190	4.1	4.17	0.40	0.4	8.2	4.47
24 miles W. Death Valley Jct. on 190	4.1	4.20	0.4	0.4	8.2	4.47
25 miles W. Death Valley Jct. on 190	4.1	4.23	0.5	0.5	10.25	6.13
26 miles W. Death Valley Jct. on 190	4.1	4.27	0.45	0.47	9.63	5.25
27 miles W. Death Valley Jct. on 190	4.1	4.28	0.5	0.52	10.67	6.35

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
28 miles W Death Valley Jct. on 190	4.1	4.33	0.45	0.47	9.63	5.25
29 miles W Death Valley Jct on 190	4.1	4.37	0.35	0.37	7.59	4.13
Furnace Creek Inn	4.1	4.38	0.45	0.47	9.64	5.26
1 mile W. of Furnace Creek Inn	4.1	4.43	0.4	0.42	8.62	4.69
2 miles W Furnace Crk Inn on 190	4.1	4.48	0.35	0.39	8.0	4.36
3 miles W. Furnace Crk Inn on 190	4.1	4.50	0.35	0.39	8.0	4.37
Jct 190 & Bad Water Road	4.1	4.68	0.3	0.35	7.2	3.92
1 mile S on Bad Water Road	4.1	4.75	0.3	0.35	7.2	3.92
2 miles S on Bad Water Road	4.1	4.87	0.2	0.25	5.1	2.78
3 miles S on Bad Water Road	4.1	4.92	0.2	0.25	5.1	2.78
5 miles S on Bad Water Road	4.2	4.98	0.2	0.25	5.25	2.86
6 miles S. on Bad Water Road	4.2	5.03	0.3	0.37	7.75	4.22
7 miles S on Bad Water Road	4.3	5.08	0.3	0.37	7.95	4.33
9 miles S on Bad Water Road	4.4	5.17	0.3	0.37	8.1	4.41
11 miles S on Bad Water Road	4.5	5.23	0.4	0.48	10.8	5.88
13 miles S on Bad Water Road	4.5	5.27	0.4	0.48	10.8	5.88
15 miles S of Jct. 190 on Bad Water Road	4.6	5.33	0.3	0.35	8.05	4.35
Bad Water	4.7	5.40	0.35	0.42	9.9	5.35
3 miles S. of Bad Water	4.9	5.53	0.4	0.45	11.0	5.94

Figure 6.9 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr) *	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
5 miles S. of Bad Water	5.0	5.67	0.5	0.57	14.25	7.67
10 miles S. of Bad Water	5.2	5.77	0.3	0.34	8.8	4.73
15 miles S. of Bad Water	5.5	5.88	0.25	0.27	7.4	3.98
20 miles S. of Bad Water	5.7	5.98	0.2	0.21	6.0	3.12
25 miles S. of Bad Water	5.9	6.10	0.25	0.27	8.0	4.28
30 miles S. of Bad Water	6.1	6.25	0.2	0.21	6.4	3.38
35 miles S. of Bad Water	6.4	6.38	0.1	0.1	3.2	1.69
45 miles S. of Bad Water	6.9	6.77	0.1	0.1	3.45	1.82
Lathrop Wells	2.5	1.63	0.70	Fallout Occurring		
Lathrop Wells	2.5	1.72	2.8	Fallout Occurring		
Lathrop Wells	2.5	1.75	9.5	Fallout Occurring		
Lathrop Wells	2.5	1.83	10.0	Fallout Occurring		
Lathrop Wells	2.5	1.92	14.5	Fallout Occurring		
Lathrop Wells	2.5	2.00	12.4	Fallout Occurring		
Lathrop Wells	2.5	2.08	7.6	Fallout Occurring		
Lathrop Wells	2.5	2.17	4.5	Fallout Occurring		
Lathrop Wells	2.5	2.25	3.2	Fallout Occurring		
Lathrop Wells	2.5	2.42	2.3	Fallout Occurring		

6.13 Lea.

The thirteenth event of this series was suspended from a balloon 1500 feet above the desert. The device was detonated at 0520 on 13 October 1958. The cloud from this detonation rose to a maximum height of 17,000 feet (MSL) and travelled off in a northerly direction.

6.13.1 Monitoring Runs.

Monitoring runs which indicated activity substantially above background were performed on the Oak Springs Butte Road from approximately three miles west of the Area 13 access road to the west end of the road; on the Kawich Valley Road from 12 miles west of the junction with Road B to two miles west of Standard; on the Cliff Springs Road from the junction with the Kawich Road to Cliff Springs; on the Cliff Springs – Standard Mine Road from Cliff Springs to Standard Mine; on Highway 25 from 18 miles west of the junction with Road B to Warm Springs (Nye County); on old 25 from the junction with new 25 to 22 miles west of Reed; on the road from Standard to Reed; and on Highway 6 from 35 miles east of Tonopah to about seven miles west of Lockes.

Monitoring runs which indicated only background were made on the Groom Lake Road from Watertown to Gate 385; on Road B from Groom Lake to the junction with Highway 25; on the Area 13 access road from Road B to the Oak Springs Butte Road; on the Oak Springs Butte Road from the Area 13 road to about three miles west of that junction; on the Kawich Valley Road from the junction with Road B to about 12 miles east of the junction; on Highway 25 from Lincoln Mine to about 18 miles west of the junction with Road B; on Highway 6 from Ely to about seven miles west of Lockes; and from Tonopah to about 35 miles east of Tonopah; on Highway 95 from Mercury to Tonopah; and on Highway 29–127 from Lathrop Wells to Death Valley Junction.

A table of selected doses to populated places is included as Figure 6.10.

A table of monitoring results above background is included as Figure 6.11.

6.13.2 Public Relations.

The state health officer of Nevada was called and informed of the event and the trajectories. The state health officer of California was notified through the Public Health service Regional Office in San Francisco.

6.13.3 Air Sampling Results.

The highest beta activity detected on any air filter was 4.77×10^{-3} $\mu c/m^3$. This activity was detected on the sample run at Warm Springs (Nye County), Nevada, from 10/13 to 10/14.

TABLE OF SELECTED DOSES

LOCATION	Population	Estimated Time of Fall (H + Hours)	Time of Instrument Reading (H + Hours)	Maximum Instrument Reading (Mr/Hr)	Infinite Dose (Mr)	Estimated Dose (Mr)
Rattlesnake Maint. Sta., Nev.	4	15.3	31.9	0.16	12	6
Reed, Nevada	Variable	8.0	10.3	0.46	18	9
Warm Springs (Nye County), Nevada	5	13.5	32.6	0.45	30	15

Figure 6.10

MONITORING INFORMATION – LEA

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
7 miles SW Lockes, Nev. on 6	16.7	31.5	.06	.12	10.0	4.9
9 miles SW Lockes, Nevada on 6	16.3	31.5	.06	.12	9.8	4.8
11 miles SW Lockes, Nevada on 6	16.0	31.6	.06	.12	9.6	4.7
13 miles SW Lockes, Nevada on 6	16.0	31.6	.06	.12	9.6	4.7
15 miles SW Lockes, Nevada on 6	16.2	31.6	.07	.14	11.3	5.6
17 miles SW Lockes, Nevada on 6	16.2	31.7	.07	.14	11.3	5.6
19 miles SW Lockes, Nevada on 6	16.0	31.7	.07	.14	11.2	5.5
21 miles SW Lockes, Nevada on 6	16.0	31.8	.07	.14	11.2	5.5
23 miles SW Lockes, Nevada on 6	15.7	31.8	.07	.14	11.0	5.5
25 miles SW Lockes, Nevada on 6	15.3	31.9	.07	.14	10.7	5.3
27 miles SW Lockes, Nevada on 6	15.0	32.0	.08	.18	13.5	6.7
29 miles SW Lockes, Nevada on 6	14.8	32.1	.07	.16	11.8	5.9
31 miles SW Lockes	14.2	32.2	.07	.21	14.9	7.4
33 miles SW Lockes	14.0	32.2	.07	.21	14.7	7.3
35 miles SW Lockes	13.8	32.2	.06	.19	13.1	6.5
1 mile NE Warm Springs	13.6	32.5	.07	.22	15.0	7.5
Warm Springs	13.5	32.6	.15	.45	30.0	15.0
3.2 miles W. on Oak Springs Butte Road	2.7	5.8	.07	.18	2.3	1.3
4.8 miles W. on Oak Springs Butte Road	2.7	6.0	.11	.27	3.78	2.1

Figure 6.11

Figure 6.11 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
3 miles E. from end of Oak Springs Road	2.5	7.1	.15	.52	6.5	3.7
3.3 miles (gate) from end of Oak Springs Road	2.5	7.2	.07	.35	4.37	2.5
12 miles W. of jct. Road B & Standard Road	6.0	9.3	.13	.23	6.8	3.6
13 miles W. of jct. Road B & Standard Road	6.0	9.3	.22	.34	10.2	5.4
14 miles W. of jct. Road B & Standard Road	6.0	9.4	.45	.73	21.9	11.5
15 miles W. of jct. Road B & Standard Road	5.9	9.5	.55	.9	26.5	14.2
16 miles W. of jct. Road B & Standard Road	5.9	9.6	.45	.75	22.1	11.9
17 miles W. of jct. Road B & Standard Road	6.0	9.8	.40	.72	21.6	11.6
Jct. Cliff Springs & Standard Road	5.7	9.9	.50	1.0	28.5	15.3
1 mile W. junction	5.7	9.9	.70	1.0	28.5	15.3
2 miles W. jct. Cliff Sprs. & Stnd. Mn. Road	5.9	10.1	.80	1.5	44.2	23.7
3 miles W. jct. Cliff Sprs. & Stnd. Mn. Road	5.9	10.1	1.2	2.2	65.0	34.8
4 miles W. jct. Cliff Sprs. & Stnd. Mn. Road	5.9	10.2	1.3	2.5	73.8	39.5
5.5 miles W. jct. Cliff Sprs. & Stnd. Mn. Road	5.9	10.3	1.0	1.9	56.1	30.0
7 miles W. jct. Cliff Sprs. & Stnd. Mn. Road	6.0	10.4	1.1	1.9	57.0	30.5
8 miles W. jct. Cliff Sprs. & Stnd. Mn. Road	6.0	10.5	0.9	1.8	54.0	28.9
10 miles W. jct. Cliff Sprs. & Stnd. Mn. Road	6.0	10.7	0.9	1.8	54.0	28.9
Standard Mine	6.0	10.8	0.8	1.6	48.0	25.7
4 miles N. Cliff Sprs. on Kawich & LM Road	5.8	8.2	0.1	.15	4.35	2.34

Figure 6.11 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
3.5 miles N of Cliff Springs	5.8	8.3	0.25	.39	11.3	6.06
3.0 miles N of Cliff Springs	5.5	8.4	0.3	.50	13.75	7.40
2.5 miles N of Cliff Springs	5.5	8.4	0.5	.82	22.5	12.12
1.0 miles N of Cliff Springs	5.4	8.5	0.5	.85	23.0	12.38
Cliff Springs – Kawich Valley	5.2	8.6	0.8	1.4	36.4	19.60
3 miles W of Cliff Springs	5.4	8.9	0.5	.9	24.3	13.08
4 miles W of Cliff Springs	5.5	9.0	0.5	.9	24.8	13.35
5 miles W of Cliff Springs	5.5	9.2	1.0	1.8	49.5	26.65
7 miles W of Cliff Springs	5.7	9.2	1.3	2.3	65.5	35.1
8 miles W of Cliff Springs	5.8	9.3	1.5	2.6	75.5	40.5
10 miles W. of Cliff Springs	6.0	9.4	1.5	2.5	75.0	40.2
2 miles E. of Standard Mine	6.2	9.6	1.3	2.0	62.0	33.7
1 mile E. of Standard Mine	6.1	9.7	1.3	2.0	61.0	32.1
Standard Mine	6.0	9.8	1.3	2.2	39.0	20.9
1 mile W. of Standard	6.1	10.2	1.0	1.8	55.0	28.9
2 miles W. of Standard	6.2	10.3	1.0	1.7	52.7	27.7
1 mile W. of Reed on old Hwy. 25	7.1	7.6	0.20	.22	7.8	4.06
2 miles W. of Reed on old Hwy. 25	7.2	7.7	0.50	.52	18.7	9.74
3 miles W. of Reed on old Hwy. 25	7.3	7.7	0.65	.66	24.1	12.54

Figure 6.11 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
4 miles W. of Reed on old Hwy. 25	7.4	7.7	1.1	1.2	44.4	23.1
5 miles W .of Reed on old Hwy. 25	7.5	7.8	1.5	1.6	60.0	31.2
6 miles W. of Reed on old Hwy. 25	7.6	7.8	2.0	2.0	76.0	39.6
7 miles W. of Reed on old Hwy. 25	7.7	7.9	1.8	1.8	69.4	36.1
8 miles W. of Reed on old Hwy. 25	7.8	7.9	3.2	3.2	125.0	65.1
9 miles W. of Reed on old Hwy. 25	7.9	8.1	2.7	2.8	110.5	57.6
10 miles W. of Reed on old Hwy. 25	8.0	8.1	2.3	2.3	92.1	48.5
11 miles W. of Reed on old Hwy. 25	8.1	8.2	1.3	1.3	52.7	27.1
13 miles W. of Reed on old Hwy. 25	8.1	8.3	.35	.35	14.2	7.32
14.5 miles W. of Reed on old Hwy. 25	8.2	8.4	0.22	.22	9.0	4.64
16 miles W. of Reed on old Hwy. 25	8.4	8.5	0.18	.18	7.6	3.92
18 miles W. of Reed on old Hwy. 25	8.6	8.6	0.07	.07	3.0	1.55
20 miles W. of Reed on old Hwy. 25	8.8	8.7	0.07	.07	3.08	1.59
21.8 miles W. of Reed on old Hwy. 25	9.0	8.7	0.06	.06	2.7	1.39
10 miles W. of Reed on old Hwy. 25	8.0	9.2	1.8	.21	8.4	4.36
8 miles W. of Reed on old Hwy. 25	7.8	9.3	3.3	.43	16.8	8.75
Reed	8.0	9.6	0.35	.41	16.4	8.53
Reed	8.0	9.8	0.30	.38	15.2	7.91
Reed	8.0	10.2	0.35	.46	18.4	9.58

Figure 6.11 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Reed	8.0	10.3	0.35	.46	18.4	9.58
Reed	8.0	10.6	0.30	.42	16.8	8.75
Reed	8.0	10.8	0.30	.42	16.8	8.75
2 miles E of Reed	8.0	10.9	0.25	.33	13.2	6.87
4 miles E of Reed	8.0	10.9	0.21	0.28	11.2	5.83
6 miles E of Reed	8.1	11.1	0.16	.22	8.9	4.58
Jct Road to Reed & 25	8.1	11.2	0.13	.21	8.5	4.38
2 miles E of Jct on 25 toward LM	8.0	11.2	0.09	.14	5.6	2.92
4 miles E of Jct on 25 toward LM	7.67	11.3	0.08	.13	4.98	2.6
6 miles E of Jct on 25 toward LM	7.3	11.3	0.09	.15	5.47	2.8
7.5 miles E of Jct on 25 toward LM	7.3	11.4	0.08	.13	4.75	2.5

6.14 Neptune

The fourteenth event of this series was a safety shot in a tunnel. The detonation occurred at 1000 on 14 October 1958. The shot vented from the tunnel and the cloud rose to a maximum height of 11,000 feet (MSL). The cloud travelled off in a west-northwest direction and then veered to the northwest.

6.14.1 Monitoring Runs

Since there were no monitoring readings above background obtained off-site no tables of selected doses to populated places or monitoring logs are included.

6.14.2 Air Sampling Results

The highest beta activity in the air was 1.65×10^{-4} $\mu c/m^3$. This activity was detected on the air filter run at Warm Springs (Nye County), Nevada, from 10/14 to 10/15.

6.15 Hamilton.

The fifteenth event of this series was detonated on a 500 foot tower at 0800 on 15 October 1958. The cloud from this shot rose to a maximum height of 6,000 feet (MSL) and travelled off in a southerly direction.

6.15.1 Monitoring Runs.

Monitoring runs which indicated activity substantially above background were made on the Mercury Highway from Gate 120 to the junction with Highway 95; on the Jackass Flats Road from the Mercury Highway to about nine miles west of the Mercury Highway; in and around Camp Mercury; and on Highway 95 from approximately two miles east of the Mercury turnoff to about 8.5 miles west of the Mercury turnoff.

Monitoring runs which indicated only background were made on Highway 95 from Indian Springs to about two miles east of the Mercury turnoff and from about nine miles west of the Mercury turnoff to the junction of Highway 16; and on Highway 16 from the junction with Highway 95 to Pahrump.

A table of monitoring logs is included as Figure 6.12

6.15.2 Air Sampling Results.

The highest beta air concentration was 2.08×10^{-4} $\mu c/m^3$. This activity was detected on the filter run at Tonopah, Nevada, from 10/16 to 10/17.

MONITORING INFORMATION – HAMILTON

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Gate 120	3.3	7.5	0.3	0.8	13.2	7.3
1 mile S. of Gate 120	3.3	7.5	.25	0.65	10.7	5.9
Outside Reeco Paint Shop & iron works	3.3	7.6	.2	0.54	8.9	4.9
Outside tent storage	3.3	7.6	.2	0.54	8.9	4.9
Outside new Rad-Safe Building	3.3	7.6	.2	0.54	8.9	4.9
Gate 100	3.3	7.7	.2	0.55	9.1	5.0
Center of trailer area	3.3	7.7	.2	0.55	9.1	5.0
Outside Building 101	3.3	7.7	.2	0.55	9.1	5.0
Corner of Range Ave. & Jangle Street	3.3	7.7	.3	0.8	13.2	7.3
Jangle St. & Green Horse Avenue	3.3	7.8	.2	0.55	9.1	5.0
Building 202	3.3	7.8	.2	0.55	9.1	5.0
Volleyball Court	3.3	7.9	.25	0.7	11.5	6.4
Jangle St. & Tumbler Avenue	3.3	7.9	0.2	.58	9.6	5.3
Building 139	3.3	7.9	0.25	0.7	11.5	6.4
Rear of Warehouse #6	3.3	7.9	0.2	0.57	9.4	5.2
In front of Warehouse #5	3.3	8.1	0.2	0.58	9.6	5.3
Highway 95 at Mercury Quartz & Mica Road	4.7	5.1	.08	.09	2.1	1.1
Jct. 95 & Mercury Highway	4.7	5.2	.08	.09	2.1	1.1
Jct. 95 & Mercury Highway	4.7	5.3	.06	.07	1.6	0.9

Figure 6.12

Figure 6.12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Desert Rock Entrance	4.6	5.4	.18	.22	5.1	2.7
Gate 120	3.4	5.5	.28	.5	8.5	4.7
Warehouse #6	3.4	5.5	.48	.85	14.4	8.0
Warehouse #6	3.4	5.9	.38	.9	15.4	8.5
1.9 miles W. of Mercury turnoff on 95	5.0	4.0	.06	Fallout Occurring		
2.4 miles W. of Mercury turnoff on 95	5.1	4.1	0.5	Fallout Occurring		
2.9 miles W. of Mercury turnoff on 95	5.3	4.1	0.6	Fallout Occurring		
4.3 miles W. of Mercury turnoff on 95	5.4	4.2	0.4	Fallout Occurring		
5.3 miles W. of Mercury turnoff on 95	5.5	4.2	0.3	Fallout Occurring		
6.6 miles W. of Mercury turnoff on 95	5.7	4.2	0.1	Fallout Occurring		
7.8 miles W. of Mercury turnoff on 95	5.9	4.3	0.15	Fallout Occurring		
8.4 miles W. of Mercury turnoff on 95	6.0	4.3	0.1	Fallout Occurring		
5.6 miles heading E. on 95 to Mercury	5.5	4.4	.25	Fallout Occurring		
4.6 miles heading E. on 95 to Mercury	5.4	4.4	.30	Fallout Occurring		
3.1 miles heading E. on 95 to Mercury	5.3	4.5	.30	Fallout Occurring		
2.8 miles heading E. on 95 to Mercury	5.1	4.5	.40	Fallout Occurring		
2.8 miles W. of Mercury Junction on 95	5.3	4.7	0.2	Fallout Occurring		
2.3 miles W. of Mercury Junction on 95	5.1	4.7	0.2	Fallout Occurring		
1.7 miles W. of Mercury Junction on 95	5.0	4.8	0.2	Fallout Occurring		

Figure 6.12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
1.2 miles W. of Mercury Junction on 95	4.9	4.8	0.25	0.25	6.1	3.3
.8 miles W. of Mercury Junction on 95	4.8	4.9	0.4	0.4	9.6	5.2
Mercury Highway and US 95	4.7	4.9	0.25	.26	6.1	3.3
1 2 miles W. of Junction on 95	4.9	5.0	0.3	.31	7.6	4.1
5 miles E. of 95 & Ash Meadows Road	5.0	5.1	.11	.12	3.0	1.6
7 miles E. of 95 & Ash Meadows Road	5.0	5.2	.10	.11	2.7	1.4
Desert Rock Junction	4.0	5.3	.45	.62	12.4	6.8
Gate 100	3.4	5.4	.75	1.3	22.1	12.2
Gate 100	3.3	3.3	12.0	12.0	198.0	110.0
1 mile S. of Gate 100	3.7	3.4	2.5	Fallout Occurring		
Entrance to Desert Rock	4.3	3.4	0.2	Fallout Occurring		
Desert Rock Fire Department	4.3	3.5	0.1	Fallout Occurring		
Gate 100	3.3	3.6	3.5	3.8	62.7	34.8
Gate 100	3.3	3.7	2.5	2.7	44.6	24.7
1 mile W. of Gate 100 on 400	3.3	3.7	2.5	2.7	44.6	24.7
2 miles W. of Gate 100 on 400	3.4	3.8	1.5	1.7	28.9	16.1
3 miles W. of Gate 100 on 400	3.5	3.8	1.5	1.7	29.8	16.4
4 miles W. of Gate 100 on 400	3.7	3.8	1.3	1.3	24.1	13.3
5 miles W. of Gate 100 on 400	3.9	3.9	1.0	1.0	19.5	10.7

Figure 6.12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
7 miles W. of Gate 100 on 400	3.9	3.9	0.2	0.2	3.9	2.1
9 miles W. of Gate 100 on 400	4.4	4.0	.08	Fallout Occurring		
10 miles W. of Gate 100 on 400	5.0	4.1	0.1	Fallout Occurring		
12 miles W. of Gate 100 on 400	5.7	4.2	.08	Fallout Occurring		
7 miles W. on return to 100	4.0	5.0	.07	.09	1.8	.98
5 miles W. on return to 100	3.9	5.0	0.10	.13	2.5	1.4
3 miles W. on return to 100	3.5	5.1	.15	.23	4.0	2.2
1 mile W. on return to 100	3.3	5.1	.30	.50	8.25	4.6
Gate 100	3.3	5.2	.60	1.0	16.5	9.2
Outside Warehouse #6	3.3	3.0	5.0	Fallout Occurring		
Mercury Road & Tumbler Street	3.3	3.0	10.0	Fallout Occurring		
1 mile N. from stop sign on Mercury Road	3.3	3.1	15.0	Fallout Occurring		
Gate 120	3.3	3.1	22.0	Fallout Occurring		
Gate 120	3.3	3.2	12.0	Fallout Occurring		
Gate 120	3.3	3.2	17.0	Fallout Occurring		
Gate 120	3.3	3.3	20.0	20.0	330.0	183.0
Gate 120	3.3	3.4	5.0	5.1	84.0	46.7
Gate 120	3.3	3.5	10.0	11.0	181.0	100.0
Gate 120	3.3	3.6	7.0	7.3	121.0	67.2

Figure 6.12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Gate 120	3.3	3.7	8.0	8.8	145.0	80.5
Gate 120	3.3	3.7	11.0	12.0	198.0	110.0
Gate 120	3.3	3.7	18.0	20.0	330.0	183.0
Gate 120	3.3	3.8	18.0	21.0	346.0	192.0
Gate 120	3.3	3.8	16.0	18.0	297.0	165.0
Gate 120	3.3	3.9	17.0	19.0	313.0	174.0
Gate 120	3.3	3.9	10.0	12.0	198.0	110.0
Gate 120	3.3	3.9	19.0	23.0	370.0	205.0
Gate 120	3.3	4.0	20.0	25.0	412.0	229.0
Gate 120	3.3	4.0	20.0	25.0	412.0	229.0
Gate 120	3.3	4.0	21.0	26.0	429.0	238.0
Gate 120	3.3	4.1	17.0	21.0	346.0	192.0
Gate 120	3.3	4.1	14.0	18.0	297.0	165.0
Gate 120	3.3	4.1	12.0	15.0	247.0	137 0
Gate 120	3.3	4.1	13.0	17.0	280.0	155.0
Gate 120	3.3	4.1	15.0	18.0	297.0	165.0
Gate 120	3.3	4.2	16.0	20.0	330.0	183.0
Gate 120	3.3	4.2	15.0	20.0	330.0	183.0
Gate 120	3.3	4.2	10.0	13.0	214.0	119.0

Figure 6.12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Gate 120	3.3	4.2	9.0	12.0	198.0	110.0
Gate 120	3.3	4.2	10.0	13.0	214.0	119.0
Gate 120	3.3	4.2	6.0	8.0	132.0	73.2
Gate 120	3.3	4.3	8.0	11.0	181.0	100.0
Gate 120	3.3	4.3	6.0	8.2	135.0	75.0
Gate 120	3.3	4.3	6.0	8.2	135.0	75.0
Gate 120	3.3	4.3	6.0	8.2	135.0	75.0
Gate 120	3.3	4.4	6.0	8.4	139.0	77.0
Gate 120	3.3	4.4	6.0	8.4	139.0	77.0
Gate 120	3.3	4.4	5.0	7.0	115.0	63.0
Gate 120	3.3	4.5	5.0	7.0	115.0	63.0
Gate 120	3.3	4.5	4.0	5.8	96.0	53.2
Gate 120	3.3	4.5	4.0	5.8	96.0	53.2
Gate 120	3.3	4.6	4.0	5.9	97.0	54.0
Gate 120	3.3	4.6	4.0	5.9	97.0	54.0
Gate 120	3.3	4.7	4.0	6.0	99.0	55.0
Gate 120	3.3	4.7	3.5	5.1	84.0	46.6
Gate 120	3.3	4.7	2.0	3.0	49.5	27.5
Gate 120	3.3	4.7	3.0	4.3	71.0	39.4

Figure 6 12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Gate 120	3.3	4.7	3.0	4.2	69.3	38.5
Gate 120	3.3	4.7	2.5	3.7	61.0	33.8
Gate 120	3.3	4.8	2.0	3.1	51.1	28.4
Gate 120	3.3	4.8	3.0	4.2	69.3	38.5
Gate 120	3.3	4.8	2.5	3.8	62.7	34.8
Gate 120	3.3	4.9	2.5	3.9	64.3	35.7
Gate 120	3.3	4.9	1.8	2.9	47.8	26.5
Gate 120	3.3	4.9	2.5	3.9	64.3	35.7
Gate 120	3.3	4.9	1.8	2.8	46.2	25.6
Gate 120	3.3	4.9	2.5	3.9	64.3	35.7
Gate 120	3.3	5.0	2.0	3.2	52.8	29.3
Gate 120	3.3	5.0	2.0	3.2	52.8	29.3
Gate 120	3.3	5.0	2.5	4.0	66.0	36.6
Gate 120	3.3	5.1	2.5	4.1	67.7	37.6
Gate 120	3.3	5.1	1.6	2.6	43.0	23.9
Gate 120	3.3	5.1	2.5	4.1	67.7	37.6
Gate 120	3.3	5.1	2.5	4.1	67.7	37.6
Gate 120	3.3	5.2	2.5	4.2	69.3	38.5
Gate 120	3.3	5.2	2.5	4.2	69.3	38.5

Figure 6.12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Gate 120	3.3	5.2	2.5	4.2	69.3	38.5
Gate 120	3.3	5.2	1.1	1.8	29.7	16.5
Gate 120	3.3	5.3	2.5	4.2	69.3	38.5
Gate 120	3.3	5.3	1.9	3.2	52.8	29.3
Gate 120	3.3	5.3	1.0	1.8	29.7	16.5
Gate 120	3.3	5.5	0.7	1.3	2.1	1.2
Gate 120	3.3	5.5	2.0	3.8	6.3	3.5
Gate 120	3.3	5.6	0.7	1.3	2.1	1.2
Gate 120	3.3	5.6	1.7	1.3	2.1	1.2
Gate 120	3.3	5.7	0.6	1.2	2.0	1.1
Gate 120	3.3	5.7	0.8	1.4	2.3	1.3
Gate 120	3.3	5.7	0.6	1.2	2.0	1.1
Gate 120	3.3	5.7	0.8	1.4	2.3	1.3
Cafeteria #1 – Building 110	3.3	3.5	2.0	2.1	34.6	19.2
Cafeteria #2	3.3	3.6	2.0	2.2	36.3	20.1
Cafeteria #2	3.3	3.6	2.5	2.7	44.5	24.7
Water Tank at Mercury	3.3	3.7	2.5	2.7	44.5	24.7
Picnic area S. of Big Building	3.3	3.7	3.0	3.2	52.8	29.3
0.2 miles E of Picnic Area on Rd. to Pistol Range	3.3	3.7	3.5	3.9	64.3	35.7

Figure 6.12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
0 4 mi E of Picnic Area on Rd to Pistol Range	3.3	3.8	4.0	4.6	76.0	42.2
0.6 miles E of Picnic Area on Rd to Pistol Range	3.3	3.8	6.0	6.7	110.5	61.4
0.8 miles E of Picnic Area on road to Pistol Range	3.3	3.9	13.0	16.0	264.0	146.5
1.0 miles E of Picnic Area on road to Pistol Range	3.3	3.9	7.0	8.5	140.0	77.7
1.2 miles E of Picnic Area on road to Pistol Range (Gate to Pistol Range)	3.3	3.9	4.5	5.7	94 0	52.1
1.2 miles E of Picnic Area on road to Pistol Range (Gate to Pistol Range)	3.3	4.1	1.8	2.3	3.8	21.1
Gate to Pistol Range	3.3	4.3	1.6	2.1	34.6	19.4
Gate to Pistol Range	3.3	4.3	1.3	1.8	29.7	16.5
Gate to Pistol Range	3.3	4.4	1.4	1.9	31.4	17.4
Gate to Pistol Range	3.3	4.5	1.4	2.0	33.0	18.3
Gate to Pistol Range	3.3	4.6	1.7	2.2	36.3	20.1
Gate to Pistol Range	3.3	4.7	1.7	2.2	36.3	20.1
Gate to Pistol Range	3.3	4.8	1.1	1.7	28.0	15.5
Gate to Pistol Range	3.3	4.8	1.0	1.6	26.4	14.6
Gate to Pistol Range	3.3	4.9	0.9	1.4	23.1	12.8
Gate to Pistol Range	3.3	5.0	0.9	1.5	24.8	13.8
Gate to Pistol Range	3.3	5.1	0.8	1.3	21.4	11.9
Gate to Pistol Range	3.3	5.2	0.8	1.3	21.4	11.9
Water tank at Mercury	3.3	5.4	0.9	1.6	25.4	14.1

Figure 6.12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Outside Warehouse #6	3.3	2.9	.55	Fallout Occurring		
Outside Warehouse #6	3.3	3.0	3.5	Fallout Occurring		
Outside Warehouse #6	3.3	3.0	4.5	Fallout Occurring		
Outside Warehouse #6	3.3	3.2	7.0	Fallout Occurring		
Outside Warehouse #6	3.3	3.2	11.0	Fallout Occurring		
Outside Warehouse #6	3.3	3.3	9.5	9.5	157.0	87.2
Outside Warehouse #6	3.3	3.3	5.5	5.5	90.8	50.4
Outside Warehouse #6	3.3	3.4	3.5	3.6	59.3	32.9
Outside Warehouse #6	3.3	3.6	2.5	2.7	44.7	24.8
Outside Warehouse #6	3.3	3.7	2.5	2.8	46.3	25.7
Outside Warehouse #6	3.3	3.7	2.5	2.8	46.3	25.7
Outside Warehouse #6	3.3	3.8	3.0	3.6	59.4	33.0
Outside Warehouse #6	3.3	3.9	3.0	3.7	61.2	34.0
Outside Warehouse #6	3.3	4.0	4.5	5.7	94.2	52.3
Outside Warehouse #6	3.3	4.1	4.0	5.1	84.3	46.8
Outside Warehouse #6	3.3	4.2	3.5	4.5	74.3	41.8
Outside Warehouse #6	3.3	4.2	4.0	5.2	85.8	47.6
Outside Warehouse #6	3.3	4.3	3.0	4.1	67.7	37.6
Outside Warehouse #6	3.3	4.4	3.0	4.1	67.7	37.6

Figure 6.12 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Outside Warehouse #6	3.3	4.5	2.5	3.5	57.8	32.1
Outside Warehouse #6	3.3	4.6	2.0	2.9	47.8	26.5
Outside Warehouse #6	3.3	4.7	1.5	2.2	36.2	20.1
Outside Warehouse #6	3.3	4.7	0.8	1.2	19.8	11.0
Outside Warehouse #6	3.3	4.8	0.75	1.2	19.8	11.0
Outside Warehouse #6	3.3	4.9	0.85	1.3	21.5	11.9
Outside Warehouse #6	3.3	5.0	0.8	1.3	21.5	11.9
Outside Warehouse #6	3.3	5.1	0.75	1.2	19.8	11.0
Outside Warehouse #6	3.3	5.8	0.5	1.0	16.5	9.15

6.16 Logan.

The sixteenth event of this series was detonated in a tunnel at 2200 on 15 October 1958. There was no venting from the tunnel and hence no cloud.

6.16.1 Monitoring Logs.

Since the tunnel did not vent, there was no activity above background detected off-site.

6.16.2 Air Sampling Results.

Since this event occurred on the same day as Hamilton see comments made on the air sampling results in the Hamilton report (6.15).

6.17 Doña Ana.

The seventeeth event of this series was suspended by a balloon 500 feet in the air. The detonation occurred at 0620 on 16 October 1958. The cloud from this event rose to a maximum height of 11,000 feet (MSL) and travelled off in a southwest direction.

6.17.1 Monitoring Runs.

Monitoring runs which indicated activity substantially above background were performed on Highway 95 from approximately five miles east of Lathrop Wells to Lathrop Wells.

Monitoring runs which indicated only background were made on Highway 95 from Tonopah to Lathrop Wells, and from approximately five miles east of Lathrop Wells to the Mercury turnoff; on Nevada 16 from the junction with 95 to the Ash Meadows turnoff; on the Ash Meadows – Death Valley Junction Road from the junction with Highway 16 to Death Valley Junction; on Highway 190 from Death Valley Junction to the junction with Highway 58; and on Highway 58 from the junction with 190 to Beatty.

There is no table of selected doses to populated places.

A table of monitoring results is included as Figure 6.13.

6.17.2 Air Sampling Results.

The highest beta air concentration was 2.08×10^{-4} $\mu c/m^3$. This activity was detected on the sample run at Tonopah, Nevada, from 10/16/58 to 10/17/58.

AD-A076 368 REYNOLDS ELECTRICAL AND ENGINEERING CO INC MERCURY NEV F/G 18/6
OPERATION HARDTACK-PHASE II, OFF-SITE RADIOLOGICAL SAFETY REPOR--ETC(U)
AUG 59 O R PLACAK , M S SEAL , J R MCBRIDE AT (29-2)-162
UNCLASSIFIED AEC-OTO-58-6 NL

2 OF 3
AD A076368

MONITORING INFORMATION – DOÑA ANA

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
2.9 miles E. of Lathrop Wells	3.1	3.3	0.08	0.09	1.4	0.8
Relay Peak	3.1	3.4	0.16	0.17	2.6	1.4
2.9 miles E. of Lathrop Wells	3.3	3.5	0.09	0.09	1.5	0.8
Lathrop Wells	3.2	3.6	0.06	0.07	1.0	0.5
Lathrop Wells	3.2	3.7	0.06	0.07	1.0	0.5
11 miles SW of Pahrump Jct. & 95	3.9	4.0	0.08	0.08	0.16	0.09
13 miles SW of Pahrump Jct . & 95	4.1	4.1	0.08	0.08	0.16	0.09
15 miles SW of Pahrump Jct. & 95	4.2	4.2	0.08	0.08	0.17	0.09
5 miles E. of Lathrop Wells	3.0	5.2	0.07	0.13	0.19	0.10

Figure 6.13

6.18 Vesta.

The eighteenth event of this series was a safety shot which was detonated on the ground at 1500 on 17 October 1958. The cloud from this detonation rose to a maximum height of 10,000 feet (MSL.) and travelled off in a northerly direction.

6.18.1 Monitoring Runs.

A monitoring run was performed on Road B from Watertown to Highway 25. Activity substantially above background was detected from 16 miles north of Groom Lake to about two miles east of the junction with the Kawich Valley Road.

There is no table of selected doses in populated places.

A table of monitoring results is included as Figure 6.14.

6.18.2 Air Sampling Results.

The highest beta air concentration was 4.7×10^{-4} $\mu c/m^3$ which was detected on the sample run at Ely, Nevada, from 0900 on 10/18/58 to 2015 on 10/18/58.

MONITORING INFORMATION – VESTA

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
16 miles NW of Groom Lake on Road B	3.0	4.2	0.40	0.59	8.8	4.9
18 miles NW of Groom Lake on Road B	3.1	4.3	0.40	0.6	9.3	5.2
20 miles NW of Groom Lake on Road B	3.2	4.4	0.30	0.6	9.6	5.3

Figure 6.14

6.19 Rio Arriba

The nineteenth event of this series was detonated atop a 75 foot tower at 0625 on 18 October 1958. The cloud from this shot rose to a maximum height of 13,500 feet (MSL) and travelled off in a north-northeast direction.

6.19.1 Monitoring Runs.

Monitoring runs which indicated activity substantially above background were made on the Groom Lake Road from Gate 385 to about 8.5 miles north of 385; on the Area 13 access road (Old Corral Road) from the Groom Lake Road to Road B; on the Oak Springs Butte Road from about three miles west of Groom Lake to the west end of the road; on Road B from about four miles north of Groom Lake to Highway 25; on Highway 25 from eight miles west of the east Lincoln Mine Road to approximately 25 miles northwest of the Road B Junction; on the Lincoln Mine-Adaven Road from Highway 25 to the junction with the Nyala Road; on the Nyala Road from the junction with the Adaven Road to Highway 25; on Highway 6 from Ely to about twenty miles southwest of the junction of 6 and 38; on Highway 38 from the junction with 6 to about twenty miles south of the junction; on Highway 50-93 from Ely to approximately twenty miles east of Ely; and on the Hiko-Adaven Road from thirty miles northwest of Hiko to about 34 miles northwest of Hiko.

Monitoring runs which indicated only background were performed on the Groom Lake Road from 8.5 miles north of Gate 385 to fifteen miles east of Groom Lake; on the Oak Springs Butte Road from Groom Lake to about three miles west of Groom Lake; on Road B from Groom Lake to about four miles north of Groom Lake; on Highway 25 from the east Lincoln Mine Road to about eight miles west of that junction and from 25 miles northwest of the Road B junction to Warm Springs; on Highway 6 from Warm Springs to about twenty miles southwest of the junction of 6 and 38; on Highway 38 from twenty miles south of the junction with 6 to 45 miles south of the junction; on Highway 50 from Ely to 40 miles west of Ely; on Highway 93 from Piocheto about twenty miles east of Ely; on the Rosie Mine Road from Highway 25 to the mine; on the Hiko-Adaven Road from Hiko to 30 miles northwest of Hiko and from 34 miles northwest of Hiko to Adaven; and on Utah 21 from Beaver, Utah to Baker, Nevada.

A table of selected doses to populated places is included as Figure 6.15.

A table of monitoring results above background is included as Figure 6.16.

6.19.2 Public Relations.

The state health officers of Nevada and Utah were called and informed of the event and the predicted trajectories.

6.19.3 Air Sampling Results.

The highest beta air concentration was 5.32×10^{-5} $\mu c/m^3$. This activity was detected on the sample run at Lathrop Wells, Nevada, from 10/19/58 to 10/20/58.

TABLE OF SELECTED DOSES

LOCATION	Population	Estimated Time of Fall (H + Hours)	Time of Instrument Reading (H + Hours)	Maximum Instrument Reading (Mr/Hr)	Infinite Dose (Mr)	Estimated Dose (Mr)
Belew Ranch	3	2.7	7.5	1.8	24	13
Casey Ranch (Formerly Bardoli)	1	2.8	8.0	1.4	20	11
Gate 385	1	0.4	5.6	45.0	90	90
Lincoln Wells	2	1.4	1.7	5.0	35	21
Reed Maintenance Station	6	2.1	9.3	2.4	25	14
Sharpe Ranch	6	2.8	8.3	1.5	21	12
Uhalde Ranch	8	2.7	7.3	1.7	23	13
Walch Ranch	6	2.7	6.6	1.6	22	12

Figure 6.15

MONITORING INFORMATION – RIO ARRIBA

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
8 miles W. of Jct. 25 & LM Road E. on 25	1.4	1.50	0.4	0.40	2.8	1.7
Jct. Nev. 25 & W. Lincoln Mine Road	1.4	1.58	0.4	0.41	2.87	1.7
Lincoln Mine Wells	1.4	1.67	4.0	4.4	30.8	18.5
3 miles N. of LM Wells on Adaven Rd.	1.5	1.78	7.0	8.6	64.5	38.8
6 miles N. of LM Wells on Adaven Rd.	1.7	1.92	7.0	8.5	72.2	43.3
11 miles N. of LM Wells on Adaven Rd.	1.8	2.08	1.0	1.2	10.8	6.9
15 miles N. of LM Wells on Adaven Rd.	2.0	2.17	0.5	0.53	5.3	3.18
18 miles N. of LM Wells on Adaven Rd.	2.0	2.33	0.3	0.35	3.5	2.1
21 miles N. of LM Wells on Adaven Rd.	2.1	2.42	0.25	0.3	3.15	1.9
Junction Hiko & Adaven Road	2.1	2.83	0.40	0.59	6.2	3.7
4 miles W. of Junction toward Wash's	2.2	3.08	0.3	0.45	4.95	2.9
1 mile E. of Wash Home at Adaven	2.6	3.25	0.3	0.40	5.20	3.1
Wash's home at Adaven	2.6	3.50	0.15	0.22	2.86	1.6
Wash's home at Adaven	2.6	4.25	0.20	0.37	4.8	2.7
4 miles E. of Adaven (Wash's)	2.7	4.50	0.20	0.39	5.25	3.0
Uhalde Ranch – Adaven	2.7	4.83	0.1	0.21	2.83	1.6
Beleiu Home – Adaven	2.7	5.00	0.1	0.22	2.97	1.7
Cherry Creek Summit – Adaven	2.7	7.75	0.5	1.8	24.3	13.7
Casey Ranch – Nyla (Bordali's)	2.8	8.00	0.4	1.4	19.6	10.1

Figure 6.16

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Sharpe Ranch – Nyla	2.8	8.33	0.4	1.5	21.0	11.9
10 miles SW of Sharpe's on Nyla Road	2.7	8.58	0.4	1.7	23.0	13.0
Jct. Nevada 25 & Nyla Road	2.6	8.83	0.4	1.7	22.1	12.5
20 miles from above jct. Reed Highway Maintenance in Nevada 25	2.1	9.25	0.4	2.4	25.2	14.5
Junction Nevada 25 & Reed Road	1.9	9.50	0.4	2.7	25.6	15.1
7 miles from above Jct. on Nev. 25-West side of Sand Spring Valley	1.7	9.67	0.4	3.2	27.2	16.0
Gate 385	.4	2.8	3.0	30.0	60.0	60.0
0.5 miles N. of 385 on Groom Lake Road	.4	2.8	1.5	15.0	30.0	30.0
1 mile N. of 385 on Groom Lake Road	.4	2.8	1.5	15.0	30.0	30.0
1.5 miles N. of 385 on Groom Lake Road	.4	2.9	4.0	41.0	82.0	82.0
2 miles N. of 385 on Groom Lake Road	.4	2.9	4.0	41.0	82.0	82.0
2.5 miles N. of 385 on Groom Lake Road	.4	2.9	2.0	22.0	44.0	44.0
3 miles N. of 385 on Groom Lake Road	.4	2.9	8.5	90.0	180.0	180.0
3.5 miles N. of 385 on Groom Lake Road	.4	3.0	12.0	130.0	260.0	260.0
4 miles N. of 385 on Groom Lake Road	.4	3.0	9.5	110.0	220.0	220.0
4.5 miles N. of 385 on Groom Lake Road	.4	3.0	14.0	160.0	320.0	320.0
4.6 miles N. of 385 on Groom Lake Road	.4	3.1	24.0	260.0	520.0	520.0
5 miles N. of 385 on Groom Lake Road	.4	3.1	7.0	80.0	160.0	160.0

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
5.5 miles N. of Gate 385 on Groom Lake Rd.	.4	3.1	29.0	320.0	640.0	640.0
6 miles N. of Gate 385 on Groom Lake Rd.	.4	3.2	46.0	500.0	1000.0	1000.0
6.2 miles N. of Gate 385 on Groom Lake Rd.	.5	3.2	22.0	190.0	475.0	290.0
6.5 miles N. of Gate 385 on Groom Lake Rd.	.5	3.2	10.0	88.0	220.0	134.0
7 miles N. of Gate 385 on Groom Lake Rd.	.5	3.2	1.8	17.0	42.5	25.9
7.5 miles N. of Gate 385 on Groom Lake Rd.	.5	3.3	0.1	.97	2.4	1.5
8 miles N. of Gate 385 on Groom Lake Rd.	.5	3.3	0.1	1.0	2.5	1.5
8.5 miles N. of Gate 385 on Groom Lake Rd.	.5	3.4	0.06	0.6	1.5	.9
5.4 miles N. of Gate 385 on Groom Lake Rd.	.4	5.4	20.0	480.0	960.0	960.0
4 miles N. of Gate 385 on Groom Lake Rd.	.4	5.4	3.0	68.0	136.0	136.0
Pass N. of 385	.4	5.5	1.2	24.0	48.0	48.0
Gate 385	.4	5.6	2.0	45.0	90.0	90.0
Lincoln Mine	1.5	1.3	4.5	Fallout Occurring		
8 miles W. of Tempiute Rd. Jct. on Hwy. 25	1.5	2.5	0.25	0.48	3.6	2.1
Jct. Road B & Highway 25	1.5	2.6	0.70	1.3	9.75	5.8
1 mile W. of Jct. Road B & Hwy. 25 on 25	1.5	2.7	4.5	9.0	67.5	39.8
2 miles W. of Jct. Road B & Hwy. 25 on 25	1.5	2.7	8.5	17.0	127.3	75.2
3 miles W. of Jct. Road B & Hwy. 25 on 25	1.5	2.8	5.0	11.0	82.5	48.6
4 miles W. of Jct. Road B & Hwy. 25 on 25	1.5	2.8	1.0	2.2	16.5	9.7

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
5 miles W. of Jct. Road B & Hwy. 25 on 25	1.5	2.9	0.5	1.2	9.0	5.3
6 miles W. of Jct. Road B & Hwy. 25 on 25	1.6	2.9	0.6	1.3	10.4	6.1
7 miles W. of Jct. Road B & Hwy. 25 on 25	1.6	3.0	0.5	1.2	9.6	5.7
9 miles W. of Jct. Road B & Hwy. 25 on 25	1.6	3.1	0.7	1.6	12.8	7.8
11 miles W. of Jct. Road B & Hwy. 25 on 25	1.6	3.2	0.35	0.95	7.6	4.5
13 miles W. of Jct. Road B & Hwy. 25 on 25	1.6	3.3	0.4	1.0	8.0	4.7
15 miles W. of Jct. Rd. B & Hwy. 25 on 25	1.6	3.3	0.4	1.0	8.0	4.7
Jct. Reed Road & Highway 25	1.7	3.3	0.15	0.39	3.3	1.9
3 miles W. on Reed Road from Jct. with 25	1.7	3.5	0.15	0.39	3.3	1.9
6 miles W. on Reed Road from Jct. with 25	1.7	3.6	0.09	0.23	1.95	1.2
92 miles N. of Pioche, Route 95	5.2	4.8	0.1	Fallout Occurring		
94 miles N. of Pioche, Route 95	5.2	4.8	0.15	Fallout Occurring		
95 miles N. of Pioche, Route 95	5.2	4.8	0.17	Fallout Occurring		
96 miles N. of Pioche, Route 95	5.3	4.8	0.3	Fallout Occurring		
97 miles N. of Pioche, Route 95	5.3	4.9	0.3	Fallout Occurring		
99 miles N. of Pioche, Route 95	5.3	4.9	0.25	Fallout Occurring		
101 miles N. of Pioche, Route 95	5.3	4.9	0.15	Fallout Occurring		
103 miles N. of Pioche, Route 95	5.4	4.96	0.21	Fallout Occurring		
105 miles N. of Pioche, Route 95	5.5	5.0	0.15	Fallout Occurring		

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
107 miles N of Pioche, Route 95	5.5	5.0	0.20	Fallout Occurring		
109 miles N of Pioche, Route 95 at Ely	5.6	5.1	0.10	Fallout Occurring		
1 mile SW of Ely on Route 6	5.6	5.3	0.13	Fallout Occurring		
3 miles SW of Ely on Route 6	5.6	5.3	0.20	Fallout Occurring		
5 miles SW of Ely on Route 6	5.4	5.4	0.22	0.22	5.9	3.1
Jct. Route 6 and Road to Ruth	5.4	6.0	0.20	0.23	6.2	3.3
2 miles SW Jct. Road to Ruth	5.3	6.1	0.18	0.22	5.8	3.1
4 miles SW Jct. Road to Ruth	5.2	6.2	0.17	0.20	5.2	2.8
6 miles SW Jct. Road to Ruth	5.1	6.2	0.17	0.20	5.1	2.7
8 miles SW Jct. Road to Ruth	5.0	6.3	0.17	0.22	5.5	3.0
12 miles SW Jct. Road to Ruth	4.9	6.4	0.17	0.23	5.6	3.0
16 miles SW Jct. Road to Ruth	4.9	6.6	0.15	0.22	5.4	2.9
Jct. Route 6 and Route 38	4.8	6.7	0.13	0.20	4.8	2.6
4 miles S. of Jct. & Rt. 38 on Rt. 38	4.7	6.7	0.08	0.12	2.8	1.5
9 miles S. of Jct. & Rt. 38 on Rt. 38	4.6	6.8	0.10	0.16	3.7	2.0
Lund	4.5	6.9	0.07	0.12	2.7	1.5
15 miles S. of Jct. Rt. 6 & Rt. 38 on Rt. 38	4.5	7.1	0.06	0.11	2.5	1.3
20 miles S. of Jct. Rt. 6 & Rt. 38	4.5	7.2	0.08	0.14	3.1	1.7
10 miles N. of Jct. Rt. 6 & Rt. 38	5.2	9.8	0.06	0.13	3.4	1.8

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
20 miles N of Jct Rt 6 & Rt 38	5.4	10.1	0.07	0.15	4.05	2.2
3 5 miles W of Groom Lake on Oak Spgs. Butte	6	1 0	20.0	38.0	114.0	69.5
4.0 miles W of Groom Lake on Oak Spgs. Butte	.6	1 0	120.0	230.0	690 0	421.0
4 5 miles W of Groom Lake on Oak Spgs Butte	.6	1 1	90 0	180 0	540.0	329 0
5.0 miles W of Groom Lake on Oak Spgs. Butte	.6	1 1	16 0	29 0	87 0	53.1
5 5 miles W of Groom Lake on Oak Spgs Butte	.6	1 1	13.0	26.0	78 0	47.6
6.0 miles W of Groom Lake on Oak Spgs. Butte	6	1 2	34 0	80.0	240,0	146.0
6 5 miles W of Groom Lake on Oak Spgs Butte	6	1 2	18.0	39 0	117 0	71.4
7.0 miles W of Groom Lake on Oak Spgs, Butte	.6	1 3	11.0	26.0	78.0	47 6
7 5 miles W of Groom Lake on Oak Spgs Butte	.6	1 3	15.0	38 0	114 0	69 5
8.0 miles W of Groom Lake on Oak Spgs Butte	.6	1.3	14.0	38 0	114.0	69.5
8 5 miles W of Groom Lake on Oak Spgs Butte	6	1 4	5.0	14.0	42.0	25.6
9.0 miles W of Groom Lake on Oak Spgs Butte	.6	1.5	1.3	39.0	117 0	71 4
8 5 miles W of Groom Lake on Oak Spgs Butte	6	1 5	4.0	12 0	36 0	22 0
9 0 miles W. of Groom Lake on Oak Spgs Butte	6	1 6	.25	0 8	2.4	1 5
9.5 miles W of Groom Lake on Oak Spgs Butte	6	1 7	.25	0 85	2.55	1 6
9.0 miles W of Groom Lake on Oak Spgs Butte	.6	1 7	.25	0 85	2 55	1 6
8 5 miles W of Groom Lake on Oak Spgs Butte	6	1.7	2.5	8 5	25 5	16 1
8 0 miles W of Groom Lake on Oak Spgs Butte	.6	1 8	6.5	25 0	75 0	45.7

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
7.5 miles W. of Groom Lake on Oak Spgs. Butte	.6	1.9	7.5	32.0	96.0	58.5
7.0 miles W. of Groom Lake on Oak Spgs. Butte	.6	2.0	8.0	34.0	102.0	62.2
6.5 miles W. of Groom Lake on Oak Spgs. Butte	.6	2.0	11.0	47.0	141.0	86.0
6.0 miles W. of Groom Lake on Oak Spgs, Butte	.6	2.1	7.0	31.0	93.0	56.7
5.5 miles W. of Groom Lake on Oak Spgs. Butte	.6	2.1	5.5	24.0	72.0	43.9
5.0 miles W. of Groom Lake on Oak Spgs. Butte	.6	2.1	6.0	27.0	81.0	49.4
4.5 miles W. of Groom Lake on Oak Spgs. Butte	.6	2.2	19.5	90.0	270.0	164.8
4.0 miles W. of Groom Lake on Oak Spgs. Butte	.6	2.2	60.0	280.0	840.0	513.0
3.5 miles W. of Groom Lake on Oak Spgs. Butte	.6	2.3	23.0	120.0	360.0	220.0
3.0 miles W. of Groom Lake on Oak Spgs. Butte	.6	2.3	.25	1.3	3.9	2.4
4 miles NW on Road B from Groom Lake	.7	3.0	.7	4.1	14.4	8.9
4.2 miles NW on Road B from Groom Lake	.7	3.0	2.5	15.0	52.5	32.0
4.4 miles NW on Road B from Groom Lake	.7	3.1	9.0	55.0	192.5	117.5
4.6 miles NW on Road B from Groom Lake	.7	3.1	17.0	110.0	350.0	214.0
4.8 miles NW on Road B from Groom Lake	.7	3.1	26.0	160.0	560.0	342.0
5.0 miles NW on Road B from Groom Lake	.7	3.1	30.0	180.0	630.0	384.0
5.2 miles NW on Road B from Groom Lake	.8	3.2	23.0	120.0	480.0	293.0
5.4 miles NW on Road B from Groom Lake	.8	3.2	23.0	120.0	480.0	293.0
5.6 miles NW on Road B from Groom Lake	.8	3.2	17.0	82.0	328.0	200.0

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
5.8 miles NW on Road B from Groom Lake	.8	3.2	11.0	55.0	220.0	134.0
6.0 miles NW on Road B from Groom Lake	.8	3.2	6.0	30.0	120.0	73.2
6.2 miles NW on Road B from Groom Lake	.8	3.3	4.0	22.0	88.0	53.6
6.4 miles NW on Road B from Groom Lake	.8	3.3	2.5	13.0	52.0	31.7
6.6 miles NW on Road B from Groom Lake	.8	3.3	1.5	8.0	32.0	19.5
6.8 miles NW on Road B from Groom Lake	.9	3.6	0.9	4.8	22.0	13.4
7.0 miles NW on Road B from Groom Lake	.9	3.6	0.5	2.6	12.0	7.3
7.5 miles NW on Road B from Groom Lake	.9	3.7	0.4	2.1	9.9	6.0
8.0 miles NW on Road B from Groom Lake	.9	3.8	0.4	2.2	10.0	6.1
8.5 miles NW on Road B from Groom Lake	.9	4.1	0.7	4.1	18.4	11.2
9.0 miles NW on Road B from Groom Lake	.9	4.1	1.0	6.0	27.0	16.5
9.5 miles NW on Road B from Groom Lake	.9	4.2	0.9	5.6	25.2	15.4
10.0 miles NW on Road B from Groom Lake	.9	4.2	0.9	5.6	25.2	15.4
10.5 miles NW on Road B from Groom Lake	.9	4.3	0.7	4.6	20.7	12.6
11 miles NW of Groom Lake on Road B	.9	4.3	0.7	4.6	20.7	12.6
12 miles NW of Groom Lake on Road B	.9	4.5	0.8	5.5	24.8	15.1
13 miles NW of Groom Lake on Road B	.9	4.4	0.7	4.6	20.7	12.6
14 miles NW of Groom Lake on Road B	1.0	4.5	0.5	3.0	15.0	9.0
15 miles NW of Groom Lake on Road B	1.0	4.5	0.5	3.0	15.0	9.0

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
16 miles NW of Groom Lake on Road B	1.0	4.5	0.4	2.3	115.0	69.0
17 miles NW of Groom Lake on Road B	1.1	4.6	0.4	2.2	12.1	7.3
18 miles NW of Groom Lake on Road B	1.1	4.6	0.25	1.4	7.7	4.6
20 miles NW of Groom Lake on Road B	1.1	4.9	0.5	3.1	17.1	10.5
22 miles NW of Groom Lake on Road B	1.2	4.9	0.6	3.6	21.6	13.0
24 miles NW of Groom Lake on Road B	1.2	5.0	0.3	1.7	10.2	6.1
FB 601 – Jct. B & Standard Mine Road	1.2	5.1	0.25	1.5	9.0	5.4
2 miles E. of Jct. B & Standard Mine Road	1.2	5.1	0.4	2.3	13.8	8.3
4 miles E. of Jct. B & Standard Mine Road	1.2	5.2	0.4	2.4	14.4	8.6
6 miles E. of Jct. B & Standard Mine Road	1.3	5.3	0.6	3.2	20.8	12.5
7 miles E. of Jct. B & Standard Mine Road	1.3	5.3	4.0	21.0	136.5	82.0
7.5 miles E. of Jct. B & Standard Mine Road	1.3	5.3	4.8	25.0	162.5	98.0
8.0 miles E. of Jct. B & Standard Mine Road	1.3	5.3	4.0	22.0	143.0	85.8
8.5 miles E. of Jct. B & Standard Mine Road	1.4	5.3	1.7	8.0	56.0	33.6
9.0 miles E. of Jct. B & Standard Mine Road	1.4	5.3	1.1	5.1	35.7	21.4
Junction Road B & 25	1.4	5.4	0.4	2.0	14.0	8.4
1 mile NW Jct. Road B & 25 on 25	1.4	5.4	3.0	15.0	105.0	63.0
1.5 miles NW Jct. Road B & 25 on 25	1.4	5.5	4.0	20.0	140.0	84.0
2.0 miles NW Jct. Road B & 25 on 25	1.5	5.5	4.5	22.0	165.0	99.0

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
2 5 miles NW Jct Road B & 25 on 25	1 5	5 5	4 5	22 0	165.0	97.4
3 0 miles NW Jct Road B & 25 on 25	1 5	5.5	3 2	16.0	120 0	70 8
3.5 miles NW Jct. Road B & 25 on 25	1.5	5 6	0 8	3.8	28.5	16.7
4 0 miles NW Jct Road B & 25 on 25	1 5	5.9	0 6	3 2	24 0	14 1
5 0 miles NW Jct. Road B & 25 on 25	1 5	5 9	0.3	1.6	12.0	7.1
6.0 miles NW Jct Road B & 25 on 25	1.6	6.0	0 25	1 2	9.6	5.7
8.0 miles NW Jct Road B & 25 on 25	1.6	6.0	0.3	1.5	12.0	7.1
10 miles NW Jct. Road B & 25 on 25	1.6	6.0	0.2	88	7.04	4.1
12 miles NW Jct. Road B & 25 on 25	1.6	6 1	0 25	1 3	10.4	6.1
14 miles NW Jct Road B & 25 on 25	1 7	6.2	0.15	0.8	6.8	4.0
14 2 miles NW Jct Road B & 25 on 25	1.7	6.6	0.25	1 3	11 2	6 6
9.0 miles NW Jct Road B & 25 on 25	1 6	6.7	0 25	1.4	11 2	6.6
4 miles NW Jct Road B & 25 on 25	1.5	6.8	0.5	3.0	22 5	13 5
Junction 25 & Road B	1 4	6 8	0.25	1.6	11 2	6.7
5 miles W of Junction on B	1.2	7.0	0 30	2.6	15 6	9.4
Junction Road B & Kawich Road	1.2	7 1	0.20	1.7	10.2	6 1
5 miles S. on B	1 1	7 2	0 30	2.9	15 9	9 5
10 miles S on B	9	7.4	0.35	4.2	18.9	11 5
Jct. Road B & O1d Corral Road	8	7.5	0 45	6 2	24.8	15.1

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
5 miles S. of Junction	.8	7.6	1.7	23.0	92.0	56.2
10 miles S. of Junction	.7	7.7	2.5	42.0	147.0	89.8
Jct. Old Corral Road & Groom Lake Road	.7	7.8	3.5	60.0	210.0	128.0
Gate 385	.3	8.0	1.0	50.0	75.0	75.0
30 miles NW of Cottonwood Rd. on Adavan Rd.	2.6	9.5	0.4	1.8	23.4	13.2
31 miles NW of Cottonwood Rd. on Adavan Rd.	2.6	9.5	0.4	1.8	23.4	13.2
33 miles NW of Cottonwood Rd. on Adavan Rd.	2.6	9.6	0.15	0.72	9.36	5.3
Gate 385	.4	3.5	1.5	19.0	38.0	38.0
1.8 miles NE of Gate 385 at pass	.4	3.5	1.5	19.0	38.0	38.0
1.8 miles NE of Gate 385 at pass	.4	3.6	1.5	20.0	40.0	40.0
Jct. Old Corral Road & Gate 385 Road	.4	3.8	3.2	46.0	92.0	92.0
Jct. Oak Spr. Butte Rd. & Old Corral Rd.	.6	3.9	2.8	27.0	81.0	49.3
5 miles N. of above Junction	.7	4.0	0.9	7.2	25.2	15.4
Jct. Road B & Old Corral Road	.9	4.1	0.8	4.8	21.6	13.2
5 miles NW of Jct. Rd. B & Old Corral Rd.	1.0	4.3	0.6	3.4	17.0	10.4
15 miles SE of Jct. Nev. 25 & Nyala Rd. on N25	2.0	4.6	0.06	0.16	1.6	.9
Reed Maintenance Station on Nevada 25	2.1	4.7	0.07	0.18	1.9	1.1
2 miles S. of Reed Main. Sta. on Nev. 25	2.1	4.7	0.07	0.18	1.9	1.1
14.2 miles NW of Jct. Nev. 25 & Rd. B	1.6	6.6	0.2	1.2	9.6	5.7

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
19.5 miles NW of Jct. Nev. 25 & Rd. B	1.7	6.8	0.1	0.52	4.4	2.6
29.5 miles NW of Jct. Nev. 25 & Rd. B	1.9	6.95	0.06	0.27	2.56	1.5
13 miles SW Ely on US 6	5.0	4.25	0.06	Fallout Occurring		
13 miles SW Ely on US 6	5.0	4.33	0.30	Fallout Occurring		
13 miles SW Ely on US 6	5.0	4.42	0.35	Fallout Occurring		
13 miles SW Ely on US 6	4.9	4.50	0.30	Fallout Occurring		
13 miles SW Ely on US 6	4.9	4.58	0.27	Fallout Occurring		
14 miles SW Ely on US 6	4.9	4.68	0.28	Fallout Occurring		
15 miles SW Ely on US 6	4.8	4.73	0.30	Fallout Occurring		
16 miles SW Ely on US 6	4.8	4.77	0.30	0.3	7.2	3.9
17 miles SW Ely on US 6	4.8	4.82	0.25	0.25	6.0	3.2
18 miles SW Ely on US 6	4.8	4.87	0.30	0.31	7.4	4.0
19 miles SW Ely on US 6	4.8	4.92	0.30	0.31	7.4	4.0
20 miles SW Ely on US 6	4.8	5.02	0.25	0.27	6.5	3.5
21 miles SW of Ely on US 6	4.8	5.05	0.25	0.26	6.25	3.4
Jct. US 6 & Nevada 38	4.8	5.12	0.22	0.23	5.5	3.0
1 mile W. of Junction	4.7	5.17	0.30	0.33	7.75	4.2
2 miles W. of Junction	4.7	5.20	0.30	0.33	7.75	4.2
3 miles W. of Junction	4.6	5.25	0.25	0.30	6.9	3.7

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
4 miles W of Junction	4.6	5.28	0.25	0.30	6.9	3.7
5 miles W of Junction	4.6	5.33	0.25	0.30	6.9	3.7
6 miles W of Junction	4.6	5.37	0.25	0.30	6.9	3.7
7 miles W of Junction	4.5	5.42	0.20	0.25	5.6	3.0
8 miles W of Junction	4.5	5.47	0.20	0.25	5.6	3.0
9 miles W of Junction	4.5	5.50	0.20	0.26	5.85	3.2
10 miles W of Junction	4.5	5.57	0.22	0.26	5.85	3.2
11 miles W of Jct US 6 & 38	4.5	5.60	0.35	0.51	11.5	6.3
12 miles W. of Jct. US 6 & 38	4.4	5.65	0.35	0.51	11.2	6.1
13 miles W of Jct US 6 & 38	4.4	5.68	0.30	0.4	8.8	4.8
14 miles W of Jct. US 6 & 38	4.3	5.73	0.20	0.24	5.16	2.8
15 miles W of Jct US 6 & 38	4.3	5.78	0.18	0.27	5.8	3.2
17 miles W of Jct US 6 & 38	4.3	6.37	0.10	0.16	3.44	1.9
18 miles W of Jct US 6 & 38	4.3	6.42	0.07	0.12	2.58	1.4
19 miles W. of Jct US 6 & 38	4.3	6.53	0.07	0.12	2.58	1.4
20 miles W of Jct. US 6 & 38	4.3	6.58	0.06	0.1	2.15	1.2
22 miles W. of Jct US 6 & 38	4.3	6.65	0.06	0.1	2.15	1.2
23 miles W of Jct. US 6 & 38	4.3	6.68	0.06	0.1	2.15	1.2
25 miles W. of Jct US 6 & 38	4.3	6.77	0.06	0.1	2.15	1.2

Figure 6.16 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
15 miles NE of Currant on US 6	4 4	9 08	0.10	0.23	5 06	2 7
20 miles NE of Currant on US 6	4 6	9.18	0.10	0 22	5 06	2 7
25 miles NE of Currant on US 6	4.8	9.27	0 10	0 22	5.28	2.9
Junction US 6 & Nevada 38	4 8	9.40	0 10	0.22	5 28	2 9
5 miles NE of Junction	5.0	9.77	0 10	0.22	5.5	3.0
10 miles NE of Junction	5.1	9.87	0 10	0 22	5 6	3 0
15 miles NE of Junction	5.3	9.95	0 07	0.14	3.7	2 0
20 miles NE of Junction	5 4	10 12	0.15	0.31	8.36	4 5
Cherry Creek Summit – Adaven	2.7	5.42	0 1	0.23	3 10	1 8
Walsh Home – Adaven	2.7	6.58	0.6	1 6	21.6	12.3
Uhalde Ranch – Adaven	2 7	7 33	0.5	1 7	22.9	12 9
Beleiu Home – Adaven	2 7	7 50	0 5	1 8	24.3	13 7

6.20 San Juan.

The twentieth event of this series was a safety shot which was detonated at the bottom of a 250 foot shaft at 0630 on 20 October 1958. There was no venting from this shot and hence no cloud.

6.20.1 Monitoring Runs.

Since the shot did not vent, there were no monitoring runs performed, and therefore, no tables of selected doses or monitoring results are included.

6.20.2 Air Sampling Results.

The highest beta air concentration, 3.66×10^{-5} $\mu c/m^3$, occurred at Goldfield, Nevada, on the sample run from 10/21/58 to 10/22/58.

6.21 Socorro

The twenty-first event of this series was detonated at 0530 on 22 October 1958. The device was suspended from an anchored balloon 1500 feet above the desert. The cloud from this event rose to a maximum height of 26,000 feet (MSL) and travelled off in a northeast direction.

6.21.1 Monitoring Runs.

This was the first of four events to occur on this date. As can best be determined, all fallout that was detected was due to the second event of the day. All monitoring results will be documented in this report and will be a part of the ensuing three reports by reference.

Monitoring runs which indicated activity substantially above background were performed on Road B from Watertown to Highway 25; on Highway 25 from ten miles south of the junction with the Nyala Road to about three miles east of Lincoln Mine; and on the Groom Lake Road from about two miles northeast of Groom Lake to Groom Lake.

Monitoring runs which indicated only background were performed on the Lincoln Mine-Adaven Road from Lincoln Mine to the Nyala Road; on the Nyala Road from the junction with the Lincoln Mine-Adaven Road to Highway 25; on Highway 25 from the junction of the Nyala Road to about ten miles south of the junction; on Highway 6 from Tonopah to Ely; on Highway 93 from Overton to Ely; on Utah 56 from Cedar City, Utah, to Highway 93; and on Utah 21 from Beaver, Utah, to 50 miles west of Wah Wa Springs, Utah.

A table of selected doses to populated places is included as Figure 6.17.

A table of monitoring results is included as Figure 6.18.

6.21.2 Public Relations.

The state health officers of Nevada and Utah were called and informed of the events and the predicted trajectories. The state health officer of California was notified through the Public Health Service Regional Office in San Francisco.

6.21.3 Air Sampling Results.

The highest beta air concentration, 1.94×10^{-3} $\mu c/m^3$, occurred at Lincoln Mine, Nevada, on the sample run from 10/22/58 to 10/23/58.

TABLE OF SELECTED DOSES

LOCATION	Population	Estimated Time of Fall (H + Hours)	Time of Instrument Reading (H + Hours)	Maximum Instrument Reading (Mr/Hr)	Infinite Dose (Mr)	Estimated Dose (Mr)
Watertown, Nevada	2	3.4	3.4	7.0	119	66

Figure 6.17

MONITORING INFORMATION – SOCORRO

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
6 miles N of Lincoln Mine Wells on road to Adaven	6.6	1.7	08	Fallout Occurring		
10 miles from Jct Nyala Rd. to Hwy 25 on Hwy, 25 toward Lincoln Mine	8.4	6.5	.10	Fallout Occurring		
12 miles from Jct. Nyala Rd to Hwy 25 on Hwy 25 toward Lincoln Mine	8.3	6.6	.30	Fallout Occurring		
14 miles from Jct Nyala Rd. to Hwy 25 on Hwy 25 toward Lincoln Mine	8.2	6.7	.28	Fallout Occurring		
16 miles from Jct Nyala Rd to Hwy 25 on Hwy 25 toward Lincoln Mine	8.1	6.7	.50	Fallout Occurring		
18 miles from Jct. Nyala Rd. to Hwy 25 on Hwy. 25 toward Lincoln Mine	7.8	6.8	.55	Fallout Occurring		
20 miles from Jct Nyala Rd. to Hwy 25 on Hwy. 25 toward Lincoln Mine	7.7	6.8	60	Fallout Occurring		
23 miles from Jct Nyala Rd to Hwy 25 on Hwy. 25 toward Lincoln Mine	7.6	6.9	.55	Fallout Occurring		
Junction Hwy. 25 & Reed Road	7.3	7.0	.20	Fallout Occurring		
3 miles SE of Junction on Highway 25	7.0	7.2	.30	.32	11.2	5.8
7 miles SE of Junction on Highway 25	6.7	7.4	.15	.17	5.7	3.0
12 miles SE of Junction on Highway 25	6.4	7.5	.10	.12	3.8	2.0
Junction Highway 25 & Road B	6.02	7.6	.08	0.11	3.3	1.7

Figure 6.18

Figure 6.18 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Lincoln Mine Headquarters	6 02	7.8	.10	0.13	3.9	2.0
2 miles W from Jct Rd B & Hwy 25 on Hwy 25	6.1	26.0	0.08	0 42	1 3	0.7
3 miles NW of Groom Lake on Road B	3 8	4.4	0 06	0.07	1.3	0.7
4 miles NW of Groom Lake on Road B	3 9	4.5	0.15	0.17	3.3	1.8
5 miles NW of Groom Lake on Road B	4 1	4.6	0 3	0.34	7.0	3.8
6 miles NW of Groom Lake on Road B	4.2	4 7	0 1	0 12	2.5	1.4
7 miles NW of Groom Lake on Road B	4.2	4.7	0 07	0.08	1 7	0.9
9 miles NW of Groom Lake on Road B	4 4	4 8	0 07	0.08	1.8	1.0
Watertown	3.4	2 28	0 10	Fallout Occurring		
Watertown	3 4	2 32	13	Fallout Occurring		
Watertown	3 4	2.33	.13	Fallout Occurring		
Watertown	3 4	2.37	.14	Fallout Occurring		
Watertown	3.4	2 42	.20	Fallout Occurring		
Watertown	3 4	2.45	.20	Fallout Occurring		
Watertown	3 4	2.50	.20	Fallout Occurring		
Watertown	3 4	2.53	.20	Fallout Occurring		
Watertown	3.4	2 58	.20	Fallout Occurring		
Watertown	3 4	2 72	0.09	Fallout Occurring		

Figure 6.18 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Watertown	3.4	2.75	0.15	Fallout Occurring		
Watertown	3.4	2.78	0.20	Fallout Occurring		
Watertown	3.4	2.83	0.80	Fallout Occurring		
Watertown	3.4	2.87	1.50	Fallout Occurring		
Watertown	3.4	2.92	3.0	Fallout Occurring		
Watertown	3.4	2.97	5.0	Fallout Occurring		
Watertown	3.4	3.00	4.0	Fallout Occurring		
Watertown	3.4	3.05	2.0	Fallout Occurring		
Watertown	3.4	3.08	3.0	Fallout Occurring		
Watertown	3.4	3.13	4.0	Fallout Occurring		
Watertown	3.4	3.17	4.5	Fallout Occurring		
Watertown	3.4	3.25	4.0	Fallout Occurring		
Watertown	3.4	3.33	4.0	Fallout Occurring		
Watertown	3.4	3.42	7.0	7.0	119.0	66.2
Watertown	3.4	3.50	5.0	5.1	86.7	48.2
Watertown	3.4	3.58	4.2	4.5	76.5	42.4
Watertown	3.4	3.67	4.0	4.3	73.2	40.7
Watertown	3.4	3.77	3.7	4.1	69.7	38.7
Watertown	3.4	3.83	3.5	4.5	76.4	42.3

Figure 6.18 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Watertown	3.4	3.92	3.3	4.0	68.0	37.7
Watertown	3.4	4.00	0.5	0.6	10.2	5.6
Watertown	3.4	4.08	0.45	0.55	9.3	5.2
Watertown	3.4	4.17	0.4	0.5	8.5	4.7
Watertown	3.4	4.28	0.3	0.4	6.8	3.8
Jct Road B N & Groom Lake	3.5	4.38	0.5	0.67	11.4	6.3
North end of runway – Watertown	3.4	4.48	0.4	0.55	9.3	5.2
N end of Runway – Watertown	3.4	4.8	0.2	.31	5.3	2.9
N end of Runway – Watertown	3.4	4.9	0.2	.32	5.4	3.0
N end of Runway – Watertown	3.4	5.0	0.2	.32	5.4	3.0
N end of Runway – Watertown	3.4	5.2	0.2	.33	5.6	3.1
N end of Runway – Watertown	3.4	5.4	0.2	.35	5.9	3.3
N end of Runway – Watertown	3.4	5.6	0.2	.36	6.1	3.4
N end of Runway – Watertown	3.4	5.9	0.15	.29	4.9	2.7
N end of Runway – Watertown	3.4	6.2	0.15	.30	5.1	2.8
N end of Runway – Watertown	3.4	6.4	0.14	.31	5.3	2.9
N end of Runway – Watertown	3.4	6.7	0.10	.22	3.7	2.0
N end of Runway – Watertown	3.4	6.9	0.09	.22	3.7	2.0
N end of Runway – Watertown	3.4	7.2	0.07	.17	2.9	1.6

Figure 6.18 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
N end of Runway – Watertown	3.4	7.4	0.1	.25	4.2	2.3
Jct Road B N & Groom Lake	3.6	7.5	0.12	.25	4.5	2.5
Jct Road B N & Groom Lake	3.6	7.7	.08	.19	3.4	1.9
Jct Road B N & Groom Lake	3.6	7.7	.08	.20	3.6	2.0
Jct Road B N & Groom Lake	3.6	7.8	.09	.23	4.1	2.3
Jct Road B N & Groom Lake	3.6	7.9	.07	.18	3.2	1.8
Jct Road B N & Groom Lake	3.6	8.0	.07	.18	3.2	1.8
Jct Road B N & Groom Lake	3.6	8.1	.09	.24	4.3	2.4
N end of Runway – Watertown	3.4	8.2	.07	.20	3.4	1.9
N end of Runway – Watertown	3.4	8.4	.07	.21	3.6	2.0
N end of Runway – Watertown	3.4	8.5	.07	.21	3.6	2.0
N end of Runway – Watertown	3.4	8.7	.07	.22	3.7	2.0
Watertown	3.4	8.9	.12	.39	6.6	3.7
Pass N of 385	2.8	9.0	.07	.27	3.8	2.1

6.22 Wrangell.

The twenty-second event of this series was detonated at 0850 on 22 October 1958. The device was suspended from a tethered balloon 1500 feet above the desert floor. The cloud from this event rose to a maximum height of 11,000 feet (MSL) and travelled off in a northerly direction.

6.22.1 Monitoring Runs.

See Socorro Report (6.21).

6.22.2 Public Relations.

See Socorro Report (6.21).

6.22.3 Air Sampling Results.

See Socorro Report (6.21).

6.23 Oberon.

The twenty-third event of this series was a safety shot. This event was conducted atop a 25 foot tower at 1200 on 22 October 1958. The cloud from this detonation rose to 6,000 feet (MSL) and drifted off in a northerly direction.

6.23.1 Monitoring Runs.

Refer to the Socorro Report (6.21).

6.23.2 Public Relations.

Refer to the Socorro Report (6.21).

6.23.3 Air Sampling Results.

Refer to the Socorro Report (6.21).

6.24 Rushmore.

The twenty-fourth event of this series was detonated at 1540 on 22 October 1958. The device was suspended beneath a balloon tethered 500 feet above the desert. The cloud from this event rose to a maximum height of 11,500 feet (MSL) and drifted off to the north.

6.24.1 Monitoring Results.

Reference is made to the Socorro Report (6.21).

6.24.2 Public Relations.

Reference is made to the Socorro Report (6.21).

6.24.3 Air Sampling Results.

Reference is made to the Socorro Report (6.21).

6.25 Catron.

The twenty-fifth event of the series was a safety shot fired on a 75 foot tower at 0700 on 24 October 1958. The cloud rose to a maximum height of 8,500 feet (MSL) and travelled in a west southwesterly direction.

6.25.1 Monitoring Runs.

Monitoring runs which indicated activity substantially above background were performed on Highway 95 from a point two miles north of Beatty to a point two miles south of Goldfield. This route was remonitored the following day and all readings indicated background. Scattered showers were observed through out the entire route on 24 October.

Monitoring runs which indicated only background were carried out from Mercury to Beatty and from Tonopah to Goldfield on Route 95. In addition, Nevada Routes 3 and 71 as far as Lida and Goldpoint respectively were covered. Background readings were also obtained on the road from Gate 385 to Watertown.

There is no table of selected doses to populated places.

A table of monitoring results is included as Figure 6.19.

6.25.2 Public Relations.

The state health officer of Nevada was phoned and informed of the event and the predicted trajectories. The state health officer of California was notified through the Public Health Service Regional Office in San Francisco.

6.25.3 Air Sampling Results.

The highest beta air concentration was 2.18×10^{-3} $\mu c/m^3$, detected on a sample obtained at Watertown, Nevada, from 10/25/58 to 10/26/58.

MONITORING INFORMATION – CATRON

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
4 miles N. Beatty on 95	3.9	4.3	0.07	0.08	1.6	0.9
4 miles N Beatty on 95	3.9	4.6	0.08	0.09	1.8	1.0
4 miles N. Beatty on 95	3.9	4.7	0.10	0.12	2.3	1.3
3 miles N Beatty on 95	3.9	4.7	0.08	0.09	1.8	1.0
2 miles N Beatty on 95	3.9	4.8	0.07	0.09	1.8	1.0
2 miles N. Beatty on 95	3.9	5.3	0.06	0.09	1.8	1.0
4 miles N Beatty on 95	3.9	5.3	0.06	0.09	1.8	1.0
6 miles N Beatty on 95	3.9	5.3	0.07	0.10	2.0	1.1
22 miles N Beatty on 95	4.8	5.7	0.08	0.09	2.2	1.2
23 miles N Beatty on 95	4.9	5.7	0.10	0.12	2.9	1.6
25 miles N Beatty on 95	5.0	5.8	0.12	0.13	3.2	1.7
26 miles N Beatty on 95	5.1	5.8	0.2	0.23	5.9	3.2
27 miles N. Beatty on 95	5.1	6.1	0.1	0.13	3.3	1.8
28 miles N. Beatty on 95	5.2	6.2	0.09	0.12	3.1	1.7
30 miles N. Beatty on 95	5.3	6.2	0.08	0.09	2.4	1.3
32 miles N. Beatty on 95	5.4	6.3	0.06	0.07	1.9	1.0
36 miles N. Beatty on 95	5.5	6.4	0.08	0.09	2.5	1.3
40 miles N. Beatty on 95	5.6	6.6	0.10	0.12	3.4	1.8

Figure 6.19

Figure 6.19 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
42 miles N Beatty on 95	5.8	6.6	0 25	0.28	8.1	4.3
44 miles N. Beatty on 95	6.0	6.7	0 10	0.11	3.3	1.7
47 miles N. Beatty on 95	6.2	6.7	0.08	0.08	2.5	1.3
49 miles N Beatty on 95	6.3	6.8	0.15	0.16	5.0	2.6
51 miles N. Beatty on 95	6.5	6.9	0.13	0.14	4.5	2.4
53 miles N Beatty on 95	6.7	6.9	0.35	0.37	12.4	6.5
55 miles N Beatty on 95	6.8	7.0	0.15	0.16	5.4	2.8
57 miles N. Beatty on 95	6.9	7.1	0.28	0.28	9.6	5.1
60 miles N. of Beatty on 95	7.1	7.2	1.0	1.0	35.5	18.5
61 miles N of Beatty on 95	7.2	7.2	1.2	1.2	43.2	22.5
62 miles N of Beatty on 95	7.6	7.3	0.4	Fallout Occurring		
63 miles N of Beatty on 95	7.8	7.3	0.1	Fallout Occurring		
Goldfield Summit	8.1	7.4	0.07	Fallout Occurring		
Goldfield (Shell Station)	8 1	10.2	0 06	0.08	3.2	1.6

6.26 Juno.

The twenty-sixth event of the series was a safety shot fired on the ground at 0801 on 24 October 1958. The cloud rose to a height of 5500 feet (MSL) and travelled in a westerly direction.

6.26.1 Monitoring Results.

The monitoring results indicating off-site fallout from the Juno event are incorporated in the Catron Report (6.25). Because of the proximity of firing times and identical wind conditions it was not possible to distinguish between off-site fallout from the two events.

6.26.2 Public Relations.

The public relations result for this event are incorported in the Catron Report (6.25).

6.26.3 Air Sampling Results.

Air sampling results for event Juno are incorporated in the results for event Catron (6.25).

6.27 Ceres.

The twenty-seventh event of the series was a safety shot fired on a twenty-five foot tower at 2000 on 25 October 1958. The event was non-nuclear but a cloud rose to approximately 6,000 feet (MSL) and travelled slowly in a northerly direction.

6.27.1 Monitoring Runs.

Because of darkness and the non-nuclear nature of the event monitoring was conducted only at Watertown. No off-site fallout was encountered.

6.27.2 Air Sampling Results.

The highest beta air concentration, 2.78×10^{-3} $\mu c/m^3$, was detected on the sample collected at Mercury, Nevada, from 10/26/58 to 10/27/58.

6.28 Sanford.

The twenty-eighthevent of the series was a full-scale shot fired on a 1500 foot balloon at 0220 on October 26, 1958. The base of the cloud stabilized at 12,500 feet and the top at 26,000 feet (MSL). The cloud drifted in a northeasterly direction.

6.28.1 Monitoring Runs.

Monitoring runs were conducted from Overton to Glendale on Nevada Route 12; from Glendale to Pioche on US Route 93; from Glendale to Cedar City on US Route 91; from Ely east to Milford, Utah, on Routes US 6 and Utah 21; from Panaca to Cedar City via Utah 56; and an additional run was carried out from Beryl Junction via Beryl and Lund to Cedar City. Utah Route 18 from St. George to Beryl Junction was also covered.

Additional runs were made from Hiko through the ranches in the Adaven-Nyala areas and along Nevada Route 25 from Reed via Lincoln Mine to Crystal Springs. The road from Gate 385 to Watertown and Road B and the Groom Lake Road were monitored from Watertown to Nevada Route 25.

Because the lowest portion of the cloud appeared to drift in a northwesterly direction, US Route 95 from Tonopah to Lida Junction was also monitored.

The only monitoring runs which indicated radiation substantially above background were those carried out on US Route 93 in the vicinity of Alamo, on the road from Gate 385 to Groom Lake; on US Route 95 from Tonopah to Goldfield; and at Camp Mercury during the early morning hours as a result of night drainage winds.

A table of selected doses to populated places is shown as Figure 6.20.

A table of monitoring results is shown as Figure 6.21.

6.28.2 *Air Sampling Results.*

There was one instance where the air filters for this event contained too high a quantity of radiation to enable counting the samples. This incident occurred at Lathrop Wells, Nevada, on the sample run from 10/26/58 to 10/27/58 and the one run from 10/27/58 to 10/28/58.

(EDITOR'S NOTE –The above statement was furnished the Test Manager in the original report. These samples were counted on 11/3 and 11/12 as reported in Appendix B were, 2.1×10^{-3} for the sample 10/26/58 to 10/27/58 and 7.8×10^{-4} for the sample 10/27/58 to 10/28/58.)

TABLE OF SELECTED DOSES

LOCATION	Population	Estimated Time of Fall (H + Hours)	Time of Instrument Reading (H + Hours)	Maximum Instrument Reading (Mr/Hr)	Infinite Dose (Mr)	Estimated Dose (Mr)
Alamo, Nevada	250	2.0	3.7	5.2	52	29
Goldfield, Nevada	220	8.0	8.8	0.35	14	7.0
Mercury, Nevada	Variable	2.7	2.7	6.0	81	46

Figure 6.20

MONITORING INFORMATION – SANFORD

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Watertown	2.0	5.8	.05	.18	1.8	.97
1.1 miles W of Watertown	1.9	5.8	.08	.27	2.47	1.3
3 miles W. of Watertown	1.7	5.9	.05	.26	2.2	1.2
5 miles W of Watertown	1.5	6.0	.06	.32	2.4	1.3
6.6 miles W of Watertown	1.4	6.0	0.9	8.5	59.5	32.2
8 miles W of Watertown	1.3	6.1	0.5	3.0	19.5	10.3
10 miles W of Watertown	1.2	6.1	0.4	1.5	9.0	4.7
10.8 miles W. of Watertown	1.1	6.2	0.23	1.8	9.9	5.2
Gate 385	1.0	6.2	0.30	2.7	13.5	7.1
Front Warehouse #6, Mercury, Nevada	2.7	2.4	3.0	Fallout Occurring		
Front Warehouse #6, Mercury, Nevada	2.7	2.5	4.5	Fallout Occurring		
Front Warehouse #6, Mercury, Nevada	2.7	2.6	4.5	Fallout Occurring		
Front Warehouse #6, Mercury, Nevada	2.7	2.7	6.0	6.0	81.0	46.6
Front Warehouse #6, Mercury, Nevada	2.7	2.8	4.5	4.6	73.0	41.2
Front Warehouse #6, Mercury, Nevada	2.7	2.9	2.5	2.7	36.5	20.6
Front Warehouse #6, Mercury, Nevada	2.7	3.0	2.0	2.3	31.0	17.5
Front Warehouse #6, Mercury, Nevada	2.7	3.0	.8	.9	12.1	6.8
Front Warehouse #6, Mercury, Nevada	2.7	3.2	.4	.4	5.4	3.0
Front Warehouse #6, Mercury, Nevada	2.7	3.4	.4	.4	5.4	3.0

Figure 6.21

Figure 6.21 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Front Warehouse #6, Mercury, Nevada	2.7	3.7	.2	.3	4.1	2.3
Front Warehouse #6, Mercury, Nevada	2.7	3.8	2.0	3.2	43.0	23.6
Front Warehouse #6, Mercury, Nevada	2.7	4.0	1.8	3.0	40.5	23.0
Front Warehouse #6, Mercury, Nevada	2.7	4.2	1.5	2.5	33.7	18.4
Front Warehouse #6, Mercury, Nevada	2.7	4.4	1.3	1.7	23.0	12.5
Front Warehouse #6, Mercury, Nevada	2.7	4.5	1.3	1.7	23.0	12.5
Front Warehouse #6, Mercury, Nevada	2.7	4.7	1.0	2.0	27.0	14.6
Front Warehouse #6, Mercury, Nevada	2.7	4.9	.4	.8	10.8	5.9
Front Warehouse #6, Mercury, Nevada	2.7	5.0	.1	.22	3.0	16.2
Front Warehouse #6, Mercury, Nevada	2.7	5.2	.06	.12	1.6	.86
Front Warehouse #6, Mercury, Nevada	2.7	6.7	.08	.23	3.1	1.63
Front Warehouse #6, Mercury, Nevada	2.7	7.2	.08	.26	3.5	1.8
Alamo	2.0	3.6	.5	1.0	10.0	5.5
Alamo	2.0	3.7	2.5	5.2	52.0	28.6
1 mile S. of Alamo on US 93	2.0	3.8	4.0	8.5	85.0	46.7
2 miles S. of Alamo on US 93	2.0	3.8	.2	.42	4.2	2.3
2.5 miles S. of Alamo on US 93	2.0	4.0	.15	.35	3.5	1.9
1.5 miles S. of Alamo on US 93	2.0	4.0	.5	1.2	12.0	6.6
.5 miles S. of Alamo on US 93	2.0	4.1	.3	.7	7.0	3.8

Figure 6.21 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Alamo	2.0	4.1	.1	.23	2.3	1.3
Lida Junction on US 95	7.2	9.8	.05	.08	2.8	1.4
Lida Junction on US 95	7.2	9.9	.05	.08	2.8	1.4
5 miles N. Lida Junction	7.3	10.0	.06	.1	3.6	1.8
10 miles N. Lida Junction	7.4	10.1	.13	.22	8.1	4.1
Goldfield	8.0	10.2	.25	.33	13.2	6.7
5 miles N. Goldfield	8.1	10.4	.20	.27	10.8	5.4
10 miles N. of Goldfield	8.2	10.6	.10	.17	7.0	3.6
15 miles N. of Goldfield	8.3	10.7	.08	.15	6.9	3.5
20 miles N. of Goldfield	8.4	10.8	.05	.07	2.9	1.47
2 miles S. of Goldfield on 95	7.9	9.1	.28	.34	13.5	6.9
3 miles S. of Goldfield on 95	7.8	9.2	.20	.25	9.7	4.95
4 miles S. of Goldfield on 95	7.7	9.3	.18	.24	8.5	4.34
5 miles S. of Goldfield on 95	7.6	9.4	.20	.33	12.5	6.3
6 miles S. of Goldfield on 95	7.5	9.4	.15	.25	9.4	4.8
7 miles S. of Goldfield on 95	7.4	9.5	.12	.18	6.7	3.4
8 miles S. of Goldfield on 95	7.3	9.5	.08	.12	4.4	2.2
9 miles S. of Goldfield on 95	7.3	9.5	.08	.12	4.4	2.2
10 miles S. of Goldfield on 95	7.2	9.6	.05	.07	2.5	1.3

Figure 6.21 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
11 miles S. of Goldfield on 95	7.2	9.6	.06	.07	2.5	1.3
19 miles S. of Tonopah on US 95	8.4	8.5	.07	.07	2.9	1.5
20 miles S. of Tonopah on US 95	8.4	8.5	.15	.15	6.3	3.2
21 miles S. of Tonopah on US 95	8.3	8.6	.28	3.0	12.4	6.4
22 miles S. of Tonopah on US 95	8.2	8.6	.35	4.0	16.4	8.5
23 miles S. of Tonopah on US 95	8.1	8.7	.45	.5	20.2	10.4
24 miles S. of Tonopah on US 95	8.1	8.7	.45	.5	20.2	10.4
25 miles S. of Tonopah on US 95	8.0	8.8	.45	.5	20.0	10.3
Goldfield, Nevada	8.0	8.8	.3	.35	14.0	7.2
Goldfield, Nevada	8.0	8.9	.25	.3	12.0	6.2
Goldfield, Nevada	8.0	9.0	.25	.3	12.0	6.1
1 mile S. of Goldfield, Nev. on US 95	8.0	9.0	.25	.3	12.0	6.1

6.29 De Baca

The twenty-ninth event of the series was a full-scale shot fired on a 1500 foot balloon at 0800 on 26 October 1958. The base of the cloud stabilized at 8,000 feet and the top at 17,500 feet (MSL). The cloud drifted in a northeasterly direction.

6.29.1 Monitoring Runs

The monitoring runs conducted for De Baca were described in the report for Sanford (6.28).

6.29.2 Air Sampling Results

See Sanford (6.28).

6.30 Chaves

The thirtieth event of this series was a safety shot detonated atop a 75 foot tower at 0630 on 27 October 1958. The cloud from this detonation ascended to a maximum level of 6,000 feet (MSL) and travelled off in a southerly direction.

6.30.1 Monitoring Runs

Highway 95 from the Mercury turnoff to Lathrop Wells was monitored and the results indicated activity above background for the entire run.

There is no table of selected doses to populated places.

A table of monitoring results is included as Figure 6.22.

6.30.2 Public Relations

The state health officer of Nevada was phoned and informed of this event and the predicted trajectories. The state health officer of California was notified through the Public Health Service Regional Office in San Francisco.

6.30.3 Air Sampling Results

The highest beta activities detected on air filters were 3.22×10^{-4} $\mu c/m^3$ at Warm Springs Ranch and 2.02×10^{-4} $\mu c/m^3$ at Mercury from 10/27/58 to 10/28/58.

MONITORING INFORMATION – CHAVES

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
13 5 miles W Mercury Rd on 95	2 0	2.3	.08	0.095	0 95	0.48
15 miles W Mercury Rd on 95	2 0	2.5	.13	0.17	1.7	.85
16 miles W Mercury Rd on 95	2.0	2.5	.28	0.34	3.4	1.7
17 miles W Mercury Rd on 95	2 0	2.5	.23	0 30	3 0	1.5
19 miles W Mercury Rd on 95	2.0	2.6	.13	0.18	1.8	0.9
21 miles W Mercury Rd on 95	2.0	2.7	.28	0.40	4.0	2.0
23 miles W Mercury Rd on 95 (3 east LW)	2.0	2.7	.28	0.40	4.0	2.0
Lathrop Wells	2 0	2 8	.23	0.35	3.5	1.8
1 mile E of Lathrop Wells	2.0	3.3	.06	0.11	1.1	0.6
2 miles E of Lathrop Wells	2.0	3.3	.05	0.09	0.9	0.5
3 miles E of Lathrop Wells	2.0	3.5	.06	0.12	1.2	0.6
4 miles E of Lathrop Wells	2.0	3.6	.10	0.20	2.0	1.0

Figure 6.22

6.31 Evens.

The thirty-first event of this series was conducted in a tunnel. The detonation occurred at 1600 on 28 October 1958. The tunnel contained the activity from the event and there was no cloud.

6.31.1 Monitoring Runs.

No monitoring runs were conducted on this event since the tunnel did not vent.

No tables of selected doses to populated places or monitoring results are given.

6.31.2 Air Sampling Results.

The highest beta activity obtained on an air filter was 3.6×10^{-4} $\mu c/m^3$ at Logandale from 10/29/58 to 10/30/58.

6.32 Mazama.

The thirty-second event of this series was detonated at 0320 on 29 October 1958. The device was situated at the top of a 50 foot tower. The cloud from this event ascended to a height of 6,000 feet (MSL) and drifted off in a southwest direction.

6.32.1 Monitoring Runs.

There were two events detonated on this day and the clouds from both events travelled in approximately the same direction. The fallout that was detected has been attributed to the first event, Mazama, and all calculations of monitoring results are based on this assumption. The monitoring results and runs recorded in this report are, by reference, a part of the Humboldt Report (6.33).

Monitoring runs which indicated activity substantially above background were made in the vicinity of Lathrop Wells, Nevada. The run on Highway 95 from six miles west of the junction with route 16 to about two miles west of Lathrop Wells indicated activity above background and readings above background were also found on Route 29 from Lathrop Wells to about two miles south of the Nevada-California state line.

Runs which indicated only background activity were made on Highway 95 from Indian Springs to Tonopah, excluding the area around Lathrop Wells where activity was detected; on Route 16 from the junction with Highway 95 to Pahrump; on Route 52 from five miles east of Pahrump to Shoshone, California; on Highway 127 from Baker, California, to just north of Death Valley Junction, California; on Highway 91 from Baker, California, to about 53 miles southwest of Baker; on Route 190 from Death Valley Junction to the junction with Route 58; on the Bad Water Road in Death Valley from Route 190 to Route 127; on Highway 6 from Tonopah, Nevada, to Bishop, California; and on the Ash Meadows Death Valley Junction Road from Route 16 to Death Valley Junction.

A table of monitoring results is included as Figure 6.23.

6.32.2 Public Relations.

The state health officer of California was notified of the event and the predicted trajectories through the Public Health Service Regional Office in San Francisco.

6.32.3 Air Sampling Results.

The highest beta activity detected on an air filter was on the sample collected from 10/29/58 to 10/30/58 at Logandale (3.6×10^{-4}).

MAZAMA – MONITORING INFORMATION

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Relay Peak – 3 miles E. Lathrop Wells	4.75	4.48	0.16	Fallout Occurring		
Relay Peak – 3 miles E. Lathrop Wells	4.75	4.53	2.2	Fallout Occurring		
Relay Peak – 3 miles E. Lathrop Wells	4.75	4.58	4.5	Fallout Occurring		
Relay Peak – 3 miles E. Lathrop Wells	4.75	4.67	2.8	Fallout Occurring		
Relay Peak – 3 miles E. Lathrop Wells	4.75	4.75	7.0	7.0	166.0	90.0
Relay Peak – 3 miles E. Lathrop Wells	4.75	4.83	3.4	3.5	76.0	41.0
Relay Peak – 3 miles E. Lathrop Wells	4.75	4.92	1.4	1.5	36.0	19.0
Base of Relay Peak	4.75	4.95	2.2	2.3	55.0	30.0
1 mile W. of Relay Peak	4.75	5.00	1.8	2.0	48.0	26.0
Lathrop Wells	4.75	5.05	0.1	0.12	2.9	1.6
Lathrop Wells	4.75	5.16	0.06	0.07	1.7	0.9
2 miles NW of Lathrop Wells on 93	4.8	5.28	0.07	0.08	1.9	1.0
2 miles E. of Lathrop Wells	4.75	9.03	0.3	0.65	15.5	8.4
3 miles E. of Lathrop Wells	4.75	9.07	0.05	0.11	2.6	1.4
4 miles E. of Lathrop Wells	4.75	9.10	0.05	0.12	2.8	1.5
5 miles E. of Lathrop Wells	4.70	9.13	0.08	0.17	4.0	2.2
6 miles E. of Lathrop Wells	4.70	9.17	0.09	0.20	4.70	2.5
7 miles E. of Lathrop Wells	4.70	9.20	0.05	0.12	2.8	1.5
On 95 – 6 miles W. of Pahrump Road	4.70	5.72	0.07	0.08	1.9	1.0

Figure 6 23

Figure 6.23 (Continued)

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
On 95 – 8 miles W. of Pahrump Road	4.70	5.77	0.10	0.12	2.8	1.5
On 95 – 10 miles W. of Pahrump Road	4.70	5.83	0.15	0.18	4.2	2.3
On 95 – 12 miles W. of Pahrump Road	4.75	5.88	0.20	0.25	5.9	3.2
On 95 – 14 miles W. of Pahrump Road	4.75	5.93	0.15	0.18	4.3	2.3
On 29 – 5 miles S. of Lathrop Wells	5.35	6.62	0.07	0.09	2.3	1.2
On 29 – 7 miles S. of Lathrop Wells	5.60	6.67	0.10	0.13	3.6	1.9
On 29 – 9 miles S. of Lathrop Wells	5.82	6.70	0.25	0.30	8.7	4.7
On 29 – 11 miles S. of Lathrop Wells	6.07	6.77	0.15	0.17	5.2	2.8
On 29 – 13 miles S. of Lathrop Wells	6.30	6.82	0.20	0.23	7.2	3.9
On 29 – 15 miles S. of Lathrop Wells	6.55	6.87	0.15	0.17	5.6	3.0
On 29 – Nevada-California State Line	6.77	6.93	0.07	0.08	2.7	1.4

6.33 Humboldt

The thirty-third event of this series was detonated at 0645 on 29 October 1958 atop a 50 foot tower. The cloud from this event rose to a height of 7500 feet (MSL) and drifted off in a southwest direction.

6.33.1 Monitoring Runs.

This being the second event of the day, the monitoring results are incorporated in the report of the first event on this day, Mazama (6.32).

6.33.2 Public Relations.

See Mazama Report (6.32).

6.33.3 Air Sampling Results.

See Mazama Report (6.32).

6.34 Santa Fe.

The thirty-fourth event of this series was detonated at 1900 on 29 October 1958. The device was suspended from a balloon 1500 feet in the air. The cloud from this event rose to a maximum height of 18,000 feet (MSL) and drifted off in a southerly direction.

6.34 1 Monitoring Runs.

Due to the late hour of the detonation and the ensuing darkness, few monitoring runs were made. One run was made from Mercury to five miles northwest of Lathrop Wells on Highway 95 and from Lathrop Wells to Death Valley Junction on Route 29 – 127. Activity substantially above background was detected from Lathrop Wells to about three miles northwest of Lathrop Wells on Highway 93 and on Route 29 – 127 from seven miles to about twelve miles south of Lathrop Wells.

There is no table of selected doses to populated places in this report but a table of monitoring results is included as Figure 6.24.

6.34.2 Public Relations.

The blast prediction unit predicted that the blast wave would converge in the vicinity of Indian Springs, Nevada. With this possibility, it was decided that the populace of the community should be notified and be requested to open windows and doors just prior to the detonation time and leave them open until approximately five to ten minutes afterward.

The method employed to notify the persons in the community was by loudspeaker and by personal contact. One truck was equipped with a loudspeaker, amplifier and microphone. A second truck was equipped with a battery-operated hand speaker. A third vehicle was deployed to make personal contacts. The two vehicles with the speakers drove through the community to the south of the highway while personal contacts were made at the establishments along the highway. As a safety precaution, the persons at Cactus Springs were also notified of the possibility of blast convergence and it was suggested they too open windows and doors.

The military base at Indian Springs assumed the responsibility for their personnel and buildings. The air police were to notify persons on the base and also persons living in the new housing development across the highway.

The people in these two communities were very co-operative in this venture and were appreciative of the forewarning although no shock wave converged at either Indian Springs or Cactus Springs.

6 34 3 Air Sampling Results.

The air sampling results for this event are incorporated into the Mazama Report (6.32) as this was the third event of the day.

MONITORING INFORMATION – SANTA FE

LOCATION	Estimated Time of Fall (H Plus)	Time of Survey (H Plus)	Survey Meter Reading (Mr/Hr)	Meter Reading Extrapolated To Time of Fallout (Mr/Hr)	Infinity Dose (Mr)	Estimated Dose (Mr)
Lathrop Wells	2 9	2.67	0 11	Fallout Occurring		
Lathrop Wells	2.9	2.75	0 30	Fallout Occurring		
Lathrop Wells	2 9	2 83	0 32	Fallout Occurring		
Lathrop Wells	2 9	2 92	0.35	0 35	5 1	2.9
Lathrop Wells	2 9	3 00	0.35	0 36	5.2	2.9
Lathrop Wells	2 9	3.08	0.30	0 31	4.5	2 5
Lathrop Wells	2 9	3.17	0 25	0 27	3 9	2 2
Lathrop Wells	2.9	3 25	0 30	0 33	4 8	2.7
Lathrop Wells	2.9	3 33	0.28	0 32	4.6	2.6
Lathrop Wells	2 9	3 42	0 20	0 25	3.6	2 0
Lathrop Wells	2 9	3.50	0 20	0 25	3 6	2 0
Lathrop Wells	2 9	3.62	0 20	0.26	3 8	2.1
2 miles NW of Lathrop Wells on 95	2 9	3.70	0 09	0 13	1 9	1 1
3 miles NW of Lathrop Wells on 95	3 0	3 75	0 06	0 08	1.2	0.7
Lathrop Wells	2 9	3.92	0.07	0 10	1 5	0.8
7 miles S of Lathrop Wells on 29	3.5	5 00	0 08	0.12	2 1	1.2
8 miles S of Lathrop Wells on 29	3 5	5 05	0 09	0.14	2.5	1.4
9 miles S of Lathrop Wells on 29	3 5	5 12	0 10	0.16	2.8	1 6
10 miles S of Lathrop Wells on 29	3 6	5 15	0.07	0.10	1 8	1 00
11 miles S of Lathrop Wells on 29	3 7	5 20	0.06	0 08	1.5	0 8
12 miles S of Lathrop Wells on 29	3 8	5.25	0 06	0 08	1.5	0 8

Figure 6.24

6.35 Ganymede.

The thirty-fifth event of this series was a safety shot which was conducted on the ground at 0300 on 30 October 1958. There was no cloud from this detonation as the event was contained.

6.35.1 Monitoring Runs.

No monitoring runs were performed on this event since there was no cloud.

6.35.2 Air Sampling Results.

The air sampling results are included in the Blanca Report (6.36).

6.36 Blanca.

Thirty-sixth event of this series was conducted in a tunnel. The detonation occurred at 0700 on 30 October 1958. The tunnel was unable to contain the event and the cloud which ensued rose to a maximum height of 7,700 feet (MSL) and travelled off in a south southwesterly direction.

6.36.1 Monitoring Runs

A monitoring run was performed in the vicinity of Lathrop Wells but no activity above background was detected. A monitoring run through Jackass Flats from Mercury to Frenchman Flat indicated only one or two readings which might have been above background. These readings were on the Cane Springs Road about three miles east of the junction with the Jackass Road. The peak reading obtained was 0.08 mr/hr and occurred at 2.4 miles east of the junction.

There is no table of selected doses and no table of monitoring results in this report.

6.36.2 Public Relations

The state health officer of California was notified of the events and the predicted trajectories through the Public Health Service Regional Office in San Francisco.

An incident of a high air concentration was reported in Los Angeles, California, by the Los Angeles County Health Department. The air concentration reported by this group was 1235 $\mu\mu c/m^3$ and was detected immediately upon removal of the filter from the air sampler. The type of instrumentation employed by this group is unknown. The Public Health Service National Radiation Surveillance Network Station in Los Angeles reported 658 $\mu\mu c/m^3$ as the beta air concentration on this date. This station employs a staplex model air sampler and the filter media is an MSA BM-2133 dust-flo filter. The field analysis for the beta air concentration is done by taking a reading on the filter with a geiger survey meter and comparing this reading with the reading on a standard source. The standard is a 0.02 μc strontium-yttrium source and the survey meter is a thyac. The equation to determine the beta air concentration is as follows:

$$\frac{\text{sample net mr/hr}}{\text{standard net mr/hr}} \qquad \frac{\text{20,000 } \mu\mu c \text{ of activity on the standard}}{\text{sampled air volume in cubic meter}}$$

At the University of California-Los Angeles, the AEC has an air sampling station. The air concentration reported by this station was 700 $\mu\mu c/m^3$. There are differences in the time of cessation for the sampling periods at the three stations. The PHS station sample period ended at 1100 hours PST, the AEC UCLA sample period ended about 0700 – 0800 PST, and the ending of the County sampling period is unknown.

This incident was preceeded by three to five days of increasing air concentrations as reported by the County. The increase gradually rose to the maximum of 1235 $\mu\mu c/m^3$.

The monthly average beta air concentrations in Los Angeles as reported by the PHS station ranged from a low of 1.3 $\mu\mu c/m^3$ in February to a high of 10.1 $\mu\mu c/m^3$ in March. For October 1 through 26 the average was 5.3 $\mu\mu c/m^3$. These averages are computed from laboratory data and not field estimates of the activity.

For the period of October 29 through November 5, the daily field estimates were as follows:

Date	Field Estimate $\mu\mu c/m^3$
10/29/58	44.2
10/30/58	453.0
10/31/58	129.0

Date (Continued)	Field Estimate $\mu\mu c/m^3$ (Continued)
11/1/58	unknown
11/2/58	33.0
11/3/58	216.0
11/4/58	189.0
11/5/58	136.0

Further information regarding this incident and the PHS surveillance station may be obtained from the Program Operations Branch of the Division of Radiological Health, U. S. Public Health Service in Washington, D. C.

6.36.3 Air Sampling Results

The highest beta activity detected on an air filter was 2.46×10^{-4} $\mu c/m^3$ on a sample collected at Caliente from 10/31/58 to 11/3/58.

6.37 Titania.

The thirty-seventh event of this series was a safety shot. The device was situated on a 25 foot tower and detonated at 1234 on 30 October 1958. The cloud from the event rose to a height of 6,000 feet (MSL) and drifted off in a southwest direction.

6.37.1 Monitoring Runs.

Monitoring runs for this date have been documented in the Blanca Report (6.36).

6.37.2 Public Relations.

See Blanca Report (6.36).

6.37.3 Air Sampling Results.

See Blanca Report (6.36).

CHAPTER VII

AIRBORNE RADIOACTIVE CONCENTRATIONS

7.1 General Procedures.

Staplex high volume air samplers fitted with 8 by 10 inch sampling head were used with a glass fiber filter to collect airborne contaminants. The effective sampling area was 63 square inches and the rate of air flow was in the range of 0.5 to 2.0 cubic meters per minute. The standard sampling period was 24 hours, using only one filter for the entire period. Only four of the seventeen sampling stations were operated by Public Health Service Personnel. The remaining thirteen stations were operated by local people who were paid a nominal sum for this service. The time of change of filters each day was adjusted to the local operators conditions, and therefore varied from station to station.

All filter samples were returned to Mercury for gross beta counting. (Counting for alpha was deferred until after the operation and the results will be issued as a separate report.) Proportional counters were calibrated with Sr-90 + Y-90 (or FU-239) standards for laboratory counting.

For purposes of calculations all values of 10^{-6} and less are considered in the range of background for the Nevada Test Site area and were not extrapolated. Values 10^{-5} and greater were extrapolated to mid collection time.

Appendix A shows all activities at time of count and those values greater than 10^{-5} that were extrapolated. The graphical plots show values of 10^{-6} and less as the activity at the time of count, and the values 10^{-5} and greater appear as the extrapolated value.

The values of air activity reported as $\mu c/m^3$ average for a twenty-four hour sample includes natural background. The pre-Hardtack air activity reports stated the activity after background was subtracted; however, due to the short intervals of time that occurred between shots it was not possible to state what the real value of the background activity was at each sampling site. It was not possible to make a background assumption for each location, therefore, the background value was not subtracted before the extrapolation. This introduces into the data a source of error, but for the extrapolated activities greater than 10^{-5} this error will be small.

In certain instances all of the samples were not available for counting. This was due to samples being lost, Staplex motor failure, power failure, or bad weather. Special note of this is made in Appendix A.

7.2 Iodine Samplers.

Due to recent interest in radioactive iodine, particularly I-131, four iodine samplers were started late in the series. A Gast air pump, capable of pulling 1.7 cubic meters per hour was used. The air was passed through an activated carbon cartridge which was changed every 24 hours. The samples were scanned for determinations of I-131 activity on a single channel analyzer.

7.3 Location of Samplers.

7.3.1 The beta air samplers were located at the following sites:

Alamo, Nevada
Beatty, Nevada
Caliente, Nevada
Cedar City, Utah
Ely, Nevada
Goldfield, Nevada
Indian Springs, Nevada
Las Vegas, Nevada
*Lathrop Wells, Nevada
Lincoln Mine, Nevada
Logandale, Nevada
*Mercury, Nevada
Pioche, Nevada
Tonopah, Nevada
Warm Springs, Nevada
Warm Springs Ranch, Nevada
Watertown, Nevada

*Lathrop Wells and Mercury were started during October, all others were started in September. With the exception of Cedar City, Ely and Pioche, all of the remaining samplers were kept in operation after the test series ended. These fourteen stations will be used to document the background activity around the test site.

7.3.2 Iodine samplers were located at the following sites:

Goldfield, Nevada Lathrop Wells, Nevada Los Angeles, California

7.4 Results.

7.4.1 The graphic results are plotted as $\mu c/m^3$ beta activity vs the date on which the filter was started. With two exceptions, Pioche and Lincoln Mine, the air activity during September and early October remained essentially at background. Air activity at these locations on September 19 was of the magnitude of 10^{-2} $\mu c/m^3$. This was attributed to shot #3, Eddy, a 500 foot balloon shot. Air activities during October quite often were above background and on eleven occassions were as high as 10^{-2} $\mu c/m^3$. Particularly note-worthy were the results at Lathrop Wells where results on October 26, 27, 28, 29 were approximately 50,000, 10,000, 200 and 1,000 times greater than background. The average over this four day period was 1.7×10^{-2}, or 17,000 times greater than background. These were the highest air activities observed during the test operation. A total of six shots were fired during this interval, Sanford, De Baca, Chaves, Mazama, Humboldt, and Santa Fe. Most likely this increased activity was due to a combination of the six shots.

7.4.2 A total of 48 iodine samples were collected from the three stations.

All samples were negative for I-131.

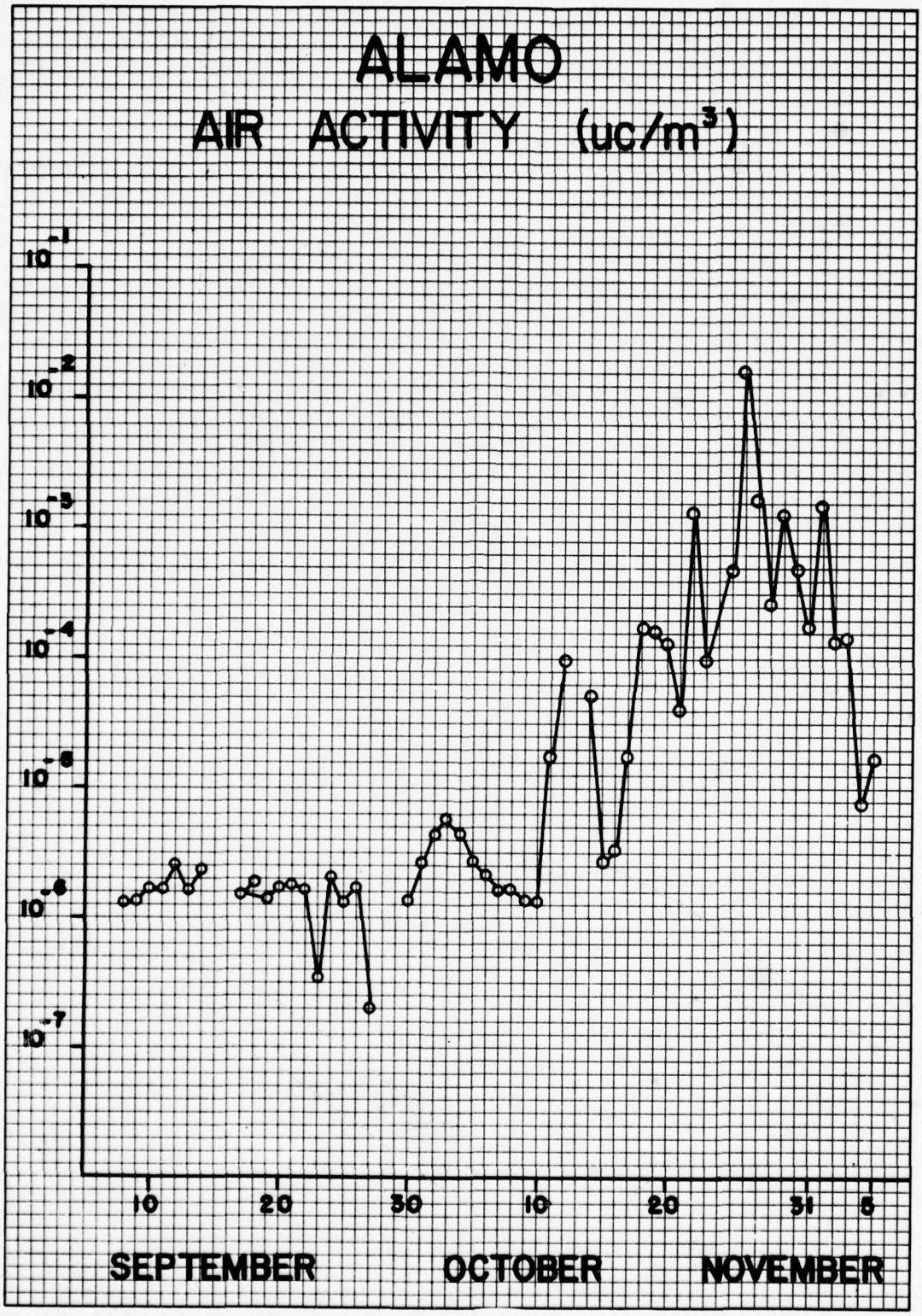


Figure 7.1 – Alamo Graphic Plot Air Activity

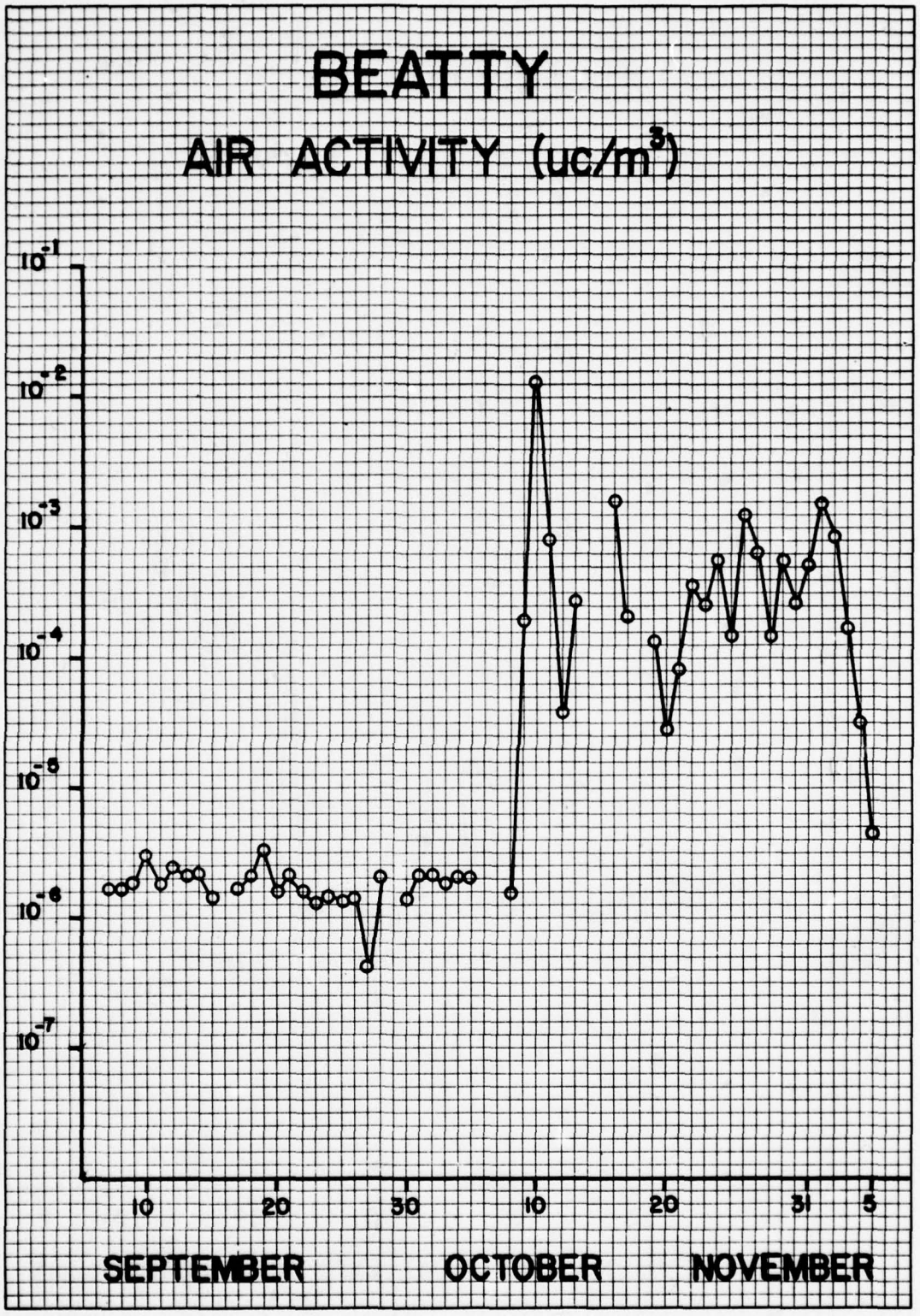


Figure 7.2 – Beatty Graphic Plot Air Activity

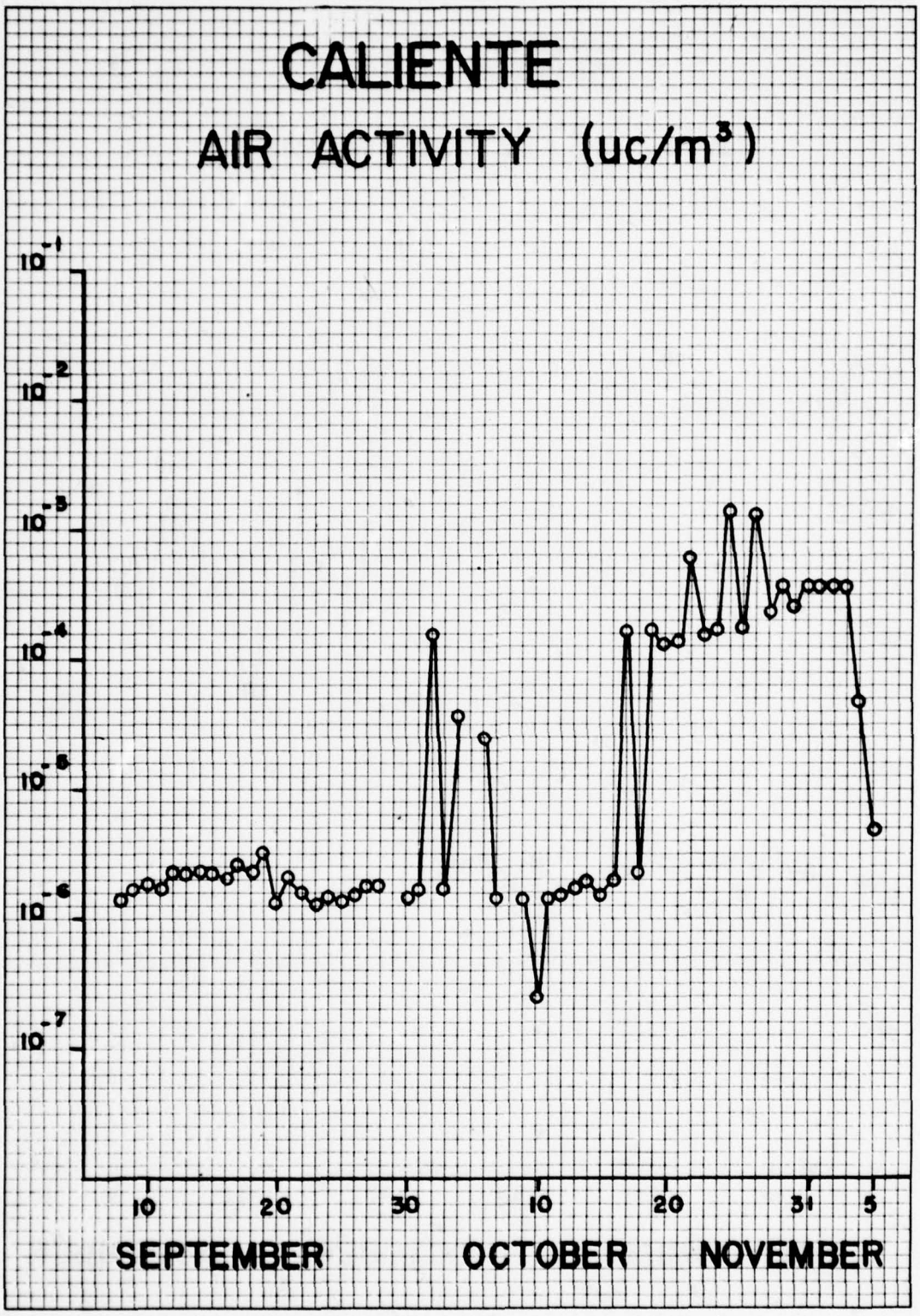


Figure 7.3 – Caliente Graphic Plot Air Activity

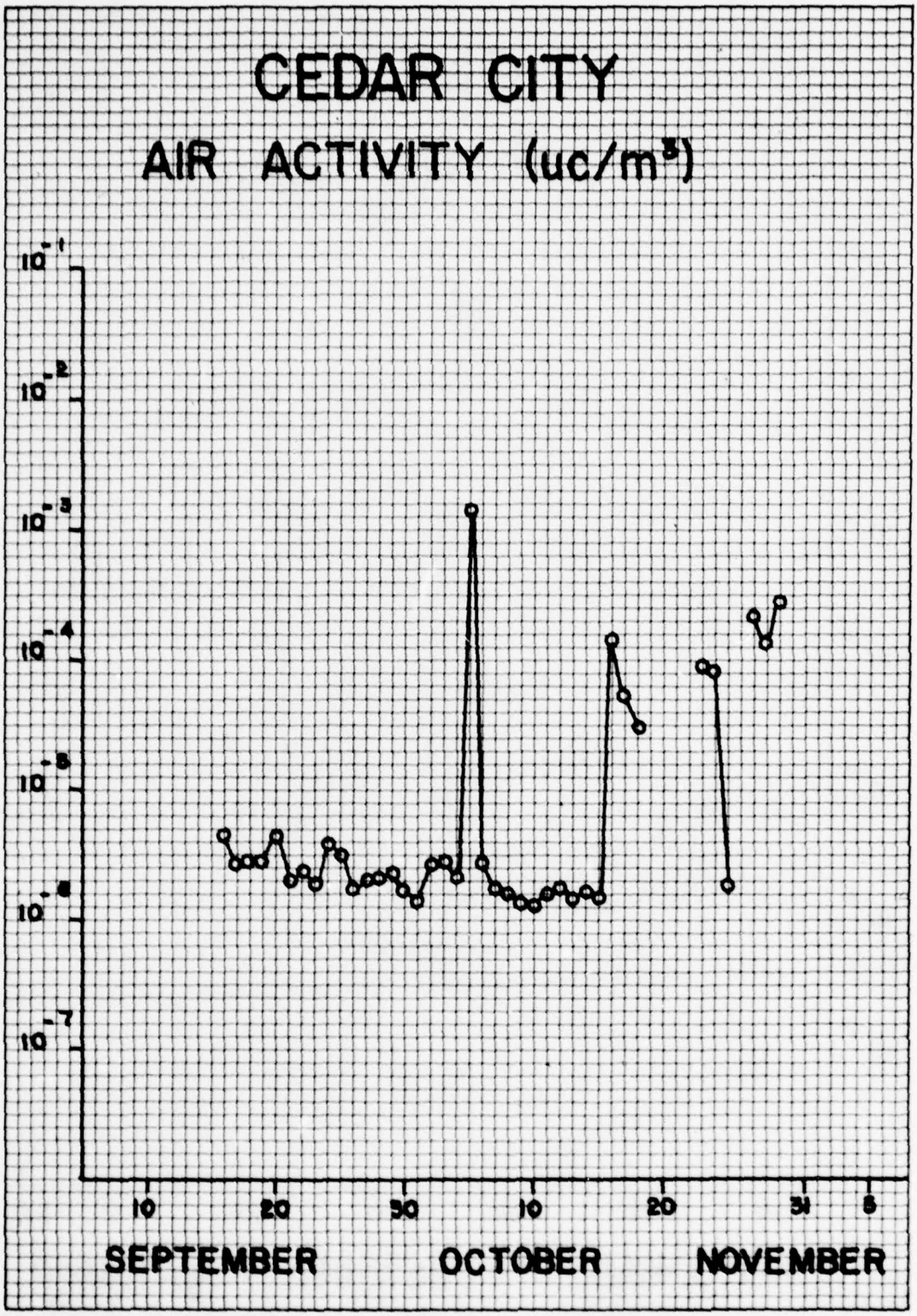


Figure 7.4 – Cedar City Graphic Plot Air Activity

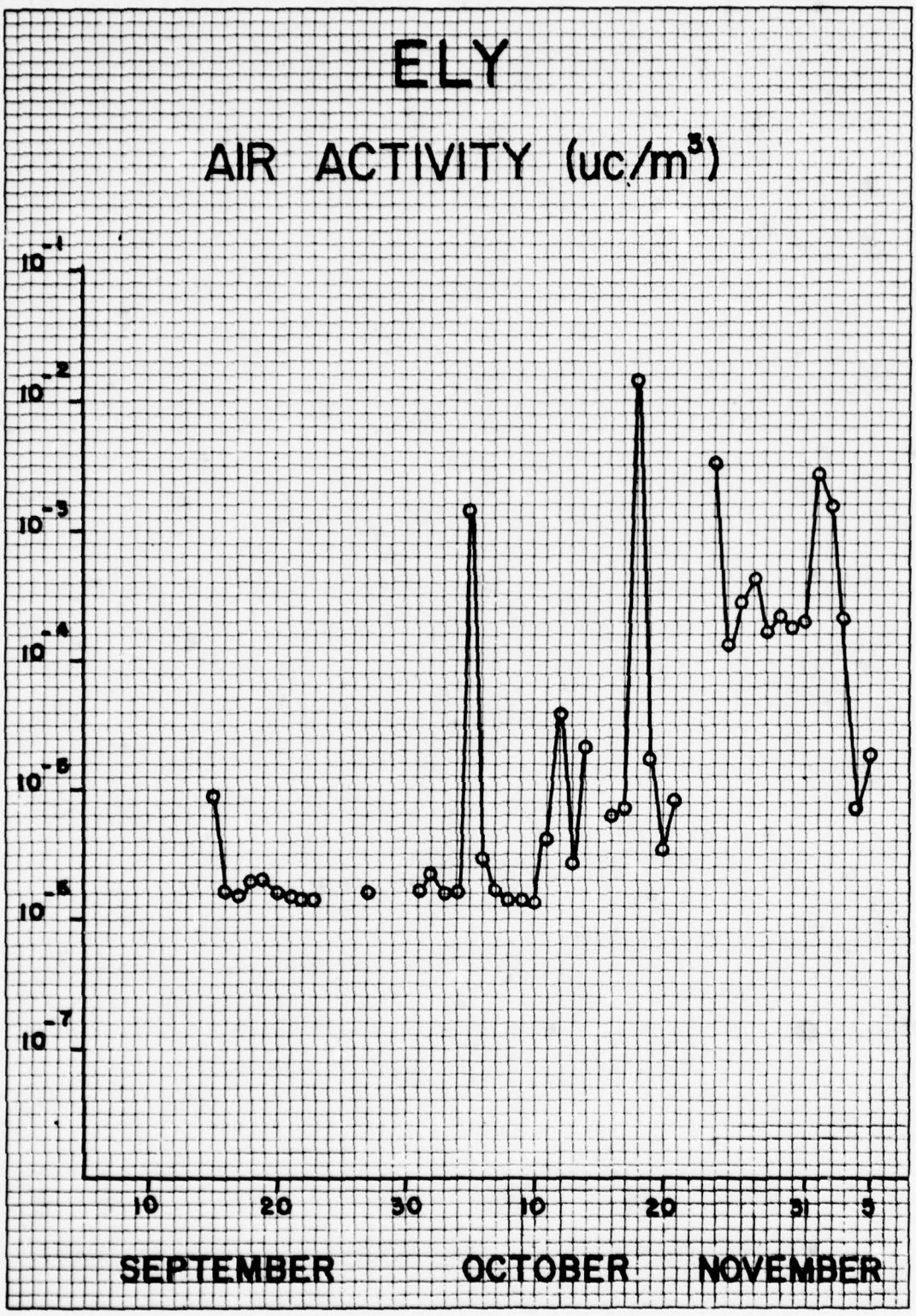


Figure 7.5 – Ely Graphic Plot Air Activity

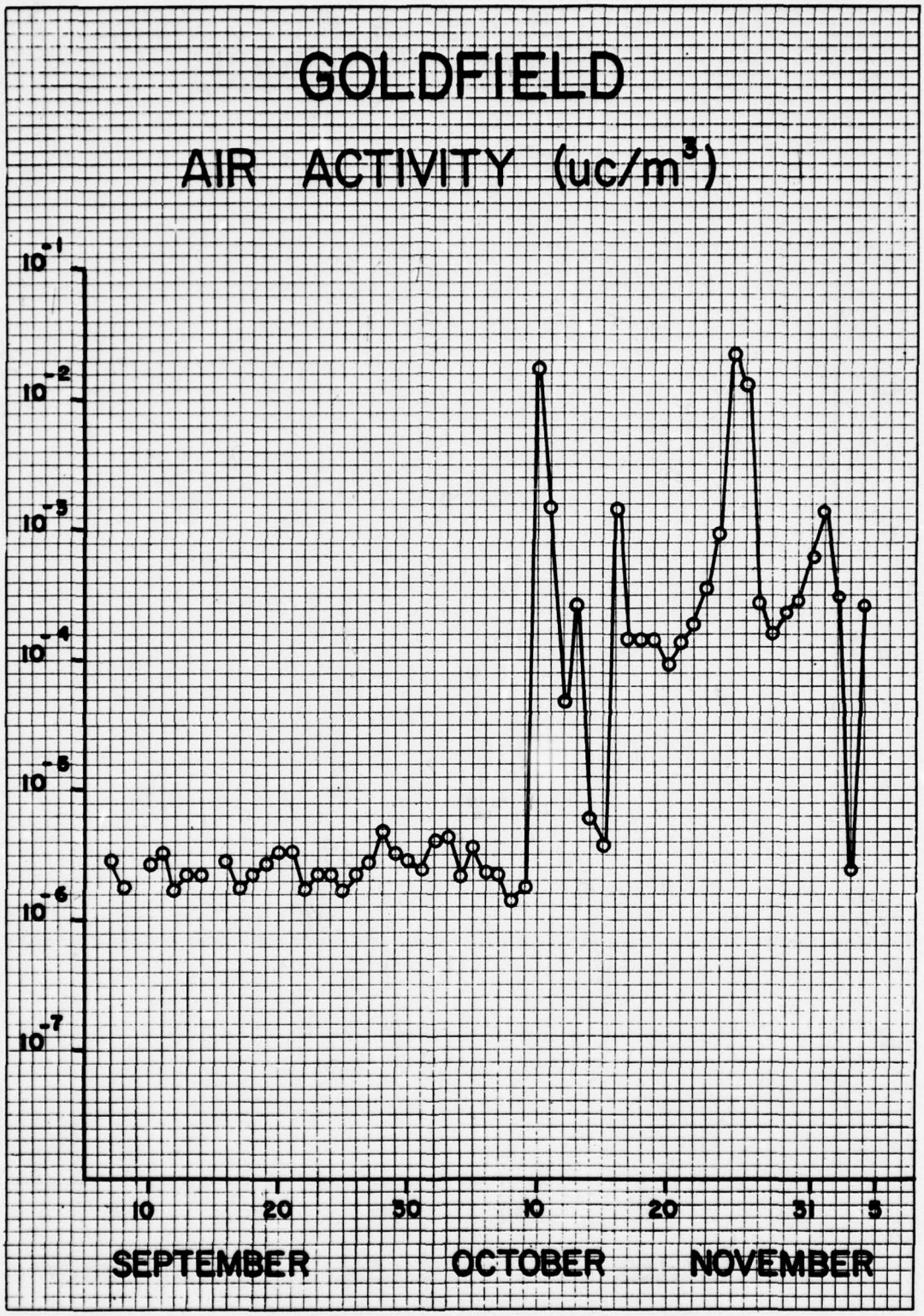


Figure 7.6 – Goldfield Graphic Plot Air Activity

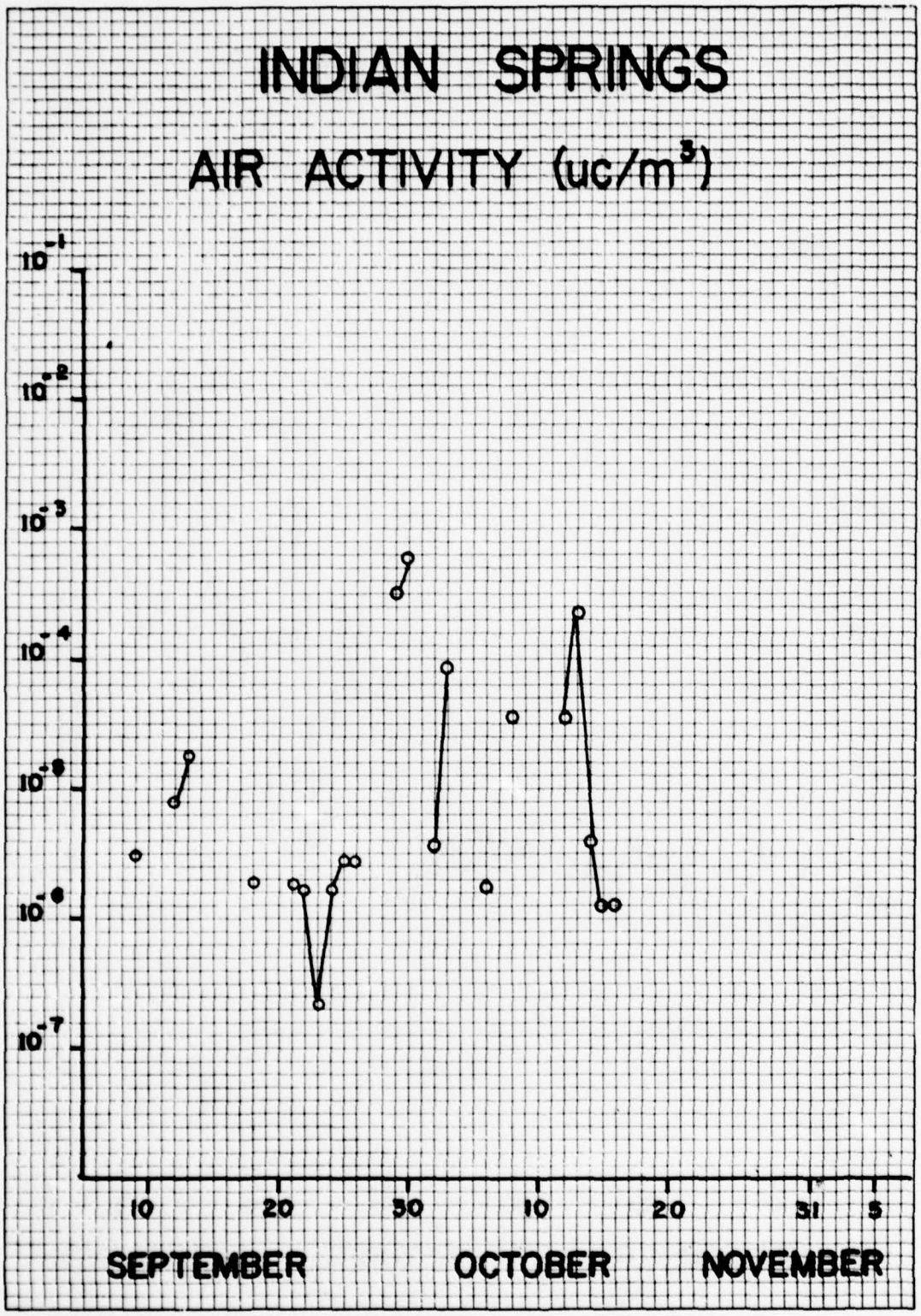


Figure 7.7 – Indian Springs Graphic Plot Air Activity

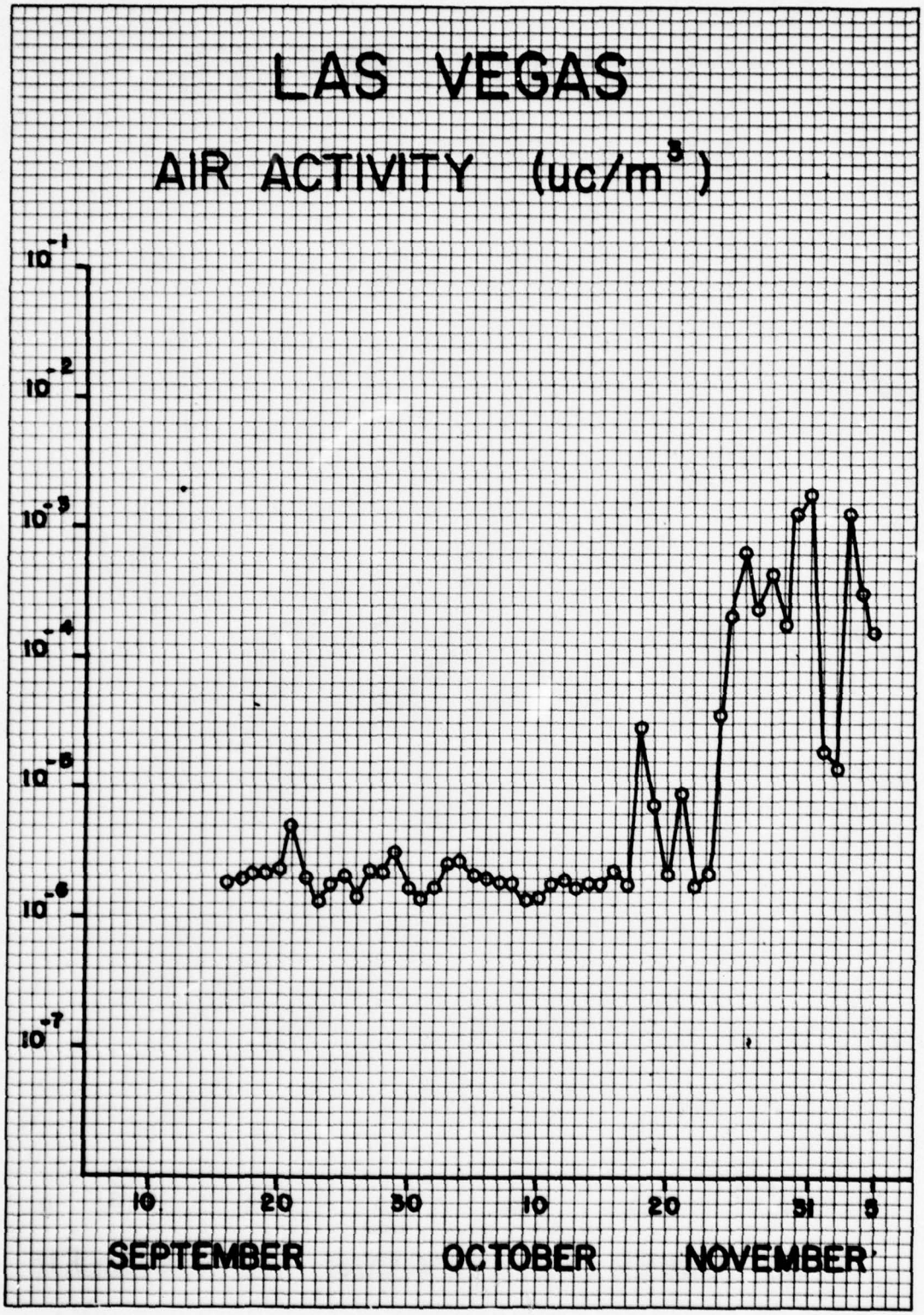


Figure 7.8 – Las Vegas Graphic Plot Air Activity

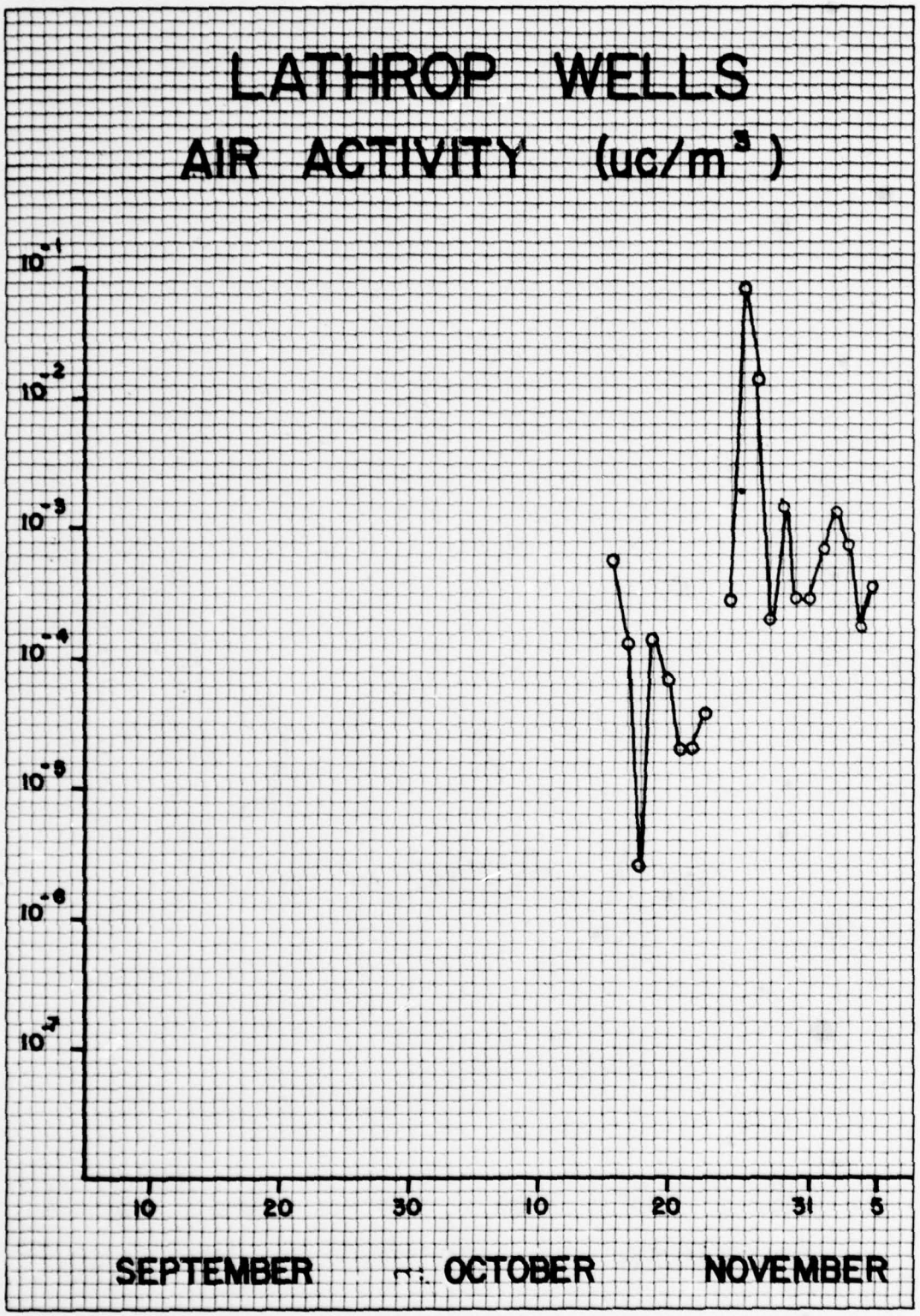


Figure 7.9 – Lathrop Wells Graphic Plot Air Activity

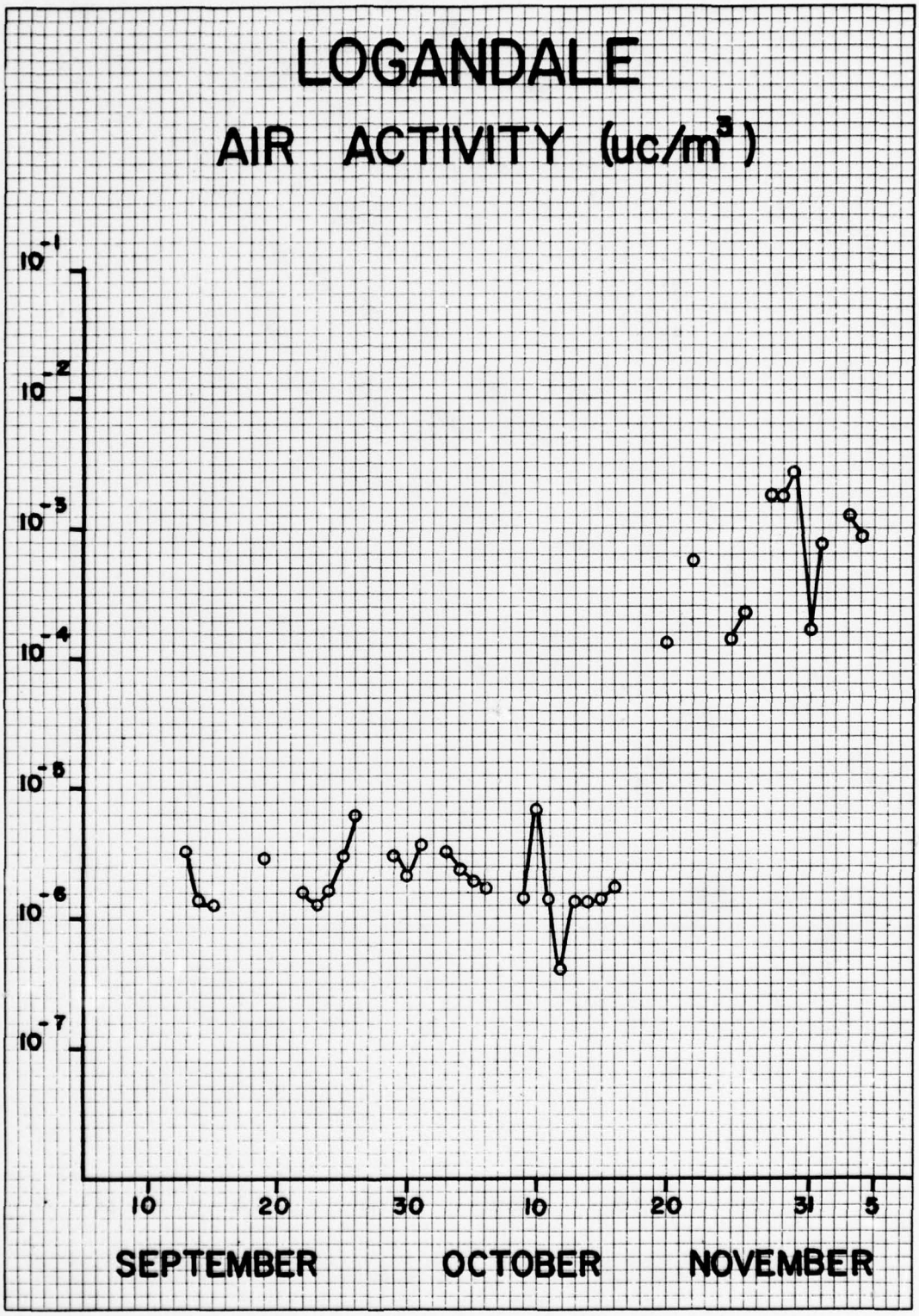


Figure 7.10 – Logandale Graphic Plot Air Activity

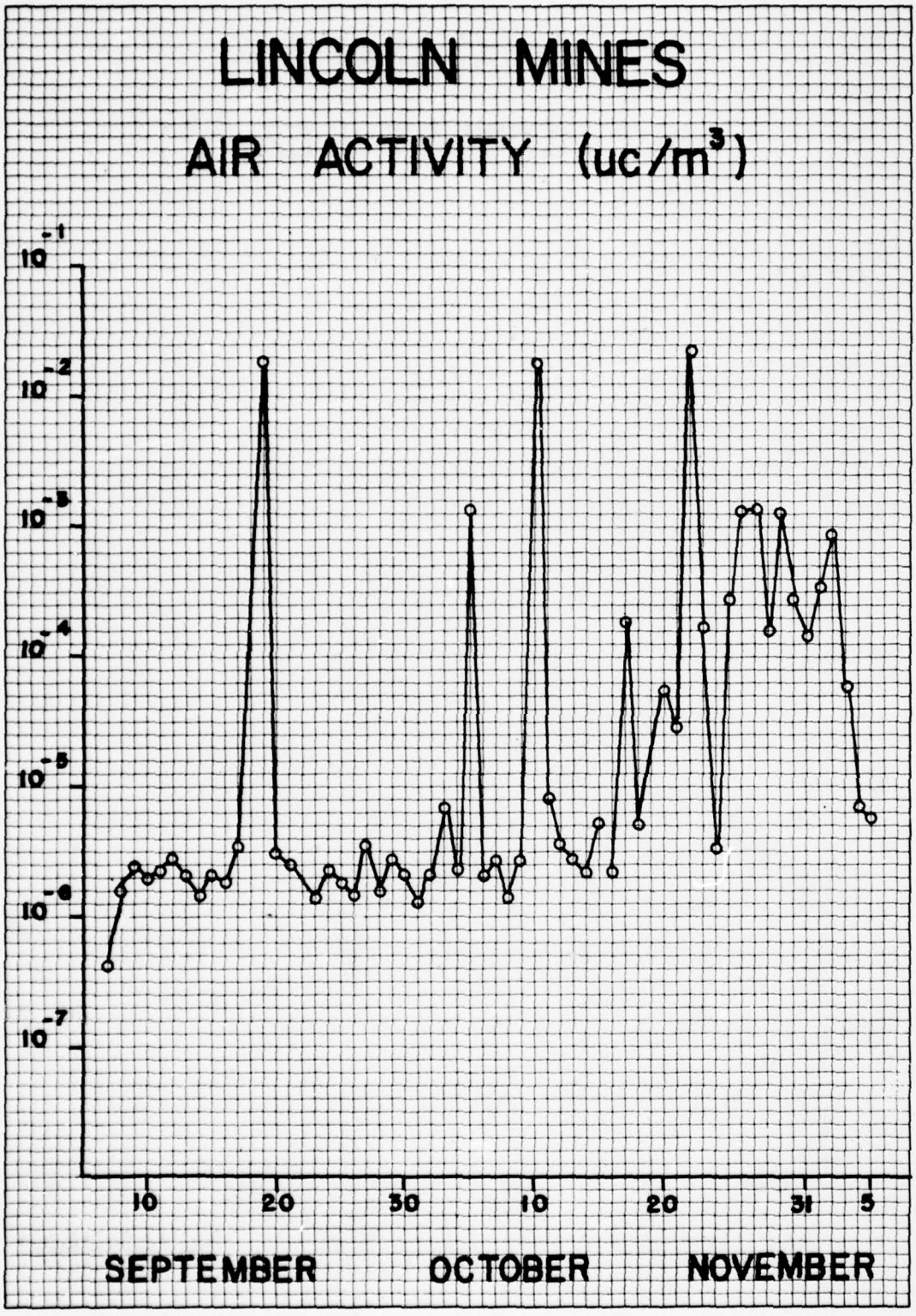


Figure 7.11 – Lincoln Mine Graphic Plot Air Activity

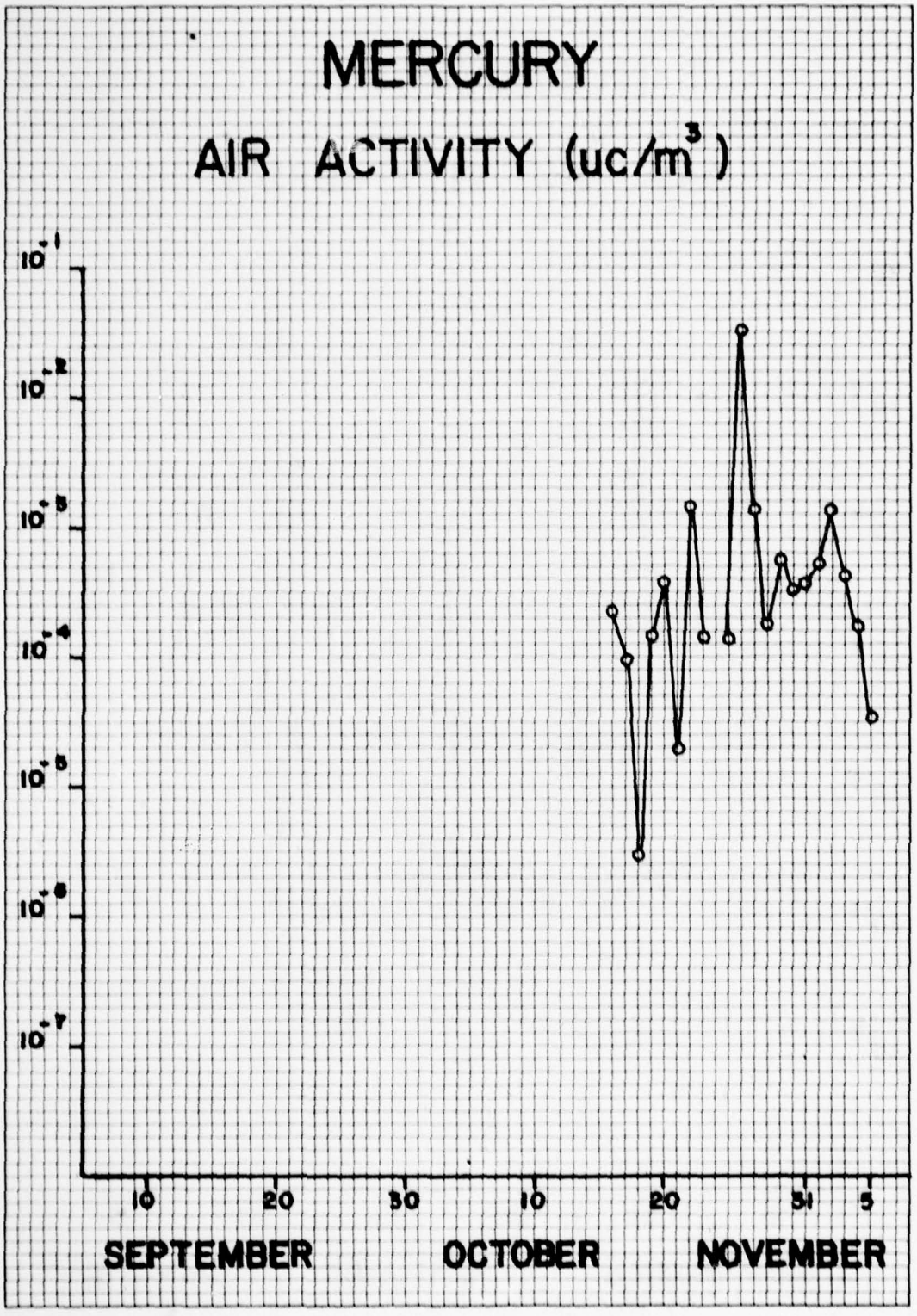


Figure 7.12 – Mercury Graphic Plot Air Activity

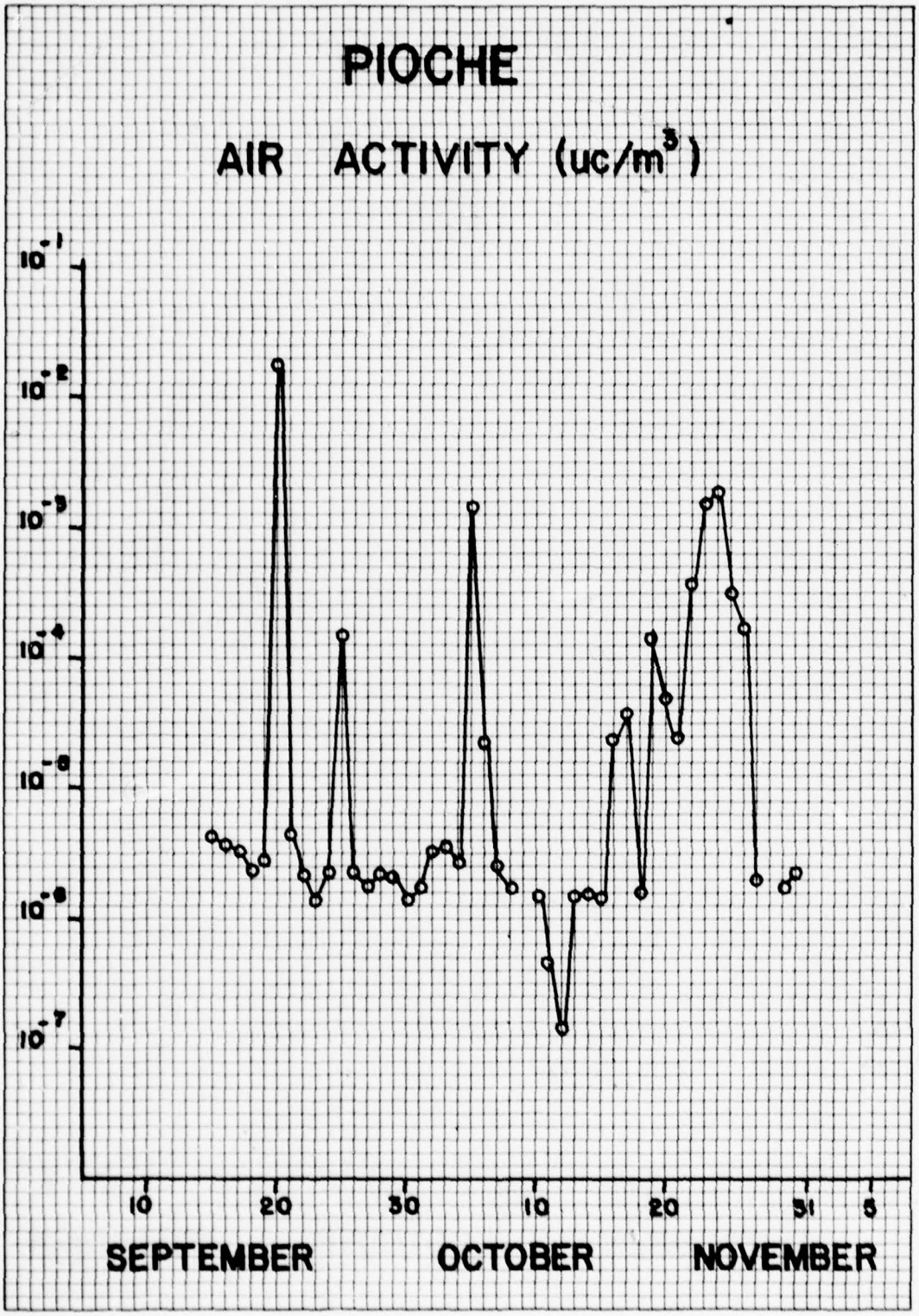


Figure 7.13 – Pioche Graphic Plot Air Activity

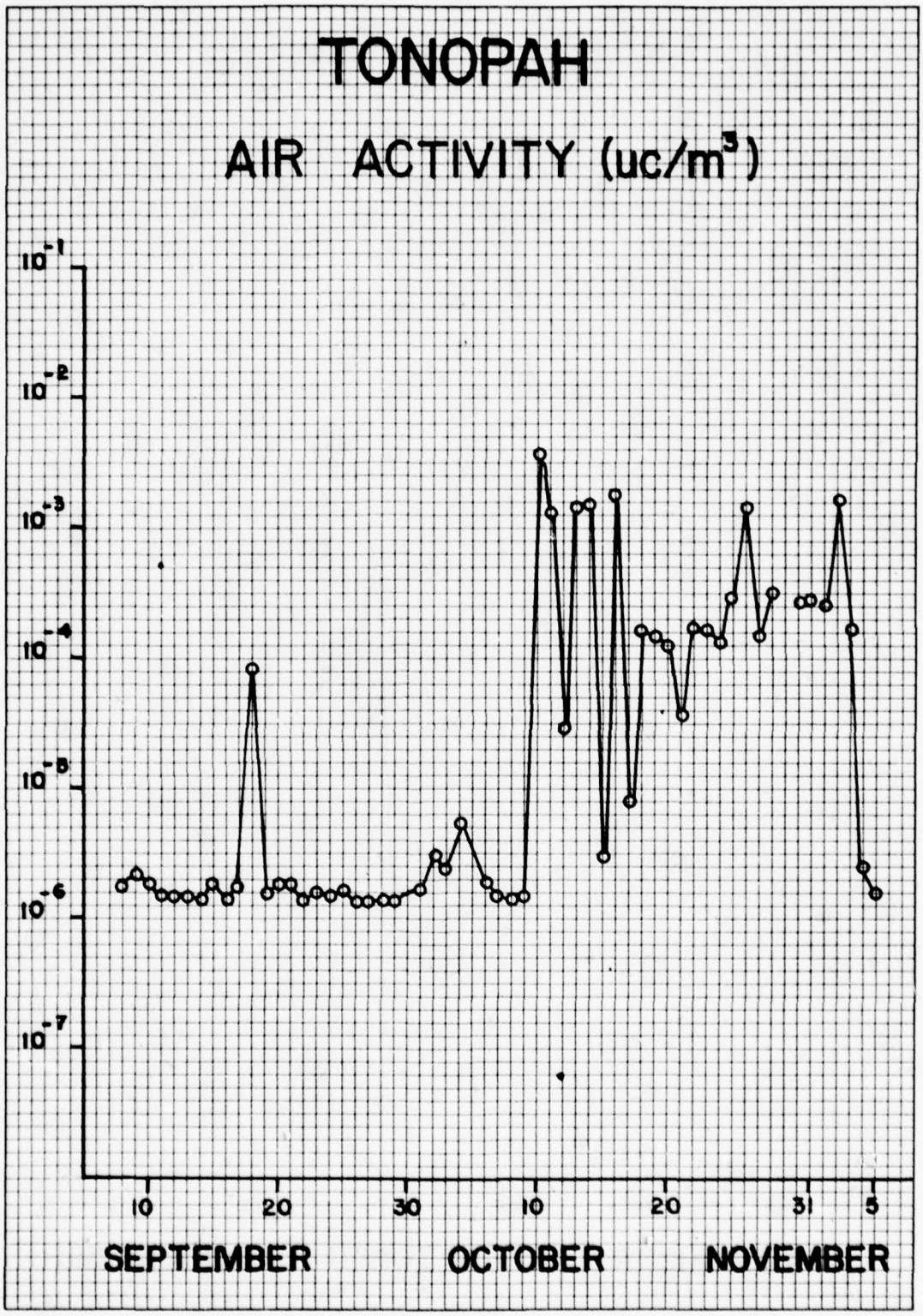


Figure 7.14 – Tonopah Graphic Plot Air Activity

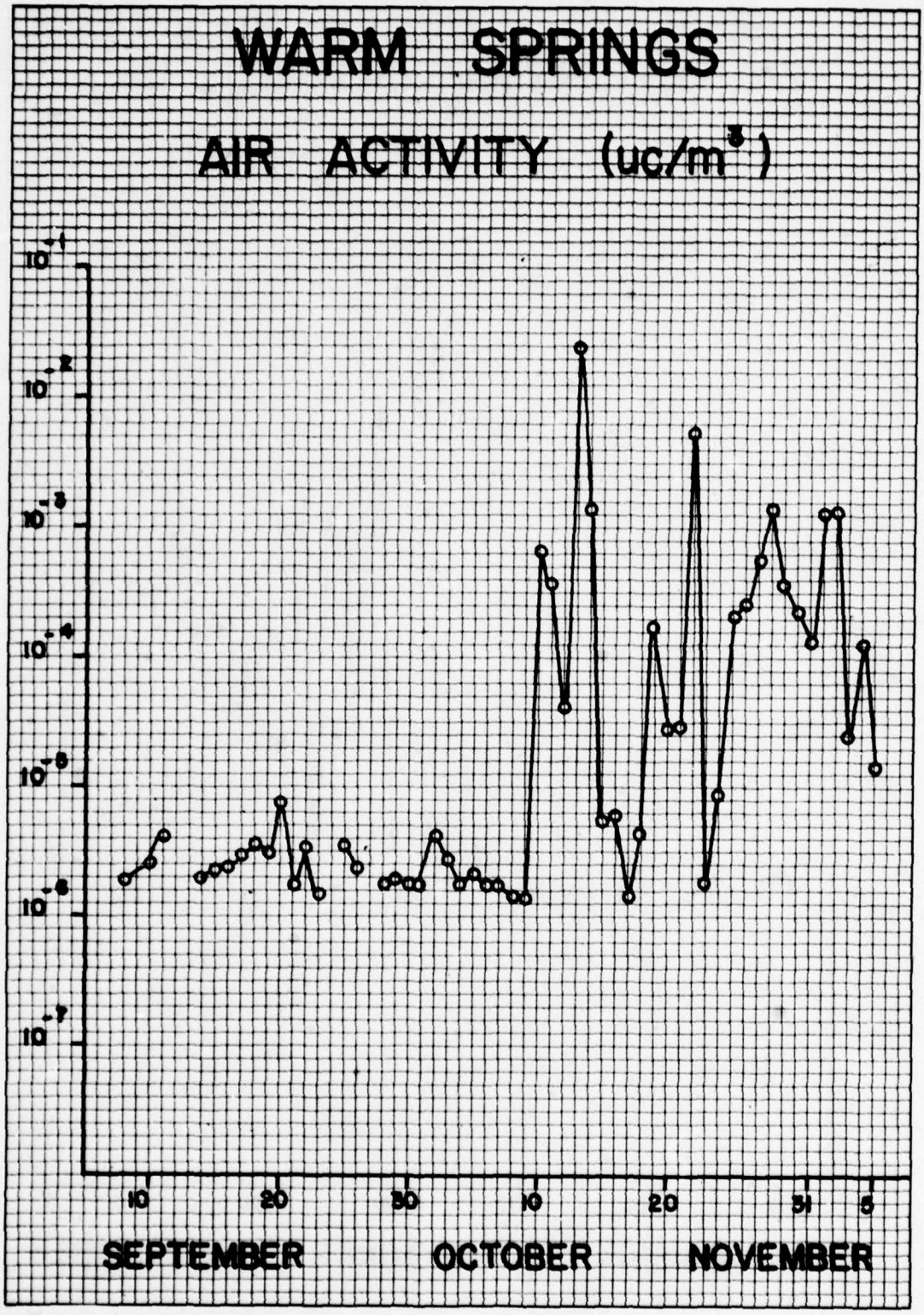


Figure 7.15 – Warm Springs Graphic Plot Air Activity

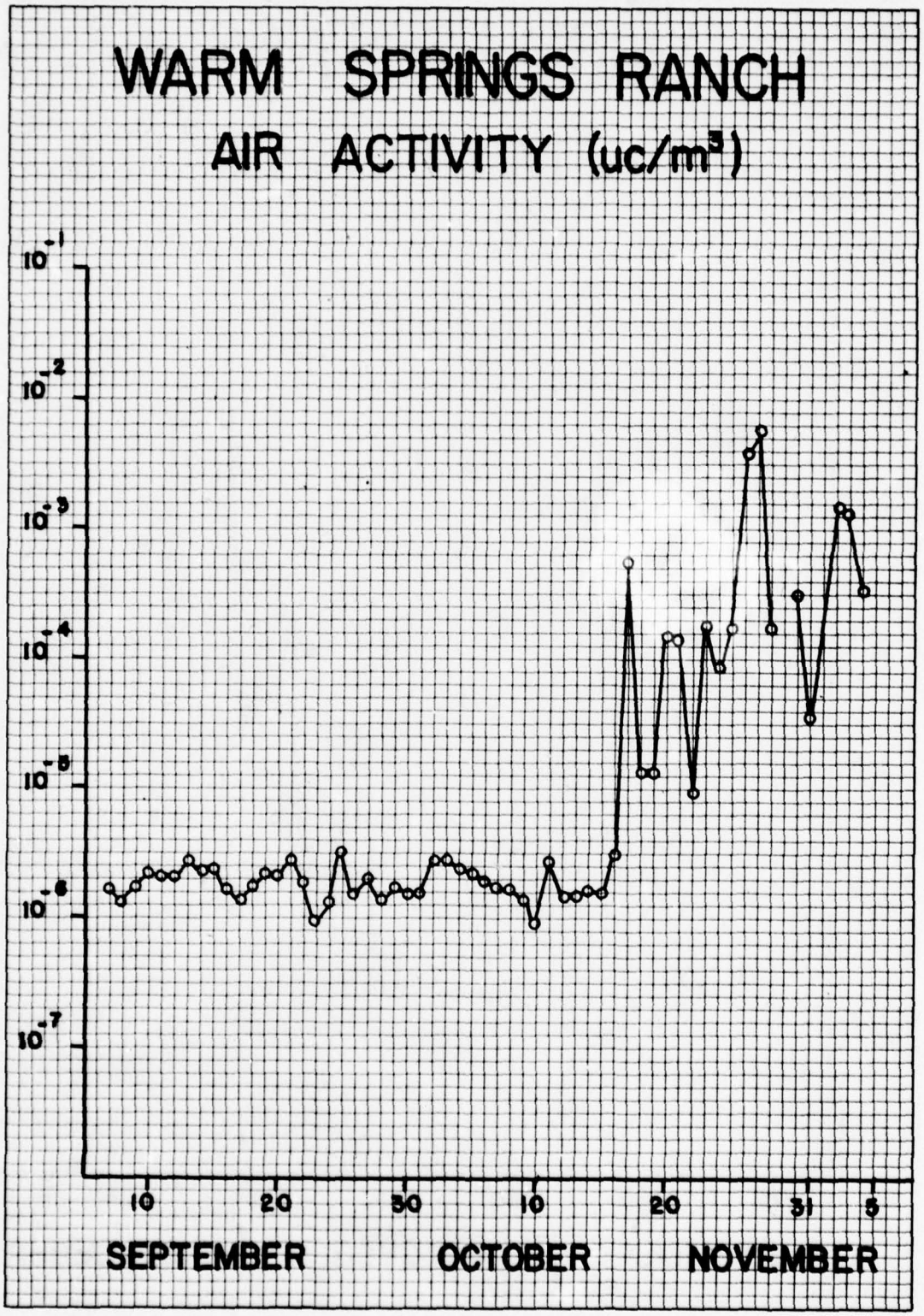


Figure 7.16 – Warm Springs Ranch Graphic Plot Activity

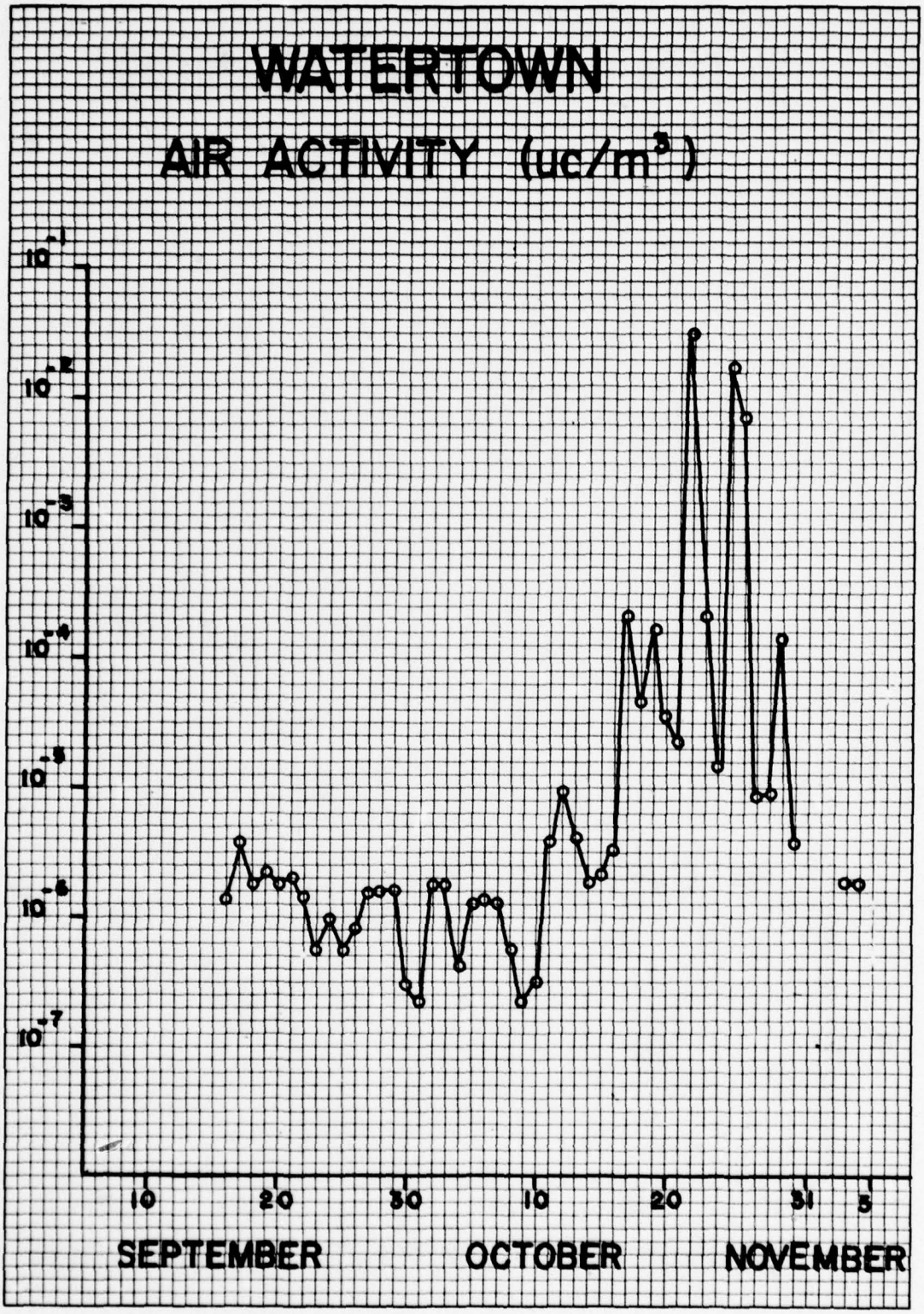


Figure 7.17 – Watertown Graphic Plot Air Activity

CHAPTER VIII

RADIOACTIVITY IN WATER AND MILK

8.1 Water – General.

Prior to the start of Operation Hardtack a water sampling program was established by the Off-Site Organization as a part of an environmental surveillance program to determine the long range effects of nuclear testing in this area. Twenty-one sampling points were chosen around the test site for the extended study. Water samples were to be collected on a bi-monthly basis. This program was to be continued during full scale testing periods, with only occassional additional sampling in areas of special interest. To aid in this study a special two inch internal chamber was acquired to reduce station and counting background. This chamber, along with improved techniques has enabled the off-site laboratory personnel to determine gross beta activities in water at levels of 1×10^{-8} $\mu c/m^1$. The water samples are analyzed routinely for gross beta and when applicable an isotopic analyses is made. Previous reports had established the natural background of water collected in the off-site area to be 3.3×10^{-7}. At this date insufficient samples have been analyzed to established a background for each station, however, at a future date the background for each station will be established.

8.2 Water Results.

The results for the water samples collected prior to, during, and after the test series are given in Appendix B. The highest water sample result of 8.9×10^{-7} $\mu c/m^1$ was obtained at Reed, Nevada. This value is essentially background.

8.3 Milk – General.

The analysis of milk, for gross beta activity and for specific isotopes was started prior to the current test series. The samples for gross beta analysis were collected in Las Vegas and analyzed in the off-site laboratory. The samples collected for isotopic analysis were sent to the Public Health Service Laboratories in Cincinnati, Ohio. In the future the isotopic analysis will also be run in the off-site laboratories. The analysis include I^{131}, Sr^{90}, Ba^{140} and Ce^{137}.

8.4 Results.

The highest gross beta analysis was 6.79×10^{-7} which is essentially background for this area.

Appendix B, Part II lists the results of the isotopic analysis. The average of the months reported are lower for I^{131}, Sr^{90}, Ba^{140} and Ce^{137} than those reported for any one of the nine milk sheds covered in the November 29, 1958, report of the Public Health Service Milk Surveillance Net. The two samples chosen for isotopic analysis for the test site area were selected on the basis of known fallout in a milk producing area. These samples were from the Overton, Nevada, and St. George, Utah areas.

CHAPTER IX

FILM BADGE PROGRAM

9.1 General Procedures.

Film badges were employed as a means of documenting the gamma exposure due to off-site fallout. The type of film employed was DuPont film packet type 559, consisting of two components – type 502 and type 834. An area of approximately 50,000 square miles was covered by film badges. The badges were placed along roads and highways, on and in structures, and on people.

Film badges worn by individuals were attached to clothing. Badges in a populated area were fastened on various types of supports – trees, fence posts, sign posts, etc. Badges in non populated areas were attached to road signs or stakes. Film badging of structures required a minimum of three badges. One badge would be placed inside on a wall, one outside on the same wall, and one on a stake or fence post approximately one building height away. This process was instituted as a result of the analysis of data obtained during Operation Plumbbob, when it was confirmed that badges on the outside of a building are shielded to a certain degree. In view of this, a comparison of the film badge inside a structure and the one on the outside of the same structure would not be a true indication of the shielding afforded by the building. To compensate for this it was decided to place a film badge a minimum of one building height away from any structure that had a badge on the inside and outside.

During past operations, the film badges were changed on a monthly basis; however, since this operation had an expected duration of approximately two months, the badges were left for the entire period. Of the total number of stations established, approximately 175 are permanent stations. Badges at these stations will be changed at intervals of one or two months. Following the operation, these were the only badges exchanged. All others were collected, but not replaced.

The exposed film badges were processed at the On-Site Rad-Safety Processing Facility. The opacity of the film was determined on a densitometer and reported in relative density units. These relative density units are transposed to a dosage values in milliroentgens on the basis of film badge calibration curves obtained by exposure to a definite amount of radiation from a Cobalt-60 standard source.

9.2 Distribution of Film Badges.

A total of 450 film badges were placed in the off-site area prior to the first event of the series and were distributed as follows: about 130 were worn by people, 130 were in populated areas, 50 were on structures, and approximately 135 were in non-populated areas.

The maximum concentration of film badges was in the area from 50 to 100 miles radius from the Control Point. This arrangement was considered most advantageous in view of the relatively low yield of the devices and the use of balloons as detonating platform supports. A major portion of the film badges were east of a north south line through the Control Point. This configuration was selected based on the fact that the predominate winds during this time of year are from the southwest to northwest.

Figure 9.1 is a map indicating the coverage afforded by the film badges. The map does not indicate the precise location of each film badge but merely indicates the approximate location of film badges. In locations where there may be more than one film badge, only one badge has been indicated on the map.

Figure 9.2 is a graph depicting the annular distribution of the film badges around the Test Site. The center of the annulus is the Control Point.

Figure 9.3 is a graph indicating the distribution of the film badges by category.

9.3 Film Badge Results.

The highest film badge dosage was 220 milliroentgens (mr). This dosage was recorded on the film badge at Station 366, which is approximately 37 miles north of Highway 95 on Road C. From monitoring results and other film badge results, it appears that this dose is not due to Operation Hardtack, but is residual activity from the Smoky event of Operation Plumbbob. The next highest dose indicated on a film badge was 205 mr.

The percentage distribution of film badge results are presented graphically in Figures 9.4 through 9.7.

9.3.1 Figure 9.4 presents the distribution of dosage of 347 stations. This is the total number of stations for which results are available – the remaining 103 badges having been lost, or damaged by other means.

9.3.2 Figure 9.5 presents the percentage distribution of dosage for the badges worn by individuals.

9.3.3 Figure 9.6 presents the percentage distribution of dosage for populated places.

9.3.4 Figure 9.7 presents the percentage distribution of dosage for non populated places.

9.4 Film Badge Results in Populated Places.

The results from film badges in populated places are presented in Appendix C. The only result reported is from badges on stakes, fence posts, etc. Badges in and on structures and badges worn by individuals were not included. There were some communities where individuals wore badges but no stationary badge was in the area. These communities are excluded from this table.

9.5 Interpretation of Results.

Film badges have been employed as a means of recording radiation exposures since early in the history of the use of radioactive materials. Film badges are a fine indicator, but they are by no means infallible. The badges employed by this organization are calibrated against a cobalt standard and will render good results in comparison provided there is no gamma ray energy less than 0.2 MEV and none in the range of one to ten MEV.

The processing of film badges (determining the exposure) is subject to error. The group responsible for processing of badges has provided the information in Figure 9.8 for the validity of exposures at the specified levels. In view of this, the error in reading the dose increases as the dose decreases. Therefore, a dose of 25 mr. may be zero.

Results of film badges worn by individuals are not indicative of the exposure to the community in which they live. People will spend part of their time outside, part indoors, and in some cases, even in other communities. With the various movements of persons, the only valid result of the film is the exposure that particular individual has received. This consideration is the reason for eliminating personnel film badge results in tabulating the doses in populated places (Appendix C).

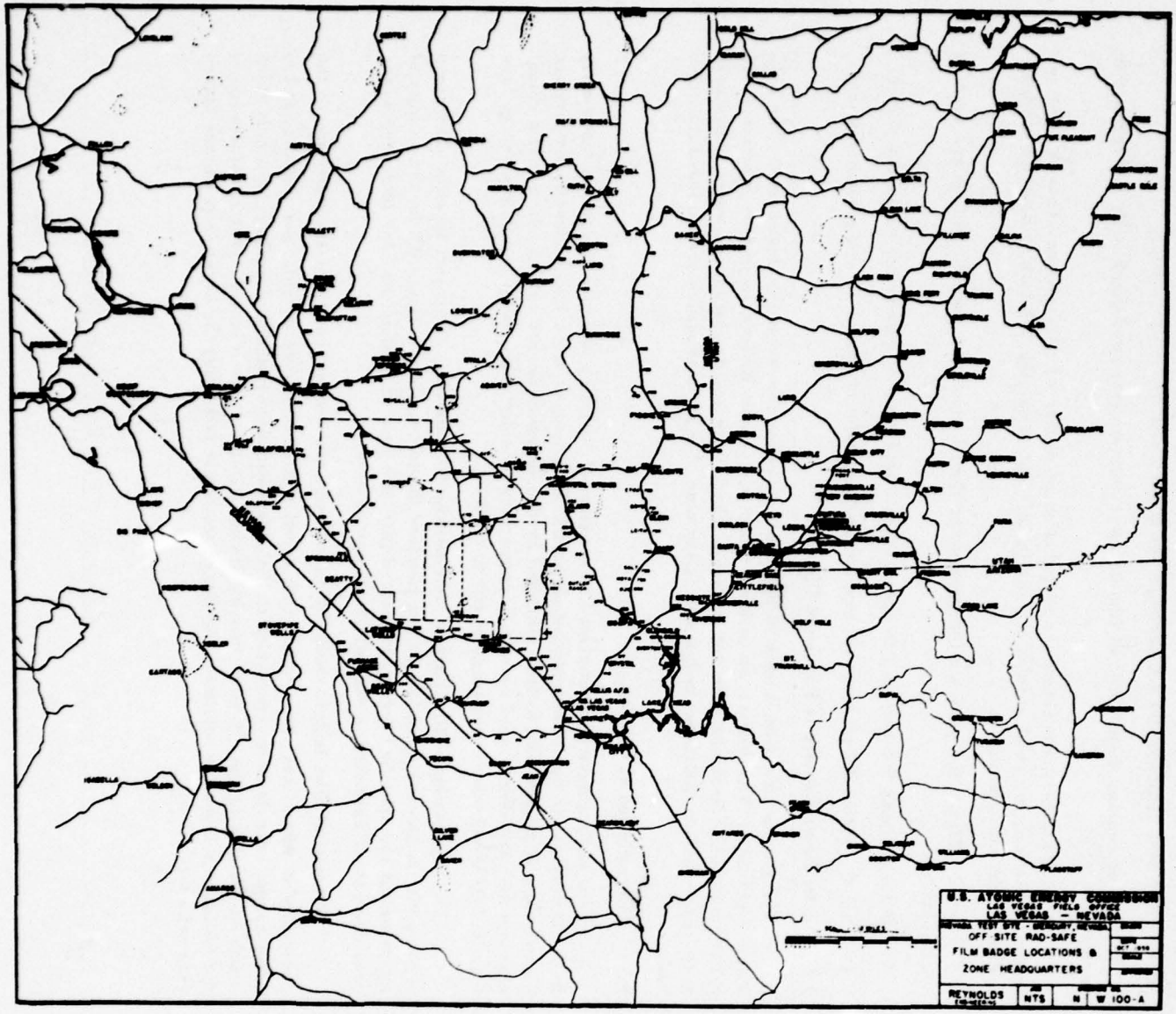


Figure 9.1 – Film Badge Locations

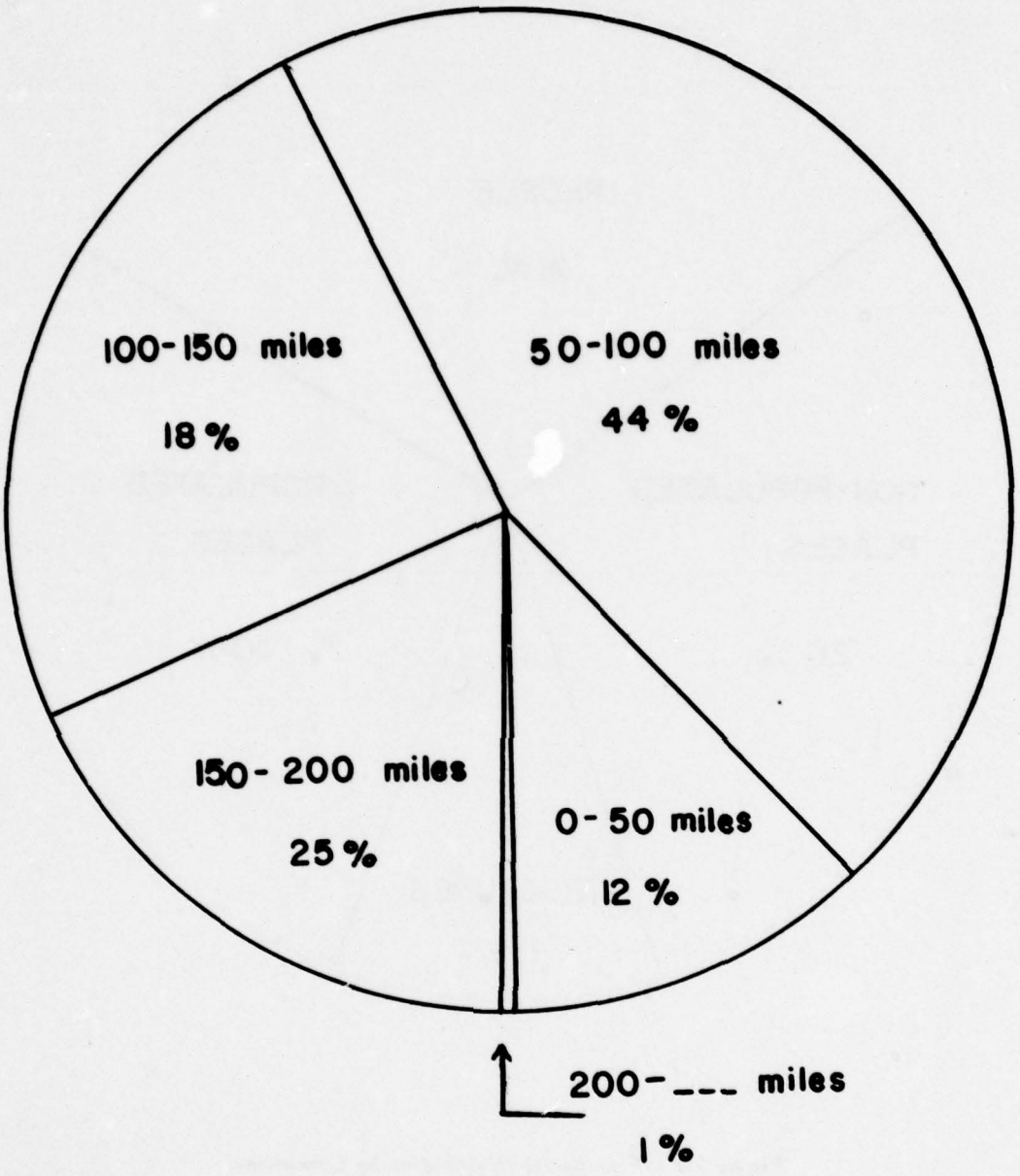


Figure 9.2 – Distribution of Film Badges From C.P.

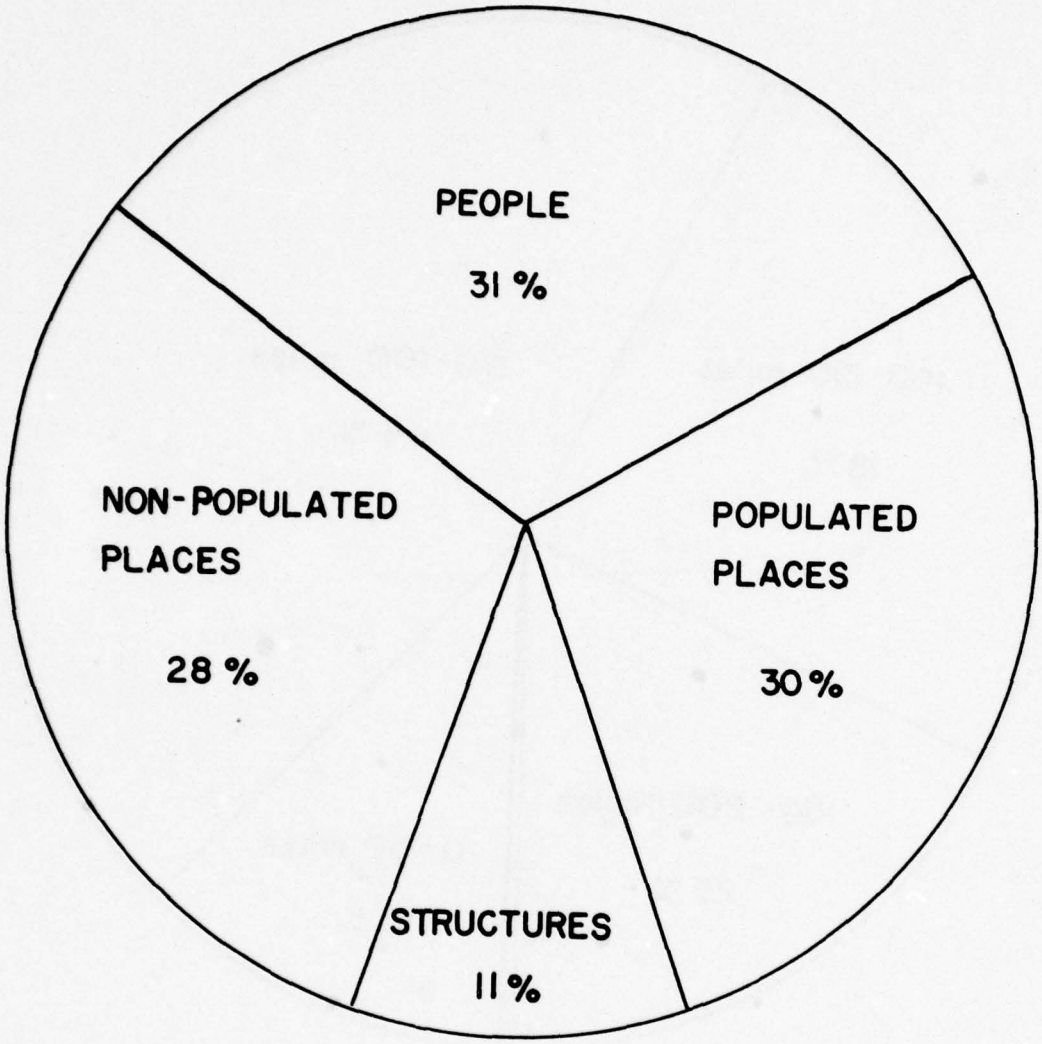


Figure 9.3 – Film Badge Distribution by Categories

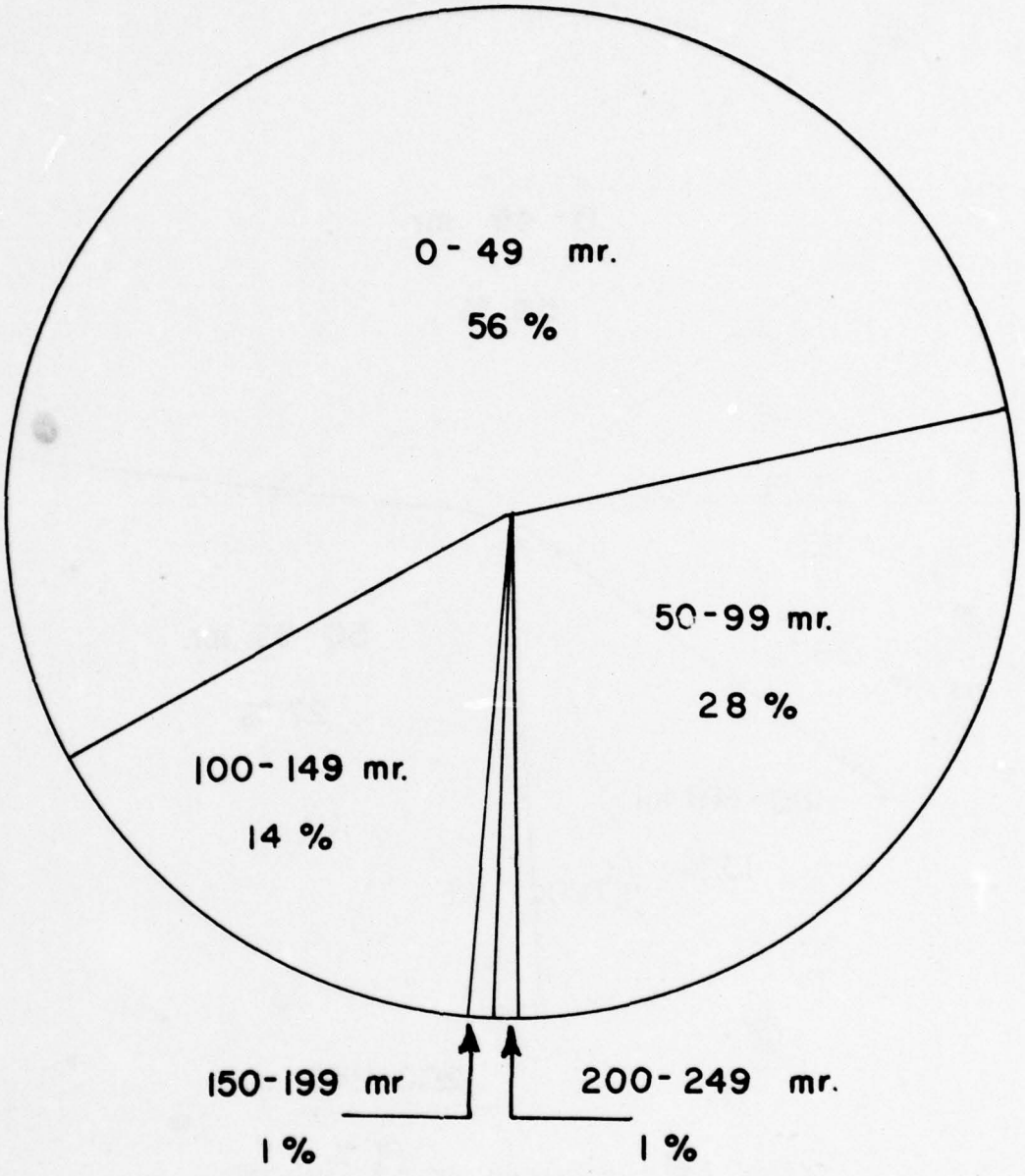


Figure 9.4 – Dosage Distribution for all Stations

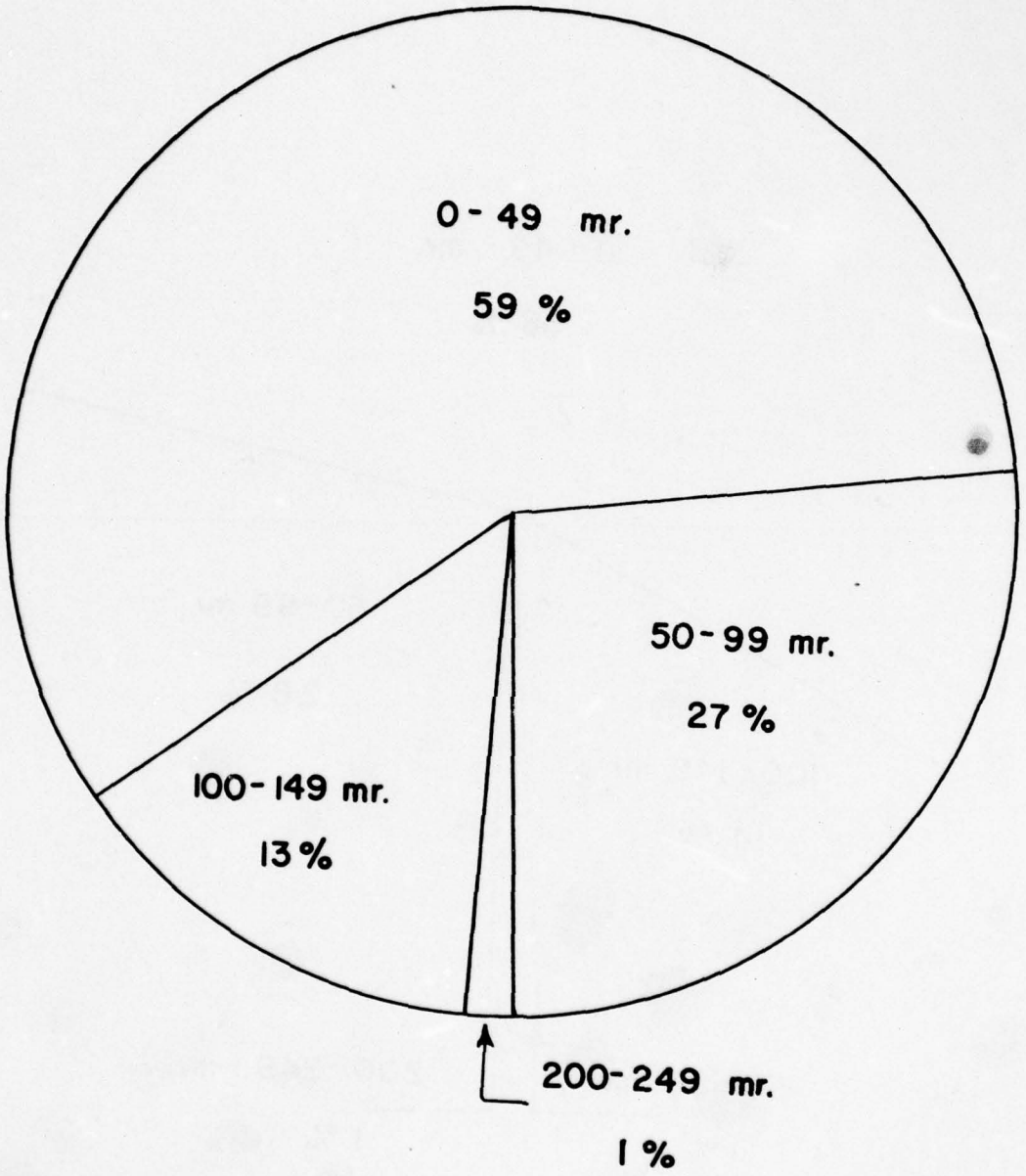


Figure 9.5 – Dosage Distribution for Inhabitants

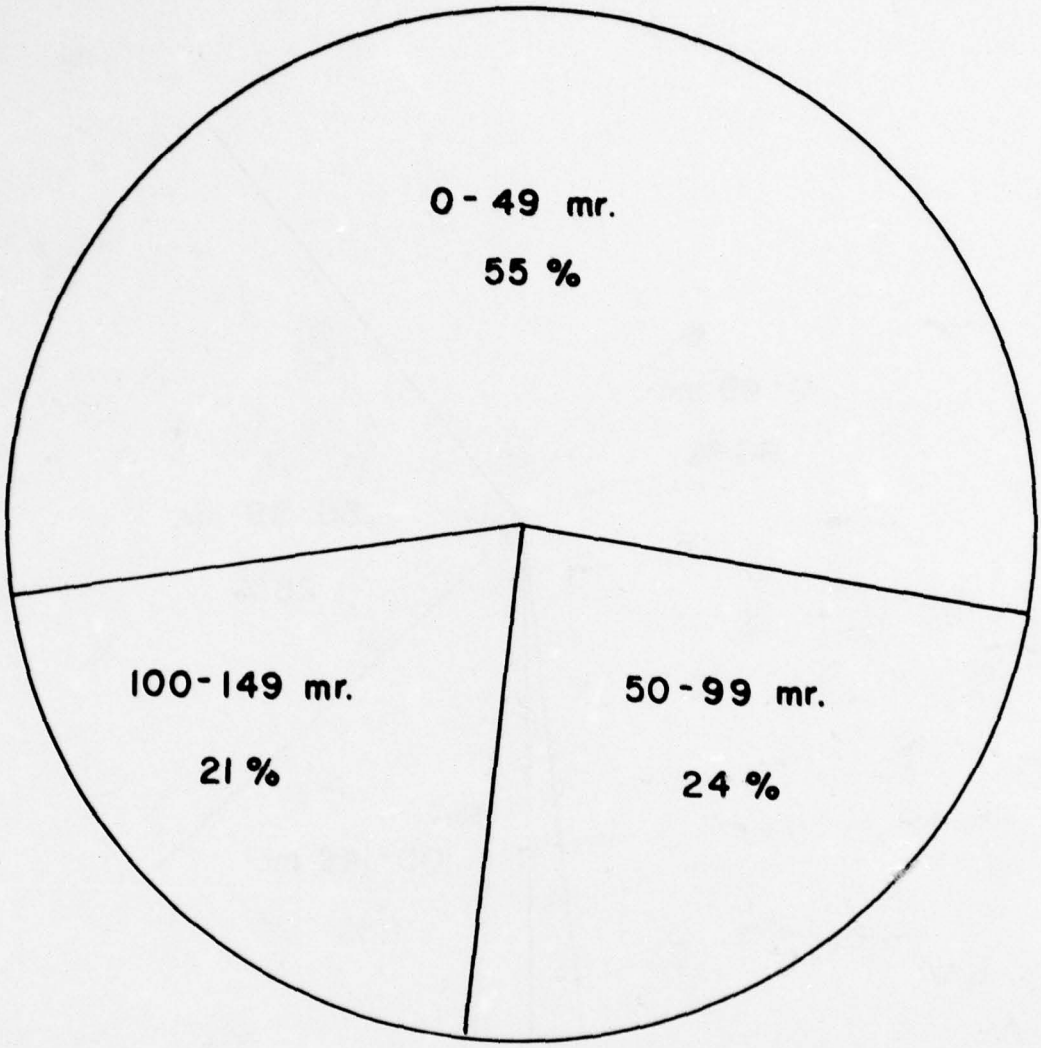


Figure 9.6 – Dosage Distribution in Populated Areas

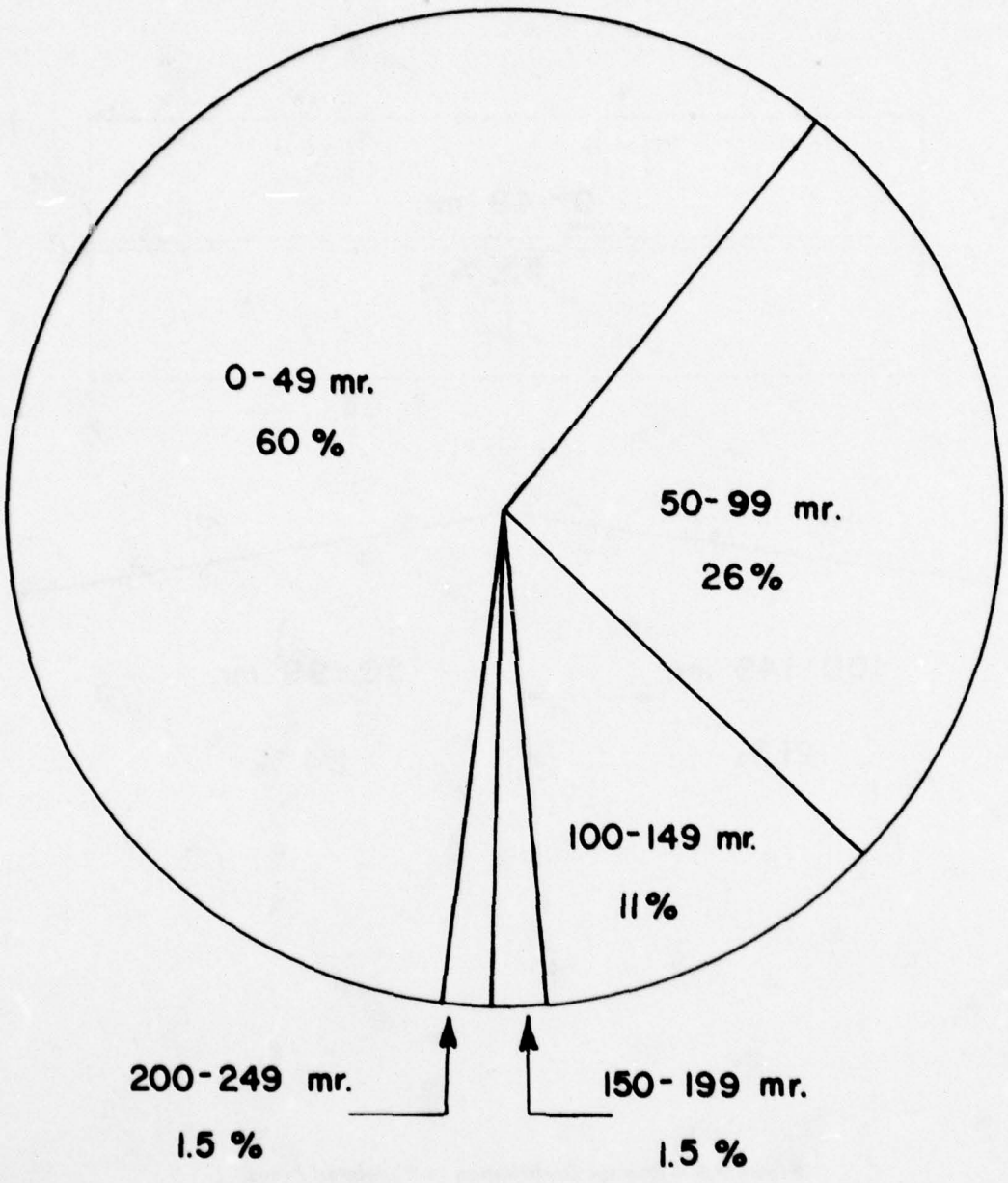


Figure 9.7 – Dosage Distribution in Non-Populated Areas

ERROR IN READING FILM BADGE DOSAGE

Exposure Read (mr)	Error In Reading (%)
50	± 28
100	± 16
500	± 4

Figure 9.8

APPENDIX A

Part I

AIR SAMPLING RESULTS FOR HARDTACK, PHASE II

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/m^3$ ACTIVITY AT TIME OF COUNT	$\mu C/m^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Alamo, Nevada	9/16 – 1528	0800 – 9/8 to 0800 – 9/9	1.3×10^{-6}	Not Extrapolated
Alamo, Nevada	9/16 – 1532	0830 – 9/9 to 0830 – 9/10	1.3×10^{-6}	Not Extrapolated
Alamo, Nevada	9/16 – 1534	0830 – 9/10 to 0830 – 9/11	2.2×10^{-6}	Not Extrapolated
Alamo, Nevada	9/16 – 1536	0630 – 9/11 to 9630 – 9/12	2.2×10^{-6}	Not Extrapolated
Alamo, Nevada	9/16 – 1543	0730 – 9/12 to 0730 – 9/13	4.0×10^{-6}	Not Extrapolated
Alamo, Nevada	9/16 – 1545	0730 – 9/13 to 0730 – 9/14	2.1×10^{-6}	Not Extrapolated
Alamo, Nevada	9/16 – 1547	0730 – 9/14 to 0730 – 9/15	3.7×10^{-6}	Not Extrapolated
Alamo, Nevada	9/21 – 1033	9/15 to 9/16	Motor Failure	
Alamo, Nevada	9/21 – 1035	9/16 to 9/17	Motor Failure	
Alamo, Nevada	9/27 – 1052	0800 – 9/17 to 0800 – 9/18	1.8×10^{-6}	Not Extrapolated
Alamo, Nevada	9/27 – 1054	0800 – 9/18 to 0800 – 9/19	2.8×10^{-6}	Not Extrapolated
Alamo, Nevada	9/27 – 1055	0800 – 9/19 to 0800 – 9/20	1.4×10^{-6}	Not Extrapolated
Alamo, Nevada	9/27 – 1056	0800 – 9/20 to 0800 – 9/21	2.3×10^{-6}	Not Extrapolated
Alamo, Nevada	9/27 – 1105	0800 – 9/21 to 0800 – 9/22	2.5×10^{-6}	Not Extrapolated
Alamo, Nevada	9/27 – 1106	0800 – 9/22 to 0800 – 9/23	2.2×10^{-6}	Not Extrapolated
Alamo, Nevada	9/27 – 1107	0800 – 9/23 to 0800 – 9/24	5.5×10^{-7}	Not Extrapolated
Alamo, Nevada	10/3 – 0935	0800 – 9/24 to 0800 – 9/25	3.2×10^{-6}	Not Extrapolated
Alamo, Nevada	10/3 – 0936	0800 – 9/25 to 0800 – 9/26	1.4×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Alamo, Nevada	10/3 – 0940	0800 – 9/26 to 0800 – 9/27	2.2×10^{6}	Not Extrapolated
Alamo, Nevada	10/3 – 0942	0800 – 9/27 to 0800 – 9/28	3.0×10^{-6}	Not Extrapolated
Alamo, Nevada	10/3 – 0944	0800 – 9/28 to 0800 – 9/29	Motor Failure	
Alamo, Nevada	10/3 – 0945	9/29 to 9/30	Motor Burned Out	
Alamo, Nevada	10/3 –	9/30 to 10/1	No Sample Reported	
Alamo, Nevada	10/6 – 0907	0800 – 10/1 to 0800 – 10/2	1.3×10^{-6}	Not Extrapolated
Alamo, Nevada	10/14 – 0843	0800 – 10/2 to 0800 – 10/3	4.3×10^{-6}	Not Extrapolated
Alamo, Nevada	10/14 – 0844	0800 – 10/3 to 0800 – 10/4	6.4×10^{-6}	Not Extrapolated
Alamo, Nevada	10/14 – 0846	0800 – 10/4 to 0800 – 10/5	8.5×10^{-6}	Not Extrapolated
Alamo, Nevada	10/14 – 0847	0800 – 10/5 to 0800 – 10/6	6.5×10^{-6}	Not Extrapolated
Alamo, Nevada	10/14 – 0848	0800 – 10/6 to 0800 – 10/7	4.6×10^{-6}	Not Extrapolated
Alamo, Nevada	10/14 – 0850	0800 – 10/7 to 0730 – 10/8	3.6×10^{-6}	Not Extrapolated
Alamo, Nevada	10/14 – 0851	0730 – 10/8 to 0830 – 10/9	2.2×10^{6}	Not Extrapolated
Alamo, Nevada	10/22 – 1025	0830 – 10/9 to 0700 – 10/10	2.2×10^{-6}	Not Extrapolated
Alamo, Nevada	10/22 – 1027	0700 – 10/10 to 1900 – 10/11	1.2×10^{6}	Not Extrapolated
Alamo, Nevada	10/22 – 1029	1900 – 10/11 to 0800 – 10/12	2.60×10^{5}	Not Extrapolated
Alamo, Nevada	10/22 – 1030	0800 – 10/12 to 0800 – 10/13	1.40×10^{-5}	9.55×10^{-5}
Alamo, Nevada		10/13 to 10/14	No Sample Submitted	
Alamo, Nevada	10/22 – 1032	0730 – 10/14 to 0730 – 10/15	7.2×10^{-6}	Not Extrapolated
Alamo, Nevada	10/22 – 1033	0730 – 10/15 to 0800 – 10/16	3.4×10^{6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Alamo, Nevada	10/27 – 1034	0800 – 10/16 to 0730 – 10/17	5.6×10^{-6}	Not Extrapolated
Alamo, Nevada	10/27 – 1418	0730 – 10/17 to 0800 – 10/18	3.10×10^{-5}	2.66×10^{-4}
Alamo, Nevada	10/27 – 1420	0800 – 10/18 to 0730 – 10/19	1.00×10^{-5}	5.40×10^{-5}
Alamo, Nevada	10/27 – 1421	0730 – 10/19 to 0730 – 10/20	2.42×10^{-5}	2.10×10^{-4}
Alamo, Nevada	10/27 – 1423	0730 – 10/20 to 0900 – 10/21	2.00×10^{-6}	1.24×10^{-4}
Alamo, Nevada	10/27 – 1424	0900 – 10/21 to 0730 – 10/22	1.97×10^{-5}	6.26×10^{-5}
Alamo, Nevada	10/27 – 1424	0730 – 10/22 to 0800 – 10/23	6.71×10^{-5}	1.55×10^{-3}
Alamo, Nevada	10/27 – 1425	0800 – 10/23 to 0730 – 10/24	1.93×10^{-5}	9.45×10^{-5}
Alamo, Nevada	11/5 – 1339	10/24 to 10/25	Motor Burned Out	
Alamo, Nevada	11/5 – 1328	0800 – 10/25 to 0800 – 10/26	6.25×10^{-5}	6.77×10^{-4}
Alamo, Nevada	11/5 – 1330	0800 – 10/26 to 0830 – 10/27	7.57×10^{-4}	2.25×10^{-2}
Alamo, Nevada	11/5 – 1332	0830 – 10/27 to 0730 – 10/28	7.67×10^{-5}	2.06×10^{-3}
Alamo, Nevada	11/5 – 1334	0730 – 10/28 to 0730 – 10/29	4.18×10^{-5}	3.64×10^{-4}
Alamo, Nevada	11/5 – 1335	0800 – 10/29 to 0730 – 10/30	2.60×10^{-5}	1.02×10^{-3}
Alamo, Nevada	11/5 – 1336	0730 – 10/30 to 0730 – 10/31	2.56×10^{-5}	6.67×10^{-4}
Alamo, Nevada	11/5 – 1338	0730 – 10/31 to 0800 – 11/1	4.46×10^{-5}	2.60×10^{-4}
Alamo, Nevada	11/17 – 1040	0800 – 11/1 to 0700 – 11/2	3.14×10^{-4}	1.76×10^{-3}
Alamo, Nevada	11/17 – 1041	0700 – 11/2 to 0800 – 11/3	2.74×10^{-4}	1.32×10^{-4}
Alamo, Nevada	11/17 – 1043	0800 – 11/3 to 0830 – 11/4	5.02×10^{-5}	1.77×10^{-4}
Alamo, Nevada	11/17 – 1044	0830 – 11/4 to 0900 – 11/5	8.9×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	μC/M³ ACTIVITY AT TIME OF COUNT	μC/M³ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Alamo, Nevada	11/17 – 1045	0900 – 11/5 to 0930 – 11/6	1.32×10^{-5}	2.44×10^{-5}
Beatty, Nevada	9/16 – 1649	1200 – 9/7 to 1200 – 9/8	2.1×10^{-6}	Not Extrapolated
Beatty, Nevada	9/16 – 1650	1200 – 9/8 to 1200 – 9/9	2.3×10^{-6}	Not Extrapolated
Beatty, Nevada	9/16 – 1651	1200 – 9/9 to 1200 – 9/10	2.9×10^{-6}	Not Extrapolated
Beatty, Nevada	9/16 – 1653	1200 – 9/10 to 1200 – 9/11	3.8×10^{-6}	Not Extrapolated
Beatty, Nevada	9/16 – 1659	1200 – 9/11 to 1200 – 9/12	2.6×10^{-6}	Not Extrapolated
Beatty, Nevada	9/16 – 1700	1200 – 9/12 to 1200 – 9/13	4.0×10^{-6}	Not Extrapolated
Beatty, Nevada	9/16 – 1701	1200 – 9/13 to 1200 – 9/14	3.3×10^{-6}	Not Extrapolated
Beatty, Nevada	9/16 – 1703	1210 – 9/14 to 1200 – 9/15	3.4×10^{-6}	Not Extrapolated
Beatty, Nevada	9/21 – 1047	1205 – 9/15 to 1200 – 9/16	1.5×10^{-6}	Not Extrapolated
Beatty, Nevada	9/21 – 1045	9/16 to 9/17	Sample Lost	
Beatty, Nevada	9/21 – 1044	1200 – 9/17 to 1200 – 9/18	2.3×10^{-6}	Not Extrapolated
Beatty, Nevada	9/21 – 1038	1205 – 9/18 to 1200 – 9/19	3.1×10^{-6}	Not Extrapolated
Beatty, Nevada	9/21 – 1037	1200 – 9/19 to 1200 – 9/20	5.1×10^{-6}	Not Extrapolated
Beatty, Nevada	9/24 – 1028	1205 – 9/20 to 1200 – 9/21	2.1×10^{-6}	Not Extrapolated
Beatty, Nevada	9/24 – 1036	1205 – 9/21 to 1200 – 9/22	3.3×10^{-6}	Not Extrapolated
Beatty, Nevada	10/1 – 1420	1205 – 9/22 to 1200 – 9/23	2.0×10^{-6}	Not Extrapolated
Beatty, Nevada	10/1 – 1424	1205 – 9/23 to 1200 – 9/24	1.1×10^{-6}	Not Extrapolated
Beatty, Nevada	10/1 – 1425	1205 – 9/24 to 1200 – 9/25	1.5×10^{-6}	Not Extrapolated
Beatty, Nevada	10/1 – 1426	1207 – 9/25 to 1200 – 9/26	1.3×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Beatty, Nevada	10/1 – 1427	1208 – 9/26 to 1200 – 9/27	1.7×10^{-6}	Not Extrapolated
Beatty, Nevada	10/1 – 1430	1210 – 9/27 to 1200 – 9/28	6.3×10^{-7}	Not Extrapolated
Beatty, Nevada	10/1 – 1433	1205 – 9/28 to 1200 – 9/29	3.1×10^{-6}	Not Extrapolated
Beatty, Nevada	10/3 – 0951	1200 – 9/29 to 1200 – 9/30	Sample Lost	
Beatty, Nevada	10/3 – 0953	1200 – 9/30 to 1200 – 10/1	1.5×10^{-6}	Not Extrapolated
Beatty, Nevada	10/3 – 0954	1200 – 10/1 to 1200 – 10/2	3.1×10^{-6}	Not Extrapolated
Beatty, Nevada	10/8 – 0835	1200 – 10/2 to 1200 – 10/3	3.3×10^{-6}	Not Extrapolated
Beatty, Nevada	10/8 – 0837	1200 – 10/3 to 1400 – 10/3	2.7×10^{-6}	Not Extrapolated
Beatty, Nevada	10/8 – 0839	1400 – 10/3 to 1200 – 10/4	3.4×10^{-6}	Not Extrapolated
Beatty, Nevada	10/8 – 0842	1200 – 10/4 to 1200 – 10/5	3.3×10^{-6}	Not Extrapolated
Beatty, Nevada	10/8 – 0844	10/5 to 10/5	Motor Burned Out	
Beatty, Nevada	10/11 – 1117	10/6 to 10/7	Motor Burned Out	
Beatty, Nevada	10/11 – 1118	10/7 to 10/8	Power Off – No Sample	
Beatty, Nevada	10/11 – 1119	1500 – 10/8 to 1200 – 10/9	2.0×10^{-6}	Not Extrapolated
Beatty, Nevada	10/11 – 1120	1200 – 10/9 to 1200 – 10/10	8.26×10^{-5}	2.95×10^{-4}
Beatty, Nevada	10/14 – 0853	1200 – 10/10 to 1200 – 10/11	1.84×10^{-3}	1.46×10^{-2}
Beatty, Nevada	10/14 – 0855	1200 – 10/11 to 1200 – 10/12	3.18×10^{-4}	9.00×10^{-4}
Beatty, Nevada	10/14 – 0857	1200 – 10/12 to 1200 – 10/13	3.51×10^{-5}	5.73×10^{-5}
Beatty, Nevada	10/22 – 1036	1200 – 10/13 to 1200 – 10/14	2.24×10^{-5}	4.32×10^{-4}
Beatty, Nevada	10/22 – 1038	1200 – 10/14 to 1200 – 10/15	2.8×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Beatty, Nevada	10/22 – 1039	1200 – 10/15 to 1200 – 10/16	4.2×10^{-6}	Not Extrapolated
Beatty, Nevada	10/22 – 1041	1200 – 10/16 to 1200 – 10/17	1.6×10^{-4}	2.06×10^{-3}
Beatty, Nevada	10/22 – 1042	1200 – 10/17 to 1200 – 10/18	1.30×10^{-5}	3.30×10^{-4}
Beatty, Nevada	10/22 – 1044	1200 – 10/18 to 1200 – 10/19	4.8×10^{6}	Not Extrapolated
Beatty, Nevada	10/22 – 1045	1200 – 10/19 to 1200 – 10/20	3.59×10^{-5}	1.03×10^{-4}
Beatty, Nevada	10/30 – 0920	1200 – 10/20 to 1200 – 10/21	1.42×10^{-5}	4.26×10^{-5}
Beatty, Nevada	10/27 – 1429	1200 – 10/21 to 1200 – 10/22	3.03×10^{-5}	9.10×10^{-5}
Beatty, Nevada	10/30 – 0922	1200 – 10/22 to 1200 – 10/23	2.50×10^{-5}	5.75×10^{-4}
Beatty, Nevada	10/27 – 1432	1200 – 10/23 to 1200 – 10/24	1.00×10^{-4}	4.14×10^{-4}
Beatty, Nevada	10/27 – 1433	1200 – 10/24 to 1200 – 10/25	1.20×10^{5}	7.62×10^{4}
Beatty, Nevada	10/30 – 0924	1200 – 10/25 to 1200 – 10/26	8.20×10^{-5}	1.86×10^{-4}
Beatty, Nevada	10/30 – 0926	1200 – 10/26 to 1200 – 10/27	2.85×10^{-4}	1.00×10^{-3}
Beatty, Nevada	11/3 – 1200	1150 – 10/27 to 1202 – 10/28	5.10×10^{-5}	8.00×10^{4}
Beatty, Nevada	11/3 – 1201	1200 – 10/28 to 1200 – 10/29	2.49×10^{-5}	1.39×10^{-4}
Beatty, Nevada	11/3 – 1202	1200 – 10/29 to 1200 – 10/30	4.83×10^{5}	7.45×10^{-4}
Beatty, Nevada	11/3 – 1204	1200 – 10/30 to 1200 – 10/31	3.54×10^{-5}	3.55×10^{-4}
Beatty, Nevada	11/12 – 1031	1200 – 10/31 to 1200 – 11/1	2.54×10^{-5}	7.20×10^{-4}
Beatty, Nevada	11/12 – 1034	1200 – 11/1 to 1200 – 11/2	2.67×10^{-4}	1.78×10^{-3}
Beatty, Nevada	11/12 – 1036	1200 – 11/2 to 1500 – 11/3	2.08×10^{-4}	9.25×10^{4}
Beatty, Nevada	11/12 – 1038	1500 – 11/3 to 1200 – 11/4	7.62×10^{-5}	2.61×10^{4}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Beatty, Nevada	11/12 – 1039	1200 – 11/4 to 1200 – 11/5	5.10×10^{-5}	1.27×10^{-4}
Beatty, Nevada	11/12 – 1051	1200 – 11/5 to 1200 – 11/6	6.7×10^{-6}	Not Extrapolated
Caliente, Nevada	9/17 – 1238	0810 – 9/8 to 0815 – 9/9	1.4×10^{-6}	Not Extrapolated
Caliente, Nevada	9/17 – 1240	0815 – 9/9 to 0815 – 9/10	2.3×10^{-6}	Not Extrapolated
Caliente, Nevada	9/17 – 1241	0815 – 9/10 to 0815 – 9/11	2.8×10^{-6}	Not Extrapolated
Caliente, Nevada	9/17 – 1242	0815 – 9/11 to 0815 – 9/12	2.3×10^{-6}	Not Extrapolated
Caliente, Nevada	9/17 – 1247	0815 – 9/12 to 0800 – 9/13	3.7×10^{-6}	Not Extrapolated
Caliente, Nevada	9/17 – 1249	0800 – 9/13 to 1030 – 9/14	3.3×10^{-6}	Not Extrapolated
Caliente, Nevada	9/17 – 1250	1030 – 9/14 to 0800 – 9/15	3.4×10^{-6}	Not Extrapolated
Caliente, Nevada	9/21 – 1016	0800 – 9/15 to 0815 – 9/16	3.5×10^{-6}	Not Extrapolated
Caliente, Nevada	9/21 – 1017	0815 – 9/16 to 0815 – 9/17	3.1×10^{-6}	Not Extrapolated
Caliente, Nevada	9/21 – 1019	0815 – 9/17 to 0815 – 9/18	4.1×10^{-6}	Not Extrapolated
Caliente, Nevada	9/21 – 1020	0815 – 9/18 to 0815 – 9/19	4.0×10^{-6}	Not Extrapolated
Caliente, Nevada	9/21 – 1021	0825 – 9/19 to 0900 – 9/20	1.0×10^{-5}	2.5×10^{-5}
Caliente, Nevada	10/3 – 1000	0900 – 9/20 to 1130 – 9/21	4.5×10^{-6}	Not Extrapolated
Caliente, Nevada	10/3 – 1004	1145 – 9/21 to 0815 – 9/22	1.3×10^{-6}	Not Extrapolated
Caliente, Nevada	10/3 – 1006	0815 – 9/22 to 0815 – 9/23	3.4×10^{-6}	Not Extrapolated
Caliente, Nevada	10/3 – 1008	0815 – 9/23 to 0815 – 9/24	8.3×10^{-7}	Not Extrapolated
Caliente, Nevada	10/3 – 1009	0815 – 9/24 to 0815 – 9/25	3.3×10^{-6}	Not Extrapolated
Caliente, Nevada	10/3 – 1010	9/25 Sample Lost – No Time Recorded		

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Caliente, Nevada	10/3 – 1014	0815 – 9/26 to 0815 – 9/27	2.3×10^{-6}	Not Extrapolated
Caliente, Nevada	10/3 – 1015	0815 – 9/27 to 1430 – 9/28	2.6×10^{-6}	Not Extrapolated
Caliente, Nevada	10/3 – 1016	1430 – 9/28 to 0815 – 9/29	2.6×10^{-6}	Not Extrapolated
Caliente, Nevada		9/29 Sample Lost – Motor Failure		
Caliente, Nevada	10/6 – 0900	0845 – 9/30 to 0900 – 10/1	1.8×10^{-6}	Not Extrapolated
Caliente, Nevada	10/6 – 0902	0900 – 10/1 to 0800 – 10/2	2.1×10^{-6}	Not Extrapolated
Caliente, Nevada	10/14 – 0859	0800 – 10/2 to 1200 – 10/3	3.32×10^{-5}	1.83×10^{-4}
Caliente, Nevada	10/14 – 0901	1200 – 10/3 to 0945 – 10/4	2.2×10^{-6}	Not Extrapolated
Caliente, Nevada	10/14 – 0902	0945 – 10/4 to 0815 – 10/5	1.79×10^{-5}	5.87×10^{-5}
Caliente, Nevada		10/5 to 10/6 No Sample		
Caliente, Nevada	10/14 – 0904	0815 – 10/6 to 0815 – 10/7	1.24×10^{-5}	3.97×10^{-5}
Caliente, Nevada	10/14 – 0905	0815 – 10/7 to 0815 – 10/8	1.81×10^{-6}	Not Extrapolated
Caliente, Nevada	10/14 – 0907	10/8 to 10/9 Motor Failure		
Caliente, Nevada	10/14 – 0908	0825 – 10/9 to 0810 – 10/10	1.5×10^{-6}	Not Extrapolated
Caliente, Nevada	10/17 – 1200	0810 – 10/10 to 1050 – 10/11	3.9×10^{-7}	Not Extrapolated
Caliente, Nevada	10/17 – 1202	1050 – 10/11 to 0605 – 10/12	1.7×10^{-6}	Not Extrapolated
Caliente, Nevada	10/17 – 1206	1810 – 10/12 to 0815 – 10/13	1.8×10^{-6}	Not Extrapolated
Caliente, Nevada	10/17 – 1208	0815 – 10/13 to 1030 – 10/14	2.4×10^{-6}	Not Extrapolated
Caliente, Nevada	10/17 – 1210	1030 – 10/14 to 0820 – 10/15	2.8×10^{-6}	Not Extrapolated
Caliente, Nevada	10/30 – 0928	0820 – 10/15 to 0820 – 10/16	1.7×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Caliente, Nevada	10/30 – 0926	0820 – 10/16 to 0820 – 10/17	2.9×10^{-6}	Not Extrapolated
Caliente, Nevada	10/30 – 0932	0820 – 10/17 to 1020 – 10/18	1.65×10^{-5}	2.2×10^{-4}
Caliente, Nevada	10/30 – 0934	1020 – 10/18 to 1120 – 10/19	3.3×10^{-6}	Not Extrapolated
Caliente, Nevada	10/30 – 0937	1130 – 10/19 to 0830 – 10/20	2.2×10^{-5}	2.4×10^{-4}
Caliente, Nevada	10/30 – 0936	0830 – 10/20 to 0900 – 10/21	1.03×10^{-5}	1.14×10^{-4}
Caliente, Nevada	10/30 – 0938	0900 – 10/21 to 0900 – 10/22	1.38×10^{-5}	1.41×10^{-4}
Caliente, Nevada	10/30 – 0939	0900 – 10/22 to 0800 – 10/23	2.37×10^{-5}	7.68×10^{-4}
Caliente, Nevada	10/30 – 0940	0800 – 10/23 to 0800 – 10/24	2.46×10^{-5}	1.91×10^{-4}
Caliente, Nevada	10/30 – 0941	0815 – 10/24 to 0745 – 10/27	4.03×10^{-5}	2.16×10^{-4}
Caliente, Nevada	11/5 – 1341	0745 – 10/27 to 0810 – 10/28	5.46×10^{-5}	1.62×10^{-3}
Caliente, Nevada	11/5 – 1342	0815 – 10/28 to 0815 – 10/29	3.00×10^{-5}	2.54×10^{-4}
Caliente, Nevada	11/5 – 1344	0815 – 10/29 to 0805 – 10/30	3.30×10^{-5}	1.20×10^{-3}
Caliente, Nevada	11/5 – 1345	0810 – 10/30 to 0910 – 10/31	1.56×10^{-5}	3.54×10^{-4}
Caliente, Nevada	11/5 – 1346	0915 – 10/31 to 0900 – 11/3	2.46×10^{-4}	5.86×10^{-4}
Caliente, Nevada	11/17 – 1055	1320 – 11/4 to 1100 – 11/5	2.36×10^{-5}	6.85×10^{-5}
Caliente, Nevada	11/17 – 1056	1100 – 11/5 to 0815 – 11/6	6.7×10^{-6}	Not Extrapolated
Cedar City, Utah	9/23 – 0933	2100 – 9/16 to 0900 – 9/17	4.5×10^{-6}	Not Extrapolated
Cedar City, Utah	9/23 – 0943	0900 – 9/17 to 0900 – 9/18	4.3×10^{-6}	Not Extrapolated
Cedar City, Utah	9/23 – 0952	0900 – 9/18 to 0900 – 9/19	4.5×10^{-6}	Not Extrapolated
Cedar City, Utah	9/23 – 0958	0900 – 9/19 to 0900 – 9/20	4.5×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Cedar City, Utah	9/23 – 1000	0900 – 9/20 to 0900 – 9/21	6.5×10^{6}	Not Extrapolated
Cedar City, Utah	10/3 – 1045	0900 – 9/21 to 0900 – 9/22	3.0×10^{-6}	Not Extrapolated
Cedar City, Utah	10/3 – 1047	0900 – 9/22 to 0900 – 9/23	3.7×10^{-6}	Not Extrapolated
Cedar City, Utah	10/3 – 1033	0900 – 9/23 to 0900 – 9/24	2.7×10^{-6}	Not Extrapolated
Cedar City, Utah	10/3 – 1034	0900 – 9/24 to 0900 – 9/25	6.0×10^{-6}	Not Extrapolated
Cedar City, Utah	10/3 – 1049	0900 – 9/25 to 0900 – 9/26	5.0×10^{-6}	Not Extrapolated
Cedar City, Utah	10/3 – 1035	0900 – 9/26 to 0900 – 9/27	2.5×10^{-6}	Not Extrapolated
Cedar City, Utah	10/3 – 1037	0900 – 9/27 to 0900 – 9/28	3.0×10^{-6}	Not Extrapolated
Cedar City, Utah	10/3 – 1039	0900 – 9/28 to 0900 – 9/29	3.1×10^{6}	Not Extrapolated
Cedar City, Utah	10/3 – 1040	0900 – 9/29 to 0900 – 9/30	3.6×10^{6}	Not Extrapolated
Cedar City, Utah	10/3 – 1042	0900 – 9/30 to 0900 – 10/1	2.2×10^{-6}	Not Extrapolated
Cedar City, Utah	10/6 – 0903	0900 – 10/1 to 0900 – 10/2	1.5×10^{-6}	Not Extrapolated
Cedar City, Utah	10/14 – 0911	0900 – 10/2 to 0900 – 10/3	4.6×10^{-6}	Not Extrapolated
Cedar City, Utah	10/14 – 0914	0900 – 10/3 to 0900 – 10/4	4.3×10^{-6}	Not Extrapolated
Cedar City, Utah	10/14 – 0914	0900 – 10/4 to 0900 – 10/5	3.6×10^{-6}	Not Extrapolated
Cedar City, Utah	10/14 – 0916	0900 – 10/5 to 1235 – 10/6	7.80×10^{-5}	1.71×10^{-3}
Cedar City, Utah	10/14 – 0918	1235 – 10/6 to 0925 – 10/7	4.4×10^{-6}	Not Extrapolated
Cedar City, Utah	10/14 – 0919	0930 – 10/7 to 0900 – 10/8	2.8×10^{6}	Not Extrapolated
Cedar City, Utah	10/14 – 0921	0900 – 10/8 to 0930 – 10/9	2.0×10^{-6}	Not Extrapolated
Cedar City, Utah	10/20 – 1405	0930 – 10/9 to 0900 – 10/10	1.5×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Cedar City, Utah	10/20 – 1406	0900 – 10/10 to 0900 – 10/11	1.2×10^{-6}	Not Extrapolated
Cedar City, Utah	10/20 – 1408	0900 – 10/11 to 0900 – 10/12	2.2×10^{-6}	Not Extrapolated
Cedar City, Utah	10/20 – 1409	0900 – 10/12 to 0900 – 10/13	2.6×10^{-6}	Not Extrapolated
Cedar City, Utah	10/24 – 1615	0900 – 10/13 to 0900 – 10/14	1.6×10^{-6}	Not Extrapolated
Cedar City, Utah	10/20 – 1410	0900 – 10/14 to 0900 – 10/15	2.3×10^{-6}	Not Extrapolated
Cedar City, Utah	10/20 – 1411	0900 – 10/15 to 0900 – 10/16	2.9×10^{-6}	Not Extrapolated
Cedar City, Utah	10/24 – 1617	0900 – 10/16 to 0900 – 10/17	2.03×10^{-5}	1.47×10^{-4}
Cedar City, Utah	10/24 – 1618	0900 – 10/17 to 0830 – 10/18	1.83×10^{-5}	7.40×10^{-5}
Cedar City, Utah	10/24 – 1620	0830 – 10/18 to 0930 – 10/19	1.10×10^{-5}	4.48×10^{-5}
Cedar City, Utah		10/19 to 10/20	Motor Failure	
Cedar City, Utah		10/20 to 10/21	Motor Failure	
Cedar City, Utah		10/21 to 10/22	Motor Failure	
Cedar City, Utah		10/22 to 10/23	Motor Failure	
Cedar City, Utah	10/30 – 0945	0930 – 10/23 to 0930 – 10/24	1.31×10^{-5}	9.55×10^{-5}
Cedar City, Utah	10/30 – 0946	0930 – 10/24 to 0900 – 10/25	1.28×10^{-5}	9.20×10^{-5}
Cedar City, Utah	10/30 – 0947	0900 – 10/25 to 0900 – 10/26	2.7×10^{-6}	Not Extrapolated
Cedar City, Utah		10/26 to 10/27	Motor Failure	
Cedar City, Utah	10/30 – 1138	0900 – 10/27 to 0930 – 10/28	4.87×10^{-5}	3.61×10^{-4}
Cedar City, Utah	10/30 – 1134	0930 – 10/28 to 0900 – 10/29	5.75×10^{-5}	1.32×10^{-4}
Cedar City, Utah	11/12 – 1354	0900 – 10/29 to 0900 – 11/1	3.69×10^{-5}	3.55×10^{-4}

AD-A076 368 REYNOLDS ELECTRICAL AND ENGINEERING CO INC MERCURY NEV F/G 18/6
OPERATION HARDTACK-PHASE II, OFF-SITE RADIOLOGICAL SAFETY REPOR--ETC(U)
AUG 59 O R PLACAK , M S SEAL , J R MCBRIDE AT (29-2)-162
UNCLASSIFIED AEC-OTO-58-6 NL

3 OF 3
AD
A076368

END
DATE
FILMED
12-79
DDC

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Ely, Nevada	9/17 – 1325	1130 – 9/15 to 0600 – 9/16	9.5×10^{-6}	Not Extrapolated
Ely, Nevada	9/21 – 1120	0800 – 9/16 to 0845 – 9/17	2.1×10^{-6}	Not Extrapolated
Ely, Nevada	9/21 – 1122	0845 – 9/17 to 0845 – 9/18	1.9×10^{-6}	Not Extrapolated
Ely, Nevada	9/21 – 1124	0845 – 9/18 to 0845 – 9/19	2.7×10^{-6}	Not Extrapolated
Ely, Nevada	9/21 – 1119	0845 – 9/19 to 0745 – 9/20	3.0×10^{-6}	Not Extrapolated
Ely, Nevada	9/27 – 1043	0845 – 9/20 to 0745 – 9/21	2.1×10^{-6}	Not Extrapolated
Ely, Nevada	9/27 – 1044	0745 – 9/21 to 0845 – 9/22	1.7×10^{-6}	Not Extrapolated
Ely, Nevada	9/27 – 1047	0845 – 9/22 to 0845 – 9/23	1.8×10^{-6}	Not Extrapolated
Ely, Nevada		0845 – 9/23 to 2100 – 9/23	No Sample	
Ely, Nevada	9/27 – 1111	2100 – 9/23 to 0845 – 9/24	1.3×10^{-6}	Not Extrapolated
Ely, Nevada		9/24 to 9/25	No Sample	
Ely, Nevada		9/25 to 9/26	Motor Failure – No Sample	
Ely, Nevada		9/26 to 9/27	Motor Failure – No Sample	
Ely, Nevada	10/3 – 1020	0845 – 9/27 to 0845 – 9/28	2.0×10^{-6}	Not Extrapolated
Ely, Nevada		9/28 to 9/29	Motor Failure – No Sample	
Ely, Nevada		9/29 to 9/30	Motor Failure – No Sample	
Ely, Nevada		9/30 to 10/1	Motor Failure – No Sample	
Ely, Nevada	10/6 – 0905	0900 – 10/1 to 0900 – 10/2	2.1×10^{-6}	Not Extrapolated
Ely, Nevada	10/14 – 0925	0900 – 10/2 to 0900 – 10/3	3.5×10^{-6}	Not Extrapolated
Ely, Nevada	10/14 – 0926	0900 – 10/2 to 0900 – 10/3	2.0×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/m^3$ ACTIVITY AT TIME OF COUNT	$\mu C/m^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Ely, Nevada	10/14 – 0927	0900 – 10/4 to 0900 – 10/5	2.1×10^{-6}	Not Extrapolated
Ely, Nevada	10/14 – 0928	0900 – 10/5 to 0900 – 10/6	5.10×10^{-5}	1.38×10^{-3}
Ely, Nevada	10/14 – 0929	0900 – 10/6 to 0900 – 10/7	4.5×10^{-6}	Not Extrapolated
Ely, Nevada	10/14 – 0930	0900 – 10/7 to 0900 – 10/8	2.2×10^{-6}	Not Extrapolated
Ely, Nevada	10/14 – 0932	0900 – 10/8 to 0900 – 10/9	1.6×10^{-6}	Not Extrapolated
Ely, Nevada	10/14 – 0933	0900 – 10/9 to 0900 – 10/10	1.5×10^{-6}	Not Extrapolated
Ely, Nevada	10/20 – 1353	0900 – 10/10 to 0900 – 10/11	1.2×10^{-6}	Not Extrapolated
Ely, Nevada	10/20 – 1354	0900 – 10/11 to 0900 – 10/12	6.3×10^{-6}	Not Extrapolated
Ely, Nevada	10/20 – 1355	0900 – 10/12 to 0900 – 10/13	1.31×10^{-5}	5.90×10^{-5}
Ely, Nevada	10/20 – 1357	0900 – 10/13 to 0900 – 10/14	1.20×10^{-5}	4.25×10^{-5}
Ely, Nevada	10/20 – 1357	0900 – 10/14 to 0900 – 10/15	1.23×10^{-5}	2.73×10^{-5}
Ely, Nevada		10/15 to 10/16	Motor Failure – No Sample	
Ely, Nevada	10/24 – 1800	2200 – 10/16 to 0900 – 10/17	8.0×10^{-6}	Not Extrapolated
Ely, Nevada	10/24 – 1622	0900 – 10/17 to 0900 – 10/18	8.5×10^{-6}	Not Extrapolated
Ely, Nevada	10/24 – 1624	0900 – 10/18 to 2015 – 10/18	4.71×10^{-4}	1.59×10^{-2}
Ely, Nevada	10/24 – 1626	2015 – 10/18 to 0900 – 10/19	4.1×10^{-6}	Not Extrapolated
Ely, Nevada	10/24 – 1628	0900 – 10/19 to 0900 – 10/20	1.43×10^{-5}	4.85×10^{-4}
Ely, Nevada	10/24 – 1630	0900 – 10/20 to 0900 – 10/21	5.3×10^{-6}	Not Extrapolated
Ely, Nevada	10/24 – 1631	0900 – 10/21 to 0900 – 10/22	9.2×10^{-6}	Not Extrapolated
Ely, Nevada		10/22 to 10/23	Motor Failure	

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Ely, Nevada		10/23 to 10/24	Motor Failure	
Ely, Nevada	10/30 – 1100	0900 – 10/24 to 0900 – 10/25	2.93×10^{-4}	5.17×10^{-3}
Ely, Nevada	10/30 – 0950	0900 – 10/25 to 0900 – 10/26	2.29×10^{-5}	1.17×10^{-4}
Ely, Nevada	10/30 – 0956	0900 – 10/26 to 0900 – 10/27	5.02×10^{-5}	4.82×10^{-4}
Ely, Nevada	11/12 – 1404	0900 – 10/27 to 0900 – 10/28	2.34×10^{-5}	6.32×10^{-4}
Ely, Nevada	11/12 – 1355	0900 – 10/28 to 0800 – 10/29	2.02×10^{-5}	2.08×10^{-4}
Ely, Nevada	11/12 – 1356	0800 – 10/29 to 1200 – 10/31	2.06×10^{-5}	3.07×10^{-4}
Ely, Nevada	11/12 – 1358	1200 – 10/31 to 0900 – 11/1	3.20×10^{-5}	2.76×10^{-4}
Ely, Nevada	11/12 – 1359	0900 – 11/1 to 0900 – 11/2	5.70×10^{-4}	3.08×10^{-3}
Ely, Nevada	11/12 – 1400	0900 – 11/2 to 0900 – 11/3	3.64×10^{-4}	1.93×10^{-3}
Ely, Nevada	11/12 – 1402	0900 – 11/3 to 0900 – 11/4	5.87×10^{-5}	2.22×10^{-4}
Ely, Nevada	11/12 – 1403	0900 – 11/4 to 0900 – 11/5	8.5×10^{-6}	Not Extrapolated
Ely, Nevada	11/12 – 1406	0900 – 11/5 to 0900 – 11/6	1.10×10^{-5}	2.84×10^{-5}
Goldfield, Nevada	9/16 – 1626	1200 – 9/7 to 1200 – 9/8	4.8×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/16 – 1629	1200 – 9/8 to 1200 – 9/9	2.5×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/16 – 1631	1200 – 9/9 to 1200 – 9/10	Sample Lost	
Goldfield, Nevada	9/16 – 1632	1200 – 9/10 to 1200 – 9/11	5.2×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/16 – 1639	1200 – 9/11 to 1200 – 9/12	5.1×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/16 – 1641	1200 – 9/12 to 1200 – 9/13	3.4×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/16 – 1642	1200 – 9/13 to 1200 – 9/14	3.7×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Goldfield, Nevada	9/21 – 1048	1200 – 9/14 to 1200 – 9/15	3.5×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/21 – 1050	1200 – 9/15 to 1200 – 9/16	2.4×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/21 – 1052	1200 – 9/16 to 1200 – 9/17	3.7×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/21 – 1053	1200 – 9/17 to 1200 – 9/18	4.4×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/21 – 1054	1200 – 9/18 to 1200 – 9/19	6.9×10^{-6}	Not Extrapolated
Goldfield, Nevada	9/21 – 1055	1200 – 9/19 to 1200 – 9/20	5.1×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/3 – 1122	1200 – 9/20 to 1200 – 9/21	4.8×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/3 – 1123	1200 – 9/21 to 1200 – 9/22	3.9×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/3 – 1124	1200 – 9/22 to 1200 – 9/23	6.2×10^{-6}	Not Extrapolated
Goldfield, Nevada		1200 – 9/23 to 1200 – 9/24	Sample Lost	
Goldfield, Nevada	10/3 – 1125	1200 – 9/24 to 1200 – 9/25	2.9×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/3 – 1127	1200 – 9/25 to 1200 – 9/26	2.6×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/3 – 1128	1200 – 9/26 to 1200 – 9/27	1.5×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/3 – 1130	1200 – 9/27 to 1200 – 9/28	4.9×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/3 – 1131	1230 – 9/28 to 0400 – 9/29	3.3×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/3 – 1132	0400 – 9/29 to 0500 – 9/30	2.6×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/11 – 1106	0500 – 9/30 to 0520 – 10/1	1.36×10^{-4}	2.02×10^{-3}
Goldfield, Nevada	10/11 – 1107	0520 – 10/1 to 0500 – 10/2	3.7×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/11 – 1110	0500 – 10/2 to 0500 – 10/3	6.0×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/11 – 1111	0500 – 10/3 to 0500 – 10/4	6.4×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Goldfield, Nevada	10/11 – 1112	0500 – 10/4 to 0500 – 10/5	3.4×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/11 – 1113	0500 – 10/5 to 1200 – 10/6	5.3×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/11 – 1114	1200 – 10/6 to 1635 – 10/7	3.8×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/17 – 1211	1635 – 10/7 to 1700 – 10/8	3.5×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/17 – 1215	1700 – 10/8 to 1700 – 10/9	1.5×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/17 – 1217	1700 – 10/9 to 1630 – 10/10	2.5×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/17 – 1218	1630 – 10/10 to 1700 – 10/11	1.95×10^{-3}	2.30×10^{-2}
Goldfield, Nevada	10/17 – 1220	1700 – 10/11 to 1700 – 10/12	5.85×10^{-4}	1.89×10^{3}
Goldfield, Nevada	10/17 – 1229	1700 – 10/12 to 1700 – 10/13	2.25×10^{-5}	6.73×10^{-5}
Goldfield, Nevada	10/17 – 1232	1700 – 10/13 to 1700 – 10/14	7.07×10^{-5}	4.13×10^{-4}
Goldfield, Nevada	10/17 – 1227	1700 – 10/14 to 1700 – 10/15	8.6×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/24 – 1634	1700 – 10/15 to 1640 – 10/16	5.9×10^{-6}	Not Extrapolated
Goldfield, Nevada	10/24 – 1636	1645 – 10/16 to 1635 – 10/17	1.07×10^{-4}	1.56×10^{-3}
Goldfield, Nevada	10/24 – 1638	1635 – 10/17 to 1700 – 10/18	1.17×10^{-5}	1.71×10^{-4}
Goldfield, Nevada	10/24 – 1639	1700 – 10/18 to 1700 – 10/19	1.07×10^{-5}	1.57×10^{-4}
Goldfield, Nevada	10/24 – 1640	1710 – 10/19 to 2040 – 10/20	4.23×10^{-5}	1.73×10^{-4}
Goldfield, Nevada	10/27 – 1435	2040 – 10/20 to 1650 – 10/21	2.48×10^{-5}	9.80×10^{-5}
Goldfield, Nevada	10/27 – 1436	1655 – 10/21 to 2120 – 10/22	3.66×10^{-5}	1.06×10^{-4}
Goldfield, Nevada	10/27 – 1437	2120 – 10/22 to 1635 – 10/23	3.43×10^{-5}	2.90×10^{-4}
Goldfield, Nevada	10/27 – 1438	1635 – 10/23 to 1635 – 10/24	1.55×10^{-4}	5.55×10^{-4}

APPENDIX A, Part I (Continued

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Goldfield, Nevada	10/30 – 1136	1635 – 10/24 to 1730 – 10/25	9.37×10^{-5}	9.46×10^{-4}
Goldfield, Nevada	11/12 – 1325	1730 – 10/25 to 1730 – 10/26	1.08×10^{-3}	3.38×10^{-2}
Goldfield, Nevada	11/3 – 1414	1730 – 10/26 to 1615 – 10/27	1.20×10^{-3}	1.12×10^{-2}
Goldfield, Nevada	11/3 – 1227	1615 – 10/27 to 1715 – 10/28	3.74×10^{-5}	4.26×10^{-4}
Goldfield, Nevada	11/3 – 1228	1720 – 10/28 to 1715 – 10/29	4.26×10^{-5}	2.06×10^{-4}
Goldfield, Nevada	11/3 – 1229	1715 – 10/29 to 1755 – 10/30	3.58×10^{-5}	3.55×10^{-4}
Goldfield, Nevada	11/3 – 1230	1755 – 10/30 to 1625 – 10/31	7.57×10^{-5}	5.36×10^{-4}
Goldfield, Nevada	11/13 – 1324	1630 – 10/31 to 1700 – 11/1	8.16×10^{-5}	8.10×10^{-4}
Goldfield, Nevada	11/13 – 1326	1700 – 11/1 to 1730 – 11/2	2.55×10^{-4}	1.32×10^{-3}
Goldfield, Nevada	11/13 – 1327	1730 – 11/2 to 1815 – 11/3	1.42×10^{-4}	5.75×10^{-4}
Goldfield, Nevada	11/13 – 1328	1830 – 11/3 to 1700 – 11/4	4.0×10^{-6}	Not Extrapolated
Goldfield, Nevada	11/13 – 1329	1700 - 11/4 to 1630 – 11/5	1.55×10^{-5}	4.06×10^{-4}
Indian Springs, Nev.	9/21 – 0955	1045 – 9/9 to 0700 – 9/10	4.7×10^{-6}	Not Extrapolated
Indian Springs, Nev	9/21 – 0959	9/10 to 9/11	Sample Lost	
Indian Springs, Nev		9/11 to 9/12	Motor Failure	
Indian Springs, Nev	9/21 – 0952	0700 – 9/12 to 0700 – 9/13	9.0×10^{-6}	Not Extrapolated
Indian Springs, Nev	9/21 – 1000	0700 – 9/13 to 0700 – 9/14	1.98×10^{-5}	2.38×10^{-5}
Indian Springs, Nev		9/14 to 9/15	Motor Failure	
Indian Springs, Nev		9/15 to 9/16	Motor Failure	
Indian Springs, Nev		9/16 to 9/17	Motor Failure	

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Indian Springs, Nev.		9/17 to 9/18	Motor Failure	
Indian Springs, Nev.	9/21 – 1007	0700 – 9/18 to 0700 – 9/19	2.7×10^{-6}	Not Extrapolated
Indian Springs, Nev		9/19 to 9/20	Motor Failure	
Indian Springs, Nev		9/20 to 9/21	Motor Failure	
Indian Springs, Nev	9/23 – 1006	0700 – 9/21 to 0700 – 9/22	2.7×10^{-7}	Not Extrapolated
Indian Springs, Nev	10/1 – 1434	0700 – 9/22 to 0700 – 9/23	2.1×10^{6}	Not Extrapolated
Indian Springs, Nev	10/1 – 1436	0700 – 9/23 to 0700 – 9/24	3.2×10^{-7}	Not Extrapolated
Indian Springs, Nev	10/1 – 1437	0700 – 9/24 to 0700 – 9/25	2.2×10^{-6}	Not Extrapolated
Indian Springs, Nev	10/1 – 1438	0700 – 9/25 to 0700 – 9/26	5.2×10^{-6}	Not Extrapolated
Indian Springs, Nev	10/1 – 1439	0700 – 9/26 to 0700 – 9/27	5.2×10^{-6}	Not Extrapolated
Indian Springs, Nev.		9/27 to 9/28	No Report	
Indian Springs, Nev		9/28 to 9/29	No Report	
Indian Springs, Nev	10/1 – 1443	0700 – 9/29 to 0700 – 9/30	8.77×10^{-5}	5.05×10^{-4}
Indian Springs, Nev.	10/11 – 1100	0700 – 9/30 to 0700 – 10/1	1.16×10^{-5}	8.65×10^{-4}
Indian Springs, Nev		10/1 to 10/2	No Sample Turned In	
Indian Springs, Nev	10/11 – 1101	0700 – 10/2 to 0700 – 10/3	5.1×10^{-6}	Not Extrapolated
Indian Springs, Nev	10/11 – 1102	0700 – 10/3 to 0700 – 10/4	2.73×10^{-5}	9.10×10^{-5}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/m^3$ ACTIVITY AT TIME OF COUNT	$\mu C/m^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Indian Springs, Nev		10/4 to 10/5	No Sample Turned In	
Indian Springs, Nev		10/5 to 10/6	No Sample Turned In	
Indian Springs, Nev.	10/11 – 1104	0700 – 10/6 to 0700 – 10/7	2.6×10^{-6}	Not Extrapolated
Indian Springs, Nev.		10/7 to 10/8	Motor Failure	
Indian Springs, Nev.	10/20 – 1316	0700 – 10/8 to 0700 – 10/9	1.10×10^{-5}	6.34×10^{-5}
Indian Springs, Nev		10/9 to 10/10	Motor Failure	
Indian Springs, Nev.		10/10 to 10/11	Motor Failure	
Indian Springs, Nev		10/11 to 10/12	Motor Failure	
Indian Springs, Nev.	10/20 – 1318	0700 – 10/12 to 0700 – 10/13	1.00×10^{-5}	5.43×10^{-5}
Indian Springs, Nev	10/20 – 1320	0700 – 10/13 to 0700 – 10/14	1.86×10^{-5}	3.83×10^{-4}
Indian Springs, Nev.	10/20 – 1321	0700 – 10/14 to 0700 – 10/15	6.0×10^{-6}	Not Extrapolated
Indian Springs, Nev	10/20 – 1323	0700 – 10/15 to 0700 – 10/16	1.0×10^{-6}	Not Extrapolated
Indian Springs, Nev	10/20 – 1325	0700 – 10/16 to 0700 – 10/17	1.1×10^{-6}	Not Extrapolated
Indian Springs, Nev		10/17 to 10/18	No Sample Turned In	
Indian Springs, Nev.		10/18 to 10/19	No Sample Turned In	
Indian Springs, Nev		10/19 to 10/20	No Sample Turned In	
Indian Springs, Nev.	10/30 – 1145	0700 – 10/20 to 0700 – 10/21	3.43×10^{-5}	2.28×10^{-4}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Las Vegas, Nevada	9/22 – 1040	0140 – 9/16 to 0145 – 9/17	2.8×10^{-6}	Not Extrapolated
Las Vegas, Nevada	9/22 – 1043	0145 – 9/17 to 0130 – 9/18	3.0×10^{-6}	Not Extrapolated
Las Vegas, Nevada	9/22 – 1046	0130 – 9/18 to 0135 – 9/19	3.3×10^{-6}	Not Extrapolated
Las Vegas, Nevada	9/22 – 1048	0135 – 9/19 to 0245 – 9/20	3.3×10^{-6}	Not Extrapolated
Las Vegas, Nevada	9/22 – 1051	0245 – 9/20 to 0210 – 9/21	3.9×10^{-6}	Not Extrapolated
Las Vegas, Nevada	9/22 – 1053	0210 – 9/21 to 0230 – 9/22	7.0×10^{6}	Not Extrapolated
Las Vegas, Nevada	9/27 – 1048	0230 – 9/22 to 0220 – 9/23	3.1×10^{-6}	Not Extrapolated
Las Vegas, Nevada	9/27 – 1050	0220 – 9/23 to 0220 – 9/24	1.4×10^{-6}	Not Extrapolated
Las Vegas, Nevada	9/27 – 1051	0220 – 9/24 to 0245 – 9/25	2.6×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/1 – 1414	0245 – 9/25 to 0245 – 9/26	3.2×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/1 – 1415	0245 – 9/26 to 0245 – 9/27	1.7×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/1 – 1416	0245 – 9/27 to 0600 – 9/28	2.9×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/1 – 1417	0600 – 9/28 to 0700 – 9/29	2.7×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/1 – 1418	0700 – 9/29 to 0500 – 9/30	5.0×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0936	0500 – 9/30 to 0500 – 10/1	2.3×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0938	0500 – 10/1 to 0500 – 10/2	1.6×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0939	0500 – 10/2 to 0500 – 10/3	2.6×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Las Vegas, Nevada	10/14 – 0940	0500 – 10/3 to 0500 – 10/4	4.1×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0944	0500 – 10/4 to 0500 – 10/5	4.4×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0945	0500 – 10/5 to 0200 – 10/6	3.1×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0947	0200 – 10/6 to 0245 – 10/7	3.0×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0948	0245 – 10/7 to 0300 – 10/8	2.8×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0949	0300 – 10/8 to 0330 – 10/9	2.6×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0951	0330 – 10/9 to 0245 – 10/10	1.7×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/14 – 0952	0245 – 10/10 to 0500 – 10/11	1.6×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/20 – 1328	0500 – 10/11 to 0500 – 10/12	2.7×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/20 – 1329	0500 – 10/12 to 0600 – 10/13	3.0×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/20 – 1331	0600 – 10/13 to 0530 – 10/14	2.2×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/20 – 1333	0530 – 10/14 to 0600 – 10/15	2.6×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/20 – 1334	0600 – 10/15 to 0630 – 10/16	2.6×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/20 – 1335	0630 – 10/16 to 0530 – 10/17	3.5×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/20 – 1336	0530 – 10/17 to 0600 – 10/18	2.7×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/20 – 1337	0600 – 10/18 to 0530 – 10/19	1.4×10^{-5}	5.68×10^{-5}
Las Vegas, Nevada	10/30 – 1024	0530 – 10/19 to 0600 – 10/20	8.7×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Las Vegas, Nevada	10/30 – 1025	0600 – 10/20 to 0600 – 10/21	3.3×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/30 – 1026	0600 – 10/21 to 0430 – 10/22	9.6×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/30 – 1027	0500 – 10/22 to 0530 – 10/23	2.3×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/30 – 1028	0530 – 10/23 to 0600 – 10/24	3.2×10^{-6}	Not Extrapolated
Las Vegas, Nevada	10/30 – 1030	0600 – 10/24 to 0400 – 10/25	1.07×10^{-5}	6.41×10^{-5}
Las Vegas, Nevada	10/30 – 1031	0400 – 10/25 to 0500 – 10/26	5.37×10^{-5}	3.22×10^{-4}
Las Vegas, Nevada	10/30 – 1022	0500 – 10/26 to 0500 – 10/27	5.55×10^{-4}	8.05×10^{-4}
Las Vegas, Nevada	10/30 – 1037	0500 – 10/27 to 2330 – 10/28	2.40×10^{-4}	4.80×10^{-4}
Las Vegas, Nevada	11/12 – 1039	2330 – 10/28 to 0030 – 10/29	3.60×10^{-5}	7.50×10^{-4}
Las Vegas, Nevada	11/12 – 1042	0030 – 10/29 to 0100 – 10/30	3.00×10^{-5}	2.84×10^{-4}
Las Vegas, Nevada	11/12 – 1044	0100 – 10/30 to 0100 – 10/31	1.95×10^{-5}	1.08×10^{-3}
Las Vegas, Nevada	11/12 – 1046	0100 – 10/31 to 0200 – 11/1	1.40×10^{-5}	2.47×10^{-3}
Las Vegas, Nevada	11/12 – 1046	0200 – 11/1 to 0100 – 11/2	3.42×10^{-5}	2.92×10^{-4}
Las Vegas, Nevada	11/12 – 1047	0100 – 11/2 to 0200 – 11/3	3.00×10^{-4}	1.63×10^{-3}
Las Vegas, Nevada	11/12 – 1048	0200 – 11/3 to 0200 – 11/4	2.72×10^{-4}	1.08×10^{-3}
Las Vegas, Nevada	11/12 – 1216	0200 – 11/4 to 0200 – 11/5	1.66×10^{-4}	5.46×10^{-4}
Las Vegas, Nevada	11/12 – 1218	0200 – 11/5 to 0230 – 11/6	7.55×10^{-5}	1.93×10^{-4}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Lathrop Wells, Nev	10/22 – 1057	0915 – 10/16 to 0800 – 10/17	4.55×10^{-5}	7.65×10^{-4}
Lathrop Wells, Nev	10/22 – 1058	0800 – 10/17 to 0815 – 10/18	2.22×10^{-5}	1.16×10^{-4}
Lathrop Wells, Nev.	10/22 – 1100	0815 – 10/18 to 0800 – 10/19	4.2×10^{-6}	Not Extrapolated
Lathrop Wells, Nev	10/22 – 1105	0805 – 10/19 to 0915 – 10/20	5.32×10^{-5}	1.71×10^{-4}
Lathrop Wells, Nev	10/24 – 1643	0915 – 10/20 to 0830 – 10/21	2.85×10^{-5}	8.42×10^{-5}
Lathrop Wells, Nev.	10/24 – 1644	0830 – 10/21 to 0800 – 10/22	1.56×10^{-5}	3.12×10^{-5}
Lathrop Wells, Nev.	10/24 – 1646	0800 – 10/22 to 0800 – 10/23	4.20×10^{-5}	3.20×10^{-4}
Lathrop Wells, Nev	10/24 – 1647	0800 – 10/23 to 0800 – 10/24	3.80×10^{-5}	6.75×10^{-5}
Lathrop Wells, Nev.		10/24 to 10/25	Filter Ruined by Rain	
Lathrop Wells, Nev	10/30 – 1032	0900 – 10/25 to 0900 – 10/26	1.27×10^{-4}	6.57×10^{-4}
Lathrop Wells, Nev	11/12 – 1325	0900 – 10/26 to 0900 – 10/27	2.1×10^{-3}	8.40×10^{-2}
Lathrop Wells, Nev	11/3 – 1408	0800 – 10/27 to 0800 – 10/28	7.80×10^{-4}	1.50×10^{-2}
Lathrop Wells, Nev	10/30 – 1143	0800 – 10/28 to 0800 – 10/29	1.15×10^{-4}	3.09×10^{-4}
Lathrop Wells, Nev	11/3 – 1157	0800 – 10/29 to 0800 – 10/30	5.75×10^{-5}	1.53×10^{-3}
Lathrop Wells, Nev	11/3 – 1158	0800 – 10/30 to 0800 – 10/31	2.50×10^{-5}	3.75×10^{-4}
Lathrop Wells, Nev	11/12 – 1233	0800 – 10/31 to 0800 – 11/1	2.64×10^{-5}	3.75×10^{-4}
Lathrop Wells, Nev	11/12 – 1234	0800 – 11/1 to 0800 – 11/2	1.56×10^{-4}	8.37×10^{-4}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Lathrop Wells, Nev	11/12 – 1235	0800 – 11/2 to 0800 – 11/3	3.65×10^{-4}	1.40×10^{-3}
Lathrop Wells, Nev	11/12 – 1236	0800 – 11/3 to 0800 – 11/4	2.92×10^{-4}	8.65×10^{-4}
Lathrop Wells, Nev	11/12 – 1237	0800 – 11/4 to 0800 – 11/5	1.08×10^{-4}	2.60×10^{-4}
Lathrop Wells, Nev	11/12 – 1238	0800 – 11/5 to 0800 – 11/6	2.82×10^{-5}	5.75×10^{-5}
Lincoln Mine, Nev	9/24 – 1139	0900 – 9/7 to 0900 – 9/8	6.4×10^{-7}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1140	0900 – 9/8 to 0905 – 9/9	1.9×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1141	0905 – 9/9 to 0900 – 9/10	3.9×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1142	0910 – 9/10 to 0905 – 9/11	2.7×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1148	0905 – 9/11 to 0855 – 9/12	3.4×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1149	0920 – 9/12 to 0920 – 9/13	4.8×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1150	0925 – 9/13 to 0930 – 9/14	3.2×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1152	0930 – 9/14 to 0900 – 9/15	1.5×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1153	0900 – 9/15 to 0900 – 9/16	3.3×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1154	0900 – 9/16 to 0900 – 9/17	2.9×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 – 1155	0910 – 9/17 to 0915 – 9/18	6.6×10^{-6}	Not Extrapolated
Lincoln Mine, Nev		9/18 to 9/19	Sample Lost	
Lincoln Mine, Nev	9/24 – 1158	0850 – 9/19 to 1000 – 9/20	1.95×10^{-3}	2.81×10^{-2}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Lincoln Mine, Nev	9/24 - 1200	1000 - 9/20 to 0900 - 9/21	4.9×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	9/24 - 1201	0900 - 9/21 to 0900 - 9/22	4.0×10^{-6}	Not Extrapolated
Lincoln Mine, Nev		9/22 to 9/23	Motor Stopped Sample	lost
Lincoln Mine, Nev	10/5 - 0910	0930 - 9/23 to 0900 - 9/24	1.7×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/5 - 0911	0905 - 9/24 to 0900 - 9/25	3.7×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/5 - 0913	0900 - 9/25 to 0900 - 9/26	2.9×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/5 - 0914	0915 - 9/26 to 0900 - 9/27	1.7×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/5 - 0915	0915 - 9/27 to 0915 - 9/28	5.6×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/5 - 0917	0915 - 9/28 to 0845 - 9/29	1.9×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/5 - 0919	0845 - 9/29 to 0845 - 9/30	4.4×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/5 - 0922	0900 - 10/1 to 0900 - 10/2	1.1×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/14 - 0954	0900 - 10/2 to 0900 - 10/3	3.2×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/14 - 0956	0915 - 10/3 to 0840 - 10/4	8.5×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/14 - 0957	0855 - 10/4 to 0835 - 10/5	3.5×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/14 - 0959	0840 - 10/5 to 0900 - 10/6	3.95×10^{-5}	1.09×10^{-3}
Lincoln Mine, Nev	10/14 - 1000	0905 - 10/6 to 0910 - 10/7	3.1×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	10/14 - 1001	0910 - 10/7 to 0910 - 10/8	4.1×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Lincoln Mine, Nev	10/14 - 1003	0910 - 10/8 to 0910 - 10/9	1.4×10^{6}	Not Extrapolated
Lincoln Mine, Nev	10/14 - 1004	0910 - 10/9 to 0910 - 10/10	4.4×10^{6}	Not Extrapolated
Lincoln Mine, Nev	10/17 - 1224	0920 - 10/10 to 0930 - 10/11	1.37×10^{3}	2.60×10^{2}
Lincoln Mine, Nev	10/17 - 1225	0935 - 10/11 to 0930 - 10/12	9.2×10^{6}	Not Extrapolated
Lincoln Mine, Nev	10/17 - 1226	0935 - 10/12 to 0900 - 10/13	6.7×10^{6}	Not Extrapolated
Lincoln Mine, Nev	10/17 - 1227	0910 - 10/13 to 0915 - 10/14	5.2×10^{6}	Not Extrapolated
Lincoln Mine, Nev	10/17 - 1228	0920 - 10/14 to 0915 - 10/15	3.3×10^{6}	Not Extrapolated
Lincoln Mine, Nev	10/24 - 1654	0920 - 10/15 to 0900 - 10/16	7.2×10^{6}	Not Extrapolated
Lincoln Mine, Nev	10/24 - 1655	0900 - 10/16 to 0900 - 10/17	3.7×10^{6}	Not Extrapolated
Lincoln Mine, Nev	10/24 - 1657	0905 - 10/17 to 0830 - 10/18	3.37×10^{5}	2.46×10^{4}
Lincoln Mine, Nev	10/24 - 1658	0830 - 10/18 to 0830 - 10/19	7.1×10^{6}	Not Extrapolated
Lincoln Mine, Nev	10/24 - 1659	10/19 to 10/20	Motor Stopped	
Lincoln Mine, Nev	10/24 - 1700	0910 - 10/20 to 0915 - 10/21	2.48×10^{5}	7.30×10^{5}
Lincoln Mine, Nev	10/24 - 1702	0920 - 10/21 to 0900 - 10/22	3.36×10^{5}	4.72×10^{5}
Lincoln Mine, Nev	10/27 - 1440	0905 - 10/22 to 0915 - 10/23	1.94×10^{3}	3.48×10^{2}
Lincoln Mine, Nev	10/30 - 1007	0920 - 10/23 to 0915 - 10/24	2.72×10^{5}	3.07×10^{4}
Lincoln Mine, Nev	10/30 - 1005	0920 - 10/24 to 0900 - 10/25	5.2×10^{6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Lincoln Mine, Nev.	10/30 – 1007	0905 – 10/25 to 0915 – 10/26	9.56×10^{-5}	4.88×10^{-4}
Lincoln Mine, Nev	10/30 – 1010	0920 – 10/26 to 0910 – 10/27	1.61×10^{-4}	1.48×10^{-3}
Lincoln Mine, Nev.	11/5 – 1257	0915 – 10/27 to 0910 – 10/28	4.77×10^{-5}	1.23×10^{-3}
Lincoln Mine, Nev.	11/5 – 1300	0915 – 10/28 to 0910 – 10/29	2.56×10^{-5}	2.09×10^{-4}
Lincoln Mine, Nev.	11/5 – 1301	0910 – 10/29 to 0905 – 10/30	3.17×10^{-5}	1.02×10^{-3}
Lincoln Mine, Nev.	11/5 – 1302	0905 – 10/30 to 0900 – 10/31	2.49×10^{-5}	5.43×10^{-4}
Lincoln Mine, Nev.	11/5 – 1304	0905 – 10/31 to 0900 – 11/1	3.05×10^{-5}	1.70×10^{-4}
Lincoln Mine, Nev.	11/5 – 1305	0900 – 11/1 to 0855 – 11/2	1.76×10^{-4}	5.25×10^{-4}
Lincoln Mine, Nev.	11/5 – 1307	0855 – 11/2 to 0920 – 11/3	4.86×10^{-4}	9.65×10^{-4}
Lincoln Mine, Nev.	11/17 – 1047	0925 – 11/3 to 0920 – 11/4	4.38×10^{-5}	7.97×10^{-5}
Lincoln Mine, Nev.	11/17 – 1048	0920 – 11/4 to 0920 – 11/5	8.6×10^{-6}	Not Extrapolated
Lincoln Mine, Nev	11/17 – 1049	0920 – 11/5 to 0920 – 11/6	7.8×10^{-6}	Not Extrapolated
Logandale, Nevada	9/16 – 1455	0700 – 9/7 to 0700 – 9/8	Sample Lost	
Logandale, Nevada	9/16 – 1458	0700 – 9/8 to 0700 – 9/9	Sample Lost	
Logandale, Nevada	9/16 – 1502	0700 – 9/9 to 0700 – 9/10	Sample Lost	
Logandale, Nevada	9/16 – 1504	0700 – 9/10 to 0700 – 9/11	Sample Lost	
Logandale, Nevada	9/16 – 1512	0700 – 9/11 to 0700 – 9/12	Sample Lost	
Logandale, Nevada	9/16 – 1515	0700 – 9/12 to 0700 – 9/13	Sample Lost	

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	μC/M³ ACTIVITY AT TIME OF COUNT	μC/M³ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Logandale Nevada	9/16 - 1517	0700 - 9/13 to 0700 - 9/14	5.3×10^{6}	Not Extrapolated
Logandale Nevada	9/16 - 1521	0700 - 9/14 to 1350 - 9/15	1.3×10^{6}	Not Extrapolated
Logandale, Nevada	9/21 - 1111	9/15 to 9/16	Sample Lost	
Logandale, Nevada	9/21 - 1116	0700 - 9/16 to 0715 - 9/17	1.0×10^{6}	Not Extrapolated
Logandale, Nevada		9/17 to 9/18	Sample Lost	
Logandale, Nevada		9/18 to 9/19	Sample Lost	
Logandale Nevada	9/21 - 1118	0707 - 9/19 to 1030 - 9/20	4.5×10^{6}	Not Extrapolated
Logandale, Nevada	10/2 - 1356	9/20 to 9/21	Motor Burned Out	
Logandale, Nevada	10/2 - 1358	9/21 to 9/22	Motor Burned Out	
Logandale, Nevada	10/2 - 1359	0630 - 9/22 to 0630 - 9/23	2.0×10^{6}	Not Extrapolated
Logandale, Nevada	10/2 - 1400	0630 - 9/23 to 0720 - 9/24	1.0×10^{6}	Not Extrapolated
Logandale, Nevada	10/2 - 1401	0725 - 9/24 to 0725 - 9/25	2.2×10^{6}	Not Extrapolated
Logandale, Nevada	10/2 - 1403	0730 - 9/25 to 0700 - 9/26	4.9×10^{6}	Not Extrapolated
Logandale Nevada	10/2 - 1403	0730 - 9/26 to 0700 - 9/27	8.0×10^{6}	Not Extrapolated
Logandale, Nevada		9/27 to 9/28	Motor Burned Out	
Logandale, Nevada		9/28 to 9/29	Motor Burned Out	
Logandale, Nevada	10/1 - 1404	0700 - 9/29 to 0700 - 9/30	4.9×10^{6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Logandale, Nevada	10/1 – 1406	0700 – 9/30 to 0630 – 10/1	3.4×10^{-6}	Not Extrapolated
Logandale, Nevada	10/14 – 1006	0630 – 10/1 to 0730 – 10/2	6.8×10^{-6}	Not Extrapolated
Logandale, Nevada		10/2 to 10/3	No Sample Turned In	
Logandale, Nevada	10/14 – 1007	0730 – 10/3 to 0700 – 10/4	5.3×10^{-6}	Not Extrapolated
Logandale, Nevada	10/14 – 1008	0700 – 10/4 to 0815 – 10/5	3.9×10^{-6}	Not Extrapolated
Logandale, Nevada	10/14 – 1012	0815 – 10/5 to 0630 – 10/6	2.9×10^{-6}	Not Extrapolated
Logandale, Nevada	10/14 – 1014	0630 – 10/6 to 0700 – 10/7	2.3×10^{-6}	Not Extrapolated
Logandale, Nevada	10/14 – 1016	0700 – 10/7 to 0700 – 10/8	No Reading	
Logandale, Nevada		10/8 to 10/9	No Sample Turned In	
Logandale, Nevada	10/14 – 1018	0700 – 10/9 to 0710 – 10/10	1.4×10^{-6}	Not Extrapolated
Logandale, Nevada	10/22 – 1047	0710 – 10/10 to 0700 – 10/11	8.3×10^{-6}	Not Extrapolated
Logandale, Nevada	10/22 – 1048	0700 – 10/11 to 0645 – 10/12	1.6×10^{-6}	Not Extrapolated
Logandale, Nevada	10/22 – 1050	0645 – 10/12 to 0700 – 10/13	6.1×10^{-7}	Not Extrapolated
Logandale, Nevada	10/22 – 1051	0700 – 10/13 to 0715 – 10/14	1.6×10^{-6}	Not Extrapolated
Logandale, Nevada	10/22 – 1053	0715 – 10/14 to 0715 – 10/15	1.5×10^{-6}	Not Extrapolated
Logandale, Nevada	10/22 – 1055	0715 – 10/15 to 0700 – 10/16	1.7×10^{-6}	Not Extrapolated
Logandale, Nevada	10/22 – 1057	0700 – 10/16 to 0700 – 10/17	2.2×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Logandale, Nevada		10/17 to 10/18	No Sample Submitted	
Logandale, Nevada	10/22 - 1058	10/18 to 10/19	Motor Failed	
Logandale, Nevada		10/19 to 10/20	No Sample Turned In	
Logandale, Nevada	10/30 - 1014	0830 - 10/20 to 0700 - 10/21	1.65×10^{5}	1.10×10^{4}
Logandale, Nevada		10/21 to 10/22	Motor Failed	
Logandale, Nevada	10/30 - 1030	0700 - 10/22 to 0730 - 10/23	1.86×10^{5}	7.65×10^{4}
Logandale, Nevada		10/23 to 10/24	Motor Failure	
Logandale, Nevada		10/24 to 10/25	Motor Failure	
Logandale, Nevada	10/30 - 1017	0930 - 10/25 to 0700 - 10/26	2.85×10^{5}	1.47×10^{4}
Logandale, Nevada	10/30 - 1030	0700 - 10/26 to 0700 - 10/27	3.00×10^{5}	3.30×10^{4}
Logandale, Nevada	11/12 - 1341	10/27 to 10/28	Motor Failure	
Logandale, Nevada	11/12 - 1343	0715 - 10/28 to 0700 - 10/29	3.75×10^{5}	2.55×10^{3}
Logandale, Nevada	11/12 - 1345	0700 - 10/29 to 0730 - 10/30	3.60×10^{4}	2.40×10^{3}
Logandale, Nevada	11/12 - 1346	0730 - 10/30 to 0700 - 10/31	9.3×10^{-6}	5.25×10^{4}
Logandale, Nevada	11/12 - 1348	0700 - 10/31 to 0700 - 11/1	1.59×10^{5}	2.02×10^{4}
Logandale, Nevada	11/12 - 1348	0730 - 11/1 to 0730 - 11/2	1.80×10^{4}	8.95×10^{4}
Logandale, Nevada		11/2 to 11/3	Data Sheet Not With Sample	

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	μC/m³ ACTIVITY AT TIME OF COUNT	μC/m³ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Logandale, Nevada	11/12 – 1350	0730 – 11/3 to 0730 – 11/4	2.83×10^{-4}	1.04×10^{-3}
Logandale, Nevada	11/12 – 1352	0730 – 11/4 to 0700 – 11/5	3.20×10^{-4}	9.06×10^{-4}
Mercury, Nevada	10/24 – 1710	0900 – 10/16 to 0905 – 10/17	1.56×10^{-5}	3.68×10^{-4}
Mercury, Nevada	10/24 – 1712	0910 – 10/17 to 0910 – 10/18	1.24×10^{-5}	2.87×10^{-4}
Mercury, Nevada	10/24 – 1713	0910 – 10/18 to 0915 – 10/19	4.8×10^{-6}	Not Extrapolated
Mercury, Nevada	10/24 – 1715	0905 – 10/19 to 0905 – 10/20	4.19×10^{-5}	1.81×10^{-4}
Mercury, Nevada	10/24 – 1716	0905 – 10/20 to 0905 – 10/21	2.46×10^{-5}	5.80×10^{-5}
Mercury, Nevada	10/24 – 1717	0905 – 10/21 to 1040 – 10/22	1.60×10^{-5}	2.93×10^{-5}
Mercury, Nevada	11/3 – 1328	0900 – 10/22 to 0900 – 10/23	2.93×10^{-5}	1.35×10^{-3}
Mercury, Nevada	11/3 – 1329	0900 – 10/23 to 1430 – 10/24	2.22×10^{-5}	1.49×10^{-4}
Mercury, Nevada	11/3 – 1330	10/24 to 10/25	Motor Failure	
Mercury, Nevada	11/3 – 1331	1430 – 10/25 to 1015 – 10/26	7.06×10^{-5}	1.42×10^{-4}
Mercury, Nevada	11/3 – 1332	1015 – 10/26 to 1000 – 10/27	2.78×10^{-3}	5.10×10^{-2}
Mercury, Nevada	11/3 – 1333	1000 – 10/27 to 1020 – 10/28	2.02×10^{-4}	1.21×10^{-3}
Mercury, Nevada	11/3 – 1335	1020 – 10/28 to 1000 – 10/29	4.21×10^{-5}	2.50×10^{-4}
Mercury, Nevada	11/3 – 1336	1000 – 10/29 to 1545 – 10/30	5.34×10^{-5}	7.67×10^{-4}
Mercury, Nevada	11/3 – 1337	1545 – 10/30 to 1000 – 10/31	2.93×10^{-5}	5.23×10^{-5}
Mercury, Nevada	11/3 – 1338	1000 – 10/31 to 1225 – 11/1	4.85×10^{-5}	5.87×10^{-5}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Mercury, Nevada	11/12 - 1225	1230 - 11/1 to 1210 - 11/2	1.16×10^{4}	7.19×10^{4}
Mercury, Nevada	11/12 - 1226	1210 - 11/2 to 1305 - 11/3	3.03×10^{4}	1.27×10^{3}
Mercury, Nevada	11/12 - 1228	1305 - 11/3 to 1000 - 11/4	1.70×10^{4}	6.30×10^{4}
Mercury, Nevada	11/12 - 1229	1000 - 11/4 to 1000 - 11/5	9.15×10^{5}	2.48×10^{4}
Mercury, Nevada	11/12 - 1230	1015 - 11/5 to 1015 - 11/6	2.60×10^{5}	5.33×10^{5}
Pioche, Nevada	9/21 - 1128	1845 - 9/15 to 0900 - 9/16	6.4×10^{6}	Not Extrapolated
Pioche, Nevada	9/21 - 1129	1040 - 9/16 to 0920 - 9/17	5.5×10^{6}	Not Extrapolated
Pioche, Nevada	9/21 - 1136	1000 - 9/17 to 0900 - 9/18	5.0×10^{6}	Not Extrapolated
Pioche, Nevada	9/21 - 1131	0900 - 9/18 to 0730 - 9/19	3.6×10^{6}	Not Extrapolated
Pioche, Nevada	9/21 - 1134	0730 - 9/19 to 0900 - 9/19	4.6×10^{6}	Not Extrapolated
Pioche, Nevada	9/21 - 1135	0900 - 9/19 to 1700 - 9/19	1.80×10^{-3}	2.67×10^{2}
Pioche, Nevada	9/21 - 1136	1700 - 9/19 to 1200 - 9/20	6.3×10^{-6}	Not Extrapolated
Pioche, Nevada	10/1 - 1355	1200 - 9/20 to 0900 - 9/21	3.2×10^{-6}	Not Extrapolated
Pioche, Nevada	9/27 - 1044	0900 - 9/21 to 0900 - 9/22	1.6×10^{-6}	Not Extrapolated
Pioche, Nevada	10/1 - 1405	0900 - 9/22 to 0900 - 9/23	3.8×10^{-6}	Not Extrapolated
Pioche, Nevada	10/1 - 1407	0900 - 9/23 to 0900 - 9/24	7.2×10^{-6}	1.72×10^{-4}
Pioche, Nevada	10/1 - 1409	0900 - 9/24 to 0900 - 9/25	3.6×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Pioche, Nevada	10/1 – 1410	0900 – 9/25 to 0900 – 9/26	2.5×10^{-6}	Not Extrapolated
Pioche, Nevada	10/1 – 1412	0900 – 9/26 to 0900 – 9/27	3.3×10^{-6}	Not Extrapolated
Pioche, Nevada	10/1 – 1413	0900 – 9/27 to 0900 – 9/28	3.3×10^{-6}	Not Extrapolated
Pioche, Nevada	10/3 – 1031	0900 – 9/28 to 0900 – 9/29	2.1×10^{-6}	Not Extrapolated
Pioche, Nevada	10/3 – 1026	0900 – 9/29 to 0900 – 9/30	2.9×10^{-6}	Not Extrapolated
Pioche, Nevada	10/3 – 1027	0900 – 10/1 to 0930 – 10/2	2.4×10^{-6}	Not Extrapolated
Pioche, Nevada	10/11 – 1123	0930 – 10/2 to 0900 – 10/3	5.1×10^{-6}	Not Extrapolated
Pioche, Nevada	10/11 – 1124	0900 – 10/3 to 0900 – 10/4	5.4×10^{-6}	Not Extrapolated
Pioche, Nevada	10/11 – 1125	0900 – 10/4 to 0900 – 10/5	4.3×10^{-6}	Not Extrapolated
Pioche, Nevada	10/11 – 1127	0900 – 10/5 to 0700 – 10/6	2.61×10^{-4}	1.83×10^{-3}
Pioche, Nevada	10/11 – 1128	0700 – 10/6 to 0900 – 10/7	2.12×10^{-5}	4.33×10^{-5}
Pioche, Nevada	10/11 – 1129	0900 – 10/7 to 0900 – 10/8	4.0×10^{-6}	Not Extrapolated
Pioche, Nevada	10/14 – 1020	0900 – 10/8 to 0800 – 10/9	2.4×10^{-6}	Not Extrapolated
Pioche, Nevada	10/14 – 1022	10/9 to 10/10	Motor Failure	
Pioche, Nevada	10/14 – 1024	0708 – 10/10 to 0910 – 10/10	1.5×10^{-6}	Not Extrapolated
Pioche, Nevada	10/17 – 1230	1200 – 10/10 to 0900 – 10/11	6.6×10^{-7}	Not Extrapolated
Pioche, Nevada	10/17 – 1232	0900 – 10/11 to 0900 – 10/12	1.5×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Pioche, Nevada	10/17 – 1233	0900 – 10/12 to 0730 – 10/13	1.7×10^{6}	Not Extrapolated
Pioche, Nevada	10/17 – 1235	0810 – 10/13 to 0805 – 10/14	1.9×10^{6}	Not Extrapolated
Pioche, Nevada	10/24 – 1720	0900 – 10/14 to 0900 – 10/15	1.7×10^{6}	Not Extrapolated
Pioche, Nevada	10/24 – 1721	0805 – 10/15 to 0800 – 10/16	1.8×10^{6}	Not Extrapolated
Pioche, Nevada	10/24 – 1723	0800 – 10/16 to 0900 – 10/17	1.50×10^{5}	3.82×10^{5}
Pioche, Nevada	10/24 – 1724	0900 – 10/17 to 0800 – 10/18	2.02×10^{5}	6.68×10^{5}
Pioche, Nevada	10/24 – 1725	0805 – 10/18 to 0905 – 10/19	2.0×10^{6}	Not Extrapolated
Pioche, Nevada	10/24 – 1727	0905 – 10/19 to 0840 – 10/20	2.67×10^{5}	1.35×10^{4}
Pioche, Nevada	10/24 – 1728	0845 – 10/20 to 2345 – 10/20	2.36×10^{5}	7.00×10^{5}
Pioche, Nevada	10/24 – 1730	0935 – 10/21 to 0635 – 10/22	1.86×10^{5}	3.72×10^{5}
Pioche, Nevada	10/30 – 1000	1850 – 10/22 to 0925 – 10/23	3.76×10^{5}	6.60×10^{4}
Pioche, Nevada	10/30 – 1001	0930 – 10/23 to 0915 – 10/24	1.80×10^{5}	1.17×10^{3}
Pioche, Nevada	10/30 – 1002	0915 – 10/24 to 0900 – 10/25	1.32×10^{4}	2.48×10^{3}
Pioche, Nevada	10/30 – 1003	0930 – 10/25 to 0730 – 10/26	9.34×10^{5}	4.88×10^{4}
Pioche, Nevada	10/30 – 1004	0730 – 10/26 to 2300 – 10/26	1.17×10^{5}	2.24×10^{4}
Pioche, Nevada	10/3 – 1028	0900 – 9/30 to 0900 – 10/1	2.9×10^{6}	Not Extrapolated
Tonopah, Nevada		9/1 to 9/8	Sample Lost	

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Tonopah, Nevada	9/17 – 1316	0630 –9/8 to 0630 – 9/9	2.2×10^{-6}	Not Extrapolated
Tonopah, Nevada	9/17 – 1317	0630 – 9/9 to 0800 – 9/10	3.6×10^{-6}	Not Extrapolated
Tonopah, Nevada	9/17 – 1318	0800 – 9/10 to 0830 – 9/11	2.7×10^{6}	Not Extrapolated
Tonopah, Nevada	9/17 – 1319	0830 – 9/11 to 0800 – 9/15	1.8×10^{-6}	Not Extrapolated
Tonopah, Nevada	9/23 – 1015	2000 – 9/15 to 1930 – 9/16	1.8×10^{-6}	Not Extrapolated
Tonopah, Nevada	9/23 – 1030	1930 – 9/16 to 1930 – 9/17	1.9×10^{-6}	Not Extrapolated
Tonopah, Nevada	9/23 – 1033	1930 – 9/17 to 1900 – 9/18	1.45×10^{-5}	9.14×10^{-5}
Tonopah, Nevada	9/23 – 1035	1900 – 9/18 to 2000 – 9/19	2.8×10^{-6}	Not Extrapolated
Tonopah, Nevada	9/23 – 1039	2000 – 9/19 to 2000 – 9/20	1.7×10^{-6}	Not Extrapolated
Tonopah, Nevada	9/23 – 1053	2000 – 9/20 to 2000 – 9/21	2.4×10^{-6}	Not Extrapolated
Tonopah, Nevada	9/23 – 1145	2000 – 9/21 to 1900 – 9/22	2.6×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/1 – 1445	1900 – 9/22 to 2030 – 9/23	1.4×10^{6}	Not Extrapolated
Tonopah, Nevada	10/1 – 1450	0830 – 9/23 to 0830 – 9/24	2.0×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/1 – 1451	0830 – 9/24 to 0830 – 9/25	1.8×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/1 – 1452	0830 – 9/25 to 0830 – 9/26	2.0×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/1 – 1453	0830 – 9/26 to 0830 – 9/27	1.2×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/1 – 1455	0830 – 9/27 to 0830 – 9/28	1.3×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Tonopah, Nevada	10/3 – 1134	0830 – 9/28 to 0830 – 9/29	1.3×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/3 – 1136	0830 – 9/29 to 0830 – 9/30	1.6×10^{6}	Not Extrapolated
Tonopah, Nevada		9/30 to 10/1	No Sample – No Rotameter Readings	
Tonopah, Nevada	10/8 – 1142	1245 – 10/1 to 1700 – 10/2	2.2×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/8 – 1145	1700 – 10/2 to 1900 – 10/3	4.7×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/8 – 1147	1900 – 10/3 to 2200 – 10/4	3.8×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/8 – 1149	2200 – 10/4 to 1800 – 10/5	7.3×10^{-6}	Not Extrapolated
Tonopah, Nevada		10/5 to 10/6	No Sample Submitted	
Tonopah, Nevada	10/17 – 1330	1800 – 10/6 to 1700 – 10/7	2.9×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/17 – 1332	1700 – 10/7 to 2200 – 10/8	1.9×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/17 – 1334	2200 – 10/8 to 2100 – 10/9	1.4×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/17 – 1336	2100 – 10/9 to 2100 – 10/10	1.8×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/17 – 1338	2100 – 10/10 to 1900 – 10/11	5.5×10^{-4}	5.60×10^{-3}
Tonopah, Nevada	10/17 – 1340	1900 – 10/11 to 2100 – 10/12	3.85×10^{-4}	1.28×10^{-3}
Tonopah, Nevada	10/17 – 1341	2100 – 10/12 to 2100 – 10/13	1.80×10^{-5}	4.79×10^{-5}
Tonopah, Nevada	10/17 – 1342	2100 – 10/13 to 2100 – 10/14	4.70×10^{-4}	1.95×10^{-3}
Tonopah, Nevada	10/17 – 1346	2100 – 10/14 to 2100 – 10/15	4.65×10^{-5}	1.95×10^{-4}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Tonopah, Nevada	10/24 – 1732	2100 – 10/15 to 2000 – 10/16	4.8×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/24 – 1733	2000 – 10/16 to 2000 – 10/17	2.08×10^{4}	2.26×10^{-3}
Tonopah, Nevada	10/24 – 1734	2000 – 10/17 to 2000 – 10/18	9.0×10^{-6}	Not Extrapolated
Tonopah, Nevada	10/24 – 1736	2000 – 10/18 to 2000 – 10/19	1.96×10^{-5}	2.15×10^{-4}
Tonopah, Nevada	10/24 – 1737	2000 – 10/19 to 2000 – 10/20	3.96×10^{-5}	1.85×10^{4}
Tonopah, Nevada	10/24 – 1737	2000 – 10/20 to 2000 – 10/21	3.22×10^{-5}	1.06×10^{-4}
Tonopah, Nevada	10/24 – 1739	2000 – 10/21 to 2000 – 10/22	3.00×10^{-5}	6.86×10^{-5}
Tonopah, Nevada	10/30 – 1101	2000 – 10/22 to 2000 – 10/23	2.91×10^{-5}	2.39×10^{-4}
Tonopah, Nevada	10/30 – 1102	2000 – 10/23 to 2000 – 10/24	4.77×10^{5}	2.16×10^{-4}
Tonopah, Nevada	10/30 – 1103	2000 – 10/24 to 2000 – 10/25	3.95×10^{-5}	1.12×10^{-4}
Tonopah, Nevada	11/3 – 1209	0800 – 10/26 to 0800 – 10/27	2.03×10^{-5}	4.82×10^{-4}
Tonopah, Nevada	11/3 – 1210	0800 – 10/27 to 0800 – 10/28	6.38×10^{-5}	1.15×10^{-3}
Tonopah, Nevada	11/3 – 1211	0800 – 10/28 to 0800 – 10/30	3.30×10^{-5}	1.76×10^{-4}
Tonopah, Nevada	11/13 – 1313	0800 – 10/30 to 0945 – 11/1	9.90×10^{-5}	4.27×10^{-4}
Tonopah, Nevada	11/13 – 1314	1800 – 11/1 to 1800 – 11/2	3.71×10^{4}	2.40×10^{3}
Tonopah, Nevada	11/13 – 1315	1800 – 11/2 to 1800 – 11/3	4.66×10^{-5}	2.12×10^{-4}
Tonopah, Nevada	11/13 – 1316	1800 – 11/3 to 1800 – 11/4	4.0×10^{-5}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Tonopah, Nevada	11/13 – 1318	1800 – 11/4 to 1800 – 11/5	1.9×10^{-6}	Not Extrapolated
Warm Springs, Nev		1200 – 9/7 to 1200 – 9/8	Sample Lost	
Warm Springs, Nev	9/17 – 1258	1200 – 9/8 to 1200 – 9/9	2.7×10^{-6}	Not Extrapolated
Warm Springs, Nev		9/9 to 9/10	Sample Lost	
Warm Springs, Nev	9/17 – 1300	1200 – 9/10 to 1200 – 9/11	4.2×10^{-6}	Not Extrapolated
Warm Springs, Nev	9/17 – 1306	1200 – 9/11 to 1200 – 9/12	6.4×10^{-6}	Not Extrapolated
Warm Springs, Nev		9/12 to 9/13	Sample Lost	
Warm Springs, Nev		9/13 to 9/14	Sample Lost	
Warm Springs, Nev	9/17 – 1309	1200 – 9/14 to 1200 – 9/15	3.0×10^{-6}	Not Extrapolated
Warm Springs, Nev	9/21 – 1023	1200 – 9/15 to 1200 – 9/16	3.5×10^{-6}	Not Extrapolated
Warm Springs, Nev	9/21 – 1025	1200 – 9/16 to 1200 – 9/17	3.8×10^{-6}	Not Extrapolated
Warm Springs, Nev	9/21 – 1027	1200 – 9/17 to 1200 – 9/18	4.8×10^{-6}	Not Extrapolated
Warm Springs, Nev	9/21 – 1028	1200 – 9/18 to 1130 – 9/19	5.8×10^{-6}	Not Extrapolated
Warm Springs, Nev	9/21 – 1031	1130 – 9/19 to 1030 – 9/20	4.8×10^{-6}	Not Extrapolated
Warm Springs, Nev	9/24 – 1132	1030 – 9/20 to 1200 – 9/21	8.7×10^{-6}	Not Extrapolated
Warm Springs, Nev	9/24 – 1133	1200 – 9/21 to 1200 – 9/22	2.4×10^{-6}	Not Extrapolated
Warm Springs, Nev	9/24 – 1134	1200 – 9/22 to 1100 – 9/23	6.2×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Warm Springs, Nev	10/3 – 1107	1100 – 9/23 to 1200 – 9/24	1.7×10^{-6}	Not Extrapolated
Warm Springs, Nev		9.24 to 9/25	Motor Failure	
Warm Springs, Nev	10/3 – 1112	1800 – 9/25 to 1800 – 9/26	5.1×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/3 – 1113	1200 – 9/26 to 1200 – 9/27	3.5×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/3 – 1115	1200 – 9/27 to 1200 – 9/28	Motor Failure	
Warm Springs, Nev	10/3 – 1117	1200 – 9/28 to 1200 – 9/29	2.5×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/3 – 1118	1200 – 9/29 to 1200 – 9/30	2.8×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/3 – 1120	1200 – 9/30 to 1200 – 10/1	2.5×10^{-6}	Not Extrapolated
Warm Springs, Nev.	10/14 – 1048	1200 – 10/1 to 1200 – 10/2	2.5×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/14 – 1049	1200 – 10/2 to 1200 – 10/3	6.1×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/14 – 1051	1200 – 10/3 to 1200 – 10/4	4.5×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/14 – 1052	1200 – 10/4 to 1200 – 10/5	2.5×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/14 – 1054	1200 – 10/5 to 1200 – 10/6	3.3×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/14 – 1055	1200 – 10/6 to 1200 – 10/7	2.6×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/14 – 1056	1200 – 10/7 to 1200 – 10/8	2.2×10^{6}	Not Extrapolated
Warm Springs, Nev	10/14 – 1058	1200 – 10/8 to 1200 – 10/9	1.5×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/14 – 1059	1200 – 10/9 to 1200 – 10/10	1.46×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/m^3$ ACTIVITY AT TIME OF COUNT	$\mu C/m^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Warm Springs, Nev	10/17 – 1349	1200 – 10/10 to 1200 – 10/11	5.15×10^{-5}	8.14×10^{-4}
Warm Springs, Nev	10/17 – 1350	1200 – 10/11 to 1200 – 10/12	1.18×10^{-4}	6.66×10^{-4}
Warm Springs, Nev	10/17 – 1351	1200 – 10/12 to 1200 – 10/13	2.02×10^{-5}	6.61×10^{-5}
Warm Springs, Nev	10/17 – 1352	1200 – 10/13 to 1200 – 10/14	4.77×10^{-3}	4.00×10^{-2}
Warm Springs, Nev	10/17 – 1353	1200 – 10/14 to 1200 – 10/15	1.65×10^{-4}	1.26×10^{-3}
Warm Springs, Nev	10/27 – 1442	1200 – 10/15 to 1200 – 10/16	7.6×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/27 – 1443	1200 – 10/16 to 1200 – 10/17	8.0×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/27 – 1445	1200 – 10/17 to 1200 – 10/18	1.4×10^{-5}	8.62×10^{-5}
Warm Springs, Nev	10/27 – 1447	1200 – 10/18 to 1200 – 10/19	6.3×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/27 – 1448	1200 – 10/19 to 1200 – 10/20	2.84×10^{-5}	2.16×10^{-4}
Warm Springs, Nev	10/27 – 1449	1200 – 10/20 to 1200 – 10/21	1.33×10^{-5}	4.54×10^{-5}
Warm Springs, Nev	10/27 – 1450	1200 – 10/21 to 1200 – 10/22	1.56×10^{-5}	4.73×10^{-4}
Warm Springs, Nev	10/30 – 1100	1200 – 10/22 to 1200 – 10/23	4.08×10^{-4}	7.07×10^{-3}
Warm Springs, Nev	10/30 – 1137	1200 – 10/23 to 1200 – 10/24	1.5×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/30 – 1131	1200 – 10/24 to 1200 – 10/25	9.5×10^{-6}	Not Extrapolated
Warm Springs, Nev	10/30 – 1132	1200 – 10/25 to 1200 – 10/26	6.88×10^{-5}	3.25×10^{-4}
Warm Springs, Nev	10/30 – 1134	1200 – 10/26 to 1200 – 10/27	4.83×10^{-5}	3.75×10^{-4}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Warm Springs, Nev	11/3 - 1219	1200 - 10/27 to 1200 - 10/28	4.95×10^{-5}	7.77×10^{-4}
Warm Springs, Nev	11/3 - 1220	1200 - 10/28 to 1200 - 10/29	2.67×10^{-5}	1.49×10^{-4}
Warm Springs, Nev	11/3 - 1222	1200 - 10/29 to 2300 - 10/30	3.34×10^{-5}	5.18×10^{-4}
Warm Springs, Nev	11/3 - 1223	1200 - 10/30 to 1200 - 10/30	1.62×10^{-5}	3.45×10^{-4}
Warm Springs, Nev	11/3 - 1225	1200 - 10/31 to 1200 - 11/1	3.76×10^{-5}	1.18×10^{-4}
Warm Springs, Nev	11/13 - 1300	1200 - 11/1 to 1200 - 11/2	1.44×10^{-4}	1.04×10^{-3}
Warm Springs, Nev	11/13 - 1301	1200 - 11/2 to 1200 - 11/3	2.22×10^{-4}	1.08×10^{-3}
Warm Springs, Nev	11/13 - 1302	1200 - 11/3 to 1200 - 11/4	1.08×10^{-5}	3.95×10^{-5}
Warm Springs, Nev	11/13 - 1303	1200 - 11/4 to 1200 - 11/5	3.79×10^{-6}	1.13×10^{-4}
Warm Springs, Nev	11/13 - 1304	1200 - 11/5 to 1200 - 11/6	7.6×10^{-6}	1.83×10^{-5}
Warm Sp. Ranch, Nev	9/16 - 1553	0700 - 9/7 to 0700 - 9/8	2.2×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev	9/16 - 1555	0700 - 9/8 to 0700 - 9/9	1.6×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev	9/16 - 1608	0700 - 9/9 to 0700 - 9/10	2.4×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev	9/16 - 1557	0700 - 9/10 to 0700 - 9/11	3.3×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev	9/16 - 1559	0700 - 9/11 to 0700 - 9/12	3.1×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev	9/16 - 1610	0700 - 9/12 to 0700 - 9/13	4.6×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev	9/16 - 1612	0700 - 9/13 to 0700 - 9/14	5.3×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Warm Sp Ranch, Nev	9/16 – 1613	0700 – 9/14 to 0700 – 9/15	4.4×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	9/21 – 1058	0700 – 9/15 to 0700 – 9/16	2.8×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	9/21 – 1100	0700 – 9/16 to 0700 – 9/17	3.2×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	9/21 – 1101	0700 – 9/17 to 0700 – 9/18	4.3×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	9/21 – 1103	0700 – 9/18 to 0700 – 9/19	4.2×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	9/21 – 1104	0700 – 9/19 to 0700 – 9/20	5.3×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/1 – 1351	0700 – 9/20 to 0700 – 9/21	2.7×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/1 – 1349	0700 – 9/21 to 0700 – 9/22	2.8×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/1 – 1504	0700 – 9/22 to 0700 – 9/23	2.8×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/1 – 1506	0700 – 9/23 to 0700 – 9/24	9.9×10^{-7}	Not Extrapolated
Warm Sp Ranch, Nev	10/1 – 1507	0700 – 9/24 to 0700 – 9/25	1.1×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/1 – 1508	0700 – 9/25 to 0700 – 9/26	4.0×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/1 – 1510	0700 – 9/26 to 0700 – 9/27	1.9×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/1 – 1511	0700 – 9/27 to 0700 – 9/28	3.0×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/1 – 1512	0700 – 9/28 to 0700 – 9/29	1.6×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/8 – 1130	0700 – 9/29 to 0700 – 9/30	2.2×10^{-6}	Not Extrapolated
Warm Sp Ranch, Nev	10/8 – 1132	0700 – 9/30 to 0700 – 10/1	1.8×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/m^3$ ACTIVITY AT TIME OF COUNT	$\mu C/m^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Warm Sp. Ranch, Nev.	10/8 – 1134	0700 – 10/1 to 0700 – 10/2	1.7×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/8 – 1136	0700 – 10/2 to 0700 – 10/3	4.2×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/8 – 1138	0700 – 10/3 to 0700 – 10/4	4.3×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/8 – 1139	0700 – 10/4 to 0700 – 10/5	3.8×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/8 – 1140	0700 – 10/5 to 0700 – 10/6	3.6×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/14 – 1101	0700 – 10/6 to 0700 – 10/7	2.9×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/14 – 1102	0700 – 10/7 to 0700 – 10/8	2.6×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/14 – 1103	0700 – 10/8 to 0700 – 10/9	2.2×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/14 – 1105	0700 – 10/9 to 0700 – 10/10	1.6×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/24 – 1744	0700 – 10/10 to 0700 – 10/11	9.6×10^{-7}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/24 – 1745	0700 – 10/11 to 0700 – 10/12	4.5×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/24 – 1746	0700 – 10/12 to 0700 – 10/13	1.9×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/24 – 1747	0700 – 10/13 to 0700 – 10/14	1.8×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/24 – 1748	0700 – 10/14 to 0700 – 10/15	2.2×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/24 – 1749	0700 – 10/15 to 0700 – 10/16	2.3×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/24 – 1751	0700 – 10/16 to 0700 – 10/17	4.0×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/24 – 1753	0700 – 10/17 to 0700 – 10/18	2.76×10^{-5}	7.95×10^{-4}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Warm Sp. Ranch, Nev.	10/24 – 1754	0700 – 10/18 to 0700 – 10/19	1.03×10^{-5}	6.41×10^{-4}
Warm Sp. Ranch, Nev.	10/24 – 1756	0700 – 10/19 to 0700 – 10/20	2.42×10^{-5}	1.39×10^{-4}
Warm Sp. Ranch, Nev.	10/30 – 1107	0700 – 10/20 to 0700 – 10/21	2.40×10^{-5}	1.59×10^{-4}
Warm Sp. Ranch, Nev.	10/30 – 1108	0700 – 10/21 to 0700 – 10/22	1.31×10^{-5}	1.50×10^{-4}
Warm Sp. Ranch, Nev.	10/30 – 1109	0700 – 10/22 to 0700 – 10/23	9.4×10^{-6}	Not Extrapolated
Warm Sp. Ranch, Nev.	10/30 – 1110	0700 – 10/23 to 0700 – 10/24	3.03×10^{-5}	2.52×10^{-4}
Warm Sp. Ranch, Nev.	10/30 – 1111	0700 – 10/24 to 0700 – 10/25	1.42×10^{-5}	9.25×10^{-5}
Warm Sp. Ranch, Nev.	10/30 – 1112	0700 – 10/25 to 0700 – 10/26	4.76×10^{-5}	2.62×10^{-4}
Warm Sp. Ranch, Nev.	10/30 – 1100	0700 – 10/26 to 0700 – 10/27	6.00×10^{-4}	6.72×10^{-3}
Warm Sp. Ranch, Nev.	11/3 – 1213	0700 – 10/27 to 0700 – 10/28	3.22×10^{-4}	7.56×10^{-3}
Warm Sp. Ranch, Nev.	11/3 – 1214	0700 – 10/28 to 0700 – 10/29	4.05×10^{-5}	2.66×10^{-4}
Warm Sp. Ranch, Nev.	11/3 – 1216	0700 – 10/29 to 0700 – 10/30	Motor Burned Out	
Warm Sp. Ranch, Nev.	11/3 – 1217	0700 – 10/30 to 0700 – 10/31	2.36×10^{-5}	4.00×10^{-4}
Warm Sp. Ranch, Nev.	11/3 – 1218	0700 – 10/31 to 0300 – 11/1	3.37×10^{-5}	5.79×10^{-5}
Warm Sp. Ranch, Nev.		11/1 to 11/2	No Sample	
Warm Sp. Ranch, Nev.	11/13 – 1242	0700 – 11/2 to 0700 – 11/3	3.61×10^{-4}	1.89×10^{-3}
Warm Sp. Ranch, Nev.	11/13 – 1244	0700 – 11/3 to 0700 – 11/4	2.62×10^{-4}	1.02×10^{-3}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/M^3$ ACTIVITY AT TIME OF COUNT	$\mu C/M^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Warm Sp. Ranch, Nev	11/13 – 1246	0700 – 11/4 to 0700 – 11/5	1.84×10^{-4}	5.70×10^{-4}
Watertown, Nevada	9/21 – 1105	1130 – 9/17 to 1130 – 9/18	1.2×10^{-6}	Not Extrapolated
Watertown, Nevada	9/21 – 1147	1100 – 9/18 to 0700 – 9/19	6.4×10^{-6}	Not Extrapolated
Watertown, Nevada	9/21 – 1107	0700 – 9/19 to 0700 – 9/20	2.3×10^{-6}	Not Extrapolated
Watertown, Nevada	9/24 – 1038	0700 – 9/20 to 0700 – 9/21	2.5×10^{-6}	Not Extrapolated
Watertown, Nevada	9/24 – 1043	0700 – 9/21 to 1200 – 9/22	2.8×10^{-6}	Not Extrapolated
Watertown, Nevada	9/24 – 1045	1200 – 9/22 to 1200 – 9/23	1.5×10^{-6}	Not Extrapolated
Watertown, Nevada	10/1 – 1456	1200 – 9/23 to 1130 – 9/24	7.5×10^{-7}	Not Extrapolated
Watertown, Nevada	10/1 – 1457	1200 – 9/24 to 1200 – 9/25	9.9×10^{-7}	Not Extrapolated
Watertown, Nevada	10/1 – 1458	1200 – 9/25 to 1130 – 9/26	7.5×10^{-7}	Not Extrapolated
Watertown, Nevada	10/1 – 1500	1200 – 9/26 to 1200 – 9/27	8.1×10^{-7}	Not Extrapolated
Watertown, Nevada	10/1 – 1501	1200 – 9/27 to 1200 – 9/28	2.0×10^{-6}	Not Extrapolated
Watertown, Nevada	10/1 – 1503	1200 – 9/28 to 0600 – 9/29	2.0×10^{-6}	Not Extrapolated
Watertown, Nevada	10/14 – 1025	0600 – 9/29 to 0600 – 9/30	1.9×10^{-6}	Not Extrapolated
Watertown, Nevada	10/14 – 1026	0600 – 9/30 to 0600 – 10/1	4.7×10^{-7}	Not Extrapolated
Watertown, Nevada	10/14 – 1028	0600 – 10/1 to 0600 – 10/2	3.5×10^{-7}	Not Extrapolated
Watertown, Nevada	10/14 – 1029	0600 – 10/2 to 0600 – 10/3	2.7×10^{-6}	Not Extrapolated

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	$\mu C/m^3$ ACTIVITY AT TIME OF COUNT	$\mu C/m^3$ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Watertown, Nevada	10/14 – 1030	0600 – 10/3 to 0600 – 10/4	2.5×10^{-6}	Not Extrapolated
Watertown, Nevada	10/14 – 1032	0600 – 10/4 to 0800 – 10/5	6.2×10^{-7}	Not Extrapolated
Watertown, Nevada	10/14 – 1033	0800 – 10/5 to 0800 – 10/6	1.1×10^{-6}	Not Extrapolated
Watertown, Nevada	10/14 – 1035	0800 – 10/6 to 0800 – 10/7	1.3×10^{-6}	Not Extrapolated
Watertown, Nevada	10/14 – 1036	0800 – 10/7 to 0800 – 10/8	1.0×10^{-6}	Not Extrapolated
Watertown, Nevada	10/14 – 1038	0800 – 10/8 to 0800 – 10/9	7.6×10^{-7}	Not Extrapolated
Watertown, Nevada	10/14 – 1039	0800 – 10/9 to 0800 – 10/10	3.5×10^{-7}	Not Extrapolated
Watertown, Nevada	10/14 – 1040	0800 – 10/10 to 0800 – 10/11	5.0×10^{-7}	Not Extrapolated
Watertown, Nevada	10/14 – 1042	0800 – 10/11 to 0800 – 10/12	6.6×10^{-6}	Not Extrapolated
Watertown, Nevada	10/14 – 1043	0800 – 10/12 to 0700 – 10/13	9.8×10^{-6}	Not Extrapolated
Watertown, Nevada	10/20 – 1340	0700 – 10/13 to 0700 – 10/14	6.1×10^{-6}	Not Extrapolated
Watertown, Nevada	10/20 – 1342	0700 – 10/14 to 0800 – 10/15	2.7×10^{-6}	Not Extrapolated
Watertown, Nevada	10/20 – 1343	0800 – 10/15 to 0800 – 10/16	3.1×10^{-6}	Not Extrapolated
Watertown, Nevada	10/20 – 1344	0800 – 10/16 to 0800 – 10/17	4.2×10^{-6}	Not Extrapolated
Watertown, Nevada	10/20 – 1348	0800 – 10/17 to 0800 – 10/18	3.89×10^{-5}	3.23×10^{-4}
Watertown, Nevada	10/20 – 1349	0800 – 10/18 to 0800 – 10/19	1.10×10^{-5}	6.92×10^{-5}
Watertown, Nevada	10/20 – 1351	0800 – 10/19 to 0800 – 10/20	4.40×10^{-5}	2.20×10^{-4}

APPENDIX A, Part I (Continued)

LOCATION	COUNT TIME	DATE & TIME COUNTED	μC/M³ ACTIVITY AT TIME OF COUNT	μC/M³ ACTIVITY EXTRAPOLATED TO COLLECTION TIME
Watertown, Nevada	10/24 – 1741	0800 – 10/20 to 0800 – 10/21	2.14×10^{-5}	6.57×10^{-5}
Watertown, Nevada	10/24 – 1742	0800 – 10/21 to 0800 – 10/22	1.71×10^{-5}	3.5×10^{-5}
Watertown, Nevada	11/5 – 1300	0800 – 10/22 to 0800 – 10/23	7.22×10^{-4}	4.90×10^{-2}
Watertown, Nevada	11/5 – 1301	0800 – 10/25 to 0800 – 10/24	2.00×10^{-5}	3.16×10^{-4}
Watertown, Nevada	11/5 – 1302	0800 – 10/24 to 0800 – 10/25	1.03×10^{-5}	1.20×10^{-4}
Watertown, Nevada	11/5 – 1304	0800 – 10/25 to 0800 – 10/26	2.18×10^{-3}	2.66×10^{-2}
Watertown, Nevada	11/5 – 1305	0800 – 10/26 to 0800 – 10/27	9.25×10^{-4}	8.60×10^{-3}
Watertown, Nevada	11/5 – 1306	0800 – 10/27 to 0800 – 10/28	9.75×10^{-6}	Not Extrapolated
Watertown, Nevada	11/5 – 1308	0800 – 10/28 to 0800 – 10/29	9.6×10^{-6}	Not Extrapolated
Watertown, Nevada	11/5 – 1310	0800 – 10/29 to 0800 – 10/30	2.5×10^{-5}	1.76×10^{-4}
Watertown, Nevada	11/5 – 1311	0800 – 10/30 to 0800 – 10/31	6.0×10^{-6}	Not Extrapolated
Watertown, Nevada		10/31 to 11/1	No Sample	
Watertown, Nevada	Station Out To 11/4/58			
Watertown, Nevada	11/17 – 1052	1200 – 11/4 to 1200 – 11/5	2.7×10^{-6}	Not Extrapolated
Watertown, Nevada	11/17 – 1054	1200 – 11/5 to 1200 – 11/6	2.6×10^{-6}	Not Extrapolated

APPENDIX A

Part II

IODINE RESULTS

SAMPLE NUMBER	STARTED	STOPPED	IODINE COUNTED
Beatty, Nevada 1	1200 – 10/29	1200 – 10/30	Negative
Beatty, Nevada 2	1200 – 10/30	1200 – 10/31	Negative
Beatty, Nevada 3	1200 – 10/31	1200 – 11/1	Negative
Beatty, Nevada 4	1200 – 11/1	1200 – 11/2	Negative
Beatty, Nevada 5	1200 – 11/2	1200 – 11/3	Negative
Beatty, Nevada 6	1200 – 11/3	1200 – 11/4	Negative
Beatty, Nevada 7	1200 – 11/4	1200 – 11/5	Negative
Beatty, Nevada 8	1200 – 11/5	1200 – 11/6	Negative
Beatty, Nevada 9	1200 – 11/6	1200 – 11/7	Negative
Beatty, Nevada 10	1200 – 11/7	1200 – 11/8	Negative
Beatty, Nevada 11	1200 – 11/8	1200 – 11/9	Negative
Beatty, Nevada 12	1200 – 11/9	1200 – 11/10	Negative
Beatty, Nevada 13	1200 – 11/10	1200 – 11/11	Negative
Beatty, Nevada 14	1200 – 11/11	1200 – 11/12	Negative
Beatty, Nevada 15	1200 – 11/12	1200 – 11/13	Negative
Beatty, Nevada 16	1200 – 11/13	1200 – 11/14	Negative
Beatty, Nevada 17	1200 – 11/16	1200 – 11/17	Negative
Beatty, Nevada 18	1200 – 11/17	1200 – 11/18	Negative
Beatty, Nevada 19	1200 – 11/18	1200 – 11/19	Negative
Beatty, Nevada 20	1200 – 11/19	1200 – 11/20	Negative
Beatty, Nevada 21	1200 – 11/20	1200 – 11/21	Negative
Lathrop Wells, Nev. 1	0800 – 10/29	0800 – 10/30	Negative
Lathrop Wells, Nev. 2	0800 – 10/30	0800 – 10/31	Negative
Lathrop Wells, Nev. 3	0800 – 10/31	0800 – 11/1	Negative
Lathrop Wells, Nev. 4	0800 – 11/1	0800 – 11/2	Negative
Lathrop Wells, Nev. 5	0800 – 11/2	0800 – 11/3	Negative
Lathrop Wells, Nev. 6	0800 – 11/3	0800 – 11/4	Negative
Lathrop Wells, Nev. 7	0800 – 11/4	0800 – 11/5	Negative
Lathrop Wells, Nev. 8	0800 – 11/5	0800 – 11/6	Negative
Lathrop Wells, Nev. 9	0800 – 11/6	0800 – 11/7	Negative

APPENDIX A, Part II (Continued)

SAMPLE NUMBER	STARTED	STOPPED	IODINE COUNTED
Lathrop Wells, Nev. 10	0800 – 11/7	0800 – 11/8	Negative
Lathrop Wells, Nev. 11	0800 – 11/8	0800 – 11/9	Negative
Lathrop Wells, Nev. 12	0800 – 11/9	0800 – 11/10	Negative
Lathrop Wells, Nev. 13	0800 – 11/10	0800 – 11/11	Negative
Lathrop Wells, Nev. 14	0800 – 11/11	0800 – 11/12	Negative
Los Angeles, Calif. 1	1030 – 11/6	1030 – 11/7	Negative
Los Angeles, Calif. 2	1030 – 11/7	0800 – 11/8	Negative
Los Angeles, Calif. 3	0800 – 11/8	0800 – 11/9	Negative
Los Angeles, Calif. 4	0800 – 11/9	1000 – 11/10	Negative
Los Angeles, Calif. 5	1000 – 11/10	0800 – 11/11	Negative
Los Angeles, Calif. 6	0800 – 11/11	0830 – 11/12	Negative
Los Angeles, Calif. 7	0830 – 11/13	0900 – 11/14	Negative
Los Angeles, Calif. 8	0900 – 11/14	0800 – 11/15	Negative
Los Angeles, Calif. 9	0800 – 11/18	0800 – 11/19	Negative

APPENDIX B
Part I
WATER RESULTS

SAMPLE	LOCATION	Distance from CP	Source	Capacity	Owner	Population Served	Date of Collection	Time & Date of Counting	Activity at time of Counting $\mu c/ml$
Las Vegas	Nevada	74	13 wells 650-1250' deep & Lake Mead Supply 30 mg reservoir	21.7 mgd	Water District	40,000	8/15	1045 9/23	Background
							10/14	2130 10/20	Background
							12/13	1636 12/18	2.1×10^{-8}
Indian Springs	Nevada	35	Drilled well 600' deep	Not Known	Private	Ave. 250 Max. 300	8/15	1048 9/23	Background
							10/14	2140 10/20	4.8×10^{-8}
							12/14	0933 12/18	2.5×10^{-8}
Cactus Springs	Nevada	30	Spring	Unknown	Ilon Wilkinson	Variable	8/8	1150 9/23	2×10^{-8}
							10/14	2135 10/20	2.4×10^{-8}
							12/14	0943 12/18	4.6×10^{-8}
Ash Meadows	Nevada	40	Well currently not used spring 40% wtr rights 25' dp 3 mi. from Ash Meadows	Not Known	Mr. Shortie Diaz	8	8/8	1413 9/23	4×10^{-8}
							10/16	2120 10/20	2.4×10^{-8}
							12/12	0955 12/18	3.2×10^{-8}
Lathrop Wells	Nevada	30	3 wells, 2 Private & 1 state owned. 1 well 560' 2 wells 600'	2,000 gal/day	1 State owned 2 privately owned (a) Texaco (b) Shell	Ave. 15 Max. 40	8/8	1135 9/23	Background
							10/15	2100 10/20	2.4×10^{-8}
							12/12	1028 12/18	1.6×10^{-8}

APPENDIX B, Part I (Continued)

SAMPLE	LOCATION	Distance from CP	Source	Capacity	Owner	Population Served	Date of Collection	Time & Date of Counting	Activity At Time Of Counting $\mu c/m^1$
Beatty	Nevada	48	Spring underground perforated pipe directing spring run off to 6 collection wells	1,500,000 gal/day	City Owned	550	8/8	1140 9/23	Background
							10/15	2125 10/20	1×10^{7}
							12/12	1436 12/18	2.6×10^{8}
Goldfield	Nevada	75	Spring 2 storage tanks (a) 80,000 gal (b) 100,000 gal	50,000 gal/day	City	Ave. 200	8/8	1147 9/23	Background
							10/14	2040 10/20	Background
							12/12	1344 12/18	1.1×10^{-8}
Warm Springs Ranch	6 miles N of 93 from Jct 93 & 91	85	Flowing spring from earth fault 2 miles deep	60 gpm	Iverson	Public Park with Swimming Pool			
							9/14	1040 9/23	3.2×10^{-8}
							11/15	1323 12/18	2.2×10^{-8}
Butler Ranch	30 miles S. of Alamo on US 93	70	Flowing Sp.	0.5 cfs	N. Butler	1	8/8	1250 9/23	3.1×10^{-8}
							9/14	1045 9/23	less Bkg.
							11/15	1650 12/18	1.7×10^{-8}
Lower Pahranagut Lake	12 miles S. of Alamo, Nevada	67	Surface Lake Spring and rain runoff fed	Unknown	Unknown	Not used for domestic purposes			
							9/14	1100 9/23	7.8×10^{-7}
							11/15	1725 12/18	7.2×10^{-8}

APPENDIX B, Part I (Continued)

SAMPLE	LOCATION	Distance from CP	Source	Capacity	Owner	Population Served	Date of Collection	Time & Date of Counting	Activity At Time Of Counting $\mu c/ml$
Alamo	Nevada	55	2 wells 50 - 67' deep storage tank	144,000 gal/day	Town	Ave. 175 Max. 350 500			
							9/14	1030 9/23	7.4×10^{-7}
							11/15	1405 12/18	3.3×10^{-8}
Crystal Springs	13 miles N. of Alamo Nevada	61	Springs	Not Known	Town	Ave. 10-12 Max. 25			
							9/14	1050 9/23	less Bkg
							11/15	1415 12/18	1.1×10^{-8}
Watertown	S. edge of Groom Lake, NTS	35	2 600' wells 10" diameter	50 gpm	AEC	2			
							9/14	1413 9/23	4×10^{-8}
							10/14	2050 10/20	4.8×10^{-8}
Tonopah	NW of Test Site	115	8 drilled wells Ave. 60' deep 5 reservoirs	Max. 250,000 gal/day Ave. 120, 000 ga/d	City	Ave. 1500 Max. 1800			
							10/14	2045 10/20	less Bkg.
							12/12	1116 12/18	2.3×10^{-8}
Warm Springs Nye Co.	50 miles NE Tonopah	100	Multiple Spring no improvement	2,000 gpm	Mrs. LeFevre	10 also tourist			
							10/14	2050 10/20	6.3×10^{-8}
							11/15	1147 12/18	1.3×10^{-8}

APPENDIX B, Part I (Continued)

SAMPLE	LOCATION	Distance from CP	Source	Capacity	Owner	Population Served	Date of Collection	Time & Date of Counting	Activity At Time Of Counting μc/m l
Tonopah Ballistic Range	NW Test Site	60	Drilled Well	Unknown	AEC	Variable 10-50			
							10/14	2030 10/20	1×10^{-7}
Lincoln Mine	North Test Site	56	2 wells driven	2,016,000 gal/day	Lincoln Mines	Currently 3	8/8	1115 9/23	2.4×10^{-8}
							10/15	2115 10/20	4.8×10^{-8}
							12/11	1607 12/18	1.5×10^{-8}
Reed	90 miles N. of Mercury	90	Spring piped to aminal water trough	Unknown	Unknown	Animal Supply Only	8/8	1145 9/23	1.0×10^{-8}
							10/15	2110 10/20	8.9×10^{-7}
							12/11	1553 12/18	2.0×10^{-8}
Cliff Springs	40 miles N of Mercury	25	Spring	Unknown	Floyd Lamb	Animal Supply Only			
							10/14	2105 10/20	1.4×10^{-7}
							12/11	0943 12/18	5.5×10^{-8}

APPENDIX B

Part II

MILK ANALYSIS RESULTS

.1 Milk.

.1.1 Gross Beta.

LOCATION	Date Sampled	Date Counted	μc/ml
Clark Dairy, Las Vegas (1)	9/17	9/23	6.8×10^{-7}
Clark Dairy, Las Vegas (1)	10/14	10/16	6.3×10^{-7}
Anderson Dairy, Las Vegas (2)	9/17	9/23	6.7×10^{-7}
Anderson Dairy, Las Vegas (2)	10/14	10/16	5.8×10^{-7}

(1) Supplied mainly from Overton, Nevada area.

(2) Supplied mainly from Southern Utah area.

.1.2 Isotopic Analysis of Milk.

SAMPLE LOCATION	Date Collection	Gross Activity μμc/g ASH	μμc/liter			
			I^{131}*	Sr^{90}	Ba^{140}*	Ca^{137}
Las Vegas, Nev. (1)	6/20/58	---	0	4.5 ± .7	3.1 ± 1.4	45.0 ± 1.6
	7/16/58	209.1 ± 5.1	84 ± 20	3.5 ± .6	9.8 ± 1.8	46.5 ± 1.7
	8/26/58	191.5 ± 5.0	16.3	2.0 ± .6	.7 ± .7	44.2 ± 1.8
	9/17/58	192.4 ± 5.0	18.0	3.5 ± .5	5.0 ± 1.6	47.1 ± 1.7
	10/28/58	196.5 ± 5.1	0	1.8 ± 0.3	16.2 ± 1.0	24.7 ± 1.2
	11/26/58	182.9 ± 5.0	49 ± 20	3.2 ± 0.7	3.6 ± 0.8	43.7 ± 1.3
St. George, Utah	6/21/58	---	0	3.5 ± .7	3.4 ± 1.4	45 ± 1.6
	7/11/58	197.6 ± 5.1	43 ± 20	3.2 ± .6	5.4 ± 1.2	35.7 ± 1.6
	8/16/58	171.5 ± 4.9	25.8	2.3 ± .7	3.6 ± 1.4	32.7 ± 1.7
	10/15/58	204.7 ± 5.0	0	2.6 ± 0.7	0	32.4 ± 1.3
	11/14/58	172.1 ± 5.0	0	4.1 ± 1.0	1.8 ± 2.0	32.0 ± 1.3

* I^{131} and Ba^{140} corrected for decay to collection time, except 8/58 and 10/58 samples for Las Vegas.

(1) Las Vegas samples comes from Overton, Nevada area.

APPENDIX C

The doses to populated places as determined by film badges are presented in Table I. The dose reported is an average dose if more than one film badge was in the community. The only film badges considered are those on stakes, sign posts, etc. No personnel film badge results are included and no results of badges on structures are included.

There were other communities where film badges were placed but due to lost or damaged badges, these places are not reported.

The populations listed are either from recent data or the Plumbbob Off Site Rad-Safe Directory.

APPENDIX C

TABLE I

FILM BADGE DOSAGE TO POPULATED PLACES

LOCATION	POPULATION	FILM BADGE DOSE (mr)
Arizona		
Littlefield	44	0
California		
Death Valley Junction	20	135
Furnace Creek	50	165
Nevada		
A & B Mine	1	0
Alamo	250	50
Ash Meadows	8	165
Ash Springs	5	25
Baker	60	25
Beatty	550	35
Belew Ranch	3	75
Belmont	6	50
Boyd	Variable	50
Cactus Springs	18	0
Caliente	970	0
Carp	Variable	0
Casey Ranch (Formerly Bardoli)	1	25
Cliff Springs	Variable	50
Coaldale	25	100
Crystal Springs	5	50
Currant	75	0
Davis Deer Creek Ranch	Variable	25
Desert Game Ranch	13	100
Duckwater	50	0
Elgin	Variable	25
Ely	3558	25
Etna	Variable	25
Eureka	500	50
Galt	Variable	25
Geyser Maintenance Station	10	0
Glendale	25	70
Goldfield	220	25
Goldpoint	10	100
Groom Lake	2	65
Hiko	55	25
Hoya	Variable	130
Indian Springs	2400	25
Kimberly	120	50
Las Vegas	50,000	25
Lathrop Wells	15	65
Leith	Variable	25

APPENDIX C , TABLE I (Continued)

LOCATION	POPULATION	FILM BADGE DOSE (mr)
Nevada (Continued)		
Lida	25	50
Lincoln Mine	4	50
Lockes	4	0
Lund	250	50
M & M Mine	0	25
Manhattan	42	50
Mc Gill	2297	65
Mercury	Variable	40
Mesquite	590	65
Moapa	52	40
Overton	700	0
Pahrump	89	25
Panaca	500	0
Peterson Ranch	2	50
Pioche	1392	80
Preston	60	50
Rattlesnake Maintenance Station	4	115
Reed Maintenance Station	6	50
Reveille	Variable	100
Riverside	2	50
Rosie's Mine	1	0
Round Mountain	200	90
Rox	Variable	185
Ruth	1244	0
Sarcobatus	2	0
Sharp Ranch	6	75
Stone Cabin Ranch	8	50
Tonopah	1375	75
Tonopah Ballistics Range	Variable	25
Uhalde Ranch	8	25
Ursine	25	25
Walch's Pine Creek Ranch	6	0
Warm Springs	5	70
Utah		
Beaver	1685	25
Cedar City	6106	25
Hamilton Fort	26	0
Modena	100	0
New Harmony	126	0
Paragonah	404	25
Parowan	5970	25
Santa Clara	319	0
St. George	5000	25
Uvada	15	0

APPENDIX D

ROSTER OF OFF-SITE PERSONNEL

Name	City and State	Affiliation
ADAIR, John L.	Gainesville, Fla.	Student
ANDERSON, Ernest C.	Washington, D. C.	USPHS
BURGESS, Ian K.	Chicago, Ill.	USPHS
CLARK, George W.	Athens, Ohio	Consulting Engineer
COHEN, Jules B.	Denver, Colo.	USPHS
COULTER, Robert C.	Washington, D. C.	USPHS
CUNNIFF, Patrick F.	Washington, D. C.	USPHS
De FRAIN, Orville D.	Lincoln, Nebr.	County Health Dept.
EVANS, Thomas A.	Lincoln, Nebr.	Univ. of Nebraska
GORDON, Larry J.	Albuquerque, N. M.	City Health Dept.
GROSSMAN, Robert F.	Idaho Falls, Idaho	USPHS
HAYWARD, Robert P.	Pierre, South Dakota	State Health Dept.
HENKEN, Edwin R.	Kansas City, Mo.	USPHS
HERLIHY, James F.	Sinsbury, Conn.	City Health Dept.
JENNINGS, Joe D.	Smithville, Tenn.	State Health Dept.
MARTIN, Leroy G.	Washington, D. C.	USPHS
NUSSBAUM, Morris A.	Kingston, N. Y.	City Health Dept.
O' NEILL, Layton J.	Idaho Falls, Idaho	USAEC
PATE, Charles W.	Tulsa, Okla.	Consulting Engineer
PRUCHA, Arnold A.	Sacramento, Calif.	State Health Dept.
REED, Lloyd A.	San Francisco, Calif.	USPHS
RUCKER, Vernon L.	Topeka, Kansas	Sante Fe Railroad
SCHMIDT, Gail D.	Washington D. C.	USPHS
STORY, Albert H.	Cincinnati, Ohio	USPHS
TANIMOTO, Ralph H.	Honolulu, Hawaii	Dept. of Health
Veterinarary Officer		
FARMER, Garland R.	Las Vegas, Nevada	U.S. Army
Medical Officers		
GERBER, Louis A.	Denver, Colo.	USPHS
van der SMISSEN, E.	Washington, D. C.	USPHS
WILLIAMS, Edwin G.	Washington, D. C.	USPHS
Permanent Staff		
COX, Norma	Las Vegas, Nevada	Public Health Service
ELDER, Robert L.	Las Vegas, Nevada	Public Health Service
GILMORE, Richard A.	Las Vegas, Nevada	Public Health Service
McBRIDE, John R.	Las Vegas, Nevada	Public Health Service
McGARRY, L. Jean	Las Vegas, Nevada	Public Health Service
PLACAK, Oliver R.	Las Vegas, Nevada	Public Health Service
SEAL, Morgan S.	Las Vegas, Nevada	Public Health Service
SILHANEK, Jay S.	Las Vegas, Nevada	Public Health Service