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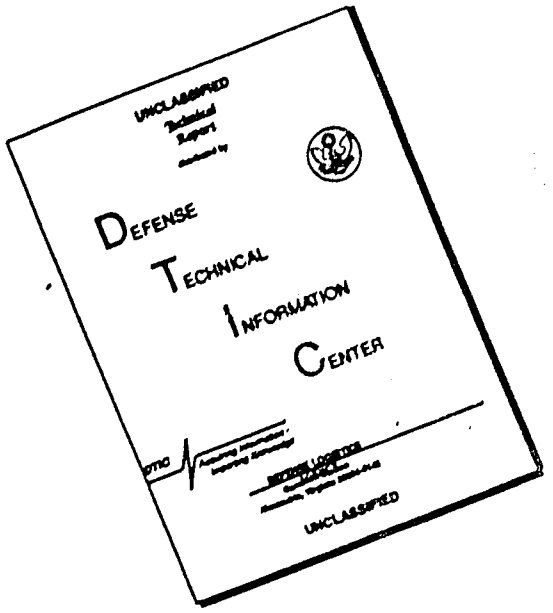

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Operation

TUMBLER-SNAPPER

NEVADA PROVING GROUNDS

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April-June, 1952

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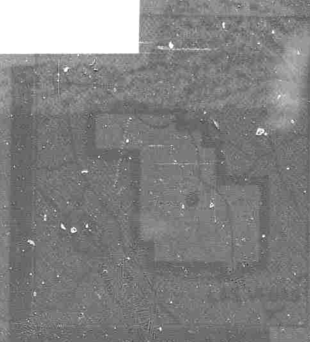
Project 2.2

AIR WEATHER SERVICE PATTICIPATION



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OPERATION TUMBLER-SNAPPER

Project 9.2

AIR WEATHER SERVICE PARTICIPATION

REPORT TO THE TEST DIRECTOR

by

Lt Col Eugene H. Karstens
S/Sgt Charles L. Dyer, Jr.

January 1953

Air Weather Service

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CONTENTS

AIR WEATHER SERVICE PARTICIPATION IN OPERATION TUMBLER-SNAPPER

1.1 INTRODUCTION

On 15 February 1952, Headquarters, Special Weapons Command, Kirtland Air Force Base, New Mexico, requested Air Weather Service to furnish weather support for the nuclear tests to be held at the Nevada Proving Grounds during the months of April, May, June and July, 1952. Since the weather service group at the Nevada Proving Grounds had been reduced to two forecasters, eight observers and eight Rawinsonde people at the conclusion of BUSTER-JANGLE in December, 1951, it was necessary to augment this group with personnel from Headquarters, 2059th Air Weather Group, Tinker Air Force Base, Oklahoma. For TUMBLER-SNAPPER the augmented weather group was deployed as follows:

a. At the Control Point Weather Station eight forecasters, thirteen observers, and two airmen to operate special equipment;

b. A Rawinsonde Section of twelve airmen at the Control Point and eleven airmen at Tonopah, Nevada;

c. Pibal Sections consisting of three airmen at Beatty, Caliente, Crystal Springs, Currant and Warm Springs, Nevada, and St. George, Utah.

Equipment used consisted of a GMD-1 Unit at Tonopah and another GMD-1 unit at Camp Mercury. Since an SCR-658 was in operation at the Control Point, simultaneous soundings were made at both the Control Point and Camp Mercury.

Since the experience level of the forecasters available was not considered high enough to guarantee accurate forecasts for the operation, a special Facsimile Line from Ent Air Force Base, Colorado Springs, Colorado to the Control Point Analysis Section was installed; thus tying the Control Point in with the USAF Weather Central at Headquarters, Air Weather Service, Andrews Air Force Base, Maryland. This gave access to the large special analysis crew headed by Dr. George P. Cressman who had been Chief Analysist for two previous operations. Dr. Cressman transmitted a series of special charts, via Facsimile, between the hours of 1600 PST and 1900 PST.

Experience on previous operations had shown that bringing vehicles from Tinker Air Force Base, Oklahoma, for each operation was expensive and impractical. Therefore, for this operation transportation was procured from the AEC for both on-site and off-site use. Vehicles at the Control Point consisted of one sedan, two carryalls, two pick-up trucks and one 2½ ton truck. A carryall and a 2½ ton truck were used at Tonopah, Nevada; Beatty, Caliente, Crystal Springs, Currant and Warm

Springs, Nevada, and St. George, Utah had one pick-up truck each.

At the conclusion of BUSTER-JANGLE communication plans for future operations had been arranged with Mr. Richard L. Kennedy, Chief of Communications, AEC. As a consequence Caliente, Crystal Springs, Currant and Warm Springs, Nevada, were provided with radio contact to the Control Point Weather Station. The remaining stations had normal telephone service.

Buildings provided at each of the outlying station sites were capable of supporting the work to be done at each place. They were located close to towns, and were large enough to allow balloon inflation and storage space. Auxiliary power and heating and cooling facilities for winter and/or summer operations were available at each station.

1.2 WEATHER CRITERIA

As a result of previous operations certain criteria were established. For the TUMBLER air drops, wind direction and velocity at bombing altitude had to be suitable for bombing runs while, at the same time, surface wind direction and velocity had to satisfy the requirements of the Weapons Effects people. Intermediate winds were required to be such as to give good shear in either velocity or direction to allow cloud dispersal. For a proper bombing run a clear to 2/8ths cloud cover is necessary; while sampling aircraft require 3/8ths or less cloud cover at atomic cloud height and below.

During the tower shots of SNAPPER, fallout was a prime consideration. The limits of wind direction were from 160° to 290° for all levels above the surface. Surface winds from the north, calm to 2 knots speed, was acceptable; however, west, east or south surface winds were desired at shot times to prevent contamination of participating Desert Rock personnel. Shear in direction and speed was desired from surface to 40,000 feet MSL.

Precipitation was carefully considered out to 600 miles, and definite forecasts had to be made to include intensity and time of precipitation occurring and ending along the trajectory of the atomic cloud. These criteria were important in planning work schedules for the 12 hours previous to shot time, particularly if winds were marginal in direction.

Additional information relative to the importance of weather conditions during test periods may be obtained by referring to Weapons Test Report #342, "Air Weather Service Participation in Operation BUSTER," AFSWP Project 8.2, 31 December 1951.

1.3 OPERATIONS

On 15 March 1952, the first contingent of people, from the 6th Weather Squadron (Mobile), arrived at the site and proceeded to the outlying stations. All units were operating on 20 March 1952.

Extra forecasters and observers arrived on 22 March 1952 and on 24 March 1952 the Analysis and Observer Sections were in full operation. The special Facsimile line was in operation on 24 March 1952, and first contact with Dr. Cressman was established on that date. The Rawinsonde Section at the Control Point was in full operation on 22 March 1952.

The Analysis Section at the Control Point was headed by Major Dewitt N. Morgan, who had arranged for the consultant services of Mr. Edwin B. Fawcett, from the USAF Weather Central at Andrews Air Force Base, Maryland. Mr. Fawcett was well acquainted with the special analysis used by Dr. Cressman, and was able to aid in both compiling the analysis and instructing the forecasters in the special work.

A plan of analysis similar to that used on previous operations was established. Based on the analysis, forecasts were issued to provide the Test Director with an outlook at 1000 PST on the morning previous to shot, a forecast at 2000 PST for the morning following proposed shot time. This necessitated the preparation of a 24 and 48-hour forecast based on charts of the day previous to shot day. Also, forecasts were issued for the airborne participants, including a forecasted lapse rate for the target area and winds to 40,000 feet MSL, as well as a route forecast for all airplanes from point of origin to the target area. In addition information on anticipated weather had to be channeled out to various agencies having experiments in the test area so that they could protect their instruments from sharp climatic changes as well as calibrate them for the test.

The latest surface maps were displayed as briefing aids. These included a map for wind direction and speed at surface, 8,000 feet, 10,000 feet, 15,000 feet, 20,000 feet and 40,000 feet MSL; a map of the western United States to 94° west longitude, for cloud trajectories at 10,000 feet, 20,000 feet, 30,000 feet and 40,000 feet MSL; and a map for the close-in trajectory out to 150 miles to permit consideration of fallout from 10,000 feet, 20,000 feet, 30,000 feet and 40,000 feet MSL. These displays served to illustrate the forecast up to shot time. They were a very important asset to the Test Director who had to have full knowledge of weather conditions before making the last minute decision to go ahead with the shot.

A large and very important service provided by the Air Weather Service detachment was furnishing micro-meteorological data to the Weapons Effects people. The requirement dictated the establishment of very sensitive wind and humidity measuring equipment at two points along the blast line to gather data from the four TUMBLER shots. To gather these data, climatological survey equipment was purchased from the Beckman and Whitley Company, San Carlos, California, in sufficient quantity to instrument two 40-foot poles, spaced at 500 feet and 1,500 feet from Ground Zero for Shot 1, and 3,000 feet and 6,000 feet from Ground Zero for Shots 2, 3, and 4. These instruments gathered data at 2-foot, 6-foot, 12-foot, 20-foot and 40-foot levels on the pole closest to Ground Zero, and at 2-foot, 12-foot and 40-foot levels on the pole farthest from Ground Zero for each TUMBLER shot. The recorders for this equipment were placed in concrete underground huts-ments 40 feet from each of the poles.

Two remote recording humidity equipment sets were purchased from the American Instrument Company of Silver Springs, Maryland. Each set consisted of a Brown duplex recorder and two sensing elements. These elements were placed at 2 feet and 20 feet above the ground in both installations. The responsibility for installation and operation of this new type equipment was given to Capt George J. Bogovich as an additional duty. These sets operated simultaneously during two days pre-shot at two points, one set on each of the two poles. The set closest to Ground Zero was removed 8 hours prior to shot time while the other was left to run through shot time. By correlating the continuous record of the farther-out instrument with that of the close-in set an extrapolated curve of the humidity at the pole closest to Ground Zero was developed.

The necessary radio equipment did not arrive in time for the first three shots; so, short range transmitters and receivers (VHF) were installed (Tonopah, Currant and Warm Springs) to relay weather information from Currant and Warm Springs, Nevada to Tonopah, Nevada, and thence by telephone to the Control Point. After Shot 3 high frequency transmitters and receivers were installed at Caliente, Crystal Springs, Currant, Warm Springs and the Control Point enabling direct transmission of weather data to the Control Point weather station. Beatty, St. George and Tonopah continued to transmit observations to the Control Point by telephone.

Satellite upper air observation stations operated special radiation msasuring equipment for the Rad Safe Section. This equipment was installed at all of the stations except St. George, Utah, and was operated only on nuclear shot days. Operation of this equipment by weather personnel enabled the Rad Safe Section to effect a manpower saving of approximately seven men, and did not work a hardship on the satellite stations.

The special Facsimile line installed to permit receipt of forecasts from Andrews AFB worked quite satisfactorily, except for occassional line trouble or poor transmission which seemed to occur at critical times. In spite of these minor troubles, much good information was received. However, after 30 days usage, and since good verifications were being made by the Anaylsis Section at the Control Point, it was decided to eliminate the Facsimile line and the allied high cost. Instead, a short telephone conference at 1800 PDT on H-2 days and H-1 day was utilized to check the Pacific Analysis with the Weather Central at Andrews AFB. One outstanding argument for delegating the entire forecasting responsibility, including the preparation of complete prognostic charts, to the Analysis Section at the Control Point was the large increase in the amount of information needed daily by a large number of agencies. This information cannot be given, unless the forecaster is completely aware of the weather situation resulting from a complete analysis. This operation proved the necessity of giving the Test Director forecasts as far ahead as practical throughout the entire test series.

1.4 RECOMMENDATIONS

a. It is strongly recommended that for all future tests, a complete Analysis Section be existant at the Control Point Weather Station, and that the present telephone conferences with Weather Central at Andrews AFB be considered as a very useful aid. It is also recommended that during interim periods, between operations, the Chief Forecaster remain at Mercury Weather Station, along with two other forecasters, to prepare climatic and forecast studies and to maintain proficiency in differential analysis techniques.

b. For the interim period, it is recommended that, in addition to three forecasters; seven observers and seven Rawinsonde operators be available, and that a GMD-1 be used for upper air climatological studies.

c. Consideration should be given to assigning one officer and one airman to conduct detailed climatological pibal and tower instrumentation studies of Yucca and Frenchman Flats and Hiko and Alamo valleys.

d. It is recommended that during operational periods, the present type high frequency radios be installed at the satellite stations. This operational period proved the complete feasibility of using this type equipment.

e. It is recommended that during operational periods, the same transportation arrangements with the AEC motor pool be used, to include:

(1) Two pick-ups and one sedan at the Control Point Weather Station.

(2) One sedan for the Officer in Charge of the Satellite stations.

(3) One pick-up at each pibal and rawinsonde station.

(4) One 2½ ton truck available at the motor pool for helium transport.

f. It is recommended that provisions be made to house ALL Air Weather Service personnel in the permanent type buildings, during both the interim and operational periods. Around the clock operations, 7 days per week, is a necessity in this type work, and proper living conditions are a large factor in operational efficiency.

g. To obtain upper air data during test periods, it is suggested that a GMD-1 be permanently installed in the vicinity of Camp Mercury and that an FMQ-1 be installed in the Control Point Compound, to allow combination runs as follows: Simultaneous release of rawinsonde transmitters at Camp Mercury and the Control Point, with the Control Point balloon being tracked to 15,000 feet MSL only. This is to insure the best accuracy in low level winds for the target area, and a dual rawinsonde run for greater accuracy in temperature, pressure and relative humidity.

APPENDIX A

SUMMARY OF ANALYSIS AND FORECASTING TECHNIQUES

APPENDIX A - SUMMARY OF ANALYSIS AND FORECASTING TECHNIQUES

As a basis of the specific wind forecasts required at the Nevada Proving Ground for the 24 and 48 hour periods, accurate analysis of the eastern Pacific and western North America were essential.

The chart used for all analysis was the WBAN number 1 with a scale of 1 to 10,000,000. The area analyzed, for all levels, extends from approximately 90° west to 150° east, including Canada, Alaska and the lower latitudes.

The analyses prepared were as follows:

a. 1,000 millibar chart at 0030, 0630, 1230 and 1830Z

b. 700 millibar charts at 0300 and 1500Z

c. 500 millibar chart at 0300 and 1500Z

d. 300 millibar chart at 1500Z

e. 200 millibar chart at 1500Z

f. 1,000 to 700 millibar thickness chart at 0300 and 1500Z

g. 700 to 500 millibar thickness chart at 0300 and 1500Z

h. Isotach analysis of 700, 500 and 300 millibar levels to approximately 20° east and west of the Nevada Proving Ground

i. During the colder months, a height change chart of the 500 millibar level was maintained

Satisfactory accuracy on the upper air charts was obtained over the Pacific Ocean areas, by use of differential analysis techniques. Temperature lapse rates were constructed from selected surface ship reports, on the basis of continuity and indirect aerology. Thickness values, between the mandatory levels, were read off directly from a modified Skew-T, log P diagram, which was graduated for this purpose.

Additionally, thickness values and thermal winds between levels were obtained from upper air observation reports of the stationary ship, islands and costal stations. With this data plotted, the thickness pattern from 1,000 to 700 millibars was drawn consistent with the surface synoptic features. This thickness pattern was then added graphically to the contours of the 1,000 millibar chart to obtain the 700 millibar contours. The resulting analysis was modified, where

necessary, to agree with reported mandatory pressure data.

Similarly, the 500 millibar chart was obtained by adding the 700 to 500 millibar thickness pattern to the 700 millibar contours.

Mean isotherms, between the 500 and 300 millibar levels and the 500 and 200 millibar levels, were used as thickness values to aid in the construction of 300 and 200 millibar contours.

The 1,000 millibar chart was analyzed in 100 foot interval contours, by converting pressure, temperature and sea level height values. With the aid of a simplified conversion table and after some practice, the 1,000 millibar chart was analyzed as readily as the standard sea level pressure chart, which it replaced.

Standard techniques were used in making prognostic charts for the 1,000, 700, 500, 300 and 200 millibar charts. When applicable, the long wave technique developed by Dr. George P. Cressman was used in preparing the 500 millitar prognostic chart. Stationary wave length values for three separate areas were computed by the USAF Weather Central and received at the Nevada Proving Ground via teletype. The 700 millibar chart and the 1,000 millibar chart were then forecasted so that they were as consistent as possible with the 500 millibar chart.

In many instances when long wave techniques could not be applied with confidence or whenever west to east progression of the westerly was relatively slow, the procedure was reversed by making a 1,000 millibar prognostic chart, a 1,000 to 700 millibar thickness prognostic chart, and graphically adding the two to obtain a 700 millibar chart for the 24 hour forecast. The 500 millibar prognostic chart was then constructed consistent with the 700 millibar chart.

Normally the greatest weakness of this approach was the 1,000 millibar prognostic chart. The thickness prognostic chart was readily obtained by advecting, according to the 700 millibar flow and modifying where indicated, to make it consistent with the surface synoptic features. Consistently good results have been obtained by this technique for 24 hour forecasts or for establishing a mid-point trend for a 48 hour forecast.

The type forecasts and the type of data required were as follows:

a. 24 and 48 hour forecast of winds, surface and each 2,000 feet up to 20,000 feet and each 5,000 feet from 20,000 feet to 40,000 feet MSL

b. Cloud cover was of particular importance in air drops and aircraft tracking

c. Lapse rates - for blast effects computations

d. Trajectories - for 24 hours after each shot

e. Meteorological data at shot time - for density computation at Ground Zero and burst height. In most cases this was computed from upper air observations and surface observations

f. Daily forecasts of general meteorological conditions for planning of construction between shots and for planning purposes by Camp Desert Rock Commander.

APPENDIX B

WEATHER FORECASTS

30 March 1952

Forecast Number: 3 - Mercury, Nevada

To: Lt. Colonel Karstens (for briefing)

By: Worthley and Fawcett

Forecast given at: 1800 PST 30 March 1952

Valid Time: 0930 PST 1 April 1952

48 hour outlook for 1 April 1952:

3/8 cirrus, bases 28,000 feet MSL, tops 35,000 feet MSL. Nearest precipitation downwind in Northern New Mexico.

WINDS: (Height above MSL, degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
Surface	Calm	Calm
5000	210	10
10000	280	30
15000	280	40
20000	290	50
25000	290	60

14 April 1952

Forecast Number: 15 - Mercury, Nevada

To: Lt. Colonel Karstens (for briefing)

By: Morgan, Worthley and Fawcett

Forecast given at: 1900 PST 14 April 1952

Valid Time: 0930 PST 15 April 1952

Clear. Nearest precipitation downstream will be shower activity over mountain in central New Mexico

WINDS: (Height above MSL, degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
Surface	360	15
5000	340	16
6000	320	17
8000	310	18
10000	300	20
12000	300	22
14000	290	24
16000	290	26
18000	300	28
20000	300	30
23000	300	35

48 hour outlook for 16 April 1952: Clear. No precipitation within 600 miles downstream.

WINDS: (Height above MSL, degrees from true North and speed in knots)

Surface	360	05
5000	340	07
10000	300	08
15000	280	13
20000	270	18
23000	270	20

20 April 1952

Forecast Number: 21 - Mercury, Nevada

To: Lt. Colonel Karstens (for briefing)

By: Morgan, Worthley and Fawcett

Forecast given at: 1900 PST 20 April 1952

Valid Time: 0930 PST 22 April 1952

Clear. No precipitation within 600 miles downstream.

WINDS: (height above MSL, degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
Surface	030	08
6000	030	12
8000	030	20
10000	040	30
15000	030	34
20000	010	37
25000	360	45
30000	340	55
35000	330	60
40000	330	30

29 April 1952

Forecast Number: 34 - Mercury, Nevada

To: Lt Colonel Karstens (for briefing)

By: Morgan, Worthley and Fawcett

Forecast given at: 1815 PST 29 April 1952

Valid Time: 0930 PST 1 May 1952

4/8 cirrus, bases 25,000 feet MSL, tops 30,000 feet MSL. No precipitation within 600 miles.

WINDS: (Height above MSL, degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
Surface	220	05
5000	230	10
10000	240	25
15000	250	30
20000	250	35
25000	250	42
30000	250	47
35000	250	50
40000	260	25

6 May 1952

Forecast Number: 43 - Mercury, Nevada

To: Lt Colonel Karstens (for briefing)

By: Fawcett, Morgan, Worthley and Finnicum

Forecast given at: 1930 PST 6 May 1952

Valid Time: 0420 PST 7 May 1952

5/8 cirrus, bases 28,000 feet MSL, tops 32,000 feet MSL. Nearest precipitation in Western Wyoming.

WINDS: (Height above MSL, degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
Surface	Calm	Calm
5000	180	05
6000	190	05
8000	200	08
10000	220	20
12000	220	22
14000	220	24
16000	220	28
18000	220	35
20000	220	40
25000	230	50
30000	240	60
35000	240	75
40000	240	90

48 hour outlook for 8 May 1952:

4/8 middle cloud, bases 18,000 feet MSL, tops 22,000 feet MSL. 7/8 cirrus, bases 28,000 feet MSL, tops 32,000 feet MSL.

WINDS: (Height above MSL, degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
10000	220	22
20000	220	45
30000	230	100
40000	230	100

23 May 1952

Forecast Number: 67 - Mercury, Nevada

To: Lt Colonel Karstens (for briefing)

By: Morgan, Worthley and Finnicum

Forecast given at: 1800 PST 23 May 1952

Valid Time: 0400 PST 25 May 1952

3/8 cirrus, bases 28,000 feet MSL, tops 30,000 feet MSL. No precipitation downstream within 800 miles.

WINDS: (Height above MSL, degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
Surface	Calm	Calm
10000	240	10
20000	260	18
30000	270	25
40000	270	30

31 May 1952

Forecast Number: 74 - Mercury, Nevada

To: Lt Colonel Karstens (for briefing)

By: Morgan, Worthley and Finnicum

Forecast given at: 1930 PST 31 May 1952

Valid Time: 0400 PST 1 June 1952

2/8 middle clouds, bases 16,000 feet MSL, tops 20,000 feet MSL. Nearest precipitation downstream will be scattered showers in northeast Nevada and northern Utah at H/12 hours. Tops of showers will be 35,000 feet MSL.

WINDS: (Height above MSL, degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
Surface	180	06
6000	170	10
8000	170	10
10000	170	15
12000	170	15
14000	170	16
16000	180	15
18000	180	17
20000	180	15
25000	180	15
30000	180	15
35000	180	15
40000	180	15

48 hour outlook for 2 June 1952:

Clear. No precipitation within 300 miles downstream.

WINDS: (Height above MSL, Degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
Surface	020	04
10000	050	15
20000	320	30
30000	340	35
40000	330	45

3 June 1952

Forecast Number: 77 - Mercury, Nevada

To: Lt Colonel Karstens (for briefing)

By: Morgan, Worthley and Finnicum

Forecast given at: 1800 PST 3 June 1952

Valid Time: 0400 PST 5 June 1952

3/8 cirrus, bases 30,000 feet MSL, tops 33,000 feet MSL. Scattered showers downstream in western New Mexico.

WINDS: (Height above MSL, degrees from true North and speed in knots)

HEIGHT	DIRECTION	SPEED
Surface	360	02
10000	360	10
20000	320	25
30000	340	30

APPENDIX C

ACTUAL WEATHER CONDITIONS

ACTUAL WEATHER CONDITIONS FOR NUCLEAR DETONATION ONE 0900 PST
1 APRIL 1952 - MERCURY, NEVADA

CLOUD COVER: 1/10 alto-stratus at 18,000 feet MSL. 5/10 Cirro-stratus at 25,000 feet MSL.

PRECIPITATION: No precipitation within 1,000 miles.

HEIGHT GROUND ZERO: 3,078.0 feet MSL. BURST HEIGHT: 3,868.0 feet MSL.

PRESSURE:	Ground Zero	914 mb
	Burst Height	888.5 mb
VIRTUAL TEMPERATURE:	Ground Zero	58.5°F
	Burst Height	57.0°F
ACTUAL TEMPERATURE:	Ground Zero	58.0°F
	Burst Height	56.5°F
RELATIVE HUMIDITY:	Ground Zero	28%
	Burst Height	30%
ALTIMETER SETTING:	30.19 inches	

WINDS: (Height above MSL, degrees from true North and speed in knots)

Surface	050°	06 knots	14000	250°	14 knots
5000	090	05	15000	260	17
6000	120	05	16000	260	20
7000	140	07	18000	260	34
8000	170	08	20000	260	37
9000	200	08	25000	260	43
10000	210	10	30000	270	64
12000	250	15			

ACTUAL WEATHER CONDITIONS FOR NUCLEAR DETONATION TWO 0930 PST
15 April 1952 - Mercury, Nevada

CLOUD COVER: Clear. Visibility 40 miles.

PRECIPITATION: Nearest precipitation at Salt Lake City, Utah.

HEIGHT GROUND ZERO: 4,200.0 feet MSL. BURST HEIGHT: 5,300.0 feet MSL.

PRESSURE:	Ground Zero	878 mb
	Burst Height	842 mb
VIRTUAL TEMPERATURE:	Ground Zero	55.0°F
	Burst Height	48.3°F
ACTUAL TEMPERATURE:	Ground Zero	52.8°F
	Burst Height	48.0°F
RELATIVE HUMIDITY:	Ground Zero	30%
	Burst Height	30%
ALTIMETER SETTING:	30.19	

WINDS: (Height above MSL, Degrees from true North and speed in knots)

Surface	050°	06 knots	16000	310°	18 knots
5000	040	06	18000	310	18
6000	040	06	20000	300	25
7000	050	09	25000	270	30
8000	040	12	30000	260	35
9000	030	12	35000	260	22
10000	360	09	40000	270	28
12000	340	08	45000	270	40
14000	320	09	50000	270	40
15000	310	14	55000	270	23

ACTUAL WEATHER CONDITIONS FOR NUCLEAR DETONATION THREE 0930 PST
22 APRIL 1952 - MERCURY, NEVADA

CLOUD COVER: Cumulus with less than 1/10 coverage.

PRECIPITATION: No precipitation within 1,000 miles.

HEIGHT GROUND ZERO: 4,200.0 feet MSL. BURST HEIGHT: 7,650.0 feet MSL.

PRESSURE:	Ground Zero	873 mb
	Burst Height	770 mb
VIRTUAL TEMPERATURE:	Ground Zero	68.2°F
	Burst Height	47.0°F
ACTUAL TEMPERATURE:	Ground Zero	66.1°F
	Burst Height	45.3°F
RELATIVE HUMIDITY:	Ground Zero	30%
	Burst Height	47%
ALTIMETER SETTING:	30.06	

WINDS: (Height above MSL, degrees from true North and speed in knots)

Surface	230°	06 knots	15000	330°	16 knots
5000	220	08	16000	330	14
6000	220	08	18000	330	13
7000	210	07	20000	340	15
8000	210	05	25000	330	16
9000	240	03	30000	310	29
10000	290	05	35000	290	15
12000	350	08	40000	270	22
14000	360	16	45000	250	28

ACTUAL WEATHER CONDITIONS FOR NUCLEAR DETONATION FOUR 0830 PST
1 MAY 1952 - MERCURY, NEVADA

CLOUD COVER: Clear

PRECIPITATION: No precipitation within 1,000 miles.

HEIGHT GROUND ZERO: 4,193.0 feet MSL. BURST HEIGHT: 5,233.0 feet MSL.

PRESSURE:	Ground Zero	877 mb
	Burst Height	845 mb
VIRTUAL TEMPERATURE:	Ground Zero	65.2°F
	Burst Height	61.4°F
ACTUAL TEMPERATURE:	Ground Zero	62.8°F
	Burst Height	59.0°F
RELATIVE HUMIDITY:	Ground Zero	47%
	Burst Height	50%
ALTIMETER SETTING:	30.17	

WINDS: (Height above MSL, degrees from true North and speed in knots)

Surface	020°	03 knots	14000	250°	12 knots
5000	240	04	15000	260	16
6000	210	06	16000	280	19
7000	200	09	18000	270	26
8000	190	11	20000	260	31
9000	180	12	25000	260	21
10000	190	13	30000	250	38
12000	190	12	35000	260	41

ACTUAL WEATHER CONDITIONS FOR NUCLEAR DETONATION FIVE 0420 PST
7 MAY 1952 - MERCURY, NEVADA

CLOUD COVER: 8/10 Alto-cumulus and Alto-stratus at 18,000 feet MSL.

PRECIPITATION: Nearest precipitation at Salt Lake City, Utah.

HEIGHT GROUND ZERO: 4,240.0 feet MSL. BURST HEIGHT: 4,540.0 feet MSL.

PRESSURE:	Ground Zero	868 mb
	Burst Height	858 mb
VIRTUAL TEMPERATURE:	Ground Zero	62.4°F
	Burst Height	64.0°F
ACTUAL TEMPERATURE:	Ground Zero	60.5°F
	Burst Height	63.8°F
RELATIVE HUMIDITY:	Ground Zero	40%
	Burst Height	37%
ALTIMETER SETTING:	29.89 inches	

WINDS: (Height above MSL, degrees from true North and speed in knots)

Surface	Calm	Calm	12000	190°	45 knots
4000	Calm	Calm	14000	190	54
5000	Calm	Calm	15000	190	49
6000	180°	20 knots	16000	210	48
7000	180	26	18000	210	58
8000	180	32	20000	220	67
9000	190	35	25000	220	78
10000	180	36	30000	220	93

ACTUAL WEATHER CONDITIONS FOR NUCLEAR DETONATION SIX 0400 PST
25 MAY 1952 -- MERCURY, NEVADA

CLOUD COVER: 2/10 Alto-cumulus at 18,000 feet MSL.

PRECIPITATION: Nearest precipitation at Pocatello, Idaho.

HEIGHT GROUND ZERO: 4,310.0 feet MSL. BURST HEIGHT: 4,610.0 feet MSL.

PRESSURE:	Ground Zero	868 mb
	Burst Height	858 mb
VIRTUAL TEMPERATURE:	Ground Zero	58.4°F
	Burst Height	69.3°F
ACTUAL TEMPERATURE:	Ground Zero	57.1°F
	Burst Height	67.0°F
RELATIVE HUMIDITY:	Ground Zero	41%
	Burst Height	41%
ALTIMETER SETTING:	30.00 inches	

WINDS: (Height above MSL, degrees from true North and speed in knots)

Surface	Calm	Calm	14000	200°	06 knots
5000	210°	02 knots	15000	150	04
6000	210	08	16000	120	06
7000	220	11	18000	140	09
8000	220	11	20000	220	08
9000	220	11	25000	240	23
10000	220	10	30000	230	25
12000	210	09	35000	240	35

ACTUAL WEATHER CONDITIONS FOR NUCLEAR DETONATION SEVEN 0355 PST
1 JUNE 1952 - MERCURY, NEVADA

CLOUD COVER: Clear

PRECIPITATION: Nearest precipitation at Salt Lake City, Utah.

HEIGHT GROUND ZERO: 4,027.5 feet MSL. BURST HEIGHT: 4,327.5 feet MSL.

PRESSURE:	Ground Zero	872 mb
	Burst Height	862 mb
VIRTUAL TEMPERATURE:	Ground Zero	54.0°F
	Burst Height	59.3°F
ACTUAL TEMPERATURE:	Ground Zero	52.6°F
	Burst Height	57.4°F
RELATIVE HUMIDITY:	Ground Zero	48%
	Burst Height	50%
ALTIMETER SETTING:	29.82 inches	

WINDS: (Height above MSL, degrees from true North and speed in knots)

Surface	Calm	Calm	14000	180°	26 knots
5000	Calm	Calm	15000	170	26
6000	170°	17 knots	16000	170	29
7000	170	18	18000	190	30
8000	170	17	20000	190	44
9000	160	17	25000	200	42
10000	160	15	30000	190	36
12000	180	17			

ACTUAL WEATHER CONDITIONS FOR NUCLEAR DETONATION EIGHT 0355 PST
5 JUNE 1952 - MERCURY, NEVADA

CLOUD COVER: Clear

PRECIPITATION: No precipitation within 800 miles.

HEIGHT GROUND ZERO: 4,493.0 feet MSL. BURST HEIGHT: 4,793.0 feet MSL.

PRESSURE:	Ground Zero	863 mb
	Burst Height	854 mb
VIRTUAL TEMPERATURE:	Ground Zero	65.3°F
	Burst Height	72.0°F
ACTUAL TEMPERATURE:	Ground Zero	64.0°F
	Burst Height	68.7°F
RELATIVE HUMIDITY:	Ground Zero	45%
	Burst Height	50%
ALTIMETER SETTING:	30.04 inches	

WINDS: (Height above MSL, degrees from true North and speed in knots)

Surface	Calm	Calm	14000	120°	25 knots
5000	Calm	Calm	15000	120	24
6000	210°	05 knots	16000	120	22
7000	170	06	18000	150	19
8000	150	06	20000	150	15
9000	140	11	25000	160	22
10000	140	13	30000	150	25
12000	130	17			

APPENDIX D

BLAST LINE WEATHER DATA

BLAST LINE WIND DATA

SHOT #1

Hgt Above Ground	500 Ft Sta Direction Deg fr T North	Speed MPH	Hgt Above Ground	1500 Ft Sta Direction Deg fr T North	Speed MPH
2 ft	080	3.0	2 ft	100	MSG
6	070	2.5			
12	070	2.5	12	040	0.5
20	070	2.5			
40	MSG	2.0	40	100	2.0

SHOT #2

Hgt	3000 Ft Sta Direction	Speed	Hgt	6000 Ft Sta Direction	Speed
2	350	4.5	2	050	7.0
6	320	4.0			
12	010	5.0	12	050	7.5
20	050	MSG			
40	360	6.0	40	050	7.5

SHOT #3

Hgt	3000 Ft Sta Direction	Speed	Hgt	6000 Ft Sta Direction	Speed
2	200	5.5	2	180	0.5
6	170	5.5			
12	180	5.5	12	210	0.5
20	200	MSG			
40	160	6.0	40	170	0.5

SHOT #4

Hgt	3000 Ft Sta Direction	Speed	Hgt	6000 Ft Sta Direction	Speed
2	150	MSG	2	200	2.5
6	150	2.0			
12	150	0.5	12	190	3.0
20	150	MSG			
40	140	3.0	40	210	3.0

BLAST LINE WEATHER DATA FOR NUCLEAR DETONATION ONE 0900 PST
1 APRIL 1952 - MERCURY, NEVADA

TEMPERATURE

HEIGHT	ESTIMATED VALUES
2 feet	57.5°F
6 feet	58.0
12 feet	58.5
20 feet	58.7
40 feet	59.0

RELATIVE HUMIDITY

HEIGHT	READING
2 feet	28%
20 feet	30%

BLAST LINE WEATHER DATA FOR NUCLEAR DETONATION TWO 0930 PST
15 APRIL 1952 - MERCURY, NEVADA

TEMPERATURE

HEIGHT	ESTIMATED VALUES
2 feet	53.0°F
6 feet	52.5
12 feet	52.0
20 feet	51.5
40 feet.	51.0

RELATIVE HUMIDITY

HEIGHT	READING
3 feet	30%
20 feet	33%

BLAST LINE WEATHER DATA FOR NUCLEAR DETONATION THREE 0930 PST
22 APRIL 1952 - MERCURY, NEVADA

TEMPERATURE

HEIGHT	ESTIMATED VALUES
2 feet	54.0°F
6 feet	53.5
12 feet	52.1
20 feet	51.0
40 feet	51.2

RELATIVE HUMIDITY

HEIGHT	READING
2 feet	38%
20 feet	42%

BLAST LINE WEATHER DATA FOR NUCLEAR DETONATION FOUR 0830 PST
1 MAY 1952 - MERCURY, NEVADA

TEMPERATURE

HEIGHT	ESTIMATED VALUES
2 feet	62.9°F
6 feet	62.8
12 feet	62.5
20 feet	62.0
40 feet.	61.5

RELATIVE HUMIDITY

HEIGHT	READING
2 feet	47%
20 feet	49%

APPENDIX E

SURFACE WEATHER OBSERVATIONS

SURFACE OBSERVATIONS - CONTROL POINT
21 APRIL 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	HRES INCHES	R.H. %
0030	60	3/10	30	53	29	NNE	13	25.710	40
0130	60	2/10	30	52	30	N	14	25.720	44
0230	60	2/10	30	50	28	NNE	13	25.725	42
0330	60	2/10	30	51	29	N	14	25.730	43
0430	60	1/10	30	48	29	N	15	25.725	47
0530	None	Clr	35	48	29	N	13	25.745	49
0630	None	Clr	35	50	30	N	09	25.760	46
0730	None	Clr	35	53	30	NNE	09	25,770	42
0830	None	Clr	35	55	26	NNE	14	25,770	33
0930	None	Clr	35	60	35	NNE	15	25,780	39
1030	None	Clr	35	60	35	NNE	02	25,780	39
1130	None	Clr	40	64	31	NNE	05	25.760	29
1230	None	Clr	40	66	27	NNW	04	25.745	23
1330	None	Clr	40	62	26	N	06	25.740	25
1430	60	1/10	35	68	35	ENE	15	25.720	29
1530	60	1/10	35	69	37	NNE	08	25.710	30
1630	60	1/10	35	70	35	NE	04	25.710	27
1730	60	1/10	35	68	37	NNE	04	25.710	31
1830	60	1/10	35	64	33	NNE	04	25.720	32
1930	60	1/10	25	63	32	NNW	07	25.725	32
2030	60	1/10	25	62	34	NNW	09	25.745	35
2130	None	Clr	25	59	35	Calm	Calm	25.760	41
2230	None	Clr	30	58	33	NNW	06	25.770	38
2330	None	Clr	30	59	33	NNW	09	25.780	38

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
22 APRIL 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	30	52	34	N	06	25.790	50
0130	None	Clr	30	56	36	NNW	09	25.780	42
0230	None	Clr	30	52	31	N	05	25.790	45
0330	None	Clr	30	52	34	Calm	Calm	25.795	51
0430	None	Clr	30	52	33	NNW	05	25.805	48
0530	None	Clr	30	52	33	NNW	09	25.820	49
0630	None	Clr	30	53	34	NNE	07	25.840	49
0730	None	Clr	30	57	39	NNE	04	25.850	50
0830	None	Clr	30	62	40	E	03	25.860	43
0930	None	Clr	30	65	38	Calm	Calm	25.855	37
1030	None	Clr	30	67	38	SE	03	25.845	34
1130	None	3/10	30	69	36	SE	06	25.840	30
1230	50	4/10	30	72	34	SW	09	25.825	25
1330	None	Clr	30	72	35	SW	20	25.820	26
1430	None	Clr	50	73	33	S	13	25.795	23
1530	None	Clr	50	73	34	SW	08	25.785	24
1630	None	Clr	50	73	33	SW	08	25.795	23
1730	None	Clr	50	71	31	SW	09	25.795	23
1830	None	Clr	50	67	28	SW	07	25.795	23
1930	None	Clr	50	66	29	SW	05	25.805	25
2030	None	Clr	35	63	22	SW	04	25.825	21
2130	None	Clr	30	64	32	SW	05	25.830	29
2230	None	Clr	30	59	33	Calm	Calm	25.840	37
2330	None	Clr	30	56	35	Calm	Calm	25.850	45

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
23 APRIL 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	30	49	30	Calm	Calm	25.850	48
0130	None	Clr	30	51	31	Calm	Calm	25.850	46
0230	None	Clr	30	51	29	Calm	Calm	25.855	42
0330	None	Clr	30	51	32	Calm	Calm	25.855	47
0430	None	Clr	30	46	31	Calm	Calm	25.865	55
0530	None	Clr	30	47	32	Calm	Calm	25.880	57
0630	None	Clr	30	50	32	Calm	Calm	25.895	50
0730	None	Clr	30	56	31	NNE	03	25.895	38
0830	None	Clr	30	63	31	Calm	Calm	25.895	30
0930	None	Clr	30	66	29	NE	07	25.895	29
1030	None	Clr	30	73	39	SE	09	25.905	29
1130	None	Clr	30	75	38	SE	06	25.880	27
1230	None	Clr	30	75	35	SE	06	25.870	23
1330	None	Clr	30	76	36	SSW	10	25.850	23
1430	None	Clr	30	76	35	S	10	25.830	23
1530	None	Clr	50	77	35	S	08	25.820	22
1630	None	Clr	50	75	34	SSW	06	25.800	22
1730	None	Clr	50	73	34	SSE	06	25.800	24
1830	None	Clr	50	70	34	SSW	04	25.805	27
1930	None	2/10	50	67	30	SSW	05	25.835	25
2030	None	2/10	30	65	29	SW	04	25.835	26
2130	None	1/10	30	65	31	SW	03	25.835	28
2230	None	Clr	30	60	32	NE	03	25.835	35
2330	None	Clr	30	55	31	Calm	Calm	25.840	40

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
30 APRIL 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R. H. %
0030	None	Clr	30	47	44	Calm	Calm	25.870	86
0130	None	Clr	30	45	43	Calm	Calm	25.870	94
0230	None	Clr	30	45	43	Calm	Calm	25.870	94
0330	None	Clr	30	42	40	Calm	Calm	25.925	93
0430	None	Clr	30	41	39	Calm	Calm	25.925	92
0530	None	1/10	30	41	39	Calm	Calm	25.925	92
0630	None	1/10	30	44	35	NE	02	25.945	70
0730	None	1/10	35	48	44	NE	03	25.950	86
0830	None	Clr	45	53	45	E	03	25.955	74
0930	None	Clr	35	59	48	SW	03	25.955	67
1030	None	Clr	40	60	46	E	03	25.965	60
1130	None	1/10	40	63	46	SE	08	25.960	54
1230	None	4/10	40	65	50	S	10	25.955	58
1330	None	4/10	50	67	46	SE	09	25.950	46
1430	240	6/10	45	69	45	SSW	05	25.925	40
1530	240	9/10	45	68	39	SSW	12	25.920	35
1630	240	9/10	45	68	40	SSW	10	25.890	36
1730	None	4/10	45	68	38	WSW	06	25.880	34
1830	None	3/10	40	64	38	SW	04	25.880	38
1930	None	1/10	40	61	37	SW	07	25.890	41
2030	None	Clr	40	62	35	WSW	10	25.900	37
2130	None	Clr	40	56	40	Calm	Calm	25.910	55
2230	None	Clr	40	54	40	W	02	25.925	60
2330	None	Clr	40	53	40	NNE	03	25.925	60

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
1 MAY 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	40	51	41	Calm	Calm	25.925	68
0130	None	Clr	40	50	42	Calm	Calm	25.925	73
0230	None	Clr	40	49	41	Calm	Calm	25.920	74
0330	None	Clr	40	48	41	NW	05	25.920	77
0430	None	Clr	40	46	41	Calm	Calm	25.920	82
0530	None	Clr	40	48	30	NNE	02	25.930	50
0630	None	Clr	50	50	42	NNE	03	25.940	75
0730	None	Clr	50	55	40	NE	03	25.950	58
0830	None	Clr	50	63	42	E	02	25.950	47
0930	None	Clr	50	68	39	SSE	04	25.950	34
1030	None	Clr	50	70	39	SSE	06	25.935	32
1130	None	Clr	50	73	45	SE	06	25.915	37
1230	None	Clr	50	75	38	S	15	25.900	26
1330	None	Clr	50	77	37	SSW	16	25.890	23
1430	None	Clr	50	77	36	SSW	08	25.870	23
1530	None	Clr	50	77	36	Calm	Calm	25.850	22
1630	None	Clr	45	77	37	SSW	12	25.840	24
1730	None	Clr	45	75	35	SSW	11	25.835	24
1830	None	Clr	30	71	33	SSW	10	25.835	25
1930	None	Clr	30	70	32	SW	09	25.835	24
2030	None	Clr	30	69	38	SW	06	25.840	32
2130	None	Clr	30	61	42	SW	04	25.840	50
2230	None	Clr	40	63	41	NW	04	25.850	46
2330	None	Clr	40	63	41	NNW	04	25.830	46

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
2 MAY 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	40	54	44	NNE	02	25.850	68
0130	None	Clr	40	53	44	N	04	25.850	72
0230	None	Clr	40	51	44	NNE	03	25.850	77
0330	None	Clr	40	54	42	N	04	25.850	63
0430	None	Clr	40	51	44	Calm	Calm	25.840	77
0530	None	2/10	40	51	43	Calm	Calm	25.830	74
0630	None	1/10	40	55	44	NNE	03	25.840	68
0730	None	1/10	50	58	47	NE	03	25.840	63
0830	None	2/10	50	68	46	E	03	25.850	45
0930	None	2/10	50	72	43	SE	05	25.835	35
1030	None	3/10	50	75	40	S	03	25.830	29
1130	None	3/10	50	77	37	S	09	25.810	24
1230	None	3/10	50	81	34	S	11	25.785	18
1330	None	3/10	50	82	35	SSW	19	25.780	19
1430	None	3/10	50	82	29	SSW	19	25.760	15
1530	None	3/10	50	80	31	SSW	16	25.750	17
1630	None	4/10	50	81	30	SSW	17	25.745	16
1730	None	3/10	50	77	33	SSW	22	25.735	20
1830	None	3/10	50	75	35	SSW	10	25.740	23
1930	None	4/10	40	74	34	SSW	15	25.740	23
2030	None	3/10	40	73	29	SSW	13	25.760	23
2130	None	1/10	40	69	34	SSW	04	25.760	28
2230	None	3/10	35	67	39	SSW	03	25.745	36
2330	None	5/10	35	68	37	SSW	04	25.745	32

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
6 MAY 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	45	54	20	Calm	Calm	25.730	26
0130	None	Clr	45	54	19	Calm	Calm	25.720	25
0230	None	Clr	45	47	22	Calm	Calm	25.730	37
0330	None	Clr	45	48	24	NNW	05	25.735	39
0430	None	Clr	45	52	21	Calm	Calm	25.745	29
0530	None	Clr	45	54	23	Calm	Calm	25.750	30
0630	None	Clr	45	59	23	Calm	Calm	25.760	25
0730	None	Clr	45	63	22	S	05	25.770	21
0830	None	Clr	40	65	25	S	04	25.770	22
0930	None	1/10	40	69	25	S	05	25.775	19
1030	None	1/10	45	71	25	SE	06	25.790	18
1130	None	3/10	45	74	27	S	07	25.790	18
1230	None	3/10	45	76	27	S	09	25.785	16
1330	None	4/10	45	78	24	SW	08	25.770	16
1430	None	4/10	45	79	19	SW	14	25.760	11
1530	230	6/10	40	78	22	SW	09	25.750	13
1630	300	9/10	40	75	24	SSW	13	25.745	15
1730	None	4/10	40	74	24	SSW	13	25.750	15
1830	None	3/10	35	71	30	SSW	12	25.750	21
1930	None	3/10	35	70	25	SSW	08	25.750	19
2030	None	5.10	35	69	25	SSW	10	25.760	19
2130	None	3/10	35	69	25	SSW	07	25.770	19
2230	None	3/10	35	69	26	SSW	12	25.760	20
2330	None	3/10	35	67	24	SSW	04	25.750	19

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
7 MAY 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	180	6/10	35	67	24	SW	08	25.730	20
0130	220	5/10	35	64	29	Calm	Calm	25.720	26
0230	200	5/10	35	56	31	N	04	25.710	39
0330	None	4/10	35	59	31	Calm	Calm	25.710	35
0430	180	6/10	35	57	30	Calm	Calm	25.695	35
0530	80	8/10	35	60	29	S	08	25.690	31
0630	180	9/10	35	63	27	Calm	Calm	25.695	25
0730	180	6/10	35	63	29	SSW	24	25.695	27
0830	None	1/10	35	70	21	SSW	23	25.700	16
0930	None	1/10	35	70	21	S	22	25.690	16
1030	None	2/10	30	70	17	S	23	25.685	13
1130	None	Clr	30	70	28	S	26	25.660	21
1230	None	Clr	25	71	24	S	35	25.650	17
1330	None	Clr	25	70	21	SSW	26	25.640	15
1430	None	Clr	25	70	28	SSW	35	25.650	21
1530	None	Clr	25	69	22	SSW	30	25.650	16
1630	None	Clr	25	69	15	SSW?	35	25.630	13
1730	None	Clr	25	66	23	SSW	23	25.640	19
1830	None	Clr	25	63	27	SSW	20	25.640	25
1930	None	Clr	25	63	27	SSW	17	25.680	26
2030	None	Clr	25	63	27	SSW	15	25.690	26
2130	None	Clr	25	59	27	SSW	18	25.690	29
2230	None	Clr	25	56	20	NW	04	25.710	37
2330	None	Clr	25	55	33	NNW	04	25.730	43

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
8 MAY 1952

TIME PST	CEILING RUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WIND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	30	52	27	SSW	06	25.735	38
0130	None	Clr	30	53	24	SSW	15	25.735	33
0230	None	Clr	30	53	27	W	14	25.745	36
0330	None	Clr	30	51	26	NNW	07	25.765	44
0430	None	Clr	35	52	27	NNW	08	25.770	38
0530	None	Clr	45	50	29	Calm	Calm	25.795	44
0630	None	Clr	45	54	25	Calm	Calm	25.815	33
0730	None	Clr	45	55	27	Calm	Calm	25.825	34
0830	None	Clr	45	59	22	Calm	Calm	25.830	24
0930	None	Clr	45	62	16	NNE	05	25.835	17
1030	None	Clr	45	64	16	Calm	Calm	25.830	16
1130	None	Clr	45	68	21	Calm	Calm	25.820	17
1230	None	Clr	45	68	24	Calm	Calm	25.810	19
1330	None	Clr	45	71	21	SSW	09	25.800	15
1430	None	Clr	45	71	20	WSW	10	25.780	14
1530	None	2/10	45	71	21	WSW	09	25.770	15
1630	None	1/10	45	70	21	SSW	09	25.770	16
1730	None	1/10	45	68	24	SSW	07	25.760	19
1830	None	1/10	45	68	21	SSW	07	25.765	17
1930	None	Clr	45	64	16	SSW	10	25.775	16
2030	None	1/10	45	60	20	NW	03	25.800	22
2130	None	2/10	45	58	22	NW	04	25.800	25
2230	23C	8/10	50	56	20	Calm	Calm	25.810	25
2330	230	8/10	50	55	19	Calm	Calm	25.805	25

TOTAL PRECIPITATION FOR PERIOD: None

SURFACE OBSERVATIONS - CONTROL POINT
24 MAY 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	40	62	30	Calm	Calm	25.855	30
0130	None	Clr	40	61	29	NW	03	25.855	30
0230	None	Clr	40	60	29	NNW	04	25.850	30
0330	None	1/10	40	55	29	N	05	25.855	40
0430	None	Clr	40	52	32	N	03	25.875	46
0530	None	Clr	50	56	32	N	02	25.880	40
0630	None	Clr	50	62	35	N	05	25.885	36
0730	None	Clr	50	68	37	N	04	25.895	32
0830	None	Clr	50	74	36	N	03	25.895	25
0930	None	Clr	50	78	35	NE	07	25.890	21
1030	None	Clr	50	79	37	SE	01	25.905	22
1130	None	1/10	50	82	36	S	03	25.890	19
1230	None	2/10	50	83	35	S	07	25.870	18
1330	None	5/10	50	84	34	SW	03	25.860	17
1430	70	6/10	50	83	35	Calm	Calm	25.835	18
1530	None	4/10	50	82	34	S	04	25.820	18
1630	None	2/10	50	82	32	S	10	25.790	16
1730	None	1/10	50	83	32	S	11	25.780	16
1830	None	1/10	50	79	31	SSW	07	25.780	17
1930	None	1/10	50	75	30	SSW	04	25.780	19
2030	None	Clr	50	73	31	SSW	05	25.790	22
2130	None	Clr	45	68	32	Calm	Calm	25.780	26
2230	None	Clr	45	65	33	WNW	03	25.820	29
2330	None	Clr	45	63	34	Calm	Calm	25.820	34

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
25 MAY 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	40	61	33	N	03	25.815	35
0130	None	Clr	40	58	32	NNW	04	25.815	38
0230	None	Clr	40	59	36	NNW	05	25.810	42
0330	None	4/10	40	57	33	N	03	25.805	42
0430	None	2/10	40	57	36	NNW	03	25.800	46
0530	None	2/10	20	59	33	N	02	25.810	37
0630	None	2/10	35	63	31	NNE	05	25.810	30
0730	None	3/10	50	68	33	N	05	25.815	27
0830	None	3/10	50	77	36	N	02	25.820	23
0930	None	2/10	50	80	35	SSE	04	25.810	20
1030	None	3/10	50	80	30	S	05	25.810	23
1130	None	3/10	50	85	28	S	15	25.795	13
1230	None	4/10	50	84	29	S	02	25.780	14
1330	None	4/10	50	85	28	S	09	25.765	13
1430	230	6/10	50	86	29	SE	05	25.750	13
1530	280	6/10	30	87	24	S	10	25.740	10
1630	None	5/10	30	82	32	N	17	25.720	17
1730	180	9/10	30	80	32	N	07	25.730	18
1830	180	9/10	30	76	32	N	13	25.740	20
1930	230	7/10	30	72	32	N	16	25.750	19
2030	None	4/10	30	70	32	N	04	25.775	24
2130	None	2/10	30	69	31	Calm	Calm	25.770	24
2230	None	2/10	30	70	32	NW	07	25.770	24
2330	None	2/10	30	69	34	NNW	12	25.780	28

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
26 MAY 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	2/10	30	67	33	NNW	05	25.870	28
0130	None	1/10	30	65	32	NNW	03	25.780	29
0230	None	Clr	30	64	30	NNW	09	25.780	28
0330	None	Clr	30	61	33	NNW	08	25.780	35
0430	None	Clr	30	63	32	NNW	05	25.800	37
0530	None	Clr	40	56	34	N	04	25.810	43
0630	None	Clr	50	66	36	N	04	25.825	33
0730	None	Clr	50	69	38	N	03	25.830	32
0830	None	Clr	50	76	38	NW	01	25.835	25
0930	None	Clr	50	80	35	N	03	25.830	20
1030	None	Clr	50	81	33	SSE	03	25.825	18
1130	None	Clr	50	85	29	SW	03	25.815	13
1230	None	1/10	50	85	29	NW	03	25.800	13
1330	None	2/10	50	87	30	NW	08	25.785	13
1430	None	4/10	50	84	27	Calm	Calm	25.770	13
1530	None	5/10	50	86	28	E	09	25.760	12
1630	None	3/10	50	89	30	E	04	25.755	12
1730	None	4/10	50	85	29	Calm	Calm	25.750	13
1830	None	4/10	50	80	32	Calm	Calm	25.750	17
1930	None	4/10	50	79	27	Calm	Calm	25.760	15
2030	None	2/10	45	75	30	NNW	08	25.780	19
2130	None	2/10	45	71	31	NNW	06	25.790	22
2230	None	Clr	45	73	30	NNW	06	25.790	21
2330	None	Clr	45	69	30	NNW	06	25.810	23

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
31 MAY 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	4/10	30	70	10	S	07	25.600	10
0130	None	4/10	30	70	20	S	15	25.600	15
0230	None	4/10	30	69	12	S	09	25.570	11
0330	None	4/10	30	69	18	S	12	25.590	14
0430	None	3/10	30	60	24	NNW	05	25.595	25
0530	None	3/10	30	63	26	Calm	Calm	25.600	24
0630	None	4/10	40	65	24	Calm	Calm	25.615	21
0730	None	3/10	40	69	25	Calm	Calm	25.620	19
0830	None	1/10	40	77	23	SSE	12	25.615	14
0930	None	2/10	40	77	23	SSE	11	25.615	13
1030	None	3/10	40	80	25	SSE	15	25.605	13
1130	None	3/10	40	81	25	SSE	22	25.595	13
1230	None	4/10	40	83	24	SSE	19	25.585	11
1330	None	3/10	40	82	24	S	22	25.580	12
1430	None	2/10	35	82	28	S	22	25.560	14
1530	None	2/10	35	80	27	S	21	25.550	14
1630	None	2/10	35	79	31	S	29	25.550	17
1730	None	2/10	35	77	23	S	20	25.545	13
1830	None	2/10	35	75	31	S	14	25.550	20
1930	None	1/10	35	73	30	S	21	25.560	20
2030	None	Clr	35	71	30	S	12	25.580	22
2130	None	Clr	35	70	30	SSE	09	25.590	23
2230	None	Clr	30	68	20	SSE	04	25.590	16
2330	None	1/10	30	65	21	SSE	03	25.610	18

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
1 JUNE 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	2/10	30	61	28	Calm	Calm	25.610	29
0130	None	2/10	30	54	31	Calm	Calm	25.620	41
0230	None	2/10	30	56	26	Calm	Calm	25.625	32
0330	None	1/10	30	55	23	Calm	Calm	25.625	29
0430	None	Clr	30	52	28	Calm	Calm	25.640	39
0530	None	Clr	30	52	31	Calm	Calm	25.660	44
0630	None	Clr	15	57	26	SW	05	25.620	31
0730	None	Clr	15	61	22	Calm	Calm	25.690	22
0830	None	Clr	15	70	28	SE	09	25.690	21
0930	None	Clr	30	72	28	S	10	25.700	20
1030	None	1/10	30	76	31	SE	16	25.705	19
1130	None	3/10	30	77	29	S	06	25.705	17
1230	None	3/10	30	79	27	SE	06	25.695	15
1330	None	5/10	30	79	30	Calm	Calm	25.690	16
1430	None	3/10	30	79	27	SE	07	25.680	15
1530	None	5/10	30	79	30	S	05	25.675	16
1630	None	4/10	30	79	30	SE	13	25.680	17
1730	None	4/10	30	77	31	SE	12	25.680	19
1830	None	3/10	40	75	28	SE	15	25.690	18
1930	None	1/10	40	72	28	S	14	25.690	20
2030	None	Clr	40	70	28	S	07	25.720	21
2130	None	Clr	40	68	33	S	05	25.730	27
2230	None	Clr	40	67	24	S	05	25.740	29
2330	None	Clr	40	65	25	S	04	25.740	22

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
2 JUNE 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	40	63	24	Calm	Calm	25.740	22
0130	None	Clr	40	61	16	Calm	Calm	25.740	17
0230	None	Clr	40	53	17	NW	09	25.740	25
0330	None	2/10	40	50	22	NW	06	25.740	33
0430	None	2/10	40	48	21	NW	04	25.745	35
0530	None	3/10	40	51	20	N	05	25.750	30
0630	None	1/10	40	63	27	N	06	25.760	25
0730	None	1/10	45	68	27	Calm	Calm	25.770	21
0830	None	1/10	45	73	28	SSE	07	25.780	19
0930	None	1/10	45	75	29	S	04	25.780	19
1030	None	1/10	45	75	31	SSE	10	25.755	20
1130	None	1/10	50	80	32	S	15	25.720	17
1230	None	1/10	50	80	26	NW	04	25.710	14
1330	None	1/10	50	83	27	S	13	25.700	13
1430	None	1/10	50	81	30	N	03	25.680	16
1530	None	3/10	50	81	30	SSE	12	25.660	16
1630	None	5/10	50	80	31	SE	10	25.655	17
1730	None	2/10	50	79	29	SSE	04	25.645	16
1830	60	7/10	50	78	31	ESE	05	25.645	18
1930	60	8/10	40	77	41	S	06	25.645	28
2030	120	8/10	40	75	36	S	09	25.660	25
2130	60	9/10	40	74	33	S	15	25.680	43
2230	120	9/10	40	71	40	S	14	25.705	33
2330	60	9/10	40	66	47	SE	13	25.710	49

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
4 JUNE 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	50	67	44	S	04	25.875	44
0130	None	Clr	50	60	42	N	05	25.880	52
0230	None	Clr	50	62	47	NW	03	25.890	57
0330	None	Clr	50	60	41	NW	03	25.895	49
0430	None	Clr	50	59	45	NW	02	25.910	61
0530	None	Clr	50	62	47	NNW	02	25.930	57
0630	None	Clr	50	65	47	Calm	Calm	25.940	51
0730	None	Clr	50	68	47	Calm	Calm	25.950	47
0830	None	Clr	50	75	48	SE	07	25.955	39
0930	None	Clr	50	78	48	Calm	Calm	25.955	34
1030	None	Clr	50	80	44	N	08	25.935	28
1130	None	2/10	50	84	45	Calm	Calm	25.920	26
1230	None	3/10	50	85	44	SSE	09	25.895	24
1330	65	6/10	50	89	42	S	08	25.880	20
1430	65	7/10	50	87	41	Calm	Calm	25.865	20
1530	None	3/10	40	85	38	Calm	Calm	25.855	19
1630	None	3/10	40	86	37	SSE	05	25.830	17
1730	None	4/10	40	88	35	S	09	25.820	15
1830	None	3/10	40	85	27	Calm	Calm	25.820	12
1930	None	3/10	40	80	41	S	05	25.820	23
2030	None	1/10	40	80	35	S	05	25.830	20
2130	None	Clr	40	77	40	S	05	25.830	26
2230	None	Clr	50	75	40	S	04	25.845	29
2330	None	Clr	50	70	39	NE	03	25.850	32

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
5 JUNE 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	50	67	38	N	02	25.850	34
0130	None	Clr	50	65	38	N	02	25.840	36
0230	None	Clr	50	63	38	N	03	25.840	39
0330	None	Clr	50	62	37	N	03	25.840	39
0430	None	Clr	50	60	38	N	03	25.830	44
0530	None	1/10	50	64	37	N	03	25.830	36
0630	None	4/10	50	67	40	N	01	25.830	37
0730	None	3/10	30	70	40	NNE	03	25.840	33
0830	None	2/10	30	78	42	SSE	04	25.830	27
0930	None	4/10	30	83	42	SSE	05	25.830	23
1030	None	1/10	30	84	44	SE	13	25.830	25
1130	None	1/10	30	85	43	SE	12	25.800	23
1230	None	2/10	30	86	45	S	18	25.760	24
1330	None	2/10	30	87	44	SSE	05	25.750	22
1430	None	3/10	30	87	45	SSE	09	25.700	24
1530	None	2/10	30	88	44	SSE	10	25.680	22
1630	None	1/10	30	88	39	SSE	12	25.675	18
1730	None	1/10	30	85	32	S	19	25.670	15
1830	None	Clr	30	87	25	S	16	25.665	12
1930	None	Clr	30	81	26	S	10	25.665	13
2030	None	Clr	30	76	28	SSE	05	25.680	17
2130	None	Clr	30	76	28	SSE	04	25.685	17
2230	None	Clr	30	74	32	S	04	25.700	21
2330	None	Clr	30	72	32	S	03	25.700	23

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
31 March 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WIND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	35	49	34	Calm	Calm	25.730	56
0130	None	Clr	35	49	34	NNW	04	25.740	56
0230	None	Clr	35	49	30	N	09	25.740	49
0330	None	Clr	35	50	27	NNE	04	25.740	42
0430	None	Clr	35	44	30	E	04	25.745	59
0530	None	Clr	30	41	29	N	08	25.770	62
0630	None	Clr	30	50	27	NE	08	25.790	41
0730	None	Clr	30	53	26	NNE	09	25.805	35
0830	None	Clr	30	55	26	ENE	08	25.815	33
0930	None	Clr	30	58	24	ESE	07	25.840	26
1030	None	Clr	30	61	27	SE	09	25.835	27
1130	None	Clr	30	64	25	NNE	07	25.840	23
1230	None	Clr	30	65	19	NNW	06	25.830	17
1330	None	Clr	30	66	19	NNE	15	25.830	23
1430	None	Clr	45	65	20	N	12	25.825	18
1530	250 thin	2/10	45	66	22	NNE	09	25.825	19
1630	250 thin	3/10	45	65	23	N	16	25.820	20
1730	250 thin	3/10	45	62	24	N	14	25.825	23
1830	250 thin	4/10	45	57	23	N	09	25.845	26
1930	250	2/10	45	55	24	N	10	25.875	28
2030	None	Clr	30	55	22	N	10	25.875	36
2130	None	Clr	30	51	26	N	13	25.905	29
2230	None	Clr	30	51	20	N	11	25.920	38
2330	None	Clr	30	50	26	N	13	25.920	38

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
1 April 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	30	49	27	N	14	25.920	43
0130	None	Clr	35	48	24	N	11	25.920	38
0230	None	Clr	35	47	24	N	13	25.920	40
0330	None	Clr	35	45	25	NNW	15	25.920	45
0430	None	Clr	35	45	25	N	17	25.925	45
0530	300	7/10	35	45	25	N	10	25.950	46
0630	None	4/10	40	47	25	N	10	25.965	43
0730	None	5/10	40	54	26	N	09	25.980	36
0830	250	9/10	40	57	30	NE	07	25.990	35
0900	250	9/10	40	54	25	NE	06	25.971	32
0930	250	9/10	40	56	25	NNE	05	25.985	30
1030	250	10/10	40	61	16	ENE	05	25.965	17
1130	250	9/10	40	63	25	S	02	25.945	24
1230	250	9/10	40	65	28	SSW	06	25.925	25
1330	250	9/10	40	66	26	S	10	25.920	22
1430	300	9/10	40	67	26	SSE	10	25.885	23
1530	300	6/10	40	68	31	SW	06	25.865	25
1630	300	6/10	40	68	25	SW	08	25.865	20
1730	None	1/10	40	63	29	SW	09	25.865	28
1830	None	Clr	40	61	27	SW	10	25.855	27
1930	None	Clr	40	60	31	W	06	25.855	34
2030	None	Clr	30	54	30	SW	03	25.865	39
2130	None	Clr	30	52	31	W	04	25.865	45
2230	None	Clr	30	52	31	Calm	Calm	25.860	45
2330	None	Clr	30	48	28	Calm	Calm	25.860	47

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
2 April 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	2/10	30	45	29	Calm	Calm	25.850	54
0130	None	2/10	30	44	29	NE	03	25.840	56
0230	None	2/10	30	42	29	Calm	Calm	25.820	62
0330	160	10/10	30	44	28	Calm	Calm	25.810	55
0430	160	10/10	30	40	31	Calm	Calm	25.785	70
0530	150	10/10	30	45	30	Calm	Calm	25.800	55
0630	None	4/10	35	41	31	NE	02	25.805	66
0730	None	Clr	35	52	30	Calm	Calm	25.810	44
0830	None	Clr	35	58	29	WSW	02	25.810	33
0930	None	Clr	35	63	30	SSW	05	25.810	28
1030	None	Clr	35	65	29	S	08	25.820	26
1130	None	Clr	35	68	29	SSE	06	25.805	24
1230	None	Clr	35	68	26	Calm	Calm	25.795	23
1330	None	1/10	35	71	29	NNE	15	25.775	21
1430	None	Clr	45	71	28	NNE	13	25.770	20
1530	None	1/10	45	70	21	N	13	25.765	15
1630	None	1/10	50	69	20	N	21	25.770	16
1730	None	Clr	50	65	19	NNE	17	25.780	17
1830	None	Clr	50	60	21	NNE	10	25.785	21
1930	None	Clr	50	60	20	N	14	25.800	21
2030	None	Clr	40	58	25	N	11	25.830	29
2130	None	Clr	30	53	22	NNE	09	25.845	39
2230	None	Clr	30	50	24	NNE	06	25.855	37
2330	None	Clr	30	49	24	N	12	25.875	36

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATION - CONTROL POINT
14 April 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	30	48	27	SW	09	25.680	44
0130	None	Clr	30	47	27	SW	09	25.680	45
0230	None	Clr	30	46	23	WSW	10	25.685	41
0330	None	Clr	30	45	25	W	13	25.700	45
0430	None	Clr	30	45	24	W	11	25.710	43
0530	None	Clr	30	44	29	Calm	Calm	25.750	55
0630	None	Clr	30	46	22	NW	09	25.760	38
0730	None	Clr	30	46	28	N	18	25.760	46
0830	None	Clr	30	50	25	ESE	09	25.790	37
0930	None	Clr	35	54	21	NNE	16	25.810	27
1030	None	Clr	35	56	22	NNE	07	25.820	26
1130	None	Clr	35	56	20	WNW	04	25.820	24
1230	None	Clr	35	58	13	WNW	07	25.815	17
1330	None	Clr	35	60	14	NNW	15	25.820	16
1430	None	Clr	35	60	12	NNE	15	25.825	15
1530	None	Clr	35	60	18	NNE	22	25.825	19
1630	None	Clr	35	58	13	N	15	25.825	13
1730	None	Clr	35	58	13	NNW	20	25.825	17
1830	None	Clr	35	54	13	NNE	13	25.845	20
1930	None	Clr	35	50	25	NNE	12	25.860	37
2030	None	Clr	35	49	25	NNE	14	25.890	39
2130	None	Clr	35	48	27	NNE	12	25.905	44
2230	None	Clr	35	48	16	NNE	11	25.925	28
2330	None	Clr	35	45	17	NNE	14	25.935	32

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
15 April 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	30	45	19	NNE	13	25.925	36
0130	None	Clr	20	43	21	NNE	14	25.925	40
0230	None	Clr	20	44	21	NNE	15	25.925	39
0330	None	Clr	20	43	24	NNE	14	25.925	46
0430	None	Clr	30	42	22	NNE	15	25.940	45
0530	None	1/10	50	40	23	NE	03	25.960	49
0630	None	1/10	45	45	24	NNE	08	25.980	44
0730	None	Clr	50	47	24	NNE	12	25.985	39
0830	None	Clr	50	53	24	ENE	12	25.985	33
0930	None	Clr	50	54	24	ENE	09	25.970	30
1030	80	3/10	50	56	22	ENE	14	25.970	26
1130	None	Clr	50	58	22	NNE	08	25.950	24
1230	None	Clr	50	62	23	ENE	11	25.930	22
1330	None	Clr	50	64	25	ESE	08	25.920	23
1430	None	Clr	50	64	25	Calm	Calm	25.900	23
1530	None	Clr	50	65	25	ENE	12	25.890	22
1630	None	Clr	50	64	22	NE	10	25.860	20
1730	None	Clr	50	63	24	NE	10	25.850	22
1830	None	Clr	50	58	22	NE	07	25.850	24
1930	None	Clr	50	57	25	NE	12	25.860	29
2030	None	Clr	50	55	26	NNE	14	25.870	32
2130	None	Clr	50	55	27	NNE	10	25.890	34
2230	None	Clr	50	54	23	NNE	13	25.910	30
2330	None	Clr	50	54	28	NNE	14	25.910	36

TOTAL PRECIPITATION FOR PERIOD: NONE

SURFACE OBSERVATIONS - CONTROL POINT
16 April 1952

TIME PST	CEILING HUN OF FT	SKY	VSBY MILES	TEMP F.	D.P. F.	WND DIR	WND SP KNOTS	PRES INCHES	R.H. %
0030	None	Clr	50	53	29	NNE	14	25.910	35
0130	None	Clr	50	53	29	NNE	13	25.910	40
0230	None	Clr	50	51	29	NNE	14	25.910	43
0330	None	Clr	50	50	29	NNE	15	25.910	45
0430	None	Clr	50	49	29	NNE	10	25.905	47
0530	None	Clr	50	48	30	NNE	15	25.920	49
0630	None	Clr	50	51	30	NE	08	25.930	44
0730	None	Clr	50	54	28	NE	10	25.935	37
0830	None	Clr	50	57	30	NE	17	25.940	36
0930	None	Clr	50	60	30	NE	13	25.930	32
1030	None	Clr	50	62	29	NE	10	25.910	29
1130	None	Clr	50	64	27	NE	13	25.895	24
1230	None	Clr	50	65	29	NE	17	25.880	26
1330	None	Clr	50	68	28	NNE	04	25.865	25
1430	60	1/10	40	67	30	E	09	25.845	26
1530	60	1/10	40	67	27	ENE	10	25.830	22
1630	60	1/10	40	68	26	ENE	12	25.825	20
1730	60	1/10	40	65	27	ENE	10	25.810	23
1830	230	1/10	30	63	28	ENE	09	25.815	26
1930	230	1/10	25	60	29	NNE	09	25.825	31
2030	None	Clr	25	59	27	NNE	11	25.845	30
2130	None	Clr	25	58	23	NNE	10	25.850	32
2230	None	Clr	30	57	26	NNE	12	25.865	31
2330	None	Clr	30	56	29	NWN	12	25.880	34

TOTAL PRECIPITATION FOR PERIOD: NONE

APPENDIX F

LOCATION AND SCHEDULE OF SATELLITE STATIONS

LOCATIONS OF STAELLITE WEATHER STATIONS

Beatty, Nevada, 36° 55' 35.560" N, 116° 44' 12.393" W, elevation 3,392.20 feet MSL.

Caliente, Nevada, 37° 43' 20.023" N, 114° 27' 17.700" W, elevation 4,620.62 feet MSL.

Crystal Springs, Nevada, 37° 32' 00.970" N, 115° 14' 02.628" W, elevation 3,822.85 feet MSL.

Currant, Nevada, 38° 42' 27.598" N, 115° 30' 45.852" W, elevation 4,973.60 feet MSL.

St. George, Utah, 37° 05' 24.9372" N, 113° 35' 25.666" W, elevation 2,904.906 feet MSL.

Tonopah, Nevada, 38° 03' 39.847" N, 117° 05' 41.959" W, elevation 5,412.875 feet MSL.

Warm Springs, Nevada, 38° 13' 01.4372" N, 116° 20' 58.990" W, elevation 5,457.98 feet MSL.

UPPER AIR OBSERVATION SCHEDULE
OPERATION TUMBLER

NORMAL	H-1 DAY	H DAY
0500 PST	0500 PST	0200 PST
1100 PST	1700 PST	0500 PST
1700 PST	2000 PST	1100 PST
2300 PST	2300 PST	1700 PST
		2300 PST

OPERATION SNAPPER

NORMAL	H-1 DAY	H DAY
0500 PST	0500 PST	0200 PST
1100 PST	1100 PST	0500 PST
1700 PST	1300 PST	1100 PST
2300 PST	1500 PST	1700 PST
	1700 PST	2300 PST
	1900 PST	
	2000 PST	
	2300 PST	

APPENDIX G

RAWINSONDE OBSERVATIONS

RAWINSONDE OBSERVATION
CONTROL POINT
0600PST, 1 APRIL 1952

AEC14
87707 53214 03610 00055 85498 08542 00310 70017 50593 02413 50876
66805 02827 40414 79902 02845 55555 11860 08555 22758 05602 33489
67825 44420 76891
AEC64
30067 95991 02744 55555 55352 86996 66666 32990 22810 10158

1000PST, 1 APRIL 1952

AEC18
88013 56714 00506 00057 85508 10571 01004 70026 50635 02210 50885
67993 02334 40421 79927 02646 55555 11830 07594 22740 02591 33641
54728 44578 58717 55506 66819664S0 72996
AEC68
30072 95994 02776 20992 13991 15499 11990 10327 11992 05748 05997
55555 77334 90952 66666 17617 15811 08310 06512 10158

0700PST, 15 APRIL 1952

AEC15
52738 02736 52712 02608 53603 00000
AEC65
30057 96991 02737 20903 14991 02734 15483 10997 02737 10311 11917
02724 05728 07991 00000 66666 18616 17512 08613 07409 06712 05407
04408 03503 02805 10158

1000PST, 15 APRIL 1952

AEC18
 9114 59811 00505 00058 85508 09595 00405 70024 52991 03608 50882
67990 03121 40418 79997 02729 55555 11785 02614 22742 01690 66666
67954 66053 61857 59457
AEC68
30069 96990 02633 20916 15991 02725 15498 09997 02739 10320 11997 0
02717 66666 33490 19616 17812 11013 08483 07712 10158

RAWINSONDE OBSERVATION
CONTROL POINT
0700PST, 22 APRIL 1952

AEC15
88612 00911 01104 00041 85493 11990 01603 70013 50993 03503 50876
65993 03414 40414 75991 03316 66666 75906 64556 61252 10168 08940
AEC65
30067 93999 03023 20924 09991 03118 15519 05997 02707 66666 32390
22508 21308 20109 17806 11514 10190 10335 10158

1000PST, 22 APRIL 1952

AEC18
87519 01511 01610 0003A 85494 16008 01405 70020 00621 03009 50886
64998 03311 40424 79991 03413 55555 11720 01557 22686 51662 33630
50703
AEC68
30076 94990 03026 20938 06992 02419 15534 08992 66666 32690 22407
18406 15409 14207 13308 10158

0700PST, 1 MAY 1952

AEC15
87710 05014 00000 00052 85499 13037 00000 70028 05581 02307 50900
62995 02825 40444 74995 02620 55555 11855 14032 22580 56720 66666
56555
AEC65
30108 91990 02750 20977 07990 02749 15568 12995 10378 18991 66666
31389 21906 13016 12015 09320 07310 10158

0900PST, 1 MAY 1952

AEC17
89020 03311 00000 00046 85508 16031 00000 70039 05582 01808 50914
61996 02527 40461 73995 02523 55555 11675 01614 22659 02648 33569
55734 66666 55355 41074 40473
AEC67
30038 90996 02635 20995 05998 02656 15586 11998 02635 10387 20998
02611 05789 07990 66666 22505 21504 17810 16509 09622 08414 08115
07711 07412 06512 06009 05811 05007 10158

RAWINSONDE OBSERVATION
CONTROL POINT
0400PST, 7 MAY 1952

AEC12
88118 52914 00000 00021 85479 18561 00000 70013 05557 01836 50879
64668 02161 40418 77993 02271 55555 11838 18573 22524 62647 33464
67717
AEC62
30075 92998 20909 10991 66666 31890 17914 16113 10190 15517 10158

0500PST, 7 MAY 1952

AEC13
86914 51411 03205 00017 85475 15527 02610 70007 05611 01836 50872
65708 40412 76791 55555 11831 17552 22560 59658
AEC53
55555 33360 81858 10158

0400PST, 25 MAY 1952

AEC12
88420 52414 00000 00025 85490 17519 00000 70020 04553 02210 50882
66718 01607 40422 76996 02420 55555 11488 67753 22444 73824 33433
72868
AEC62
30080 93990 02325 20940 07997 66666 31690 22308 19808 10158

0500PST, 25 MAY 1952

AEC13
88417 52710 00000 00027 85489 16523 70021 07563 50888 66713 40429
76992 55555 11698 07561 22432 72995
AEC63
30079 92999 66666 31790 26610 10158

RAWINSONDE OBSERVATION
CONTROL POINT
0300PST, 1 JUNE 1952

AEC11
86712 99814 00000 00006 85468 15996 00000 70994 02998 01615 50851
69796 01938 40389 76993 02042 55555 11856 16990 22686 01596 33605
57727 44530 65733 55475 70841
AEC61
30046 92997 20924 00990 66666 31690 24198 23097 16604 10155

0500PST, 1 JUNE 1952

AEC13
86812 64111 00000 00014 85471 15999 00000 70991 03621 01713 50819
64998 02042 40395 76990 02044 55555 11837 68995 22797 11533 33528
64770 44516 63781
AEC63
30053 92997 02045 20933 01992 02504 15546 03990 02309 66666 31890
25300 22506 18800 13504 12803 10607 10190 10397 10169 83719 10158

0200PST, 5 JUNE 1952

AEC10
87417 03711 00000 00025 85491 16037 00000 70059 08000 01200 50907
58992 01612 40463 70994 01620 55555 11676 06004 22659 05541 33556
56604 44524 55724
AEC60
30139 86998 01719 20024 03994 02354 55555 55280 90990 66666 22800
16009 10190 15621 10158

0400PST, 5 JUNE 1952

AEC12
87415 02411 03403 00029 85491 18012 03402 70029 07531 01316 50903
59711 01516 40459 70998 01824 55555 11840 19024 22534 59635 33488
59760
AEC62
30475 87999 01928 20012 03995 02047 15608 10997 66666 28890 24898
14811 10158

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