POR 7186

MISTY PICTURE EVENT

Test Execution Report

Test Directorate
HE Simulation Division
New Mexico Operations Office
Defense Nuclear Agency
Kirtland Air Force Base, NM 87115-5000

30 November 1987

Project Officer's Report

CONTRACT No. DNA 001-85-C-0396

Prepared for
Director
DEFENSE NUCLEAR AGENCY
Washington, DC 20305-1000

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19 ABSTRACT (Continue on reverse if necessary and identify by block number)

MISTY PICTURE was a high explosive (HE) test sponsored by the Defense Nuclear Agency. It was detonated at 1000 hours on 14 May 1987 on the White Sands Missile Range, NM. The explosive charge consisted of 4685 tons of ammonium nitrate and fuel oil (ANFO) poured in bulk into a 44-ft radius fiberglass hemisphere. The resulting airblast provided the scaled equivalent airblast of an 8-KT (33.4-TJ) nuclear device.

The primary objective of the test was to provide an airblast, dust cloud, and ground shock environment for Department of Defense (DoD) sponsored experiments. These experiments were designed to determine the response of tactical and strategic weapon systems, communications equipment, vehicles, and a variety of structures to this environment. A secondary objective was to provide a thermal environment (in addition to airblast) for several experiments.

The principal experiment governing the size of the event was the Ballistic Reentry Vehicle (BRV) fly-through experiment. This experiment required a dust cloud environment large enough to test the BRV. Another major experiment was the simulated precursed environment which was used to verify the response of various Hardened Mobile Launcher (HML) models.

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18. SUBJECT TERMS (Continued)

Precursor	Ammonium Nitrate-Fuel Oil (ANFO)
MISTY PICTURE	Thermal Radiation Source (TRS)

PREFACE

MISTY PICTURE was a high explosive (HE) test sponsored by the Defense Nuclear Agency. It was detonated at 1000 hours on 14 May 1987. The explosive charge consisted of 4685 tons (4250 Mg) of ammonium nitrate-fuel oil (ANFO) poured in bulk into a 44-ft radius fiberglass hemisphere. The airblast and ground motion environment was used by a variety of agencies to collect basic explosive environment data or to test systems against a simulated nuclear environment. The principal experiment governing the size of the event was the Ballistic Reentry Vehicle (BRV) fly-through experiment.

The test was conducted at White Sands Missile Range, approximately 20 miles (30 km) south of the northern boundary of the range.

CONVERSION TABLE FOR U.S. CUSTOMARY TO METRIC (SI) UNITS OF MEASUREMENT

and Other Conversion Factors

(This Table is Unclassified)

Conversion Factors With an Asterisk (*) are Exact

to convert from	to	multiply by
angstrom	meters (m)	1.000 000*E-10
atmosphere (normal)	kilopascal (kPa)	1.013 250*E+02
bar	kilopascal (kPa)	1.000 000*E+02
barn	meter^2 (m^2)	1.000 000*E-28
calorie (thermochemical)	joule (J)	4.184 000*E+00
cal (thermochemical)/cm^2	megajoule/m^2 (MJ/m^2)	4.184 000*E-02
degree (angle)	radian (rad)	1.745 329 E-02
degrees Fahrenheit (temperature)	kelvin (K)	$T_K = (t°_F + 459.67)/1.8$
electron volt	joule (J)	1.602 190 E-19
erg	joule (J)	1.000 000*E-07
erg/second	watt (W)	1.000 000*E-07
foot	meter (m)	3.048 000*E-01
foot-pound-force	joule (J)	1.355 818 E+00
inch	meter (m)	2.540 000*E-02
kilotons (KT)	terajoule (TJ)	4.184 E+00
ktap	newton-second/m^2 ($N\text{-}s/m^2$)	1.000 000*E+02
micron	meter (m)	1.000 000*E-06
micron Hg, 0°C (pressure)	pascal (Pa)	1.333 22 E-01
mil	meter (m)	2.540 000*E-05
mile (international)	meter (m)	1.609 344*E+03
ounce	gram (g)	2.843 952 E+01
pound-force (lb avoirdupois)	newton (N)	4.448 222 E+00
pound-force inch	newton-meter (N·m)	1.129 848 E-01
pound-force/inch	newton/meter (N/m)	1.751 268 E+02
pound-force/foot^2	kilopascal (kPa)	4.788 026 E-02
pound-force/inch^2 (psi)	kilopascal (kPa)	6.894 757 E+00
pound-mass (lbm avoirdupois)	kilogram (kg)	4.535 924 E-01
pound-mass-foot^2 (moment of inertia)	kilogram-meter^2 ($kg{\cdot}m^2$)	4.214 011 E-02
pound-mass/foot^3 (density)	kilogram/meter^3 (kg/m^3)	1.601 846 E+01
rad (radiation dose absorbed)	gray (Gy)	1.000 000*E-02
shake	second (s)	1.000 000*E-08
torr (mm Hg, 0°C)	pascal (Pa)	1.333 22 E+02

A more complete listing of conversions may be found in "Standard for Metric Practice E 380-84," American Society for Testing and Materials.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

APPENDICES

TABLE OF CONTENTS (Concluded)

LIST OF ILLUSTRATIONS

LIST OF TABLES

SECTION 1

INTRODUCTION

MISTY PICTURE was a high explosive (HE) test sponsored by the Defense Nuclear Agency. It was detonated at 1000 hours on 14 May 1987. The explosive charge consisted of 4685 tons (4250 Mg) of ammonium nitrate-fuel oil (ANFO) poured in bulk into a 44-ft radius fiberglass hemisphere. The detonation of this charge provided the approximate equivalent airblast of an 8 KT (33.44 TJ) nuclear device. The airblast and ground motion environment was used by a variety of agencies to collect basic explosive environment data or to test systems against a simulated nuclear environment.

MISTY PICTURE had six TRS units placed on the testbed at overpressures ranging from 10 psi (83 kPa) to 3.4 psi (23 kPa). A series of experiments were positioned near the Thermal Radiation Sources (TRS) exposing them to a combined airblast/thermal environment.

Appendix A contains the list of acronyms and and abbreviations used in the report.

SECTION 2

TEST GROUP STAFF ORGANIZATION

The organization of the MISTY PICTURE test group staff (TGS) is shown in Figure 2.1. Test Group Staff duties were as follows:

2.1 TEST GROUP DIRECTOR.

a. Responsible for formulation of the MISTY PICTURE test program:

(1) Planning of the test to include objectives, financing, management, scheduling, and defining all aspects of the test program.

(2) Assist the Technical Director in preparing the scientific experiment plan and testbed layout.

(3) Supervise the preparation of operational plans for the fielding, execution, and recovery phases of the program.

b. Responsible for fielding, execution, and recovery of the MISTY PICTURE Program:

(1) Direct the fielding aspects of the program on-site to include scheduling, construction, photography, and recording systems.

(2) Formulate and direct the safety and security plans for the test series and appoint Safety and Security Officers.

(3) Plan, control, and report the expenditure of funds.

(4) Establish requirements for the direct logistic support.

(5) Coordinate details for the HE and TRS sources with the agencies responsible for these technical functions.

(6) Prepares the Test Execution Report.

2.2 TECHNICAL DIRECTOR.

a. Responsible for formulation of the MISTY PICTURE technical program:

(1) In coordination with experimenter agencies and the Test Group Director (TGD), modify as necessary the technical experiments using current best practices in order to obtain the quality of data required to achieve the objectives of Deputy Director Science and Technology (DDST) approved goals.

(2) Prepare a detailed technical plan to accomplish the scientific program and assist the TGD in preparing a schedule to assure timely execution of the test.

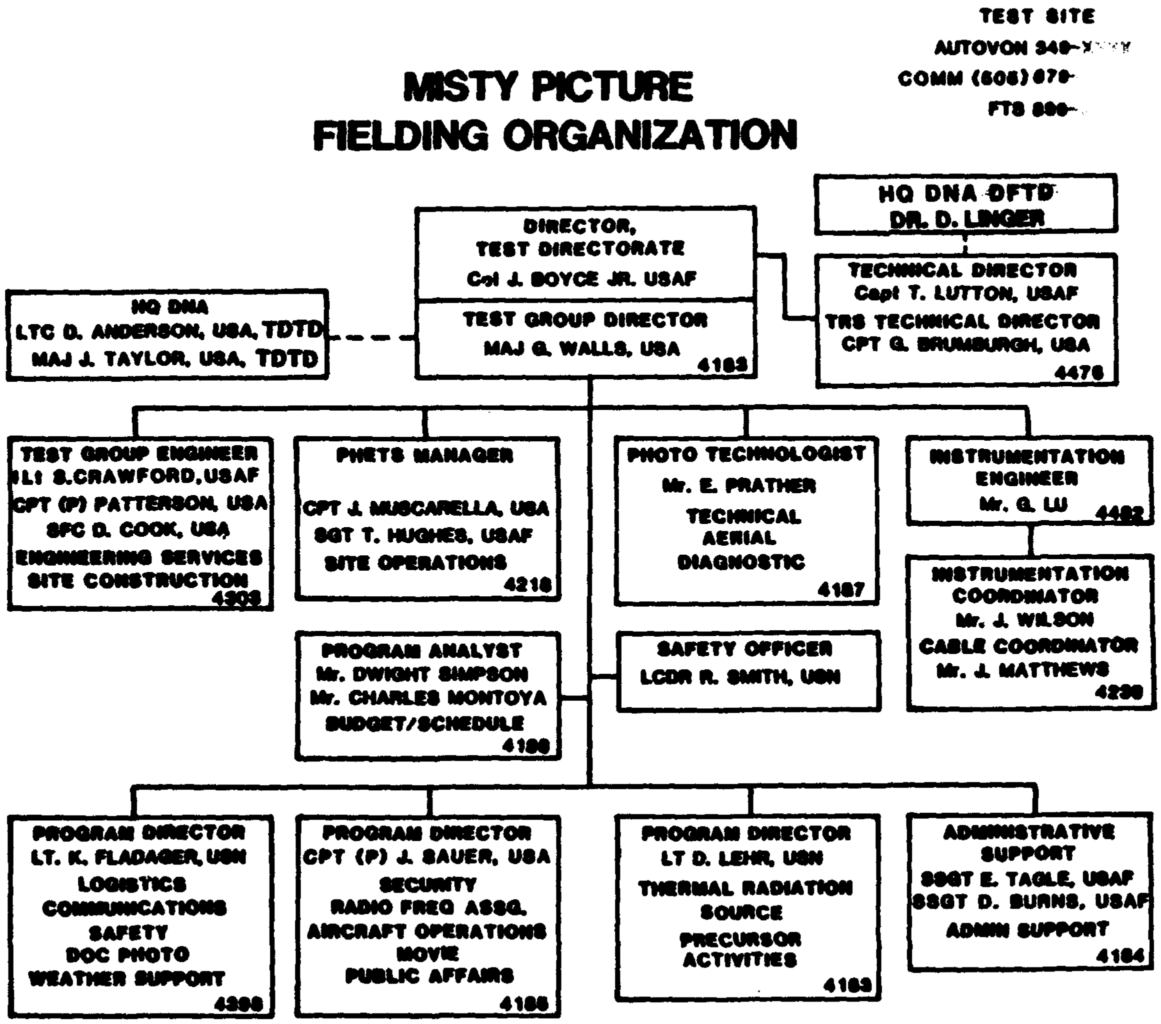


Figure 2.1. MISTY PICUTRE fielding organization.

(3) Evaluate the effect of safety restrictions on the achievement of the scientific objective(s).

b. Responsible for fielding and execution of the MISTY PICTURE technical program:

(1) Serve as an advisor on the TGS and support the TGD during fielding.

(2) Supervise and coordinate the technical activities of the test and advise the TGD concerning management of the technical activities of the experiments in the field.

(3) Monitor the state-of-readiness of the technical experiments, monitor installation of experiments, and make recommendations for adjusting the schedule as necessary.

(4) Evaluate the impact of funding schedules, test support, field operations, and relationships with other agencies on technical activities with the TGD and other staff members. Coordinate with the DFTD and cognizant HQ DNA Project Officers.

(5) Formulate changes in the technical plan as necessary to achieve the scientific objectives and approve minor adjustments in the scope of the technical experiments. Coordinate major changes or adjustments of funding levels with the TGD and the cognizant HQ DNA Project Officers prior to submittal to DFTD for approval.

(6) Monitor the construction and instrumentation of all experiments, ensuring that all experimenters modifications conform to current best practice.

(7) Review the Symposium and Project Officers' Reports.

c. Responsible for the reporting of the technical experiment program:

(1) Prepare the pre-test Program Document describing the scientific experiments on the test.

(2) Review the post-test Project Officer's Reports and resolve technical changes with the author(s).

(3) Prepare the event Symposium Report.

2.3 PROGRAM DIRECTORS.

a. Assist the TGD as required in planning and executing the MISTY PICTURE test program in areas of assigned responsiblities.

b. Assist in developing the testbed design.

c. Develop operational, engineering, and administrative plans, as directed.

d. Coordinate and monitor the activities of experimenters/agencies during the planning, fielding, executing, and recovery of the test.

2.4 TEST GROUP ENGINEER (TGE).

a. Provide engineering support in the planning, fielding, executing, and recovery of the MISTY PICTURE test.

b. Assist in the test site and testbed design and determine construction requirements and schedules.

c. Perform engineering design and construction management associated with test site and testbed preparation, experiment installation, and site recovery.

d. Coordinate the construction support effort.

2.5 INSTRUMENTATION ENGINEER (IE).

a. Perform instrumentation and cable planning and instrumentation park management.

b. Coordinate requirements and oversee instrumentation support during the planning, fielding, and execution phases of the test. This will include determining experimenter requirements, configuring instrumentation vans, designing cable layouts, performing cable coordination functions, providing for instrumentation maintenance, and laying out the instrumentation parks.

2.6 PROGRAM ANALYST (PA).

a. Develop and maintain the event test schedules.

b. Prepare progress status reports as required.

c. Provide financial management for the event, including preparation of basic testbed and reimbursable cost estimates, maintenance of budget and financial plans, and cost accounting.

2.7 SAFETY OFFICER (SO).

a. Develop and coordinate preparation of event safety plans.

b. Overall coordination of approval and enforcement of safety procedures for the Test Group Director and the Director of the Field Command Test Directorate.

2.8 ADMINISTRATIVE NCOIC.

a. Perform all administrative duties required to support the event.

b. Perform as a Project Net Operator in Test Control during dry runs and event countdown.

c. Act as the Test Group Staff Vehicle Control Officer.

2.9 PHETS MANAGER/NCO.

a. Plan and coordinate all construction, maintenance and logistics support for all permanent PHETS facilities.

b. Maintain and account for all PHETS vehicles, equipment, and property.

c. Monitor contracts regarding all PHETS facilities, site improvements, or property acquisitions.

d. Coordinate with WSMR for support from appropriate agencies (i.e. maintenance, generators, communications lines, etc.)

SECTION 3

TEST REQUIREMENTS, OBJECTIVES AND PLANNING

3.1 TEST REQUIREMENTS.

The purpose of DNA sponsored HE simulation tests is to provide a testbed for a simulated nuclear airblast ground shock and thermal radiation effects. The airblast and thermal pulse environments are used to evaluate target response of military and civilian structures, equipment, systems, investigate (study) phenomenologies, validate predictive techniques, and expand experimental data bases.

Recent HE test programs include:

a. PRE-DICE THROW - shaped charge development program at WSMR in 1974-5,

b. DICE THROW - 600 ton ANFO surface stacked charge at WSMR in 1976,

c. MISERS BLUFF, Phase I - multiburst charge development program at WSMR in 1977,

d. MISERS BLUFF, Phase II - 120 ton ANFO stack charge and six 120 ton ANFO stacked charges multiburst test at Planet Ranch, AZ in 1978,

e. MILL RACE (MISTY CASTLE Series I) - 600 ton ANFO surface stacked charge at WSMR in 1981,

f. PRE-DIRECT COURSE - height-of-burst concept development program using 24 tons of ANFO at WSMR in 1982,

g. DIRECT COURSE (MISTY CASTLE Series II) - 609 tons of ANFO, 166-foot height-of-burst shot at WSMR on October 26, 1983, and

h. MINOR SCALE (MISTY CASTLE Series III) - 4740 tons of ANFO, 44-foot radius fiberglass hemisphere surface shot at WSMR on 27 June 1985.

The current MISTY CASTLE test series was continued with the fourth test in the series, MISTY PICTURE, detonated in May 1987 at WSMR. MISTY PICTURE was an 8 KT (scaled) nuclear airblast equivalent test using a hemispherically shaped charge.

3.2. TEST OBJECTIVES.

The primary objective of the test was to provide an airblast, dust cloud, and ground shock environment for Department of Defense (DoD) sponsored experiments. These experiments were designed to determine the response of tactical and strategic weapon systems, communications equipment, vehicles, and a variety of structures to this environment. A secondary objective was to provide a thermal environment (in addition to airblast) for several experiments.

The principal experiment governing the size of the event was the Ballistic Reentry Vehicle (BRV) fly-through experiment. This experiment required a dust cloud environment large enough to test the BRV. Another major experiment was the simulated precursed environment which was used to verify the response of various Hardened Mobile Launcher (HML) models.

In addition to the basic blast, one series of experiments were again used to measure the effects of a simulated nuclear precursor environment. These experiments were placed under a helium-filled mylar envelope that enabled simulation of a precursor.

3.3 TEST PLANNING.

3.3.1 General.

Initial technical support plans were submitted to FCDNA starting in May 1985. The first project officers' meeting (POM) was held in July 1985, the second in September 1985. With the success of the 8 KT MINOR SCALE event and a strong requirement to increase the yield for the next large scale high explosive test, plans to expand the test site to accommodate a 16 KT for MISTY PICTURE were initiated. Hydro code calculations were performed for a 16 KT event. Airblast and ground shock predictions were made for the larger event. Many experimenters were planning for the larger event but in December 1985 when the project with the strong requirement for a 16 KT decided to cancel its participation on MISTY PICTURE the yield was reduced to 8 KT. Headquarters, DNA sent letters in January 1986 requesting experiment proposals from the appropriate US and foreign government agencies. The third POM was held in June 1986 and the fourth in October 1986. Numerous additional project officer meetings were held at the Permanent High Explosive Test Site (PHETS) on the White Sands Missile Range (WSMR), New Mexico. Table 3.1 shows the of MISTY PICTURE milestones. Figure 3.1 shows the MISTY PICTURE master schedule.

Table 3.1. MISTY PICTURE milestones.

ACTIVITY	DATES
Contracting initiated	Dec 1985
Participation confirmation letters to HQDNA	31 Jan 1986
Third POM	16-24 Jun 1986
Test bed construction begins	Jun 1986
Fourth POM	14-17 Oct 1986
Experiment installation	Jul 1986 - Apr 1987
BETS III	Mar 1987
TRS installation/testing	Jan - Apr 1987
MFP #1	29 Apr 1987
MFP #2	7 May 1987
Dress rehearsal	11 May 1987
MISTY PICTURE readiness	14 May 1987
D+60 meeting	Jul 1987
Results Symposium	Dec 1987

Two Operational Requirement documents (OR) were prepared and submitted to WSMR by DNA (FTO). One was for the MISTY PICTURE event and the other for the required aircraft support. These are included in Appendix B. The OR described detailed support requirements requested from WSMR. WSMR approved the proposed site for MISTY PICTURE and provided use of WSMR support facilities. The following Operational Directives are contained in Appendix B:

OD96320A MISTY PICTURE - 4880 Ton ANFO Event

OD96320B Project Tests

OD96320C Ground Checks

Each OD defined the support WSMR Directorates were to provide to the MISTY PICTURE effort. WSMR test coordination for MISTY PICTURE was provided by the National Range Programs Directorate (NR-PD).

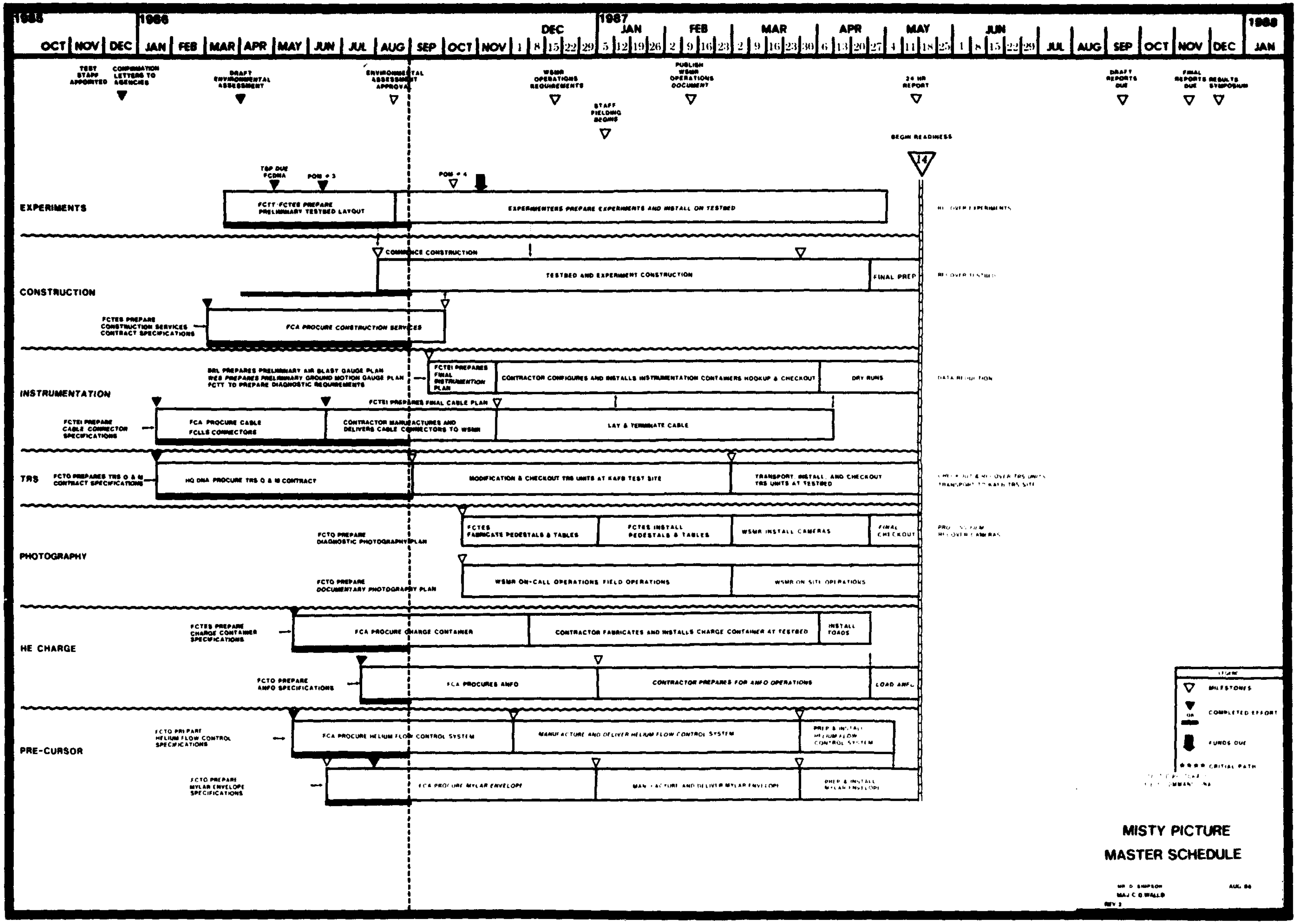


Figure 3.1. MISTY PICTURE master schedule.

Following the assignment of a MISTY PICTURE Test Group Staff (TGS), the staff proceeded to arrange for support in the following areas:

Airblast and Thermal Measurements.

The Ballistic Research Laboratory (BRL) was selected to provide the free field airblast measurements on the test site from 400 psi to .25 psi. They measured the time-of-arrival, the amplitude, and the waveforms of the airblast overpressure.

Ground Motion Measurements.

The US Army Waterways Experiment Station (WES) obtained the free field airblast induced ground motion data and documented the ground shock phenomena.

Charge Container.

The University of New Mexico Engineering Research Institute (NMERI) provided the design of the container system. Molded Fiberglass of Pennsylvania manufactured and erected the charge container.

ANFO Quality Control Booster Placement, and Pre-arming of the Charge.

The Naval Surface Weapons Center (NSWC), Dahlgren, Virginia monitored the ANFO fuel oil content, particle size distribution, and the net charge weight. In addition, they supplied and installed the booster system and were responsible for pre-arming the charge.

Lightning Protection.

The New Mexico Institute of Mining and Technology of Socorro, NM, under contract to the Mission Research Corporation, prepared a study entitled "Lightning Warning and Protection for the DNA High Explosive Testbed." Mr. Ralph Carroll, Jr., DNA, prepared and presented a paper on 20 November 1986 to DNA on the subject of "MISTY PICTURE Lightning Protection Methods and Procedures." Dr. Robert L. Gardner of the Mission Research Corporation prepared and presented at the same meeting a paper, "Currents on Buried Wires."

Dust Devil Studies.

The following PHETS Dust Devil Studies were presented at DNA on 20 November 1986:

1. The "MISTY PICTURE" Dust Devil Census, Preliminary Results, Phase 1, Field Observation Program, 13 May - 21 August 1986, by Dr. John Snow, Purdue University

2. Dust Devil Study of WSMR, PHETS by John Peterson, NMERI.

Arming and Firing.

Sandia National Laboratories, Albuquerque (SNLA), Division 7132, provided the charge arming and firing support. Firing cables, X-unit, and the timing and firing interface equipment were provided and exercised during each dry run.

Tech. Reps., Inc.

Tech. Reps., Inc., (TRI) in addition to fielding experiments shown in Section 6, provided management and administrative engineering support including safety engineering, analysis and documentation, preparation of engineering designs and drawings which included site investigation, road, park, gaugeline designs, drainage, electrical power, and experiment support designs. TRI's support included a civil engineer, an electrical engineer (part-time), a safety engineer (part-time), construction inspectors, draftsmen, and administrative assistance.

WSMR

WSMR provided photographic support, range security (SAC provided the testbed security), construction equipment and personnel, ground and flight safety support, logistical support, and public affairs assistance.

Cortez III.

Cortez III personnel dug the cable trenches, laid the cable, provided surveying support, modified and installed camera pedestals and targets. They fabricated and emplaced gage mounts, fabricated 20 metal boxes out of 1/2 steel for use on the DPR, they installed the TRS units and backfilled the areas, then poured slabs around the units. They did the trenching for the corregated metal pipe (CMP) and backfilled around and on the dusty precursed radial (DPR). They provided labor support for the installation of the trees. They installed zebra boards for the camera backdrops. They provided labor support to the UK, Norway and Canada. Cortez III provide labors to support Boeing's efforts on the DPR and provided water truck and drivers for lost contron on the test bed.

Gracon/UCEC.

Designed, fabricated, and installed the high pressure helium gas system which was used to simulate the unique precursor shock wave simulating a nuclear explosion shock wave. Speed of sound detectors were utilized to determine the percent of helium gas present in each section of the dusty precursed radial.

3.3.2 Security.

Security concerns were significantly greater in MISTY PICTURE than on

MINOR SCALE, DIRECT COURSE or MILL RACE. Approximately 25 percent (over 50) of the experiments were classified either pre and/or post event. This required significant operational security (OPSEC) planning prior to fielding, and positive security controls on the test site before and after the event. These controls were provided by the Strategic Air Command (SAC) Guard Force. Sixteen guard posts were set up as shown in Table 3.2.

Table 3.2. MISTY PICTURE guard posts.

Post A - WSMR/ARMTE
Post B - BRL/FET
Post C - ANFO/GZ
Post D - North Park (Access point)
Post E - South Park (Access point)
Post H - BMO/HML
Post L - VIPER Launch Site
Post M - BRV Launch Site
Post N - NAVY/NSWC
Post O - Observation Point
Post P - Roving Patrol - Daily Security Checks
Post R - Re-entry Control
Post S - Security Area/RTE 13
Post U - Stallion Range Control
Post V - Admin Park (Shot Day)
Post W - West Park (Access point)

The FCDNA CI detachment provided assistance during the entire OPSEC effort by providing planning guidance to concerned experimenters.

3.3.3 Environmental Assessment and Archeological Survey.

The construction for the MISTY PICTURE experiments and the test bed resulted in the temporary disturbance of about 480 acres of land. The effects of the explosion included airblast, thermal, noise, ground shock, crater formation, ejecta, missiles, and chemical by-products. Damage or destruction of plants and animals (mostly rodents and lizards) was restricted to within 1400 meters of GZ. Ground level dust and other air pollutants from the diffusion of the explosion cloud were well within the most restrictive air quality standards. No endangered species were affected by the program. Known archaeological sites were not affected. Appendix C contains the "Finding of No Significant Impact." A picture of the McDonald Ranch (a National Site) on WSMR near the permanent high explosive test site (PHETS) is shown in Figure 3.2.

3.3.4 Public Affairs Plan.

A Public Affairs Plan (Appendix D) described policies, objectives, delineated responsibilities, and provided guidance for the conduct of public affairs activities in connection with the MISTY PICTURE test. An Information Brochure (Appendix E) was prepared and distributed to observers on shot day.

3.3.5 Safety.

A. Responsibilities.

The Assistant Director, for Testing (ADFFT), DNA has ultimate responsibility for the safety of all operations, personnel, and equipment on DNA conducted tests. The Safety Program was the responsbility of the MISTY PICTURE Test Group Director (TGD). The Test Directorate Safety Engineer implemented Test Directorate Safety Programs and was responsible for coordination of all MISTY PICTURE safety issues with the Chief, Safety Office, WSMR, for the TGD. Appendix F shows the MISTY PICTURE Safety Plan Supplement.

Each agency was responsible for:

1. The safe conduct of its operations at WSMR.

2. Coordination of hazardous activities with the TGD to prevent jeopardizing other experiments and their equipment.

3. Reporting of all accident(s) to the TGD.

4. Knowledge of, and compliance with, the MISTY PICTURE safety requirements.

5. Preparation of Safety Standard Operating Procedures.

B. General.

A variety of hazards existed on the MISTY PICTURE test bed. The hazards generated were minimized by cooperation between agencies, ensuring all personnel were briefed, and by exercising sound judgment in working with hazardous items. In

Figure 3.2. Aerial view of McDonald ranch house.

addition to these hazards, there were natural hazards which existed because of the locale and environment. Section 3.3.5 (C) identifies the more serious hazards that could have been encountered on the MISTY PICTURE testbed.

C. MISTY PICTURE TEST BED HAZARDS.

This event involved hazards which were unique to the type of burst simulated and to the different types of experiments which made up the testbed layout.

Table 3.3 summarizes the hazardous operations which were identified for this event. Specific safety Standard Operating Procedures for each operation were approved by the DNA and WSMR Safety Offices. Applicable portions of the approved SOP's were posted conspicuously at the site of each operation. Table 3.4 presents a summary of hazardous materials included in the testbed.

Table 3.3. MISTY PICTURE hazards operations.

Annex No.	DNA Exp. No.	Description of Operation	Hazard	Type Hazard	Hazard Class Pre	Hazard Class Post	Comments	Agency
F-1		Assembly of fiberglass charge container	Mechanized equipment; aerial lifts; lower panel selections with 2840 pounds	C	2	3	Major construction operation; personnel hazard from falling objects/working at height; maneuvering with heavy loads.	Molded fiberglass
F-2		ANFO mixing plant operation	Ammonium nitrate mixed with diesel oil on site to make ANFO (blasting agency)	X,C	3	4	Standard ANFO handling; heavy truck traffic; augers, elevators, hoppers.	Woodard Explosives
F-3		Main booster emplacement	310 lb octol booster, 4 FCDC lines	X,E,C	2	4	The octol booster and FCDC lines will be installed inside the fiberglass charge container.	NSWC
F-4		Pre-arming, arming, and detonation	CH-4 sub-boosters and detonators connected to A&F system	X,E	2	4	As part of firing countdown, detonators installed, A&F system hooked up and armed; postshot-safe system, inspect testbed.	SNLA/ NSWC
F-5	8717	Soil characterization	Troxler surface mointsure-density gauge with gamma and neutron source	R	3	3	Gauge used pre- and postshot; not on testbed during event.	WES
F-6	7501 -4	Blast gauge stations	5 blast gauges with 1000 mCi sources	R	2	2	Sources stored until installed on test bed; postshot, ensure integrity, remove and ship to DRES.	DRES
F-7	8704	Streak X-ray	Kevex 30 kv X-ray tube; internal high voltage	R,E	2	3	Calibration tests, special procedures in effect.	TRW
F-8	8242	Pyrotechnic ejecta	10 artificial ejecta bowling balls each with 2 lb pyrotechnic and electric match	X,E	3	3	Bowling balls placed 50-100' from GZ, fired at zero time; recovered.	DRI

Table 3.3. MISTY PICTURE hazards operations (Concluded).

Annex No.	DNA Exp. No.	Description of Operation	Hazard	Type Hazard	Hazard Class Pre	Hazard Class Post	Comments	Agency
F-9	8534	Inert tracers	Various toxic chemicals	T	2	3	See Annex F-9 for list of tracer chemicals.	LANL
F-10	9335	Charge construction	4880 tons of ANFO	X	2	4	ANFO will be loaded into fiberglass container from pnuematic bulk trucks after booster emplacement.	NMERI
F-11	1635	Soil characterization	Troxler surface moisture-density gauge with gamma and neutron source	R	3	3	Gauge used pre- and postshot; not on testbed during event.	WES
F-12	8510	BRV fly-throughs	4 talos rocket motors 4 Terrier rocket motors 20 Dust collector rockets Total Talos-terrier propellant is 12000 lbs Total Dust collector propellant is 3000 lbs	X	2	2	Rockets will be fired postshot at staggered intervals	HQDNA
F-13	9418	Microbarograph	ANFO total 25,500 lbs	X	2	4	Shots will be conducted starting three days prior to D-day.	SNLA
F-14	9406	TRS	Gaseous oxygen and hydrogen liquid oxygen	G,F,E	2	2	Servicing of 7 systems, warm tests, postshot safing of systems.	SAIC/ BFEC
F-15	8700	High pressure gas	High pressure helium	G	3	3	Mylar envelope will be filled from high pressure helium gas trucks.	GRACON
F-16	2200	Smoke launchers	Squibs, black powder	X	2	3	Smoke trail launchers will be fired in forest blowdown area.	BRL

Table 3.4. Hazardous materials summary.

Type of hazard	Quantity	Location	Duration of Hazard
EXPLOSIVES			
ANFO	4880 tons	GZ	Hemisphere loading - shot
OCTOL (75/25 HMX/TNT)	310 lbs	GZ	Hemisphere loading - shot
CH-6	1/2 lb	GZ	Hemisphere loading - shot
TC-234 Detonators (4):			
PETN	1000 mg	GZ	Final arming - shot
RDX/EXON	15,54 gm	GZ	Final arming - shot
FCDC (4)	240 ft	GZ	Hemisphere loading - shot
Pyrotechnic (40% mag/ 60% teflon)	20 lbs	Ejecta pads	Install late time - recovery
Electric Matches	160 mg	Ejecta pads	Install late time - recovery
RADIATION			
Promethium 147	4000 mCi	Exps 7501-5	Late time-recovery
Cesium 137	(2) 8 $\pm$ 1 mCi	Test bed	Used preshot
Americum 241	(2) 40 $\pm$ 10% mCi	Test bed	Used preshot
X-Ray tube	3 kV/634 roentgen/ hr	Exp. 8704	Calibration and during shot
PRESSURE GAS			
Nitrogen	(32) 255 cu ft @ 2500 psi	(4)/TRS	First field test - postshot
Helium	24 trucks	Precursor	Helium bag deployment postshot

Table 3.4. Hazardous materials summary (Concluded).

Type of hazard	Quantity	Location	Duration of Hazard
FLAMMABLES			
Hydrogen	(7) 300 cu ft @ 2500 psi	(1)/TRS	First field test - postshot
Oxygen	(7) 250 cu ft	(1)/TRS	First field test - postshot
LOX	(7) 275 liters	(1)/TRS	First field test - postshot
Diesel Fuel	Numerous vehicles	Testbed	Positioned late-time - postshot inspection & removal
EXPLOSIVES			
Propellant	12000 lbs	BRV Launcher site	Launcher loading - zero time & 5 min.
Propellant	3000 lbs	Dust Collector	Launcher loading - zero time & 5 min.
Black powder	80 mgs	Forest blow-down site	Launcher loading - postshot
CIL electrical squibs	20	Forest blowdown	Launcher loading - postshot
ANFO	3000 lbs/test 2 tests/day 2500 lbs/test (D-day)	Microbaro-graph site	Three days prior to event - D-2 min

Hazardous operations are summarized below:

1. Explosive Charge Container. The container was a segmented fiberglass hemisphere 44 feet in radius. The base of the hemisphere consisted of 24 identical segments and the top (or cap) consisted of 12 segments as described in Section 4.3 of this document. Individual segments were erected by a special hydraulic fixture, bolted together, and sealed with an additional 1/4 inch fiberglass patch on the inner and outer surfaces along each joint.

2. ANFO Mixing. A mixing plant to add diesel oil to ammonium nitrate to make ANFO (blasting agent) was set up on the Northern Range, WSMR, and is described in Section 4.4 of this document.

3. Explosive Operations. See Section 4.5 of this document.

4. Booster System/Pre-Arming. See Section 4.5A of this document.

5. Blast-Gauge Stations. Ten blast-gauge stations were installed on two radials of the MISTY PICTURE testbed. Each station incorporated a beta densitometer gauge, Amersham Corp. promethium-147 beta source, 500 mCi. The beta densitometer gauges were calibrated and used to measure the blast wave density. A no access area was roped off around each blast-gauge station and posted with radiation warning signs visible to personnel approaching from any direction.

6. Pyrotechnic Ejecta. Ten bowling balls were placed on the testbed. Five were buried at a depth of 5 feet at ten-foot intervals starting 50 feet from the edge of the hemisphere, and five were buried at a depth of 2 feet at ten-foot intervals starting 60 feet from the edge of the hemisphere, were placed on the testbed. Each ball contained approximately two pounds of a 40% magnesium and 60% teflon pyrotechnic wax based mixture which was initiated by an Atlas M-100 Electric match containing 16 mg of Class C pyrotechnic material. The pyrotechnics were fired on test runs and at event zero time through the timing and firing system (1/2 amp, 50 mv signal). Storage, handling, and transportation was in accordance with explosive regulations. A limited access zone was established during tests and final installation of devices.

7. Streak X-Ray. A Kevex X-ray tube, 631 roentgens/hr at one meter, 30 kV with a current of 9-10 ma was emplaced in an underground vault on the testbed with two sails projecting above ground level. The X-ray source transmitted from one sail to detectors on the other sail. Sails were 4-6 inches apart. The area was roped off during calibration.

8. Soil Characterization. A soil test gauge, Troxler soil characterization gauge with 8mCi Cesium-137 and 40mCi americum-241 sources, was used pre- and post-shot to take soil samples.

9. Inert Tracers. Various tracers ranging in quantity from 0.5 Kg to 450 Kg were either buried or placed on the surface at predetermined ranges from GZ. Cloud samples were taken post-shot to determine mass of the lofted soil. Both pre- and post-shot measurements were taken.

10. BRV Fly-throughs. Four two-stage rockets were launched to propel four separate Ballistic Re-entry Vehicles through the dust cloud between T+47 seconds and T+84 seconds. The BRV's were tracked by ground radars and recovered by helicopter post-shot. A total of 12,000 lbs of Class B propellant was involved.

11. Microbarographs. Six MB calibration tests were fired prior to event day. Each test consisted of three explosive charges, two of which were 250 lbs of ANFO and one which was 2500 lbs of ANFO. On event day three 2500 lb charges were fired. The charges were fired from the SNLA (B-43) trailer positioned in the T&F park.

12. High Pressure Gas. The precursor radial had mylar envelopes filled with helium. High pressure helium flowed from a bank of trucks through an underground piping system into the mylar envelopes.

13. Smoke Launcher. Thirty-six smoke trail launchers were used to produce smoke tracers for photogrametric flow velocity measurements adjacent to the tree locations for forest blowdown. The launchers consisted of an outer and inner plastic pipe attached to a metal stake. The inner plastic pipe contained a squib and black powder. The tracer material consisted of carbon black and magnesium oxide or titanium oxide. The inner pipe was projected to a height of about 50 feet.

14. TRS Operations. Six Thermal Radiation Source (TRS) units were located on the test bed and are described in Section 1.4 of this document. Military vehicles and other equipment were located along the west and south radial between 1720 feet and 3500 feet from GZ. Some of these test articles contained diesel fuel to run their engines during the test. The diesel fuel in the test articles requiring TRS support did not ignite.

15. Tracer Compounds. All tracer compound hazards associated with MISTY PICTURE are shown below in Table 3.5.

Table 3.5. Tracer compound hazards.

Tracer Compound	Quantity	Location
In203	3.6 kg	In charge 0.5 m above booster
Tb203	17 kg	In charge 0.5 m above booster
Re04N(C7h15)4	3.5 kg	In charge dispersed in ANFO
RuC13	3 kg	At 1-in depth on 48-ft radius from GZ
Se02	100 kg	At 4-ft depth on 48-ft radius from GZ
Mo03	285 kg	At 1-in depth on 65-ft radius from GZ
Ta205	50 kg	At 4-ft depth on 65-ft radius from GZ
CsC1	140 kg	At 1-in depth on 85-ft radius from GZ
HAuC14.3H20	0.5 kg	At 2-ft depth on 85-ft radius from GZ
W03	80 kg	At 4-ft depth on 85-ft radius from GZ
DTTC (3,3'-Diethyl-thiatricarboncyanine Iodide)	1 kg	Co-located with HauC14.3H20
Oxazine 725	1 kg	Co-located with I2
Rhodamine 590	1 kg	On surface on 250-ft radius from GZ
Coumarin 540A	1 kg	On surface on 1000-ft radius from GZ
Coumarin 503	1 kg	On surface on 2000-ft radius from GZ
Coumarin 450	1 kg	On surface on 3000-ft radius from GZ
P-Terphenl	1 kg	On surface on 4000-ft radius from GZ

3.3.6 Aircraft Operations.

Table 3.6 gives an overview of the aircraft that participated in the MISTY PICTURE Event. Figure 3.3 shows the time versus altitude for the aircraft.

Table 3.6. Overview of aircraft participation.

EXP #	A/C TYPE	OBJECTIVE	ENTRY TIME	EXIT TIME	FLIGHT ALT.
8510	UH-1 (U)	Search	T-44 hrs.	T+54hrs.	5,500 MSL
8500	CES 180	Photo	T-24 hrs.	T-22 hrs.	4.8-7.6K MSL
8500	CV-580	Radar	T-1 hrs.	T+5 hrs.	24.8K MSL
3700	BOE 105(H)	IR Imagery	T-30 min.	T+1.5 hrs.	6K MSL
8500	CES 180	Photo	T-30 min.	T+10 min.	20K MSL
8500	RF-4B	SLAR	T-10 min.	T+15 min.	9.8-6.4K MSL
8500	OV-1D	SLAR & Photo	T-10 min.	T+10 min.	10-15K MSL
9030	RF-4B	Photo	T-5 min.	T+1 min.	27K MSL
8511	Beach	Dust Sam.	T+5 min.	T+1.5 hrs.	6-22K MSL
8530	WB57F	Dust Sam.	T+10 min.	T+1 hr.	1500 MSL
8500	RF-4B	Photo	T+45 min.	T+60 min.	
8500	U-2	Photo	T+1 hrs.	T+1.3 hrs.	60+K MSL
8510	UH-1 (H)	Search	T+1 hrs.	T+5 hrs	5500 MSL
8500	F-14	Photo	T+65 min.	T+85 min.	6.5K MSL
8500	SR-71	Photo	T+1.5 hrs.	T+1.6 hrs.	60+K MSL
8500	OV-1D	Photo	T+1.5 hrs.	T+115 min.	6.4K MSL
3500	B-52	Damage Ass.	T+2 hrs.	T+3.25 hrs.	9K-5.7K MSL
8500	LEAR	Photo	T+2 hrs.	T+3 hrs.	
8500	RF-4C	Photo	T+3.25 hrs.	T+3.75 hrs.	12.1-9.6K MSL
8500	CES 180	Photo	T+3.5 hrs.	T+5.5 hrs.	4.9-7.7K MSL
8530	WB 57F	Dust Sam.	T+4 hrs.	T+5 hrs.	45-10K MSL
8511	Beach	Dust Sam.	T+4 hrs.	T+8 hrs.	6-22K MSL
3500	B-1B	Damage Ass.	T+6 hrs.	T+7.2 hrs.	9K-5.3MSL
8500	F-14	Photo	T+11 hrs.	T+11.5 hrs.	6.4K MSL
8510	UH-1 (H)	Search	T+20 hrs.	T+30 hrs.	5,500 MSL
8500	CES 180	Photo	T+1 to 2 days		4.9-7.7K MSL
8510	OH-58 (H)	Search	T+48 hrs.	T+54 hrs.	5,500 MSL
8510	OH-58 (H)	Search	T+68 hrs.	T+72 hrs.	5,500 MSL

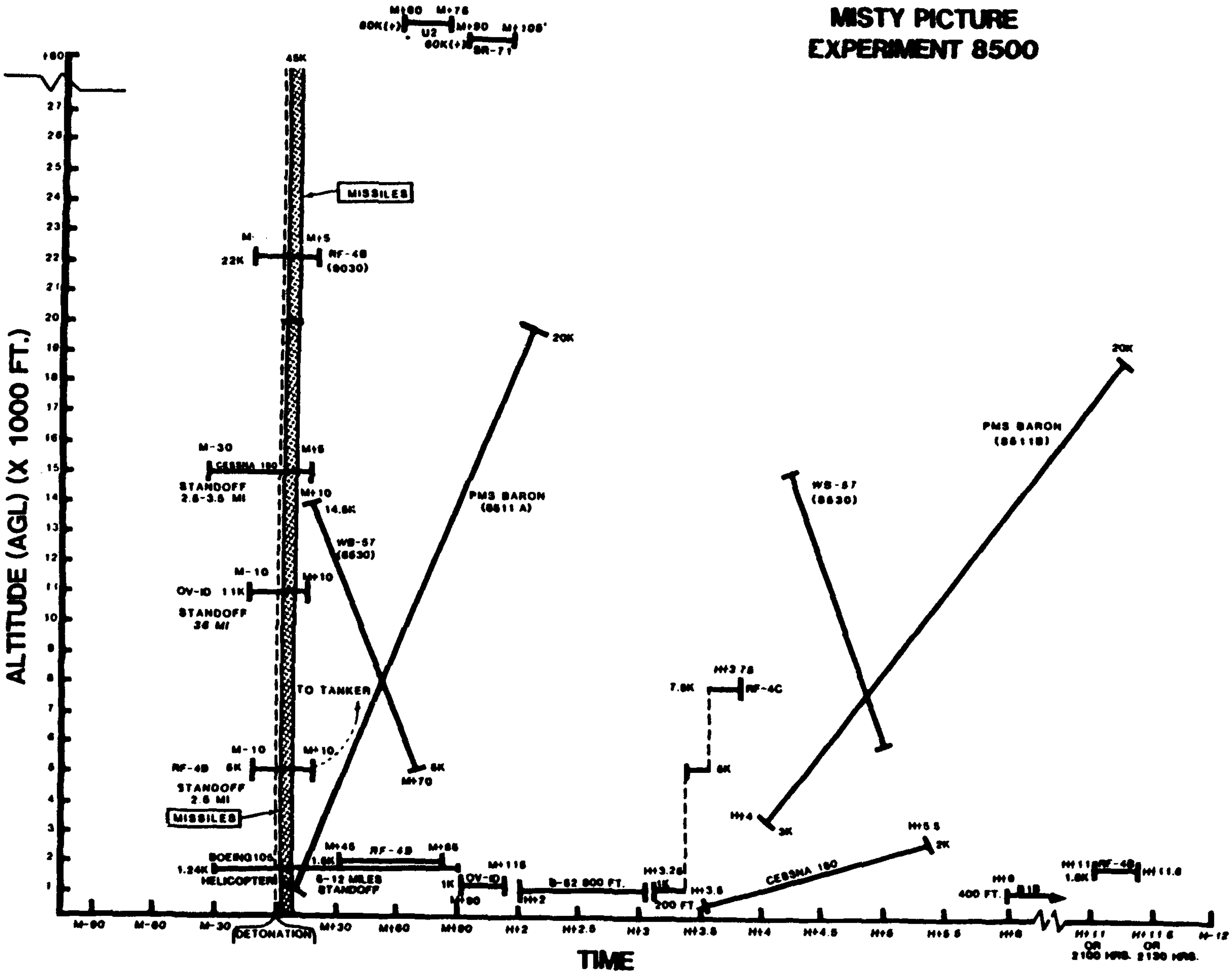


Figure 3.3. Time vs. altitude (AGL) chart for aircraft participating in the MISTY PICTURE event.

SECTION 4

EVENT DESCRIPTION

4.1 LOCATION.

The test was conducted at White Sands Missile Range (WSMR), approximately 20 miles (30 km) south of the northern boundary (see Figures 4.1 and 4.2) at the Permanent High Explosive Test Site (PHETS). Ground zero (GZ) was 500 ft. south southeast of the MINOR SCALE GZ as shown in Figure 4.3. This location allowed for the reuse of nearby roads, instrumentation parks, instrumentation radials, and most of the diagnostic camera bunkers.

The airblast at the instrumentation parks was too strong for the standard instrumentation trailers. Therefore, two things were done for MISTY PICTURE. Eleven hardened bunkers were placed between the 3 and 10 psi overpressure levels to allow remote digital recording. Bermed structures similar to quonset huts were placed at the instrumentation parks for analog recording. These structures were large enough to contain two instrumentation trailers each. The trailers and bunkers were configured to operate remotely; i.e., they were unmanned. Digital recording was increased from the 800 channels used on MINOR SCALE to approximately 1450 for MISTY PICTURE. An additional 300-400 channels were analog recordings.

The closest manned site was the Timing & Firing (T&F) park, approximately 11,200 ft. west of GZ. This is where the timing and firing trailer was located. Some other manned instrumentation trailers, such as the TRS and helium flow and control trailers, were also located there.

The administration park for MISTY PICTURE was located on the northeast corner of the intersection between Route 7 and Route 20, approximately 24,000 ft. from GZ.

4.2 TESTBED.

The MISTY PICTURE testbed consisted of four instrumented radials (one precursor radial, the North radial, the West radial, and the South radial) as shown in Figure 4.4. There was one unmanned instrumentation park, a timing and firing park, and an administration park. About 200 experiments were located on the testbed. Figure 4.4 shows the layout of the major experiment groups.

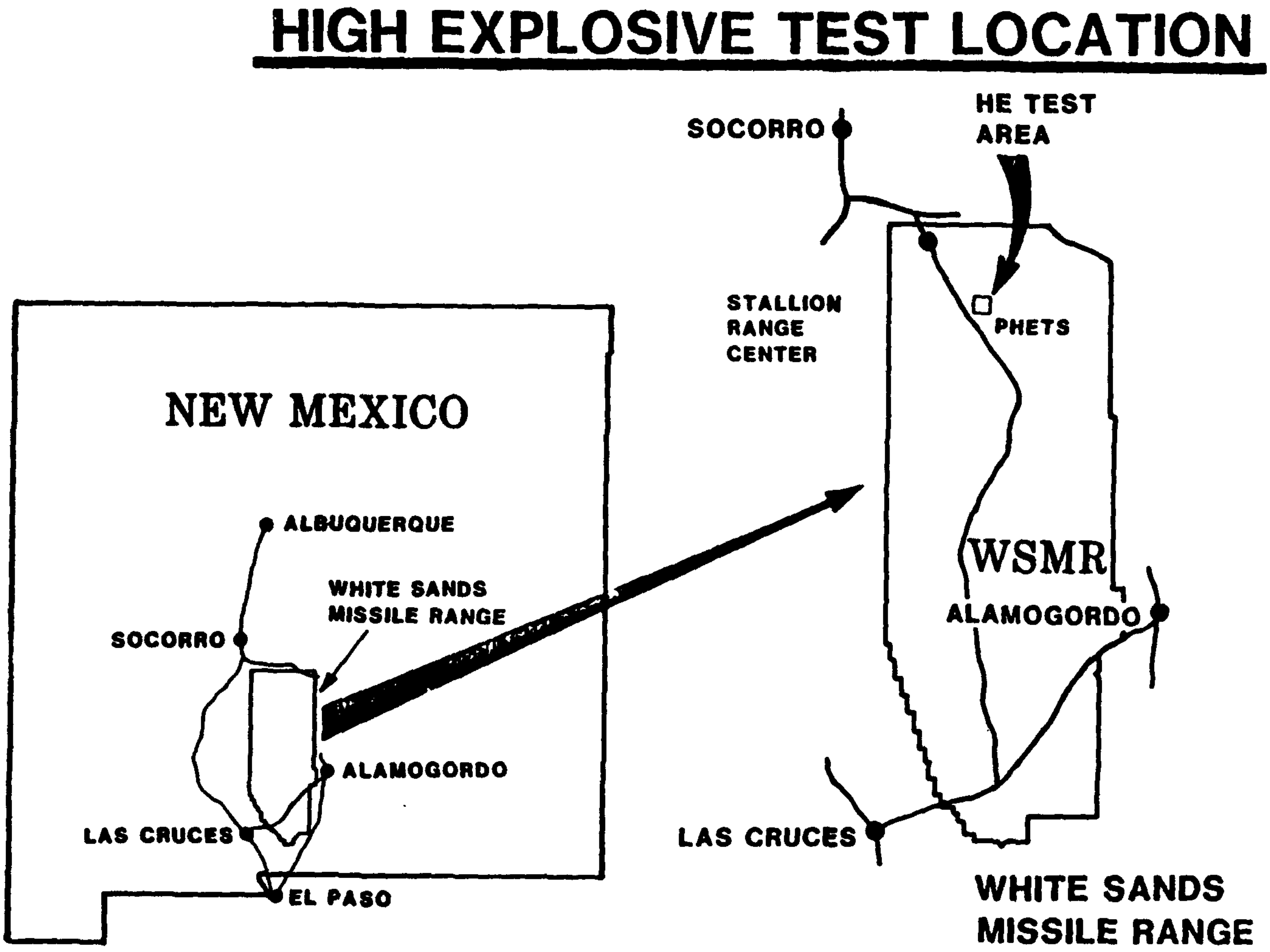


Figure 4.1. Test site location.

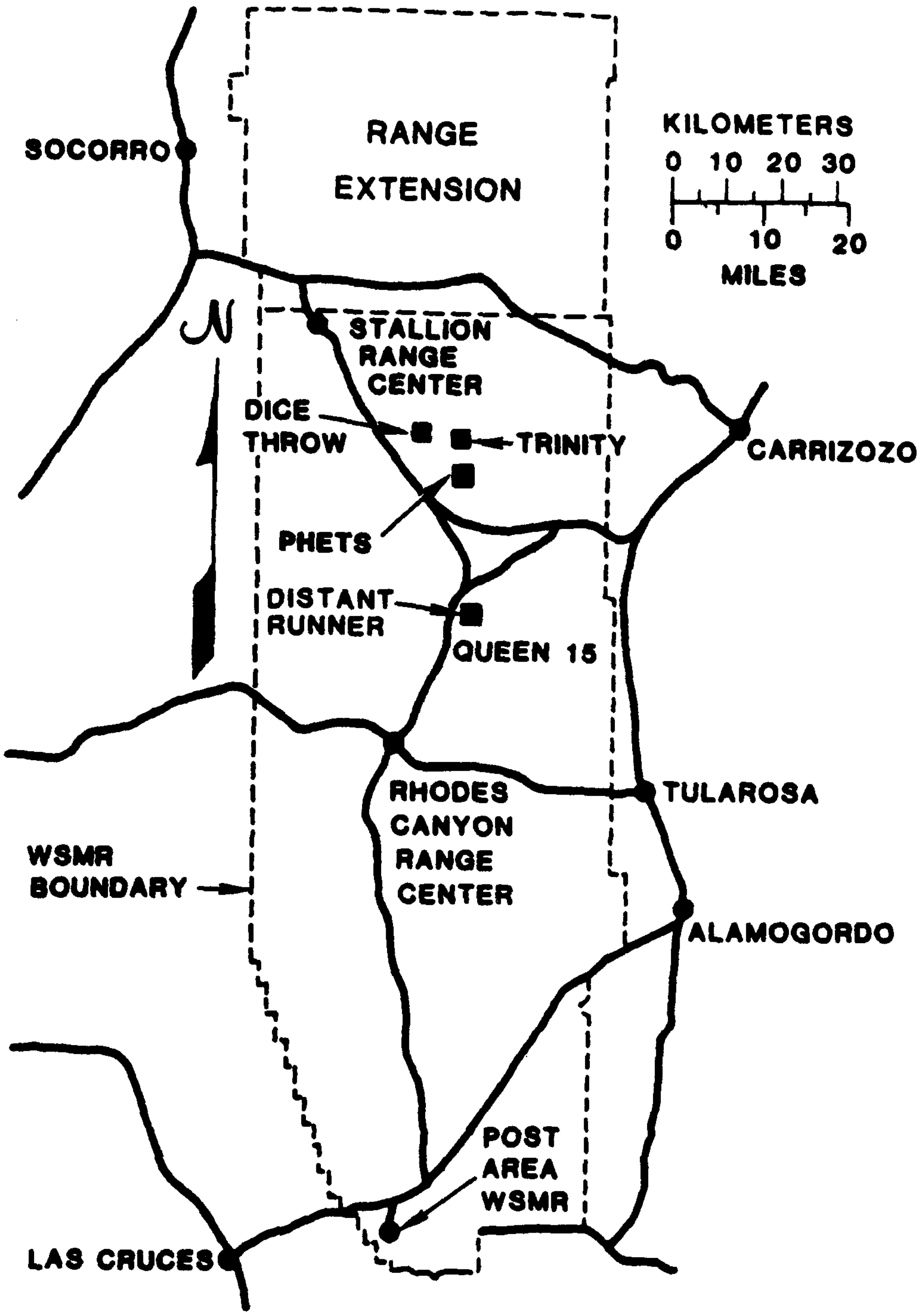


Figure 4.2. White Sands Missile Range, NM.

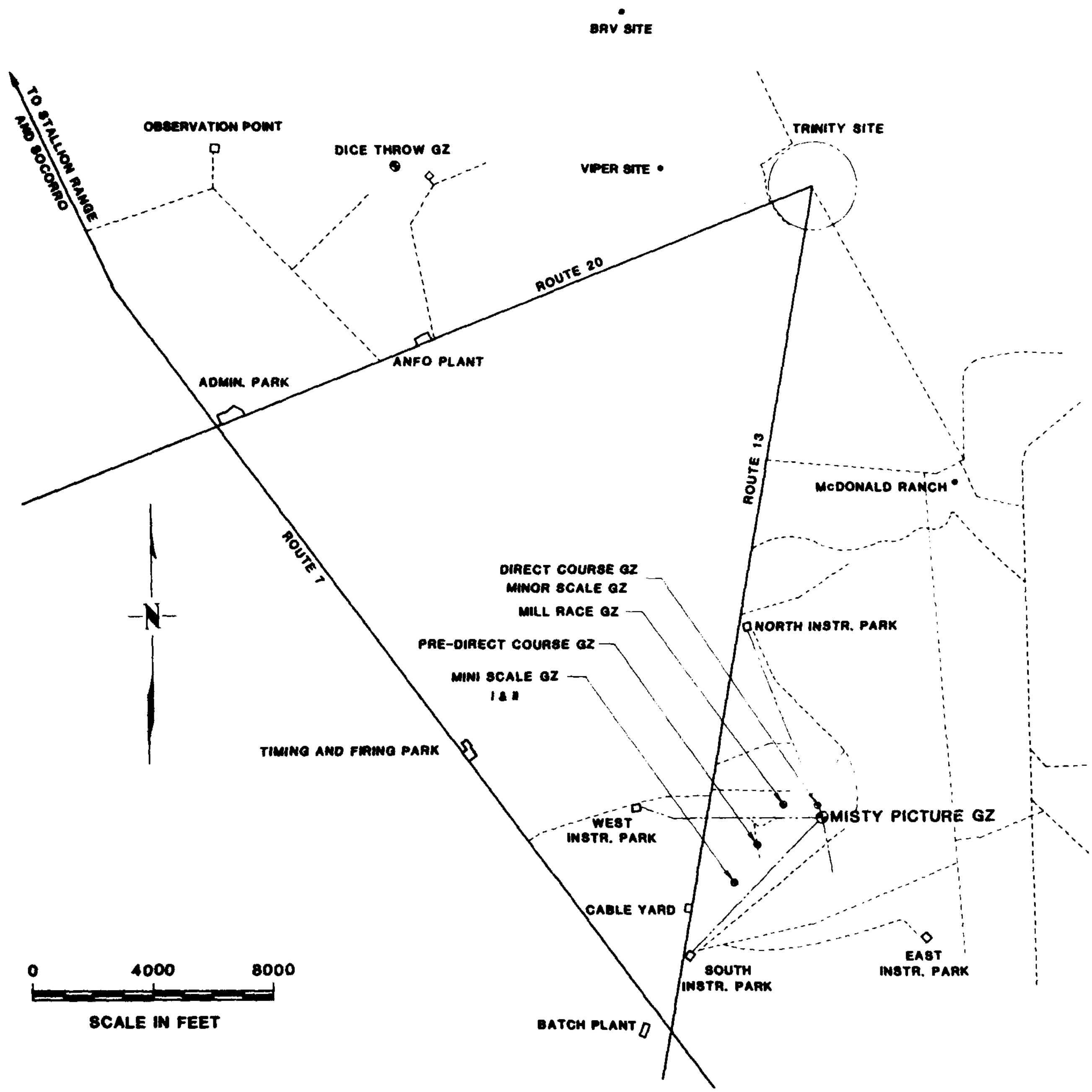


Figure 4.3. PHETS area with GZ shown.

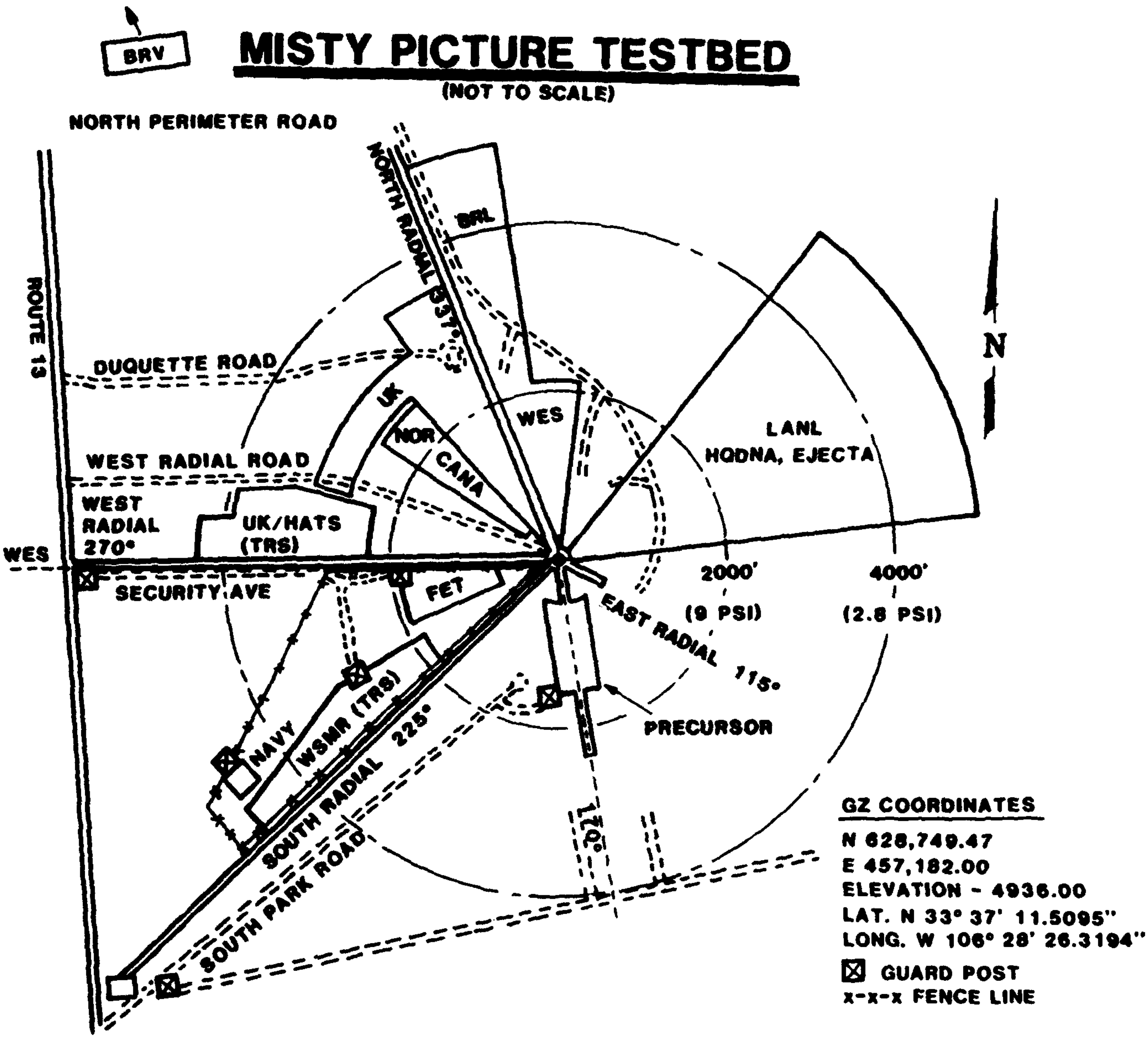


Figure 4.4. MISTY PICTURE testbed.

4.3 CHARGE CONTAINER.

The container was a segmented fiberglass hemisphere 44 ft in radius. The base of the hemisphere consisted of 24 identical segments and the top (or cap) consisted of 12 segments as shown in Figure 4.5. A cross section of each segment can be described as follows: the bottom third of the bottom segment was 1/2 inch fiberglass, 3 inches of cardboard, and 1/2 inch fiberglass. The middle third of the bottom segment was 3/8 inch fiberglass, 3 inches of cardboard, and 3/8 inch fiberglass. The top portion of the bottom segment was 1/4 inch fiberglass, 3 inches of cardboard, and 1/4 inch fiberglass. The top segment was 1/4 inch fiberglass, 3 inches of cardboard, and 1/4 inch fiberglass. Individual segments were assembled by placing a field fiberglass lap joint varying from 1/2 inch to 1/4 inch in thickness on the inner and outer surfaces along each joint and fiberglass bolts added for additional strength (see Figure 4.5). Originally, the 24 segments arrived at WSMR from the manufacturer in January 1987. They were returned to the manufacturer because of design and manufacturing discrepancies. The final configuration was returned to WSMR late February and erection was completed on 22 April 1987.

The entire structure rested on a wooden, circular frame that sits on 25 vertical, buried, wooden piles. The interior ground area was covered with a mylar sheet to prevent ground moisture from getting into the ANFO.

4.4 ANFO MIXING.

The charge consisted of 4685 tons (4436 Mg) of ammonium nitrate fuel oil (ANFO) poured into the fiberglass hemisphere. The ANFO was manufactured as a small prill of ammonium nitrate, similar to lawn fertilizer. The fuel oil was then mixed with the prills, creating the ANFO.

A mixing plant to add the diesel oil to ammonium nitrate (blasting agent) was set up on the Northern Range, WSMR. The mixing plant is located 1.45 miles east of Route 7 on Route 20. Fuel oil delivered to the mixing plant in trucks was discharged from an elevated tank into the auger. The ANFO was gravity loaded into trucks from the elevators for delivery to the hemisphere at GZ. The ANFO raw material at the mixing plant was limited to 100 tons of ammonium nitrate and 100 tons of diesel fuel oil.

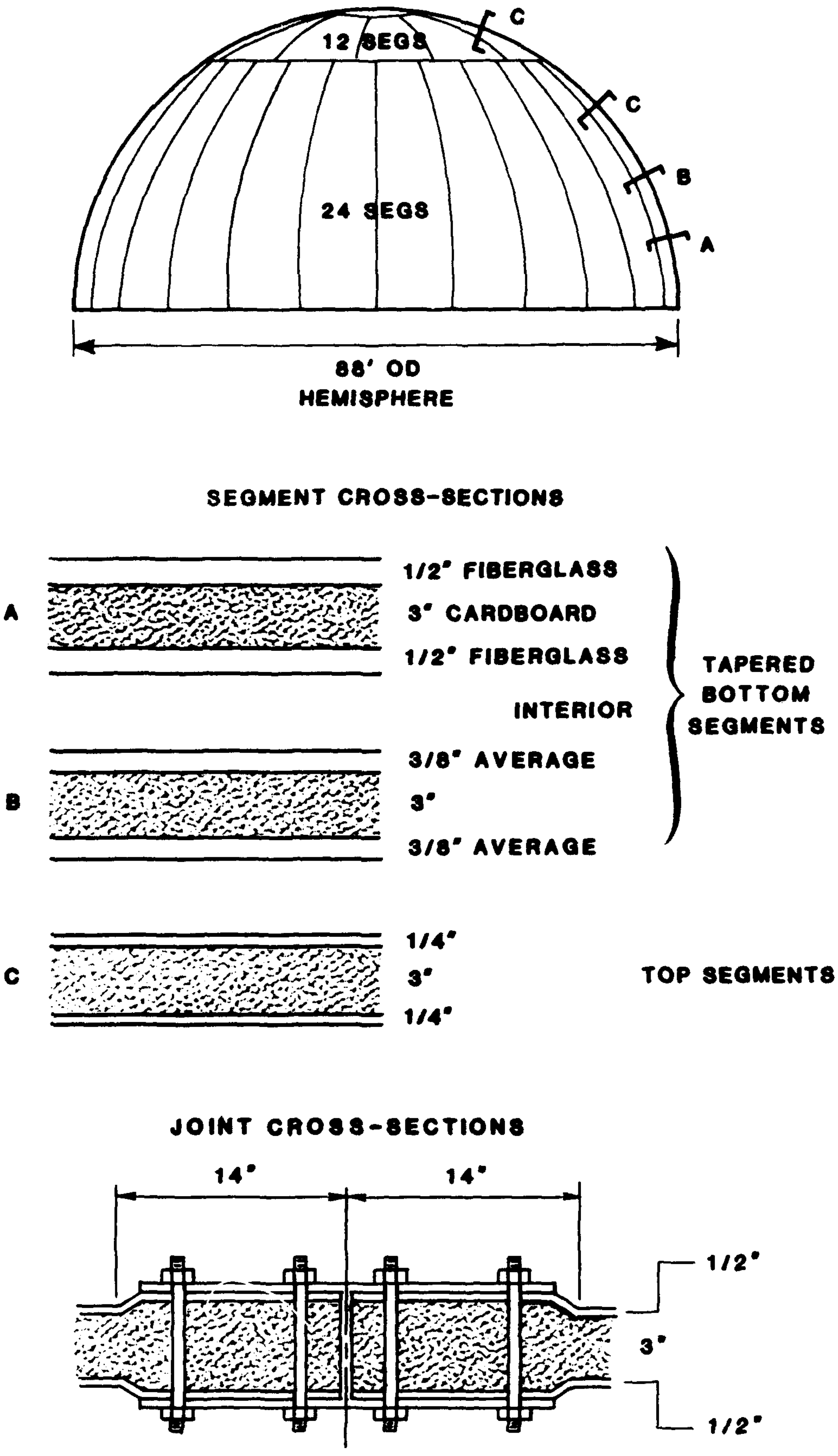


Figure 4.5. Charge container.

4.5 EXPLOSIVE OPERATIONS.

After completion of the fiberglass container and prior to ANFO loading, the booster charge was emplaced at ground level in the center of the hemisphere fiberglass container.

A. Booster System/Pre-Arming. The MISTY PICTURE booster system, supplied by NSWC, consisted of a 25-inch diameter OCTOL (75/25 HMX/TNT) hemisphere main booster weighing nominally 310 pounds and containing two CH-6 sub-booster pellets. Four 60-foot aluminum sheathed, flexible, confined, detonating cords (FCDC) transfered detonation from the exploding bridgewire detonators to the OCTOL hemisphere. Prearming consisted of placing the OCTOL hemisphere and sub-booster assembly inside the fiberglass hemisphere prior to ANFO loading. The FCDC lines were pre-positioned inside container during assembly and exited the hemisphere through the bottom and were tied off once the detonator holders were attached.

B. ANFO Loading. 4685 tons of ammonium nitrate-fuel oil mixture (ANFO) were loaded into the 88-foot diameter, honeycombed, fiberglass hemisphere. The ANFO was delivered to the test site in bulk form from the mixing plant in hopper trucks as shown in Figure 4.6. At GZ the ANFO was pneumatically discharged into the hemisphere. Two workmen inside the hemisphere, wearing self-contained breathing apparatus, distributed the ANFO to ensure uniform distribution. This process continued until loading was terminated. The entire loading operation required approximately 10 days to complete. Loading was conducted during daylight hours.

ANFO quality control was monitored by personnel from the Naval Surface Weapons Center (NSWC). Samples of ANFO were taken from each load and analyzed for fuel oil content and particle size. Each truck load was weighed on a platform scale to track actual charge weight. Particle size and particle size distribution are important for both charge density/weight results and ANFO sensitivity.

C. Arming consisted of attaching the four TC234 detonators to the detonator holders at the end of the FCDC lines and enabling the Arming and Firing (A&F) System. The detonators and firing system were designed, supplied, and operated by Sandia National Laboratory, Albuquerque (SNLA), Division 7132. Four pre-positioned 300-foot "C" cables, pre-positioned in the structure, attached the detonators to the X-unit located on the test pad. This unit was connected to the A&F system located in the T&F Van, approximately 11,200 feet west of the MISTY PICTURE GZ, in the T&F Park. The A&F system consisted of an arming panel with an

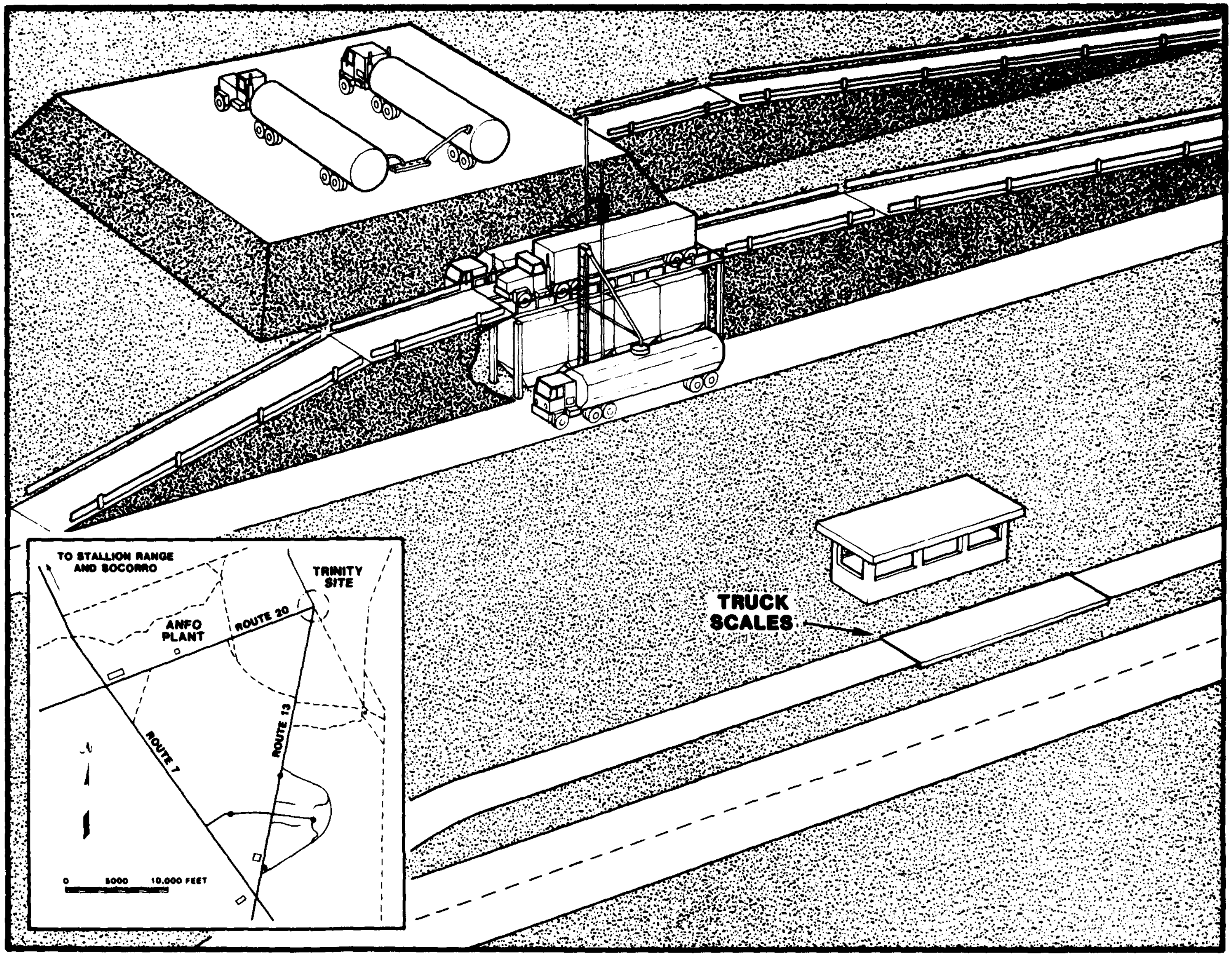


Figure 4.6. ANFO plant.

"Arm/Safe" key switch and monitor lights, a high voltage panel, an interlock panel, two power supplies, and a cable lock box with key. The system was locked out until after final arming by the two keys in the system.

4.6 SPECIAL ENVIRONMENTS.

4.6.1 Thermal Radiation Source (TRS).

A policy decision by HQDNA was made in October 1984 that a TRS environment would be provided as part of the basic test environment for approved experiments. At the MISTY PICTURE Experiment Proposal Review, requirements to field seven TRS units were identified and approved.

The characteristics of the TRS field units are as follows:

Radiant Power:	60-100 MW/nozzle
Spectrum:	2600 K Quasi-grey body
Maximum Flux:	55 $cal/cm^2/s$
Duration:	0.6-5.0 s
Nozzle Spacing:	1-5 m
LOX pre-cooldown:	All nozzles

4.6.2 Precursor.

The precursor simulated effects of a thermal ground layer on blast wave propagation. The thermal flash from a nuclear device heats the ground and surface air near the point of detonation. This blast wave travels through the heated surface air faster and creates a precursor on the shock wave near the surface of the ground. The precursor simulated this environment by providing a two-foot high layer of helium gas contained beneath eight mylar envelopes. The envelopes covered a total area of approximately 400 feet wide by 900 feet long as shown in Figure 4.7. Since pressure waves advance faster in helium than in air, the shockwave moved faster in the helium environment and produced a simulated precursor. The first envelope began 404 feet from GZ. The ground surface beneath the envelopes was covered with one to three inches of specially prepared dust. The side of the envelopes were anchored to prevent excessive helium loss. Sixteen experiments were designed to measure the properties of the precursor.

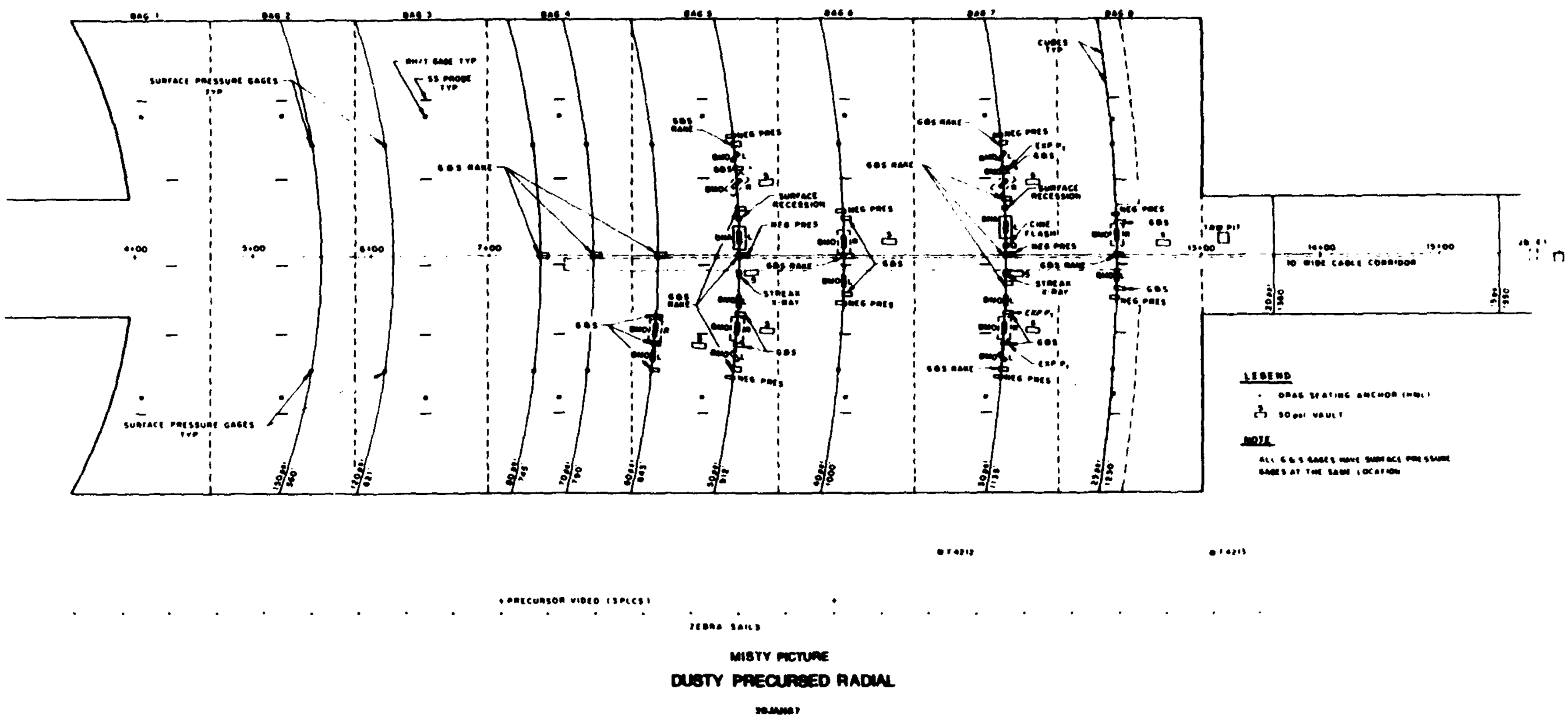


Figure 4.7. Helium envelope for dusty precursed radial, MISTY PICTURE.

SECTION 5

TECHNICAL SUPPORT

5.1 EXPLOSIVES.

Amonium Nitrate and Fuel Oil (ANFO) was the explosive used for MISTY PICTURE. The total weight was 4684.7 tons of ANFO. Summary information on density, ANFO density and ANFO density distribution, and sieve data is summarized in Table 5.1. Figure 5.1 shows the ANFO being tested. Figure 5.2 shows the octol booster in place in the fiberglass container.

5.2 PRECURSED RADIAL.

The thermal precursor was designed to simulate the effects of a heated ground layer on the blast wave propagation. The thermal flash from a nuclear device heats the ground and the surface air near the detonation. The blast wave travels through the heated surface air faster and creates a precursor on the shock wave near the surface. The thermal precursor was to simulate this environment by providing a thin surface layer of helium gas at the time of detonation. Since pressure waves advance faster in helium than in air, the shockwave will move faster in the helium environment and produce a simulated presursor. The helium was contained beneath eight mylar sheets. The sheets will cover a total area of 400 feet wide by 900 feet long. The front sheet began 404 feet from ground zero. The sheets were positioned two feet above the specially-prepared dusty surface. The side of the sheets were buried in the ground to prevent excessive helium loss. The site plan for the bag layout is shown in Figures 5.3. A sketch of the bag deployment concept is shown in Figure 5.4 and 5.5.

5.2.1 Bag Evaluation Tests (BETS) III.

BETS III, a checkout of the helium control system took place in February 1987. The spare bag from MINOR SCALE was used for this exercise. The results meeting was held at PHETS on 10 April 1987.

5.2.2 Dust Devil Study.

A program was developed by Dr. Snow of Purdue University to develop Dust Devil forecasting criteria for the PHETS area. A copy of his Dust Devil Census study for MISTY PICTURE is given in Section 33 of the MISTY PICTURE D+60 Report.

Table 5.1. Notes on MISTY PICTURE Loading Summary Table.

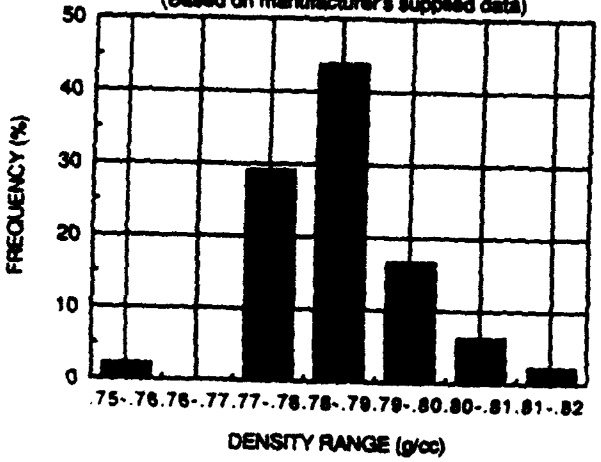
*Measured Fuel Oil Content (both Plant and GZ) have been corrected to incorporate recalibration of analysis procedures

Apparent Fuel Oil content= weight of fuel oil/weight of ANFO

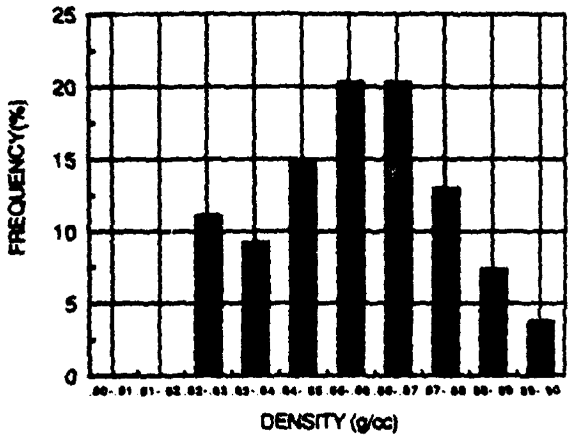
Weighted averages use weight of load as the weighting factor

Weighted apparent fuel oil content=total weight of fuel oil/total weight of ANFO

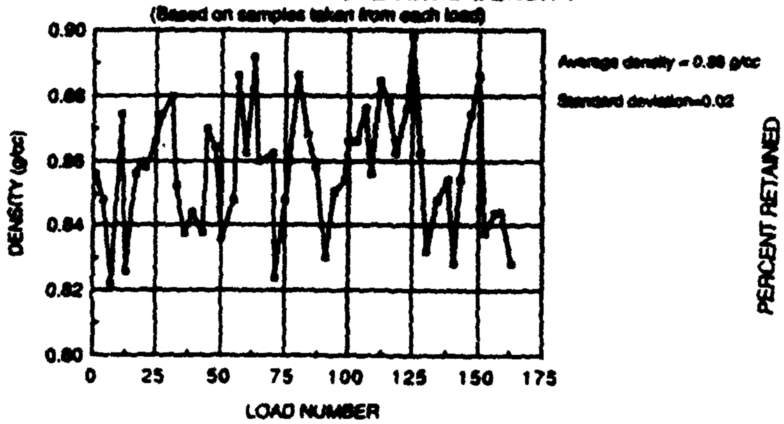
MISTY PICTURE PRILL DENSITY DISTRIBUTION
(Based on manufacturer's supplied data)



MISTY PICTURE ANFO DENSITY DISTRIBUTION



MEASURED MISTY PICTURE ANFO DENSITY
(Based on samples taken from each load)



MISTY PICTURE SIEVE DATA

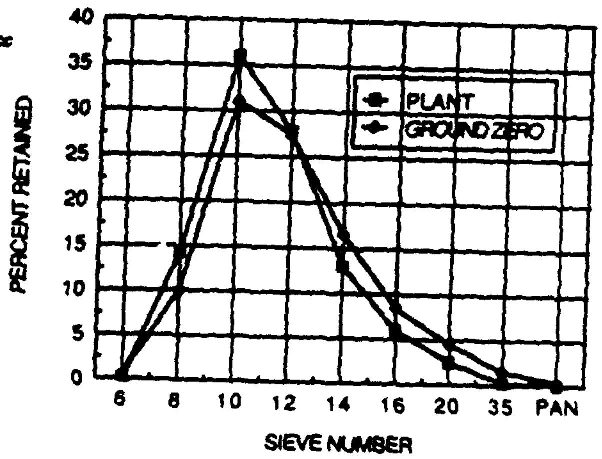


Figure 5.1. Field Testing of the MISTY PICTURE ANFO.

Figure 5.2. The MISTY PICTURE octyol booster in place.

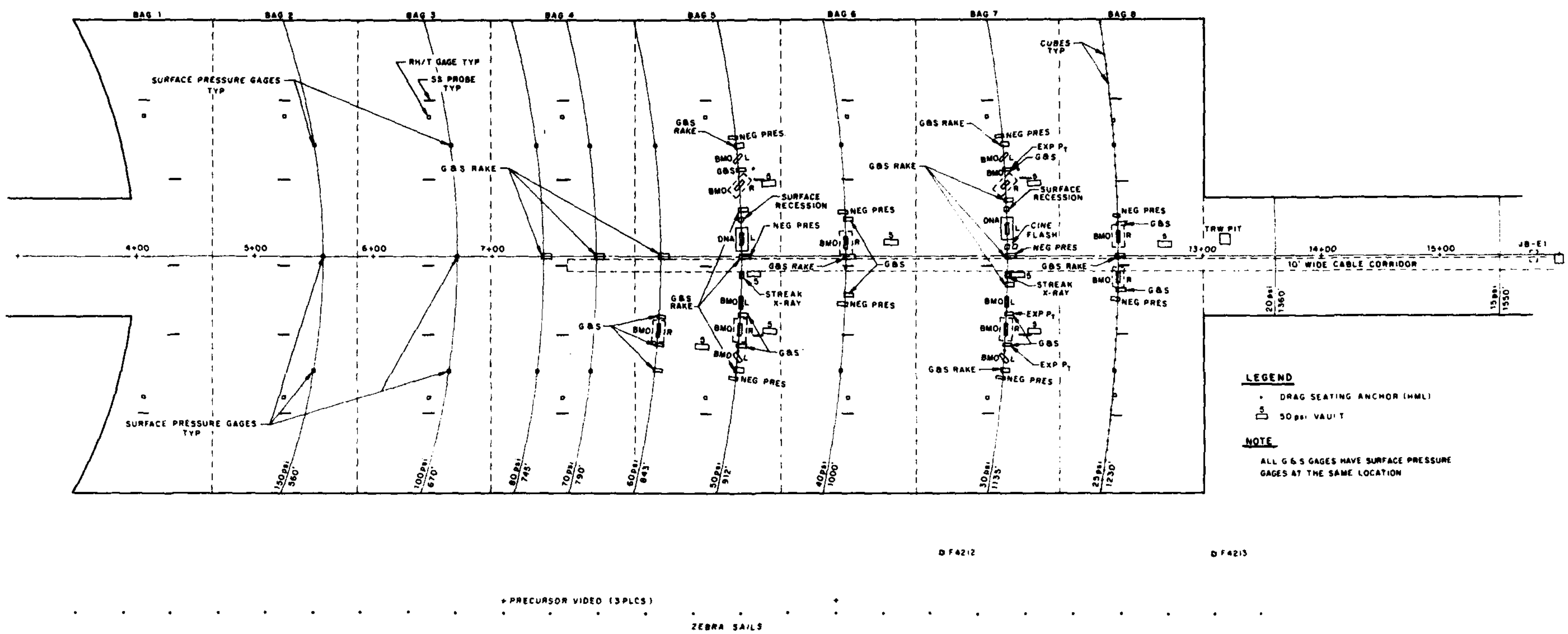


Figure 5.3. MISTY PICTURE dusty precursed radial.

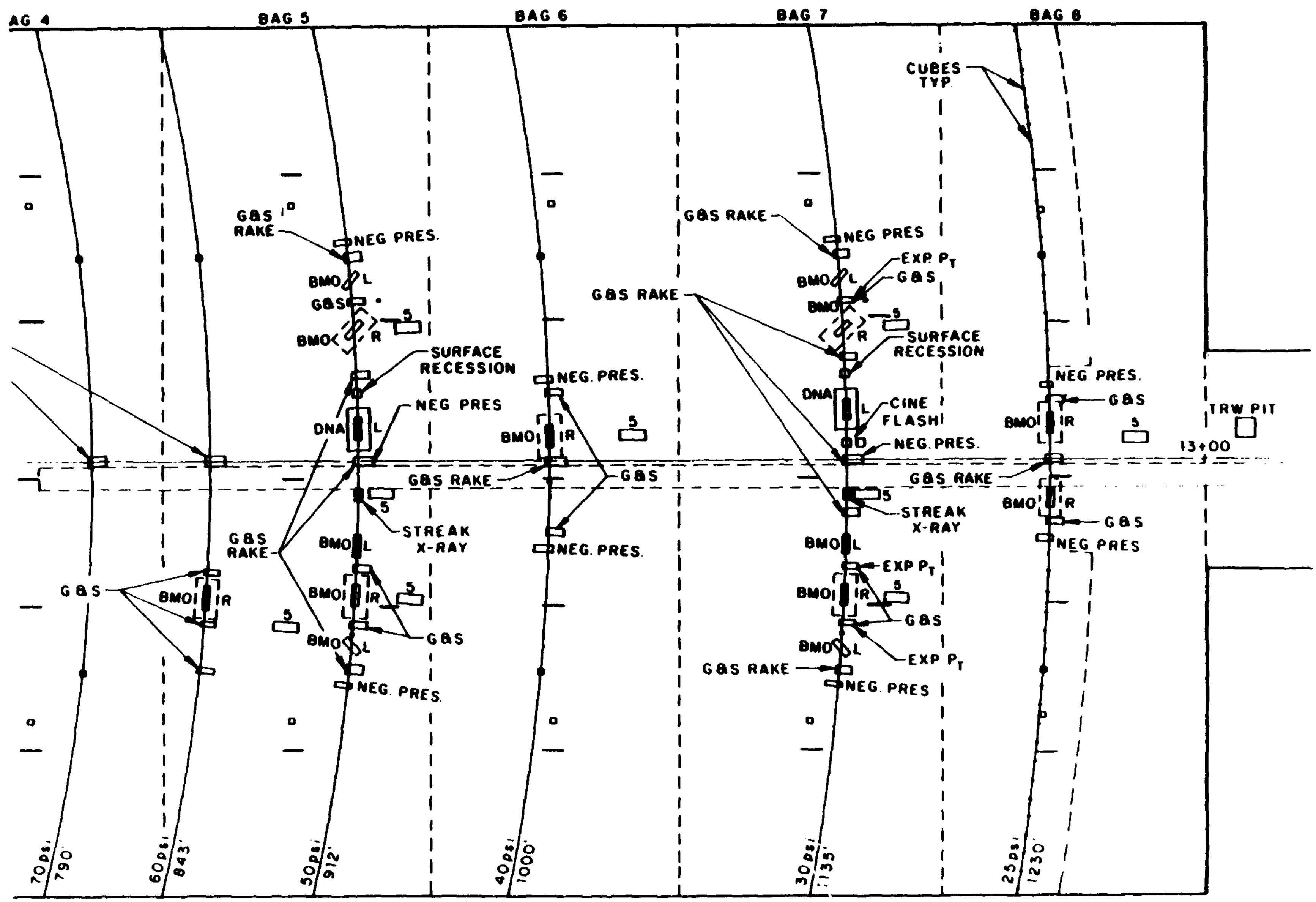


Figure 5.4. Bags 5, 6, 7 and 8, DPR.

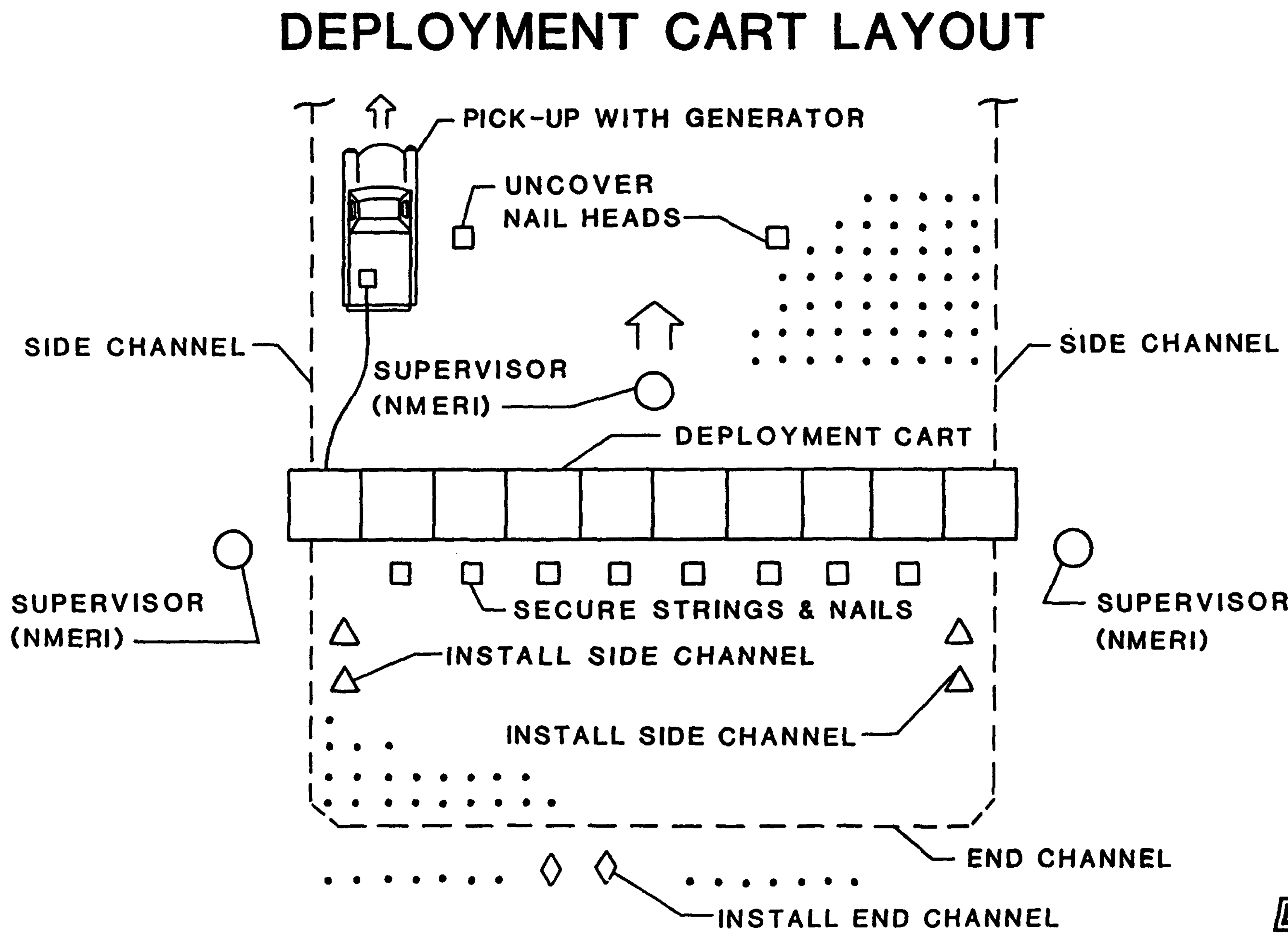


Figure 5.5. Deployment cart layout.

5.2.3 Lightning.

The following sensors were lost because of lightning strikes on the PHETS test site for the three tests shown:

	Sensors Lost
DIRECT COURSE - 26 October 1983	274
MINOR SCALE - 22 June 1985	135
MISTY PICTURE - 14 May 1987	102

The 102 sensors for MISTY PICTURE were lost during a lightning storm on 12 May 1987. Prior to the storm fewer than 10 sensors were lost. Eighty-five of the damaged sensors were replaced and operational at shot time on 14 May 1987.

5.3 INSTRUMENTATION.

For MISTY PICTURE, eleven hardened bunkers were placed near the charge between the 3 and 10 psi overpressure levels to allow remote digital recording of the various sensor outputs. In addition to the hardened bunkers, there were four instrumentation parks generally aligned with the cardinal compass directions. At each of the parks is a bermed structure similar to a quonset hut which houses a Recording Oscilloscope Sealed Environment System (ROSES). (The ROSES name comes from the use of this unit at the Nevada Test Site.) This unit was used primarily for Timing and Firing purposes. At the West Instrumentation Park was also located a large trailer used to record analog data. Both of these units were placed inside the bermed structure.

The recording facilities at both the bunkers and parks were configured to operate remotely. They were unmanned. The closest manned site was the old DIRECT COURSE administration park, which was used for the MISTY PICTURE Timing and Firing (T&F) Park. For MISTY PICTURE, the Defense Nuclear Agency provided 1365 digital channels and 243 analog channels for experimental data recording. All of the digital recordings were made at the bunkers. Some other manned instrumentation trailers such as the Thermal Radiation Simulation (TRS) control and helium control trailers, were also located at the T&F Park. This park was about 11,200 feet west of the GZ and was exposed to about 0.7 psi overpressure.

The Administration Park of MISTY PICTURE was the same as for MINOR SCALE, located on the northeast corner of the intersection between Route 7 and Route 20. This is northwest of MISTY PICTURE GZ. Co-located with the Administration Park is the Playback Park. This trailer with its uninterruptable power supply (UPS) was located on the North edge of the Administration Park.

At the Playback Park all the digital data were collected from each of the bunkers within minutes of the detonation at GZ. This was done by the use of fiber optic links to each bunker which transmitted the digitized data from each test channel digitizer to a VAX computer located at the Playback Park. Table 5.2 shows the instrumentation allocation and readiness as of 1630 hours, 28 April 1987.

5.4 DIAGNOSTICS.

The diagnostic measurements used to record the environment produced by the MISTY PICTURE are described in the MISTY PICTURE Program Document and the results will be recorded in the MISTY PICTURE Symposium Proceedings. A brief summary of the diagnostics fielded is as follows:

Charge Detonation Optics	To obtain high-speed data on charge detonation.-DRI
Shockwave Optics	To photograph the advance of the shockwave along the north, west, and south radials.-WSMR
Shockwave Overview Optics	To obtain data on vertical shockwave environment.-WSMR
Ejecta Optics	To create a data source of natural ejecta from surface GZ and the crater.-WSMR
Dust Cloud Optics	To obtain data on dust cloud formation.-WSMR
Aerial Optics	To obtain optical image data of late fireball and early shockwave propagation.-WSMR
Free Field Airblast	To record the TOA amplitude and waveshape of airblast overpressures.-BRL
Ground Motion	To measure the vertical and horizontal ground motion environment on the west radial.-WES
Charge Time of Arrival Diagnostic System (TOADS)	To provide information on symmetry of detonation and ANFO explosive characterization.-AFWL

5.5 PHOTOGRAPHY.

5.5.1 Technical Photography.

WSMR provided the majority of the technical photography in support of experiments. WSMR was able to support all experimenter requirements. DRI, TIC and the government of Norway fielded experiments in which they provided their own technical camera support. WSMR provided support for all other experimenters.

Table 5.2. MISTY PICTURE instrumentation allocation and readiness. (28 April 1987) 1630

	EXP'T #	CHANNEL #	AGENCY	EXPERIMENT TITLE
WB-1	190 Channels			
	4100-10	= 160 Ch	NWEF	Parked & In-flight Aircraft
	7550	= 4 Ch	CAN	VALHAL, Can Resp TRS#B
	9402 A&E	= 16 Ch	BFEC	TRS Calorimeters (T-4s,T-30s,T-15s)
	9404	= 10 Ch	WES	TRS Blast Environment Evaluation
WB-2	150 Channels			
	6030	= 60 Ch	BDE	HML Full Scale Model
	7005-30	= 40 Ch	NMERI	UK, Scaled Reinforced Concrete Box
	9210	= 50 Ch	WES	Free-field Ground Motion
WT-1	100 Channels (Analog)			
	1010-15	= 21 Ch	BRL	Natick Shelters on Vehicles
	2129-70	= 22 Ch	BRL	Foreign Equipment Test (FET)
	7300	= 4 Ch	BRL	Swedish Buried Commun Shelter
	9120-2	= 53 Ch	BRL	Free-field Airblast
NB-1	117 Channels ???			
	1635	= 18 Ch	WES	18 Man Shelter
	2200	= 40 Ch	BRL	Forest Blowdown
	7090	= 5 Ch	BRL	UK Whiplash (Fuel System)
	9120-3	= 54 Ch	BRL	Free-field Airblast
SB-1	100 Channels			
	1335-76	= 100 Ch	WSMR	U.S. Army Equipment
SB-2	98 Channels			
	4015	= 22 Ch	BRL	NSWC Radome
	8750-L	= 1 Ch	BRL	Surface Static Gage
	9120-1	= 43 Ch	BRL	Free-field Airblast
	9402	= 32 Ch	BFEC	TRS Calorimeters
SB-3	60 Channels			
	1300-15	= 60 Ch	WSMR	U.S. Army Equipment
EB-1	153 Channels			
	3405,07	= 147 Ch	BOE	BMO HML Models
	9950	= 6 Ch	BFEC	CERL Environment

Table 5.2. MISTY PICTURE instrumentation allocation and readiness (concluded). (28 April 1987) 1630

	EXP'T #	CHANNEL #	AGENCY	EXPERIMENT TITLE
EB-2	129 Channels ???			
	3402,09	= 129 Ch	BOE	BMO HML Models
EB-3	158 Channels			
	3403,4,6,8	= 158 Ch	BOE	BMO HML Models
EB-4	178 Channels			
	3400 E1-J2	= 26 Ch	WES	H-Tech, BMO Greg/Snob (19 Greg)
	8701 C-L	= 106 Ch	WES	H-Tech, DNA Greg/Snob (53 Greg)
	8770-A,-B	= 46 Ch	WES	H-Tech, DNA Greg/Snob (24 Greg) (ARC Generic Model)
EB-5	147 Channels (128 DI, 19 ANA)			
	8704	= 14 Ch(A)	TRW	TRW Streak X-Ray
	8719	= 5 Ch(A)	TRW	TRW Cine Flash Microscope
	3450 E1-J2	= 12 Ch	BRL	BMO Surface Static Gages
	3454 F1-J2	= 16 Ch	BRL	BMO Negative Phase Total Pressure
	8750 A1-J3	= 32 Ch	BRL	DNA Surface Static Gages
	8754 F-H	= 4 Ch	BRL	DNA Negative Phase Total Pressure
	8770-A,-B	= 48 Ch	BRL	DNA ARC Generic Model (Kulite Gage)
	9120-4	= 10 Ch	BRL	Free-field Airblast
	9122-H1-3	= 6 Ch	BRL	CRC Greg/Snob Gages (3 Greg)
McD-R	27 Channels (Analog)			
	9500	= 27 Ch(A)	CERL	McDonald Ranch Structural Monitor
TOTAL	1608 CHANNELS			(1462 DIGITAL, 146 ANALOG)

George Lu
MISTY PICTURE, INSTRUMENTATION ENGINEER

5.5.2 Documentary Photography.

WSMR provided all documentary support for the event. Color still, motion picture, and video tape medias were provided. Slides were produced on request. Film was returned to the requestor at the test site until two weeks prior to the event, when all material was held at Main Post WSMR for review following the event.

5.6 METEOROLOGY.

A list of the weather observations taken on MISTY PICTURE shot day and the previous night is given in Table 5.3. It should contain about everything anyone would need for their experiment analyses. Data for previous days, beginning with the rehearsal on 5/11/87, and supporting Sandia's small explosives program, will be included in our final report.

Table 5.3. List of MISTY PICTURE weather observations.

1. GZ Met Tower Observations, from 1900 MDT 5/13/87 bag deployment preparations until MP Event at 1000 MDT 5/14/87.
2. SAMS Observations for 5/14/87. Times listed in MST, add 1 hour for MDT.
3. SAMS Observations for 1900-2345 MST, 5/13/87.
4. NOAA Hourly Surface Observations for Albuquerque, CVS, Roswell, HMN, and El Paso for MISTY PICTURE H+1, H, and H-1 hour UT (Greenwich).
5. Pibal wind observations made hourly at the Administration Park during helium bag deployment.
6. Sketch of pibal wind vectors on time-height grid.
7. Significant level data for tethersonde data from immediate post-shot ascension.
8. Tethersonde data graphs for post-shot ascension; height versus wind direction, wind speed, and temperature, needed to explain enhanced airblasts observed at McDonald Ranch, Administration Park, and Observer's Point.
9. Rawinsonde observations at Stallion at H-6, H-2.5, H, and H+3 hours.
10. NOAA rawinsonde reports from Albuquerque and El Paso for 5/13/87 and 5/14/87.
11. Sketch of various temperatures versus altitude.

A refined estimate of GZ shot-time weather conditions has been made. Considering both Stallion and Tethersonde barometer readings and altitude correction with observed temperatures, it appears that GZ pressure was 851.4 mb (vice 851.5 mb reported 5/14/87). Both Tethersonde and GZ temperature records show colder temperatures than was observed at Stallion, but there was considerable variability with time and 3-D space. An effective GZ shot-time temperature is 20.5±1 degrees C. The last GZ wind report showed 248°, 3.4 m/s, at 10 m height, but the three anemometers in the final ten minutes showed directions ranging from 233° to 323°, and speeds that varied from 1.68 to 5.48 mps (3.8 - 12.3 mph). Such variability in wind and temperature is to be expected from convective and orographic turbulence.

SECTION 6

EXPERIMENTS

MISTY PICTURE had approximately 170 experiments. The experiments are listed in Table 6.1 in the order of the assigned DNA experiment number. An explanation of the column headings follows:

DNA # - DNA Experiment Number.

Spon - Agency sponsoring and/or funding experiment.

Title - Abbreviated title of experiment.

PSI - Requested PSI level.

TRS - Thermal Radiation Source exposure indicated by "Yes" or "No".

Icam - Number of internal cameras. A 'D' proceeding camera indicates a DRI fielded camera, a 'T' is an experimenter fielded camera, and 'A' is an aerial camera. An * indicates film is classified.

Ecam - Same as "Icam" except it is an external camera.

Chan - Number of channels needed.

Agen - Agency fielding the experiment.

Man - Anthropormorphic Mannequin.

Dust - Dust suppressant required.

TSP Date - Data of latest revision to TSP.

WT - West trailer.

Remarks - Amplifying information.

For each experiment the objective, justification, description, pretest data, simulation test programs, and predictions are stated in the MISTY PICTURE Program Document (POR 7185). Experiment results, conclusions, and recommendations are given in the MISTY PICTURE Results Symposium Project Officer Report (POR 7187).

For reporting purposes and in an effort to logically group experiments, three broad categories of experiments are provided: (1) phenomenology, (2) structures, and (3) systems. Table 6.2 is the experiment numbering plan for DNA MISTY PICTURE high explosive tests.

Table 6.1. MISTY PICTURE experiment list.

10 MAR 87, ADD 5250, OVERALL CLEAN-UP OF LIST
17 MAR 87, UPDATED NEW TSP 2144,1376,1300'S

PAGE 1

DNA#	SPON	EXPERIMENT TITLE	PSI	TRS	ICAM	ECAM	CHAN	AGEN	BUNKER	MAN	DUST	TSP DATE	REMARKS
ARMY EXPERIMENTS 1000's-2000's													
1000	ARMY	CANCELLED											
1006	ARMY	CANCELLED											
1008	ARMY	CANCELLED											
1010*	ARMY*	DICKNER 10 PSI SHLTR TRS0A	10	40/110	-	2	6	BRL	WT1	-	Y	13MAY86	Y 4A,2P,2P W/ 9404,03312
1011	ARMY*	CANCELLED											
1012	ARMY*	CANCELLED											
1013	ARMY*	CANCELLED											
1014	ARMY*	SAFE NO HRDN CUCV, END-ON	10	-	-	1	-	-	-	-	Y	27OCT86	NATICK,
1015*	ARMY*	"SAFE" CUCV SHLTR TRS0E	10	40/110	-	2	15	BRL	WT1	2	Y	10MAR87LTR	4A,2P,9S,2P CAL ALL DUST SUP 200 X100'
1300* $	WSMR*	1 SIDE-ON TRS0F	3.4	12/16	-	3	32	WSMR	SB3	0	Y	10MAR87LTR	RUNN,CAMOU,12A,12P,4S,4TH
1305* $	WSMR*	2 SIDE-ON TRS0G	3.4	36/30	-	1	10	WSMR	SB3	1	Y	10MAR87LTR	RUNN,CAMOU,15A, 1P,1S,1TH
1310* $	WSMR*	3 HEAD-ON	5.0	-	1	1	10	WSMR	SB3	2	Y	10MAR87LTR	RUNN,CAMOU, 9A, 1P
1315*	WSMR*	4 W/01325 SIDE-ON TRS0D	7.4	140/97	1	2	30	WSMR	SB3	2	Y	10MAR87LTR	RUNN,CAMOU,24A, 2P,2S,2TH
1320	WSMR	CANCELLED											
1325*	WSMR*	CANCELLED	7.4										
1330*	WSMR*	CANCELLED	9.3										
1335*	WSMR*	7 (5) SIDE-ON TRS0C	10	44/36	-	2	20	WSMR	SB1	0	Y	10MAR87LTR	RUNN,CAMOU,12A,3P
1336*	WSMR	CANCELLED											
1340*	WSMR*	CANCELLED0	10										
1345*	WSMR*	9 (6) SIDE-ON	10	-	0	1	20	DNA	SB1	3	Y	10MAR87LTR	RUNN,CAMOU, 9A?,6P?,2S?
1350	WSMR*	CANCELLED											
1355	WSMR	CANCELLED ADD TO 1365											
1360	WSMR	CANCELLED											
1365*	WSMR*	11 (7) SIDE-ON	13	-	1	2	20	DNA	SB1	3	Y	10MAR87LTR	RUNN,CAMOU,15A,3P,1S,1TH
1370	WSMR	CANCELLED ADD TO 1365											
1375*	WSMR*	12 (8) SIDE-ON	12	-	0	1	20	DNA	SB1	4	Y	10MAR87LTR	RUNN,CAMOU,15A,4P,1S
1376*	WSMR*	13 (9) SIDE-ON	14	-	-	1	10	DNA	SB1	0	Y	09MAR87	9A,1P
1380*	WSMR*	CANCELLED	12										
1385	WSMR	CANCELLED											
1401	HDL	CANCELLED											
1402	HDL	CANCELLED											
1403* $	HDL*	HATS-1,M984 RECOVERY VHCLE	10	ON-HOLD	-	1	9	BRL	WT1	-	Y	06AUG86	Y SIDE-ON,9A
1404* $	HDL*	HATS-2,S-657/HMMW-V W/TRLR	10	ON-HOLD	1	2	20	BRL	WT1	-	Y	08AUG86	Y SIDE-ON,14A,6S
1405* $	HDL*	HATS-3,GEN-1,GENERIC ENC M	3	ON-HOLD	-	2	22	BRL	WT1	-	Y	08AUG86	Y SIDE-ON,12A,10S,OPD
1406* $	HDL*	HATS-4,M978-TANKER	8	ON-HOLD	-	1	9	BRL	WT1	-	Y	08AUG86	Y SIDE-ON
1407* $	HDL*	HATS-5,MEP W/TRAILER	19	ON-HOLD	-	1	15	BRL	WT1	-	Y	08AUG86	Y SIDE-ON,OPD
1408* $	HDL*	HATS-6,MEP W/SKID	19	ON-HOLD	-	1	7	BRL	WT1	-	Y	08AUG86	Y SIDE-ON,OPD
1409	HDL	CANCELLED											
1410* $	HDL*	HATS-7,GEN-2	5	ON-HOLD	-	2	12	BRL	WT1	-	Y	08AUG86	Y SIDE-ON,GRNR ENCLSR MODLE
1600*	WES *	FRAME/FABRIC SHELTER	30	-	-	-	-	-	-	-	-	08MAY86*	N HT5',BURIED 4',MS01220
1610	WES	CANCELLED											
1611	WES	CANCELLED											
1620	WES	CANCELLED											
1621	WES	CANCELLED											
1630	WES	CANCELLED											
1631	WES	CANCELLED											
1635*	WES *	10 MAN SHELTER	200	-	-	-	10	WES	NB1	-	-	08MAY86	N 3P,2D,7A,4SS,26M;L30'xW9'
1640	WES	CANCELLED											
1644	WES	CANCELLED											
2112	BRL *	CANCELLED											
2118	BRL *	CANCELLED											
2126*	BRL *	CANCELLED BTR60	26										
2129*	BRL *	BTR60	30	-	1	1	3	BRL	WT1	2	N	09MAR87LTR	1P INT,1PS,1DIFF,ENG,MON
2130*	BRL *	BMP	30	-	1	-	3	BRL	WT1	4	N	09MAR87LTR	1P INT,1PS,1DIFF,ENG,MON
2136*	BRL *	BMP	36	-	1	-	3	BRL	WT1	2	-	09MAR87LTR	1P INT,1PS,1DIFF,ENG,MON
2144*	BRL *	T-62	44	-	-	-	5	BRL	WT1	2	-	08MAR87	1P INT,2PS,2PT,ENG,MON
2155*	BRL *	T-62	55	-	-	-	3	BRL	WT1	2	-	09MAR87LTR	1P INT,1PS,1PT,ENG,MON
2170*	BRL *	T-62	70	-	-	-	3	BRL	WT1	-	-	09MAR87LTR	1P INT,1PS,1PT,ENG,MON
2200-A*	BRL*	FOREST BLOWDOWN 400'	299	-	-			BRL	NB1	-	-	23JUL86	2 TREES,D FIR & PON PINE
2200-B*	BRL*	FOREST BLOWDOWN 500'	190	-	-			BRL	NB1	-	-	23JUL86	2TREES

Table 6.1. MISTY PICTURE experiment list (Continued).

DNA#	SPON	EXPERIMENT TITLE	PSI	TRS	ICAM	ECAM	CHAN	AGENY	BUNKER	MAN	DUST	TSP DATE	REMARKS PAGE 2
2200-C*	BRL*	FOREST BLOWDOWN 600'	129	-	-	1		BRL	NB1	-	-	23JUL86	2 TREES
2200-D*	BRL*	FOREST BLOWDOWN 700'	91	-	-			BRL	NB1	-	-	23JUL86	2 TREES
2200-E*	BRL*	FOREST BLOWDOWN 800'	67	-	-	1/1	-	BRL	NB1	-	-	23JUL86	9 TREES,NO BETA DEN GAGE
2200-F*	BRL*	FOREST BLOWDOWN 900'	52	-	-			BRL	NB1	-	-	23JUL86	2 TREES
2200-G*	BRL*	FOREST BLOWDOWN 1000'	40	-	-			BRL	NB1	-	-	23JUL86	2 TREES
2200-H*	BRL*	FOREST BLOWDOWN 1200'	27	-	-	1/2	20	BRL	NB1	-	-	23JUL86	14TREES,5A,3L,12S,NO BETA
2200-I*	BRL*	FOREST BLOWDOWN 1600'	14	-	-	1	-	BRL	NB1	-	-	23JUL86	14TREES,NO BETA DEN GAGE
2200-J*	BRL*	FOREST BLOWDOWN 2000'	9.0	-	-	1/2	20	BRL	NB1	-	-	23JUL86	11TREES,5A,3L,12S,NO BETA
2200-K*	BRL*	FOREST BLOWDOWN 2400'	6.3	-	-	1	-	BRL	NB1	-	-	23JUL86	6 TREES,NO BETA DEN GAGE
2200-L*	BRL*	FOREST BLOWDOWN 3200'	3.9	-	-	1		BRL	NB1	-	-	23JUL86	6 TREES
2200-M*	BRL*	FOREST BLOWDOWN 4000'	2.8	-	-	1		BRL	NB1	-	-	23JUL86	6 TREES
2210	BRL	FOREST SMOKE PUFF DIAGNSTC	150/2	-	-	-	-	-	-	-	-	12FEB87	37STATIONS,CAM F4198-4205
2222 *	BRL*	CONTROL FOREST	<1	-	-	-	-	-	-	-	-	23JUL86	16 TREES 20 APART
													8 PRE, 8 POST, 150 x 300'
2224	BRL	WIND DRAG ON TREES	N/A	-	-	-	8	BRL	SELF	-	-	25AUG86	70MPH,ON TRUCK,20-31OCT86
		??ANOTHER TEST AT T+3WKS??											20-25APR87,30 TREES,2A,3S
AIR FORCE EXPERIMENTS 3000's													
3100*	AFGL*	SEISMIC STUDY	0.5	-	-	-	24	AFGL	SELF	-	-	24APR85	8 SITES 5-75 KM FROM GZ
3200	ESD	CANCELLED											
3201	ESD	CANCELLED											
3300-A$	AFWL	NMERI CRATER STY	800-10K	-	-	-	-	-	-	-	-	15MAY86	SAND CLM TO 250',1RAD
3300-B$	AFWL	NMERI DISPT PINS	125-10K	-	-	-	-	-	-	-	-	15MAY86	SURVEY 4RAD TO 600',10*PN
3301	AFWL	CANCELLED											
3302	AFWL	CANCELLED											
3303	AFWL	CANCELLED											
3310* $	AFWL	RAMSTAT	3.4	5/26	-	2	-	NTCA	SELF	-	-	21AUG86***	TRS0F W/1300?,TRANSMITTNG
3311* $	AFWL	RAMSTAT	7.4	40/95	-	2	-	NTCA	SELF	-	-	21AUG86***	TRS0D W/1315?," AFTER T+0
3312* $	AFWL	RAMSTAT PASSIVE	10	50/150	-	2	-	NTCA	SELF	-	-	21AUG86***	TRS0C W/1335?," AFTER T+0
3400*	BMO	SEE 8701, GREG/SNOB GAGES											
3401*	BMO *	CANCELLED	40										
3402*	BMO *	HML 1/6 RESPONSE	40	-	-	-	63	FC	EB2	-	-	12FEB87VER	GES-1L,3A,3D,29P,+4CABLE
3403*	BMO *	HML 1/6 LOADS	30	-	-	-	40	FC	EB3	-	-	12FEB87VER	58P,+6CABLE
3404*	BMO *	HML 1/6 RESPONSE	30	-	-	-	31	FC	EB3	-	-	12FEB87VER	GES-1L,3A,3D,29P,+4CABLE
3405*	BMO *	HML 1/6 LOADS	30	-	-	-	75	FC	EB1	-	-	12FEB87VER	58P,+6CABLE
3406*	BMO *	HML 1/6 RESPONSE	30	-	-	-	35	FC	EB3	-	-	12FEB87VER	GES-1L,3A,3D,29P,+4CABLE
3407*	BMO *	HML 1/6 LOADS	30	-	-	-	78	FC	EB1	-	-	12FEB87VER	58P,+6CABLE
3408* $	BMO *	HML 1/6 RESPONSE	25	-	-	-	38	FC	EB3	-	-	12FEB87VER	GES-1L,3A,3D,29P,+4CABLE
3409*	BMO *	HML 1/6 RESPONSE	25	-	-	-	66	FC	EB2	-	-	12FEB87VER	GES-1L,3A,3D,29P,+4CABLE
3410*	BMO *	HML 1/6 LOADS	50	-	-	-	3	FC	EB2	-	-	03OCT86	3P
3411*	BMO *	HML 1/6 RESPONSE	50	-	-	-	4	FC	EB2	-	-	03OCT86	GES-1L,1A,1D,2P
3412*	BMO *	HML 1/6 LOADS	50	-	-	-	3	FC	EB2	-	-	03OCT86	3P
3413*	BMO *	HML 1/6 RESPONSE	50	-	-	-	4	FC	EB2	-	-	03OCT86	GES-1L,1A,1D,2P
3414*	BMO *	HML 1/6 LOADS	50	-	-	-	6	FC	EB2	-	-	03OCT86	6P
3415	BMO *	CANCELLED	60										
3416*	BMO *	HML 1/6 RESPONSE	60	-	-	-	10	FC	EB2	-	-	03OCT86 Y	10P
3420	BMO	CANCELLED IDEAL EXPERIMNTS											
3450	BMO	SEE 08750											
3452	BMO	SEE 08752											
3454	BMO	SEE 08754											
3460	BMO	CRATER SEIMIC SURVEY	POST	-	-	-	-	-	SELF	-	-	CALL 18DEC	WILL COORD W/3300 NMERI
3500*	SAC *	B-52/B-1B MULTI-SENSOR	POST	-	-	-	-	SAC	SELF	-	-	23JUN86 N	DETECT CRATER H+2/H+6
3600-1*	ESMC	WINDOW GLASS DAMAGE TEST	.2	-	-	-	3	ESMC	SELF	-	-	03OCT86***	495"Wx 68"Hx8'D,1A,1P,1D
3600-2*	ESMC	WINDOW GLASS DAMAGE TEST	.2	-	-	-	3	ESMC	SELF	-	-	03OCT86***	675"Wx 86"Hx8'D,1A,1P,1D
3600-3*	ESMC	WINDOW GLASS DAMAGE TEST	.2	-	-	-	3	ESMC	SELF	-	-	03OCT86***	615"Wx118"Hx8'D,1A,1P,1D
3600-4*	ESMC	WINDOW GLASS DAMAGE TEST	.2	-	2	2	1	ESMC	SELF	-	-	03OCT86***	615"Wx118"Hx8'D,1A
3600-5*	ESMC	WINDOW GLASS DAMAGE TEST	.2	-	2	2	1	ESMC	SELF	-	-	03OCT86***	675"Wx 86"Hx8'D,1A
3600-6*	ESMC	WINDOW GLASS DAMAGE TEST	.2	-	2	2	1	ESMC	SELF	-	-	03OCT86***	495"Wx 68"Hx8'D,1A
3600-7*	ESMC	WINDOW GLASS DAMAGE TEST	.2	-	2	2	3	ESMC	SELF	-	-	03OCT86***	285"Wx 74"Hx8 D,1A,1P,1D
													80PANELS,3MEN AT ADMIN
3700*	TAC *	INFRA-RED IMAGERY	N/A	-	-	-	-	-	-	-	-	20MAY86 N	HELICOPTER,0500-1500 AGL
													BOEING 105,(+/-) 1HOUR
NAVY EXPERIMENTS 4000's													
4000	NSWC	CANCELLED											
4005	NSWC*	CANCELLED											

Table 6.1. MISTY PICTURE experiment list (Continued).

DNA#	SPON	EXPERIMENT TITLE	PSI	TRS	ICAM	ECAM	CHAN	AGENY	BUNKER	MAN	DUST	TSP DATE	REMARKS PAGE 3
4010	NSWC*	CANCELLED											
4015*	NSWC*	RADOME TRS08	3.0	25/36	-	3	18	BRL	SB2	-	Y	30SEP86	2P,12S,4C,CAMOO-POST-TEST DUST SUP 250 X50 ,#,07550
4020	NSWC	CANCELLED											
4025	NSWC	CANCELLED											
4030	NSWD	CANCELLED NAVAL PERISCOPE											
4100*	NWEF*	"PARKED" AIRCRAFT	5	-	-	2	55	BRL?	WB1	-	Y	19FEB86	Y DUST SUP 250 X250'
4110*	NWEF*	"IN-FLIGHT" AIRCRAFT	5	-	-	3	105		WB1	-	Y	25FEB86	Y DUST SUP 250 X250
4200*	NRL	MATERIAL PROPERTIES TEST	10	97-140	1	-	-	-	-	-	-	16OCT86	#10,1'SG;#2,2'SG,26AUG86
GOVERNMENT AGENCIES 5000's													
5000	DOD *	CANCELLED											
5010	DOD	CANCELLED											
5200*	LANL	IONOSPHERIC SHOCK MEAS.VLA	N/A	-	-	-	-	LANL	SELF	-	-	18AUG86	Y HI-ALT REMOTE MEAS, "VLA" VERY LARGE ARRAY,COUNTDWN SCHEDULE UPDATES,<T-5#
5250	LANL	SEISMIC MEASUREMENT	ARIZONA	-	-	-	-	LANL	SELF	-	-	18MAR87VER	COUNTDOWN TIMING UPDATES
5500	$ ORNL	EARTH SYSTEMS BLAST TEST	150/200	-	-	-	-	PASSIVE		-	-	05DEC86	BURIED 14'STRCTR,NO FUNDS
PRIVATE ENTERPRISE 6000's													
6030*	BOE	FULL SCALE HML (9'SEGMENT)	40	-	-	-	60					3NOV86	H66"X L29'X W12',(5) DEPENDENT ON BMO DWNSLCTN
6205	MM	CANCELLED											
6207	MM	CANCELLED											
6210	MM	CANCELLED											
6230	MM	CANCELLED											
6250	MM	CANCELLED											
FOREIGN COUNTRIES 7000's													
7003	UK	* CANCELLED											
7005*	UK	* FULL SCALE R/C BOX	4.5	-	-	-	9	FC	WB2	-	Y	01DEC86	14W'14L 9H',50'R,3P,4S,2D ALL DUST SUP 200'X100
7006*	UK	* 1/6 SCALE R/C BOX	4.5	-	-	-	-	FC	-	-	Y	01DEC86	2.3W'2.3L'1.5H',50'R
7008*	UK	* FULL SCALE R/C BOX	4.5	-	-	-	2	FC	WB2	-	Y	01DEC86	14W'14L 9H' 50'R,2D
7009*	UK	* FULL SCALE R/C BOX	7.5	-	-	-	2	FC	WB2	-	Y	01DEC36	14W'14L'9H' 50'R,2D
7011*	UK	* 1/6 SCALE R/C BOX	7.5	-	-	-	-	FC	-	-	Y	01DEC86	2.3W'2.3L'1.5H',50'R
7013*	UK	* FULL SCALE R/C BOX	7.5	-	-	-	2	FC	WB2	-	Y	01DEC86	14W'14L 9h 50'R,2D
7014*	UK	* FULL SCALE R/C BOX	7.5	-	-	-	5	FC	WB2	-	Y	01DEC86	14W'14L'9H' 50'R,3P,2D
7016*	UK	* FULL SCALE R/C BOX	7.5	-	-	-	2	FC	WB2	-	Y	01DEC86	14W'14L'9H' 50'R,2D
7019*	UK	* 1/6 SCALE R/C BOX	11	-	-	-	-	FC	-	-	Y	01DEC86	2.3W'2.3L'1.5H',50'R
7021*	UK	* FULL SCALE R/C BOX	11	-	-	-	2	FC	WB2	-	Y	01DEC86	2.3W'2.3L'1.5H',50'R,2D
7022*	UK	* FULL SCALE R/C BOX	11	-	-	-	5	FC	WB2	-	Y	01DEC86	14W'14L'9H', 50'R,3P,2D
7024*	UK	* FULL SCALE R/C BOX	11	-	-	-	2	FC	WB2	-	Y	01DEC86	14W'14L'9H' 50'R, 1D
7025*	UK	* 1/6 SCALE R/C BOX	15	-	-	-	-	FC	-	-	Y	01DEC86	2.3W'2.3L 1.5H',50'R,2D
7027*	UK	* FULL SCALE R/C BOX	15	-	-	-	2	FC	WB2	-	Y	01DEC86	14W 14L' 9H' 50'R,2D
7028*	UK	* FULL SCALE R/C BOX	15	-	-	-	5	FC	WB2	-	Y	01DEC86	14W'14L 9H' 50'R,3P,2D
7030*	UK	* FULL SCALE R/C BOX	15	-	-	-	2	FC	WB2	-	Y	01DEC86	14W'14L' 9H', 50'R,2D
		LOCKER LOCATION DIAGNOSTIC											
7052-A*	UK	STEEL LOCKER 680' 670'	100	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, LEFT
7052-B*	UK	STEEL LOCKER 760' 765'	75	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, RIGHT
7052-C*	UK	STEEL LOCKER 840' 843'	60	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, LEFT
7052-D*	UK	STEEL LOCKER 920' 912'	50	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, RIGHT
7052-E*	UK	STEEL LOCKER 1000' 1000'	40	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, LEFT
7052-F*	UK	STEEL LOCKER 1080' 1047'	36	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, RIGHT
7052-G*	UK	STEEL LOCKER 1160' 1135'	30	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, LEFT
7052-H*	UK	STEEL LOCKER 1240' 1230'	25	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, RIGHT
7052-J*	UK	STEEL LOCKER 1320' 1360'	20	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, LEFT
7052-K*	UK	STEEL LOCKER 1400' 1395'	19	-	-	-	-	PASSIVE		-	-	00OCT86	N 8DEG ANGLE, RIGHT
7056	UK	* CANCELLED MEMORIAL STONES	3/3.5/4/4.5/5										
7060*	UK	* 4 MAN BATTLE TRENCH	20	-	-	2	-	PASSIVE		2	-	00OCT86	N SIDE-ON
7061*	UK	* 4 MAN BATTLE TRENCH	20	-	-	-	-	PASSIVE		1	-	00OCT86	N END-ON
7062*	UK	* 4 MAN BATTLE TRENCH	20	-	-	2	-	PASSIVE		2	-	00OCT86	N SIDE-ON
7063*	UK	* 4 MAN BATTLE TRENCH	20	-	-	-	-	PASSIVE		1	-	00OCT86	N END-ON
7064	UK	* CANCELLED SHELTER TRENCH	16										
7066	UK	* CANCELLED SHELTER TRENCH	12										
7068*	UK	* SHELL SCRAPE	12.5	-	-	-	-	PASSIVE		1	-	00OCT86	N SURVIVAL TRENCH,SIDE-ON
7070*	UK	* SHELL SCRAPE	12.5	-	-	-	-	PASSIVE		1	-	00OCT86	N SURVIVAL TRENCH,END-ON

Table 6.1. MISTY PICTURE experiment list (Continued).

DNA#	SPON	EXPERIMENT TITLE	PSI	TRS	ICAM	ECAM	CHAN	AGENY	BUNKER	MAN	DUST	TSP DATE	REMARKS PAGE 4
7075	UK	MEXE SHELTER	15	-	-	-	-	PASSIVE		-	-	00DEC86	
7090*	UK *	WHIPLASH	7.5	-	-	1	5	BRL	NB1	-	Y	29OCT86	Y FUEL DISTRIBUTION SYSTEM 3P,30,1D,DUST 50 X100
7190	FRG	CANCELLED											
7300*	SWED*	BURIED COMM STRUCTURE	150	-	-	-	4	DNA	WT1	-	-	27JUN85	N RETEST,CLASSFD AREA,1P,3A
7310	SWED	CANCELLED											
7390	SWED	CANCELLED											
7450*	NOR *	VALHAL II STRUCTURE	44	-	-	-	-	NOR	SELF	-	-	28FEB86	N LITTLE/NO RESPONSE,942'
7452*	NOR *	PASSIVE HORN ANTENNA	150	-	-	-	-	PASSIVE		-	-	28FEB86	N 25'X25'X64'
7454*	NOR *	FULL COMM SHELTER RL 80	50	-	2	-	15	NOR	VALHAL	-	-	28FEB86	N BURIED
7458*	NOR *	1/4 COMM. SHELTER RL 80	150	-	-	-	-	PASSIVE		-	-	28FEB86	N BURIED
7460*	NOR *	1/4 COMM. SHELTER RL 80	125	-	-	-	-	PASSIVE		-	-	28FEB86	N BURIED
7462*	NOR *	1/4 COMM. SHELTER RL 80	100	-	-	-	-	PASSIVE		-	-	28FEB86	N BURIED
7464*	NOR *	1/4 COMM. SHELTER RL 80	75	-	-	-	-	PASSIVE		-	-	28FEB86	N BURIED
7466*	NOR *	1/4 COMM. SHELTER RL 80	50	-	-	-	-	PASSIVE		-	-	28FEB86	N BURIED
7468*	NOR *	1/4 COMM. SHELTER RL 80	25	-	-	-	-	PASSIVE		-	-	28FEB86	N BURIED
7470*	NOR *	SPIDER HOLE A	10	-	-	-	1	NOR	VALHAL	-	-	28FEB86	N SOLDIER SHELTER
7472*	NOR *	SPIDER HOLE B	25	-	-	-	1	NOR	VALHAL	1	-	28FEB86	N SOLDIER SHELTER
7474*	NOR *	DOUBLE SPIDER HOLE C	50	-	-	-	1	NOR	VALHAL	1	-	28FEB86	N 2 SOLDIER DBL SHELTER
7476*	NOR *	SPIDER HOLE D	75	-	-	-	1	NOR	VALHAL	1	-	28FEB86	N SOLDIER SHELTER
7478*	NOR *	SPIDER HOLE E	100	-	-	-	1	NOR	VALHAL	1	-	28FEB86	N SOLDIER SHELTER
7480*	NOR *	SPIDER HOLE F	150	-	-	-	1	NOR	VALHAL	1	-	28FEB86	N SOLDIER SHELTER
7482*	NOR *	AIR DEF RADAR STATION	10	-	-	-	-	PASSIVE		-	-	28FEB86	N ANTENNA
7501*	CAN	DRES, BLAST GAGE STATION	50	-	-	-	4	DRES	VALHAL	-	Y	02FEB87	1PT,2PS,1D,W/07454,50'X10
7502*	CAN	DRES, BLAST GAGE STATION	50	-	-	-	4	DRES	VALHAL	-	Y	02FEB87	1PT,2PS,1D,W/07420
7503*	CAN	DRES, BLAST GAGE STATION	7.5	-	-	-	4	DRES	VALHAL	-	Y	02FEB87	1PT,2PS,1D,BTW/7530&7532
7504*	CAN	DRES, BLAST GAGE STATION	150		-	-	4	DRES	VALHAL	-	Y	02FEB87	1PT,2PS,1D,W/7452
7505	CAN	DRES, BLAST GAGE STATION	50	-	-	-	4	DRES	VALHAL	-	Y	02FEB87	1PT,2PS,1D,W/07454
7520*	CAN *	NAVAL RE-ENTRANT CORNER	50	-	-	-	3	DRES	VALHAL	-	-	14MAY86	MS 7520,3P,MOVE STRUCTURE
7522-A*	CAN *	UK SHIP SUPERSTRUCT PANEL	18	-	-	-	7	DRES	VALHAL	-	-	14MAY86	1P?,1A?,4S?,1D?; 18'X 11
7522-B*	CAN *	1/4 SCALE GRP SHIP PANEL	18	-	-	-	6	DRES	VALHAL	-	-	14MAY86	3.75'X 2',GLASS RNF PLSTC
7524*	CAN *	US SHIP SUPERSTRUCT PANEL	18	-	-	-	13	DRES	VALHAL	-	-	COMING?	Y 2P?,2A?,8S?,1D?; 18 X 11'
7530*	CAN	NAVAL SIGNAL LIGHT	7.5	-	-	-		PASSIVE		-	-	29AUG86	W4'XL4'XH3'
7532*	CAN	NAVAL AIR INTAKE FILTER	7.5	-	-	-		PASSIVE		-	-	29AUG86	W8'XL12'XH8'
7534*	CAN	NAVAL BOFFER'S COVER	3.5	-	-	-		PASSIVE		-	-	29AUG86	W5'XL8'XH3'?
7550*	CAN	CANADAIAN RESPIRATOR TRS0B MAY NOT BE ABLE TO SUPPORT	10	30-15/	-	-	4	DRES	VALHAL	Y	9HDS	15OCT86	6 MASKS,3CALS,1TCOUPLE W/04015
DEFENSE NUCLEAR AGENCY 8000's													
8011	DNA	CANCELLED											
8012	DNA	CANCELLED											
8013	DNA	CANCELLED											
8050	DNA	CANCELLED											
8100	DNA	CANCELLED											
8200	DNA	CANCELLED											
8205	DNA	CANCELLED EJECTA											
8210	DNA	DRI,DUST SUPPRESSANT EXP'T	1K-3.5	-	-	6	-	-	-	-	Y	01JAN87	45AZ-2250'5DEG,50'TOWER 3-16MM/WSMR,3-70MM/DRI
8225	DNA *	CANCELLED EJECTA											
8230* $	DNA	ISI, PYROTECHNIC PHOTO	-	-	-	6	-	-	-	-	-	17OCT86	SUB FOR 9024,70MM FORMAT
8235	DNA	SEA, CLOUD OPTICS	-	-	-	4	-	-	-	-	-	19FEB87LTR	DAM,ATOM,PRATHER,SALINAS 0-10-20-30-120m,.5,1,2.5m
8240	DNA	CANCELLED EJECTA											
8241	DNA	CANCELLED EJECTA											
8242	DNA *	DRI, ARTF EJECTA BALLS	1500	-	-	-	-	-	-	-	-	20JUN86	20 TO 25 UNITS 45 DE RAD
8255	DNA *	CANCELLED GBL. EJECTA TIME											
8262	DNA	CANCELLED ISI,EJECTA PHOTO											
8500*	DNA *	RAEE MULTI-SPECTRAL	N/A	-	-	-	-	-	-	-	-	10JUN86	N SATELLITE AND AIRCRAFT
8510*	DNA *	BRV FLYTHROUGHS	N/A	-	-	22	-	PDA	SELF	-	-	29JUL86	Y 4 ROCKETS 01-3MINS.
8511*	DNA *	IN SITU CLOUD SAMPLING	N/A	-	-	-	-	PMS	SELF	-	-	16JUN86	N FILTER ON BEACH BARON A/C
8515	DNA	CANCELLED											
8520*	DNA *	DUST ENVIRONMNT DEFINITION	N/A	-	-	5	-	SAIC	SELF	-	-	20SEP85?	Y 20ROCKETS,VIPERS,A/C,BLNS
8522*	DNA *	ACTV PEBBLE FALLOUT SMPLNG	100-10	-	-	-	-	SAIC	SELF	-	-	LTR14AUG86	1600x60 PREPRE PEBBLE BED
8524*	DNA *	PSSV PEBBLE FALLOUT SMPLNG	2.5-.75	-	-	-	-	SAIC	SELF	-	-	LTR14AUG86	120 CLCTRS,4-5-6-7-8-9-10 KFT,ZSRADIALS,250 LOCATNS
8530*	DNA *	LANL, AIRCRAFT DUST SAMPLE	N/A	-	-	-	-	LANL	SELF	-	-	25SEP86	4 HANDHELD CAMERAS IN A/C
8532*	DNA *	LANL, MOBILE DUST SAMPLERS	DWNWIND	-	-	-	-	LANL	SELF	-	-	25SEP86	2 TRUCKS,T+10 TO T+60MIN

Table 6.1. MISTY PICTURE experiment list (Continued).

DNA#	SPON	EXPERIMENT TITLE	PSI	TRS	ICAM	ECAM	CHAN	AGENY	BUNKER	MAN	DUST	TSP DATE	REMARKS
8534*	DNA *	LANL, INERT TRACERS	62	-	-	-	-	LANL	SELF	-	-	25SEP86	100'NOT 135 ,RADIAL HOLES
8534-1*	DNA *	LANL, INERT TRACERS	10	-	-	-	-	LANL	SELF	-	-	25SEP86	
8534-2*	DNA *	LANL, INERT TRACERS	5	-	-	-	-	LANL	SELF	-	-	25SEP86	
8534-3*	DNA *	LANL, INERT TRACERS	3	-	-	-	-	LANL	SELF	-	-	25SEP86	
8536*	DNA *	CANCELLED											
8538*	DNA *	LANL, SAND COLUMN TRACERS	1200	-	-	-	-	LANL	SELF	-	-	25SEP86	COORD W/AFWL IN CRATER
8551-5*	DNA	CANCELLED											
8561-5*	DNA	CANCELLED											
8600	DNA	CANCELLED MISSILE SILO											
HQDNA PRECURSOR SIMULATION 8700's													
8700-A*	DNA	DUSTY PRECURSOR HELIUM BAG	AZ 170	-	-	-	-	-	-	-	-	LEHR	8BAGS,121'X400',400 X930'
8700-B*	DNA	DPR HELIUM FLOW & CONTROL	AZ 170	-	-	-	-	-	-	-	-	16DEC87	GRACON,SOUND VEL,RH,TEMP
8701-C*	DNA *	H-TECH, GREG/SNOB GAGES	80	-	-	-	6	WES	EB4	-	-	20FEB87	Y 1PS,6/S @ 6,12,36"
8701-D*	DNA *	"	70	-	-	-	6	WES	EB4	-	-	20FEB87	Y 1PS,6/S @ 6,12,36"
8701-E*	DNA *	"	60	-	-	-	10	WES	EB4	-	-	20FEB87	Y 1PS,6/S @ 1,3,6,12,36"
8701-F1	DNA *	" 3FT WING	50	-	-	-	6	WES	EB4	-	-	20FEB87	Y 1PS,6/S @ 6,12,36"
8701-F2	DNA *	" 5FT WING	50	-	-	-	20	WES	EB4	-	-	20FEB87	Y 2PS,6/S @ 1,3,6,9,12," 15"2DMS,18,36,48,60"
8701-G*	DNA *	"	40	-	-	-	10	WES	EB4	-		20FEB87	Y 1PS,6/S @ 1,3,6,12,36"
8701-H1	DNA *	" 3FT WING	30	-	-	-	6	WES	EB4	-	-	20FEB87	Y 1PS,6/S @ 6,12,36"
8701-H2	DNA *	" 5FT WING	30	-	-	-	20	WES	EB4	-	-	20FEB87	Y 2PS,6/S @ 1,3,6,9,12," 15"2DMS,18,36,48,60"
8701-H3	DNA *	" 3FT WING	30	-	-	-	6	WES	EB4	-	-	20FEB87	Y 1PS,6/S @ 6,12,36"
8701-J*	DNA *	"	25	-	-	-	10	WES	EB4	-	-	20FEB87	Y 1PS,6/S @ 1,3,6,12,36"
8701-L*	DNA *	" IDEAL	30	-	-	-	6	WES	EB4	-	-	20FEB87	Y 1PS,6/S @ 6,12,36",SOUTH
3400-E1	BMO	BMO GREG/SNOB GAGES	60	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-E2	BMO	BMO GREG/SNOB GAGES	60	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-E3	BMO	BMO GREG/SNOB GAGES	60	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-F1	BMO	BMO GREG/SNOB GAGES	50	-	-	-	6	WES	EB4	-	-	20FEB87	1PS,6/S @ 6,12,18"
3400-F2	BMO	BMO GREG/SNOB GAGES	50	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-F3	BMO	BMO GREG/SNOB GAGES	50	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-F4	BMO	BMO GREG/SNOB GAGES	50	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-F5	BMO	BMO GREG/SNOB GAGES	50	-	-	-	6	WES	EB4	-	-	20FEB87	1PS,6/S @ 6,12,18"
3400-G1	BMO	BMO GREG/SNOB GAGES	40	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-G2	BMO	BMO GREG/SNOB GAGES	40	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-H1	BMO	BMO GREG/SNOB GAGES	30	-	-	-	6	WES	EB4	-	-	20FEB87	1PS,6/S @ 6,12,18"
3400-H2	BMO	BMO GREG/SNOB GAGES	30	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-H3	BMO	BMO GREG/SNOB GAGES	30	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-H4	BMO	BMO GREG/SNOB GAGES	30	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-H5	BMO	BMO GREG/SNOB GAGES	30	-	-	-	6	WES	EB4	-	-	20FEB87	1PS,6/S @ 6,12,18"
3400-J1	BMO	BMO GREG/SNOB GAGES	25	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
3400-J2	BMO	BMO GREG/SNOB GAGES	25	-	-	-	2	WES	EB4	-	-	20FEB87	1PS,6/S @ 6"
8702	DNA	CANCELLED											
8703	DNA	CANCELLED											
8704-A*	DNA *	TRW, STREAK X-RAY	50	-	-	-	7	BRL	EB5	-	-	15OCT86	MS 8704
8704-B*	DNA *	TRW, STREAK X-RAY	30	-	-	-	7	BRL	EB5	-	-	15OCT86	
8705	DNA	CANCELLED											
8706	DNA	CANCELLED											
8707	DNA	CANCELLED											
8708	DNA	CANCELLED											
8710-A*	DNA *	ISI, SURFACE RECESSION	50	-	1	-	-	ISI	-	-	-	01AUG85	MAY HAVE ONE ON HML MODEL
8710-B*	DNA *	ISI, SURFACE RECESSION	30	-	1	-	-	ISI	-	-	-	01AUG85	
8714	DNA	CANCELLED											
8715	DNA	CANCELLED											
8717*	DNA *	WES, SOIL PREPARATION	N/A	-	-	-	-	WES	-	-	-	23AUG85	1" LAYER, 1/4" SIEVE, WATER TIL D-2,CROWD FENCE
8719*	DNA *	TRW, CINE FLASH MICROSCOPE	30	-	1	-	5	BRL	EB5	-	-	10JAN86	1P,2NM,2LAMP FIRING
8724	DNA	CANCELLED											
8730	DNA	CANCELLED											
8735-A*	DNA *	TRI,DISPLACMNT CUBES IDEAL	100	-	-	-	-	ARC		-	-	22OCT86	PASSIVE,S RADIL,20'X40'
8735-B*	DNA *	" IDEAL	75	-	-	-	-	ARC		-	-	22OCT86	PASSIVE,S RADIL,20'X40'
8735-C*	DNA *	" IDEAL	60	-	-	-	-	ARC		-	-	22OCT86	PASSIVE,S RADIL,20 X40'
8735-D*	DNA *	" IDEAL	50	-	-	-	-	ARC		-	-	22OCT86	PASSIVE,S RADIL,20'X40'
8735-E*	DNA *	" IDEAL	40	-	-	-	-	ARC		-	-	22OCT86	PASSIVE,S RADIL,20 X40'
8735-F*	DNA *	" IDEAL	30	-	-	-	-	ARC		-	-	22OCT86	PASSIVE,S RADIL,20 X40'
8735-G*	DNA *	" IDEAL	25	-	-	-	-	ARC		-	-	22OCT86	PASSIVE,S RADIL,20 X40
8735-H*	DNA *	" PRECURSOR	25	-	-	-	-	ARC		-	-	22OCT86	PASSIVE,DPR, 20 X20 X100
8740	DNA	CANCELLED											
8750-A1	DNA *	BRL,STATIC GAGES,"SURFACE"	150	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A, EAST

Table 6.1. MISTY PICTURE experiment list (Continued).

DNA#	SPON	EXPERIMENT TITLE	PSI	TRS	ICAM	ECAM	CHAN	AGENY	BUNKER	MAN	DUST	TSP DATE	REMARKS PAGE 6
8750-A?	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
8750-B1	DNA *	BRL,STATIC GAGES,"SURFACE"	120	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A, EAST
8750-B2	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
8750-C1	DNA *	BRL,STATIC GAGES,"SURFACE"	80	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A, EAST
8750-C2	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
8750-C3	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
8750-D1	DNA *	BRL,STATIC GAGES,"SURFACE"	70	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A, EAST
8750-D2	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
8750-D3	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
8750-E1	DNA *	BRL,STATIC GAGES,"SURFACE"	60	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A, EAST
8750-E2	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
8750-E3	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
3450-E1	BMO	BRL,STATIC GAGES,"SURFACE"	60	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A, EAST
3450-E2	"		"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
8750-F1	DNA	BRL,STATIC GAGES,"SURFACE"	50	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,WITH G/S ON WING
8750-F2	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
8750-F3	"	"	"	-	-	-	2	BRL	EB5	-	-	"	2 WITH G/S ON WING
8750-F4	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
3450-F1	BMO	BRL,STATIC GAGES,"SURFACE"	50	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A EAST
3450-F2	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
3450-F3	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
8750-G1	DNA *	BRL,STATIC GAGES,"SURFACE"	40	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,WITH G/S ON WING
8750-G2	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
8750-G3	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
3450-G1	BMO	BRL,STATIC GAGES,"SURFACE"	40	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A, EAST
3450-G2	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
8750-H1	DNA *	BRL,STATIC GAGES,"SURFACE"	30	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,WITH G/S ON WING
8750-H2	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
8750-H3	"	"	"	-	-	-	2	"	"	-	-	"	2P,WITH G/S ON WING
8750-H4	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
8750-H5	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
3450-H1	BMO	BRL,STATIC GAGES,"SURFACE"	30	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A
3450-H2	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A
3450-H3	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A
8750-J1	DNA *	BRL,STATIC GAGES,"SURFACE"	25	-	-	-	1	BRL	EB5	-	-	03JUL86	Y 1P,II-A, EAST
8750-J2	"	"	"	-	-	-	1	"	"	-	-	"	1P,WITH G/S ON WING
8750-J3	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
3450-J1	BMO	BRL,STATIC GAGES,"SURFACE"	25	-	-	-	1	BRL	EB5	-	-	03JUL86	1P,II-A, EAST
3450-J2	"	"	"	-	-	-	1	"	"	-	-	"	1P,II-A, WEST
8750-L*	DNA *	" " " IDEAL	30	-	-	-	1	BRL	SB2	-	-	03JUL86	Y 1PS W/WING SOUTH RADIAL
8752	DNA	CANCELLED,TOTAL PRESSURE											
8754-F*	DNA *	BRL, NEGATIVE PHASE, I-A	50	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"BACK #8701
3454-F1	BMO *	"	50	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"
3454-F2	BMO	"	50	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"
3454-G1	BMO *	"	40	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"
3454-G2	BMO	"	40	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"
8754-H*	DNA *	"	30	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"BACK #8701
3454-H1	BMO *	"	30	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"
3454-H2	BMO	"	30	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"
3454-J1	BMO *	"	25	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"
3454-J2	BMO	"	25	-	-	-	2	BRL	EB5	-	-	03JUL86	1PS,1PT@ 6"
8760	DNA*	CANCELLED											
8770-A*	DNA *	GENERIC LOADS MODEL A	50	-	-	-	24/23	AR/WES	EB5/EB4		-	23OCT86	Y P-3T/11R,10P,12G/S,1DUM
8770-B*	DNA *	GENERIC LOADS MODEL B	30	-	-	-	24/23	AR/WES	EB5/EB4		-	23OCT86	Y P-3T/11R,10P,12G/S,1DUM
8785 *	DNA	CANCELLED DPR AERIAL PHOTO											
8790 *	DNA *	ISI,PRECURSOR VERIFICATION	8	-	-	21	-	ISI	SELF	-	-	01AUG86	N 2000'CL BAG,ZEBRA 45DEG
8791-A*	DNA *	ISI,PRECURSOR VERIFICATION	2.3	-	-	2	-	ISI	SELF	-	-	01AUG86	N 4400'CL BAG,ZEBRA 45DEG
8791-B*	DNA *	ISI,PRECURSOR VERIFICATION	2.3	-	-	1	-	ISI	SELF	-	-	01AUG86	N 4400'CL BAG,ZEBRA 45DEG
8791-C*	DNA *	ISI,PRECURSOR VERIFICATION	2.3	-	-	2	-	ISI	SELF	-	-	01AUG86	N 4400'CL BAG,ZEBRA 45DEG
8792 *	DNA *	ISI,PRECURSOR DUST ROLL UP	6	-	-	4	-	ISI	SELF	-	-	01AUG86	4 TOWER 100',MS8791
8793-A*	DNA	ISI,PREDURSOR CLOSE-UP	50	-	-	1	-	ISI	SELF	-	-	10OCT86	
8793-B*	DNA	ISI,PREDURSOR CLOSE-UP	30	-	-	1	-	ISI	SELF	-	-	10OCT86	
8794	DNA	CANCELLED ISI,DISASSEMBLY											
8795-A*	DNA	PRECURSOR VIDEO	77	-	-	1	-	WSMR	-	-	-	20AUG86	1/3 BAGS, ON POLES, 758'R

Table 6.1. MISTY PICTURE experiment list (Continued).

DNA#	SPON	EXPERIMENT TITLE	PSI	TRS	ICAM	ECAM	CHAN	AGENY	BUNKER	MAN	DUST	TSP DATE	REMARKS
8795-B*	DNA	PRECURSOR VIDEO	52	-	-	1	-	WSMR	-	-	-	20AUG86	1/3 BAGS, ON POLES, 901'R
8795-C*	DNA	PRECURSOR VIDEO	36	-	-	1	-	WSMR	-	-	-	20AUG86	1/3 BAGS, ON POLES,1041 R
8795-D*	DNA	PRECURSOR VIDEO	6	-	-	1	-	WSMR	-	-	-	20AUG86	1/3 BAGS, ON POLES,2485 R
8798	DNA	DPR OVERSIGHT COMMITTEE	N/A	-	-	-	-	-	-	-	-	16OCT86	DOC PHOTO,OFFICE SPACE
8799	DNA	BETS TEST (PRE-MP)	N/A	-	-		-	FC	-	-	-	LEHR	24-27MAR
DIAGNOSTICS/FCDNA 9000's													
9005*	FC	* DRI,PLZT ELECT-OPTIC DEMO	10	-	-	1	-	DRI	SELF	-	-	20JUN86	Y 400fps,W/#1010,TRS#A
9010-A*	FC	* DRI, CHARGE OPTICS 20AZ	2.8	-	-	5	-	DRI	SELF	-	-	20JUN86	Y 40K,25K,20K,12.5K,10Kfps
9010-B*	FC	* DRI, CHARGE OPTICS 140AZ	2.8	-	-	5	-	DRI	SELF	-	-	20JUN86	Y 40K,25K,20K,12.5K,10Kfps
9010-C*	FC	* DRI, CHARGE OPTICS 260AZ	2.8	-	-	5	-	DRI	SELF	-	-	20JUN86	Y 40K,25K,20K,12.5K,10Kfps
9020-A*	FC	SHOCKWAVE OPTICS SOUTH RAD	<2.5	-	-	4	-	WSMR	SELF	-	-	20AUG86	Y 1/5Kfps,3/2.5Kfps,TARGETS
9020-B*	FC	SHOCKWAVE OPTICS WEST RAD	<2.5	-	-	6	-	WSMR	SELF	-	-	20AUG86	Y 1/5Kfps,5/2.5Kfps, 525 TO
9020-C*	FC	SHOCKWAVE OPTICS NORTH RAD	<2.5	-	-	4	-	WSMR	SELF	-	-	20AUG86	Y 1/5Kfps,3/2.5Kfps, 2550
9020-D*	FC	SHOCKWAVE OPTICS 11.5 AZ	<2.5	-	-	4	-	WSMR	SELF	-	-	20AUG86	Y 4/2.5Kfps,450'AP,INT 225'
9021-A*	FC	SHOCKWAVE VERTICAL OPTICS	<1.5	-	-	1	-	WSMR	SELF	-	-	20AUG86	Y COMPLEX-A,360fps2700 VIEW
9021-B*	FC	SHOCKWAVE VERTICAL OPTICS	<1.5	-	-	1	-	WSMR	SELF	-	-	20AUG86	Y COMPLEX-B,360fps2700 VIEW
9021-C*	FC	SHOCKWAVE VERTICAL OPTICS	<1.5	-	-	1	-	WSMR	SELF	-	-	20AUG86	Y COMPLEX-C,360fps2700 VIEW
9022	FC	CANCELLED FIREBALL OPTICS											
9024-A*	FC	SEE 8230, EJECTA OPTICS S	<2.5	-	-	2	-	WSMR	-	-	-	21AUG86	Y 60fps,NO TRGTS,4.8-4.4KFT
9024-B*	FC	SEE 8230, EJECTA OPTICS W	<2.5	-	-	2	-	WSMR	-	-	-	21AUG86	Y 60fps,NO TRGTS,4.8-4.4KFT
9024-C*	FC	SEE 8230, EJECTA OPTICS N	<2.5	-	-	2	-	WSMR	-	-	-	21AUG86	Y 60fps,NO TRGTS,4.8-4.4KFT
9026-A*	FC	DUST CLOUD OPTICS	<0.3	-	-	1	-	WSMR	-	-	-	21AUG86	Y 20fps,MILLERS WATCH20635'
9026-B*	FC	DUST CLOUD OPTICS	<0.3	-	-	1	-	WSMR	-	-	-	21AUG86	Y 20fps,GAP SITE 29033'
9026-C*	FC	DUST CLOUD OPTICS	<0.3	-	-	1	-	WSMR	-	-	-	21AUG86	Y 20fps,HARRIETT ?'
9026-D*	FC	DUST CLOUD OPTICS, W/VIDEO	<0.1	-	-	3	-	WSMR	-	-	-	21AUG86	Y 6fps,VICK SITE, 42,080'
9026-E*	FC	DUST CLOUD OPTICS, W/VIDEO	<0.1	-	-	3	-	WSMR	-	-	-	21AUG86	Y 6fps,SPEC SITE,?? 37,828'
9026-F*	FC	DUST CLOUD OPTICS, W/VIDEO	<0.1	-	-	3	-	WSMR	-	-	-	21AUG86	Y 6fps,FRAN SITE, 49,011'
9026-G*	FC	DUST CLOUD OPTICS,		-	-	3	-	WSMR	-	-	-	21AUG86	Y 2fpm,3SITE
9030*	FC	AERIAL OPTICS	<.25	-	-	6	-	FC	-	-	-	02SEP86	Y MRN F-4 A/C,23000',2TRACK 420-50KTS,4CAM 400fps
9120-1*	FC	FREE FIELD AIRBLAST SOUTH	2-500	-	-	-	43	BRL	SB2	-	-	TEEL	24PS,16PT
9120-2*	FC	FREE FIELD AIRBLAST WEST	2-500	-	-	-	53	BRL	WT1	-	-	TEEL	28PS,22PT
9120-3*	FC	FREE FIELD AIRBLAST NORTH	2-500	-	-	-	54	BRL	NB1	-	-	TEEL	36PS,19PT,5DENSITOMETER
9120-4*	FC	FREE FIELD AIRBLAST EAST	.5K-10K	-	-	-	10	BRL	EB5	-	-	TEEL	10PS
9122-H1	FC	FREE FIELD AIRBLAST DPR	30	-	-	-	2	BRL	EB5	-	-	TEEL	CRC 6/S06",DBL MOUNT
9122-H2	FC	FREE FIELD AIRBLAST DPR	30	-	-	-	2	BRL	EB5	-	-	TEEL	CRC 6/S06",DBL MOUNT
9122-H3	FC	FREE FIELD AIRBLAST DPR	30	-	-	-	2	BRL	EB5	-	-	TEEL	CRC 6/S06",DBL MOUNT
9210*	FC	* FREE FIELD GROUND MOTION	5-2000	-	-	-	50	WES	WB2	-	-	11JUN86	N WEST RADIAL
9220	FC	* CANCELLED STRCTRS SPPRT GM											
9310*	FC	* DETONATION VELOCITY, TOADS	>10000	-	-	-	150?	AFWL	SELF	-	-	24JUL85	Y GAGES IN ANFO, "TOADS"
9315	FC	CANCELLED DRI, FOTOADS											
9320	FC	~~ANFO CHARGE QUALITY~~	N/A	-	-	-	-	NSWC	-	-	-	PROPOSED	N ANFO QUALITY CONTROL, 808
9335	FC	CHARGE & BLAST SUPPORT	N/A					SNLA/FC				?	N X-UNIT,6 CHARGE LINES CHARGE LIGHTNING PROT
9400	FC	MOBILE TRS CALORIMETER	ALL TRS	MAX/MAX	-	-	25	BENDIX	VAN	-	-	GREGG	Y PRE-TEST TARGET BURNS
9402	FC	TRS CALORIMETRY	0-10	66/110	-	-	40/16	BEN	SB2/WB1	-		GREGG	N 4 NOZ UNIT, 2/NOZ
9404*	FC	* TRS BLAST ENVRM EVALUATION	10		-	-	10	WES	WB1	-	-	14JUL86?	Y 2PI,4S,GM/1AV,1AH,5',2A W/TRS#A,#1010/15
9406	FC	TRS SYSTEM	3.4-10	-	-	-	7	?	T&F	-	-	03NOV86	Y 7 FC UNITS
9412*	FC	TESTBED WEATHER	12	-	-	-	8	SNLA	-	-	-	?	Y 5 TEMP -.1,0,.5,1.5,1M 3 WIND 2,5,10M, 6Z
9414*	FC	WSMR WEATHER	-	-	-	-	7	SNLA	-	-	-	?	Y RECORD AT ADMIN, SAMS, TEMP WIND
9418*	FC	* OFFSITE MICROBAROGRAPHS	-	-	-	-	13	SNLA	SELF	-	-	07JUL86	Y OVERPRESSURE IN TOWNS MP & PRE-TEST CHARGES,T&F
9500	FC	MCDONALD RANCH	.7	-	-	2	27	BENDIX	TRLR	-	-	CERL?	Y 2GM,9PRS,7 STRAIN,7ACC,2D
9502	FC	SUPPORT TO 8210											
FCDNA TESTBED (NO TSP REQUIRED) 9900's													
9900	TGIE	PERM PLAYBACK/ T&F	-	-	-	-	-	FC	-	-	-	-	N
9910	TGIE	TB T&F SYSTEM	-	-	-	-	-	FC	-	-	-	-	N SHELTERS/TRUNK CABLE
9920	TGE	INSTR. BUNKERS	-	-	-	-	-	FC	-	-	-	-	N TB INSTALLATION
9930	TGE	GENERATOR BUNKERS	-	-	-	-	-	FC	-	-	-	-	N TB INSTALLATION

Table 6.1. MISTY PICTURE experiment list (Concluded).

DNA#	SPON	EXPERIMENT TITLE	PSI	TRS	ICAM	ECAM	CHAN	AGENY	BUNKER	MAN	DUST	TSP DATE	REMARKS
9940	TGIE	LIGHTNING ALARM	-	-	-	-	-	-	-	-		-	N TB WARNING SIREN,3LNITS
9950	$ TGIE	BUNKER ENVIRON. DEF.	-	-	-	-	6	CERL	EBI	-	-	CERL??	N MONITOR RESPONSE

PAGE 9

KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY,

DNA#
$ NEEDS FUNDING
* INCLUDED IN PROGRAM DOCUMENT
A-Z SAME EXPERIMENT DIFFERENT LOCATION
"I" IS NOT USED.

PSI
K 1,000

AGEN
* EDS SIGNED BY TECH. & TEST DIRECTORS

TSP DATE: IS THE DATE GIVEN ON THE TSP AND WILL REFLECT THE PRESENT VERSION OR SOURCE OF INFO
LTR LETTER
VER VERBAL

REMARKS

A	ACCELEROMETER	L	LOAD GAGE
GM	GROUND MOTION	S	STRAIN
P	PRESSURE	SS	SOIL STRESS
PS	PRESSURE STATIC	D	DISPLACEMENT GAGES
Q	PRESSURE DYNAMIC	G/S	GREG/SNOB
PT	PRESSURE TOTAL		
DIFF	PRESSURE DIFFERENTIAL		

KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY, KEY,

9 MAR 87, UPDATED 2129-30-36-44-55-70 MANIKINS, 8701/3400 NEW TSP, 8770 REC AGY
3 MAR 87, UPDATED 7005-6-8-9-11-13-14-16-19-21-22-24-25-27-28-30 NEW TSP
25 FEB 87, UPDATED 1345-75-76,7501-2-3-4,4100-10,5500, ADDED 2210,7505,8235
19 FEB 87, RE-ADDED 3400,3300, UPDATED 1376,3402-09, 4100-10, CANCELLED 1340
9 FEB 87, ADDED 9582
5 FEB 87, UPDATED 3400'S, 7550 PUT ON 4015 REMOVED FROM 1015
4 FEB 87, UPDATED 1300'S, 2100'S CANCELLED 1300
3 FEB 87, UPDATED 2129, CANCELLED 2126
2 FEB 87, UPDATED 1300'S, 3400'S
29 JAN 87, UPDATED 9026-C, KEY, BUNKERS, REMARKS, HOLD PUT ON 1400 & 7000
27 JAN 87, CANCELLED 1325,1330 ADDED 8790
21 JAN 87, ADDED 8210
6 JAN 87, CANCELLED 1011,12 ADDED 7075
12 DEC 86, CLEAN-UP 8700's UPDATED
8 DEC 86, CANCELLED 6205-07, UPDATED PHOTO, STAFF UPDATE, ADD 5500
5 DEC 86, UPDATED 1012, CANCELLED 1013
18 NOV 86, CANCELLED 4010, UPDATED 7052,9406
10 NOV 86, UPDATED 8750,8752
6 NOV 86, UPDATED 1013,6030, CANCELLED 6210
5 NOV 86, ADDED 1300
3 NOV 86, CANCELLED 1014,8240-41; UPDATED 3400'S,8230,8522-24,8534,8735; ADDED 6210,6230,6030
24 OCT 86, UPDATED 8700'S
23 OCT 86, UPDATED 75506
21 OCT 86, UPDATED 1010,1015,2144,9400,9500
20 OCT 86, CANCELLED 1350,1300,2112,2110,4030,5000; ADD 2144,3415-16,7524,8230,8793;UPDATE 2155-70,2200,4015,7522,8532,8752.8770
14 OCT 86, CANCELLED 4005,7056,7064,7066;ADD 6205-7,7061,7063;UPDATE 3600,4100-10.7060,7062,7068,7070,8522-24
1 OCT 86, UPDATED 8260,8794, SB2 TO SB3 & REV, 8752-F-H 3452-F3-G1-G2-H-H3 ADD 1TP,UPDATED PRECURSOR EXPTS 8760CANC, 8770 52+CH.
27 SEP 86, CANCELLED 8600.
22 SEP 86, UPDATED 7550, 3CH
17 SEP 86, UPDATED 9020's

DISTRIBUTION: FCTT (MR SUMMA,LTCOL SCHENKER,*CPT LUTTON,*CPT BRUMBURGH) HQDNA/SPTD (DR KENNEDY, MAJ TAYLOR,
24CYS FCTO (CDR LUND,*MAJ WALLS,*LT(USN) FLADAGER,*CPT SAUER,*LT(USN) LEHR,*SSGT TAGLE) LTCOL ANDERSON)
FCTE (*MR LU,*MR MATTHEWS,*MR PRATHER,*LT CRAWFORD,*CPT PATTERSON,*CAPT MUSCARELLA)
FCTP (*MR SIMPSON,*MR MONTOYA), FCTS (LCDR SMITH), BRL (MR TEEL), T-REPS (MR COLLINS)

* MISTY PICTURE STAFF

Table 6.2 MISTY PICTURE experiment numbering plan for DNA HE tests. (26 March 1987)

SPONSOR	DNA EXP T # S
ARMY	1000-2000's
Natick	1000-1099
White Sands Missile Range (WSMR)	1200-1399
Harry Diamond Laboratory (HDL)	1400-1599
Waterways Experiment Station (WES)	1600-1799
Armament Reserarch & Development Center (ARDC)	1800-1899
Ballistic Missile Defense (BMD) Sys Comd	1900-1999
Ballistic Research Laboratory (BRL)	2000-2299
AIR FORCE	3000's
Air Force Geophysical Laboratory (AFGL)	3100-3199
Electronics System Division (ESD)	3200-3299
Air Force Weapons Laboratory (AFWL)	3300-3399
Ballistic Missile Office (BMO)	3400-3499
Strategic Air Command (SAC)	3500-3599
Eastern Space Missile Center (ESMC)	3600-3699
NAVY	4000's
Naval Surface Weapons Center (NWSC)	4000-4099
Naval Weapons Effects Facility (NWEF)	4100-4199
MARINES	4900's
GOVERNMENT AGNECIES	5000's
Department of Defense	5000-5099
Federal Emergency Management Agency (FEMA)	5100-5199
Los Alamos National Laboratory (LANL)	5200-5299
Department of Energy (DOE)	5300-5399
Sandia National Laboratory (SNL)	5400-5499
Oak Ridge National Laboratory (ORNL)	5500-5599
PRIVATE ENTERPRISE	6000's
Boeing (BOE)	6000-6049
Goodyear (GYR)	6050-6099
General Dynamics (GD)	6100-6199
Martin Marietta (MM)	6200-6249
Bell Aerospace (BELL)	6250-6299
Science Research International (SRI)	6300-6349
Science Applications International (SAI)	6350-6374
FOREIGN COUNTRIES	7000's
United Kingdom (UK)	7000-7099
Germany (FRG)	7100-7199
France (FR)	7200-7299
Sweden (SWED)	7300-7399
Norway (NOR)	7400-7499
Canada (CAN)	7500-7599
DEFENSE NUCLEAR AGENCY (HQDNA)	8000's
Dust Experiments	8000-8199
Ejecta Experiments	8200-8299
Aerial Experiments	8500-8599
Precursor Experiments	8700-8799
FCDNA DIAGNOSTICS	9000's
Photography	9000-9099
Airblast	9100-9199
Ground Motion & Soil Properties	9200-9299
Charge	9300-9399
Thermal Radiation Source (TRS)	9400-9409
Weather	9410-9520
FIELD COMMAND TESTBED SUPPORT	9900's

SECTION 7

CONSTRUCTION

7.1 TEST BED CONSTRUCTION.

A major effort was expended in the fabrication and erection of the charge container for MISTY PICTURE. Figures 7.1, 7.2, and 7.3 show the container drawings, the container and the completed container being assembled at GZ. Other major construction efforts were:

a. The Oak Ridge National Laboratory Shelter (Figure 7.4)

b. The WES Shelter (Figure 7.5)

c. The Norway Communication Shelter (Figure 7.6)

d. British Trench (Figure 7.7)

e. British Structures (Figure 7.8)

f. Rock at Launcher Site (Figure 7.9)

g. Phot Backdrops (Figure 7.10)

h. BRL Trees Experiment (Figure 7.11)

i. Instrumentation Bonder (Figure 7.12)

The engineering planning list for MISTY PICTURE is given in Appendix F.

7.2 PRECURSED RADIAL.

The edge anchor layout for the ductz precured radial is shown in Figures 7.13 and 7.14. In deploying the mylar enveloped the envelop archorage system, the number of deployment carts (four), the number of personnel were all adequate. In calm weather, as experienced on MISTY PICTURE, six hours were required to deploy the eight envelopes. Figure 7.15 shows all the bags deployed.

7.3 THE McDONALD RANCH BRACING PLAN.

Figure 7.16 shows the McDonald Ranch brace system that was erected under the supervision of the MISTY PICTURE Test Group Engineer.

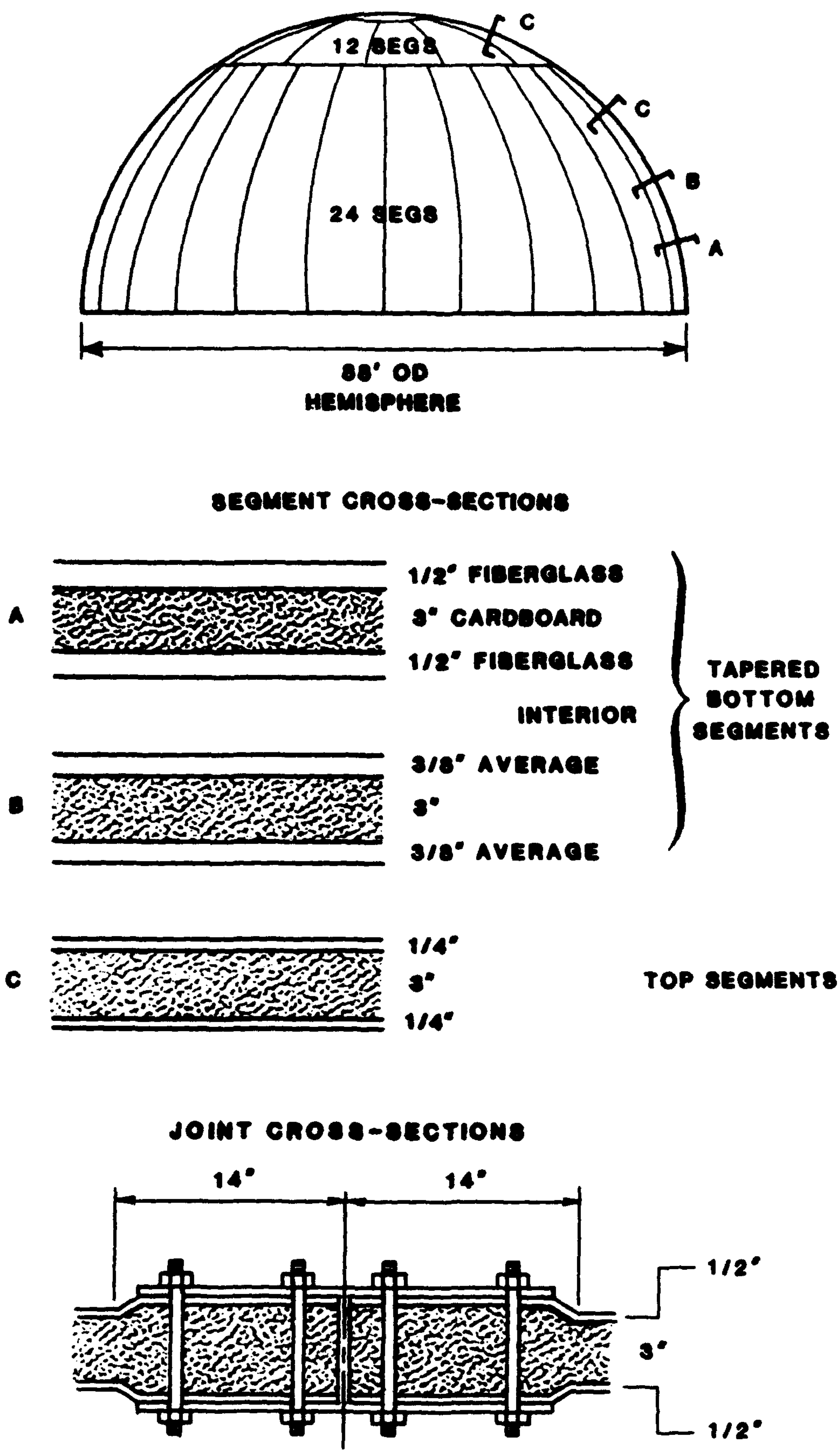


Figure 7.1. Charge container.

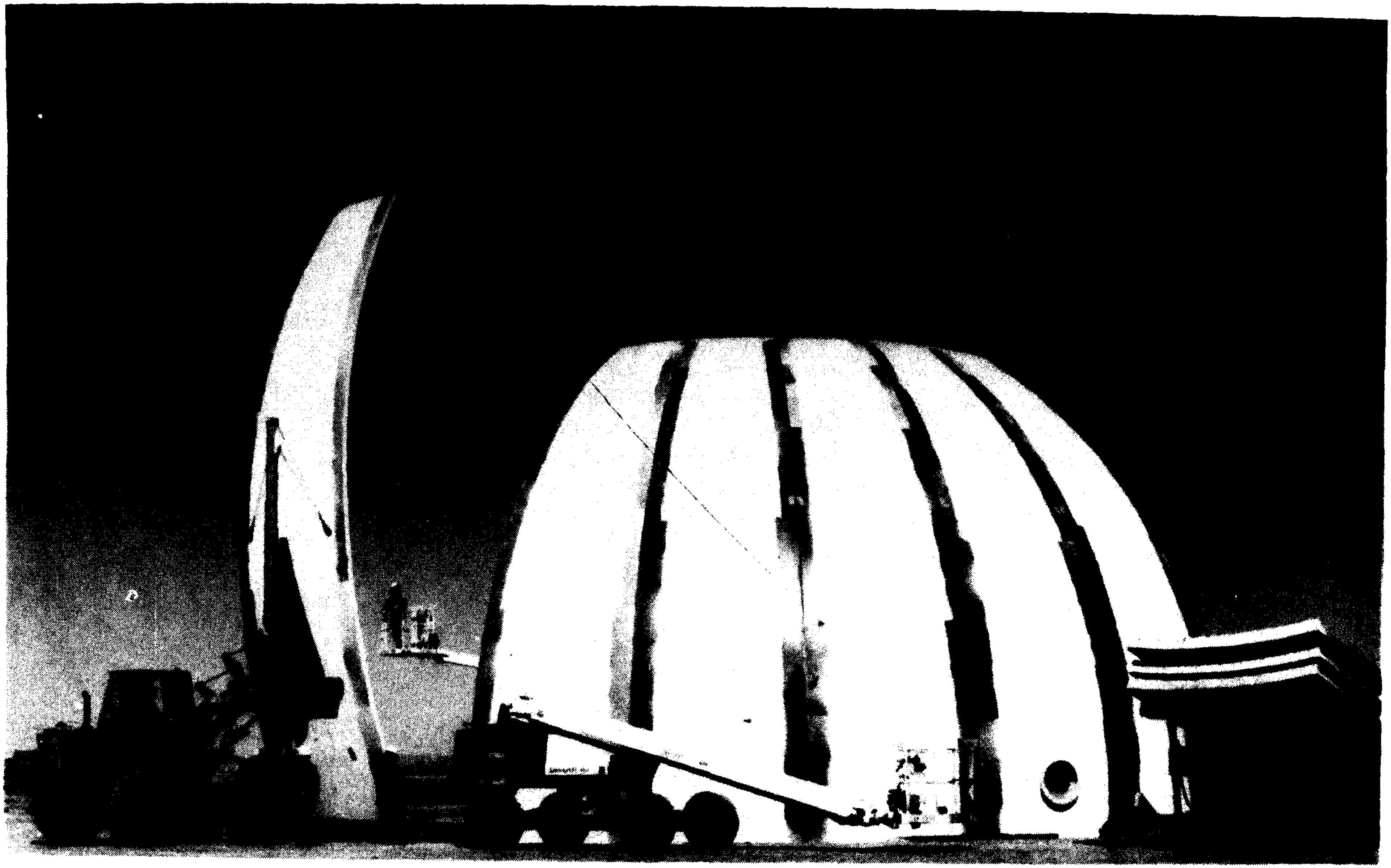


Figure 7.2. Charge container being erected.

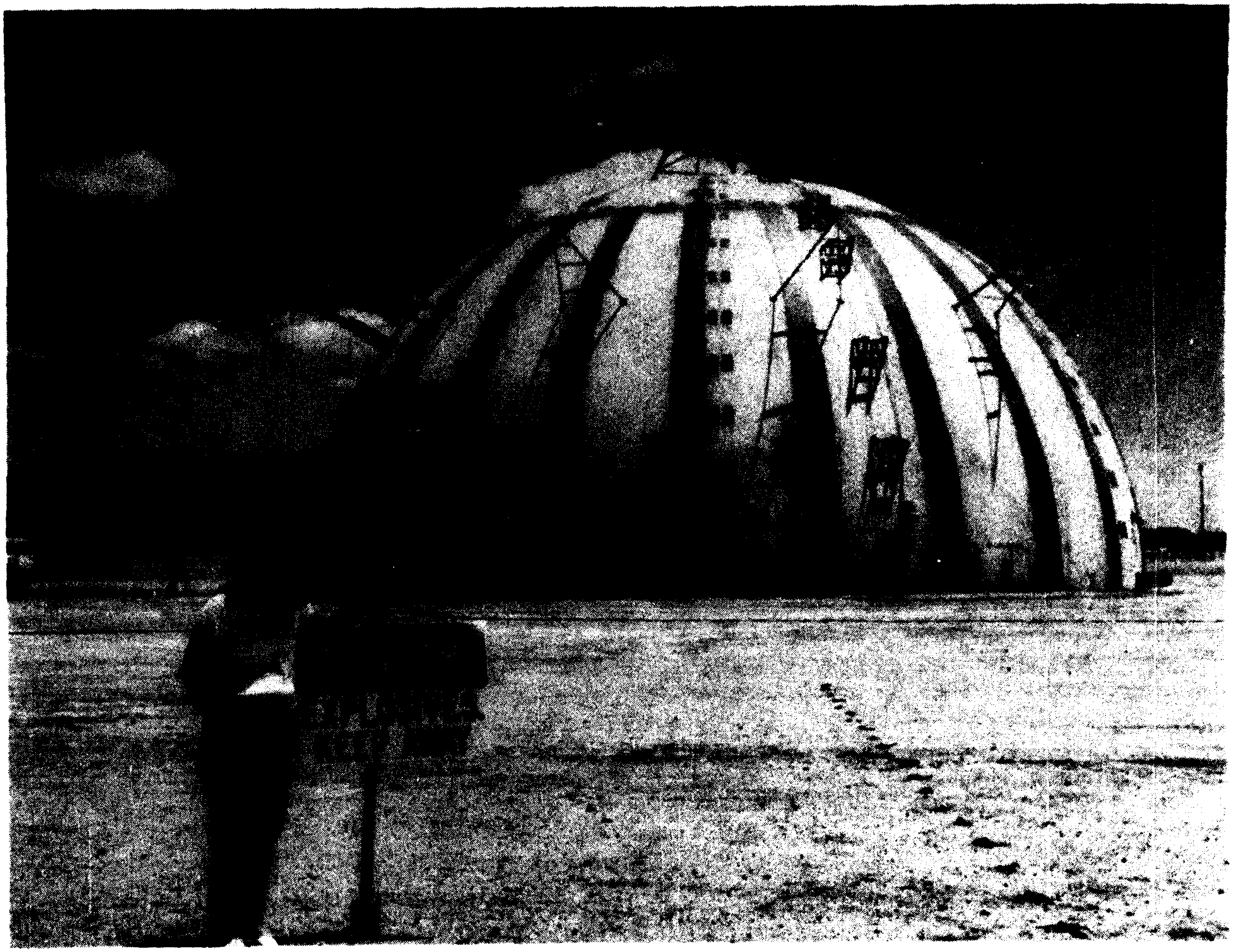


Figure 7.3. Completed charge container.

Figure 7.4. The Oak Ridge National Laboratory shelter.

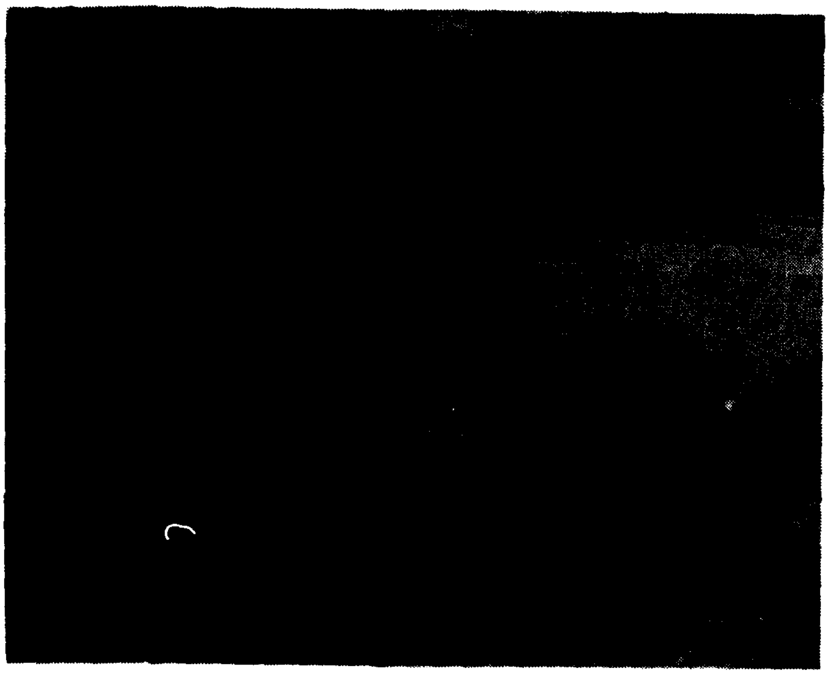


Figure 7.5. The WES shelter.

Figure 7.6. The Norway communication shelter.

Figure 7.7. British trench.

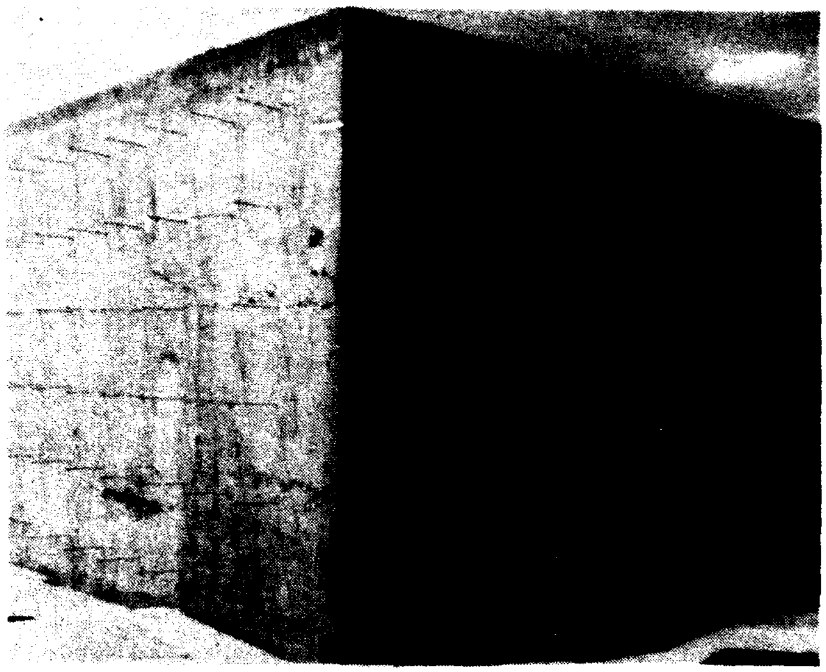


Figure 7.8. British structures.

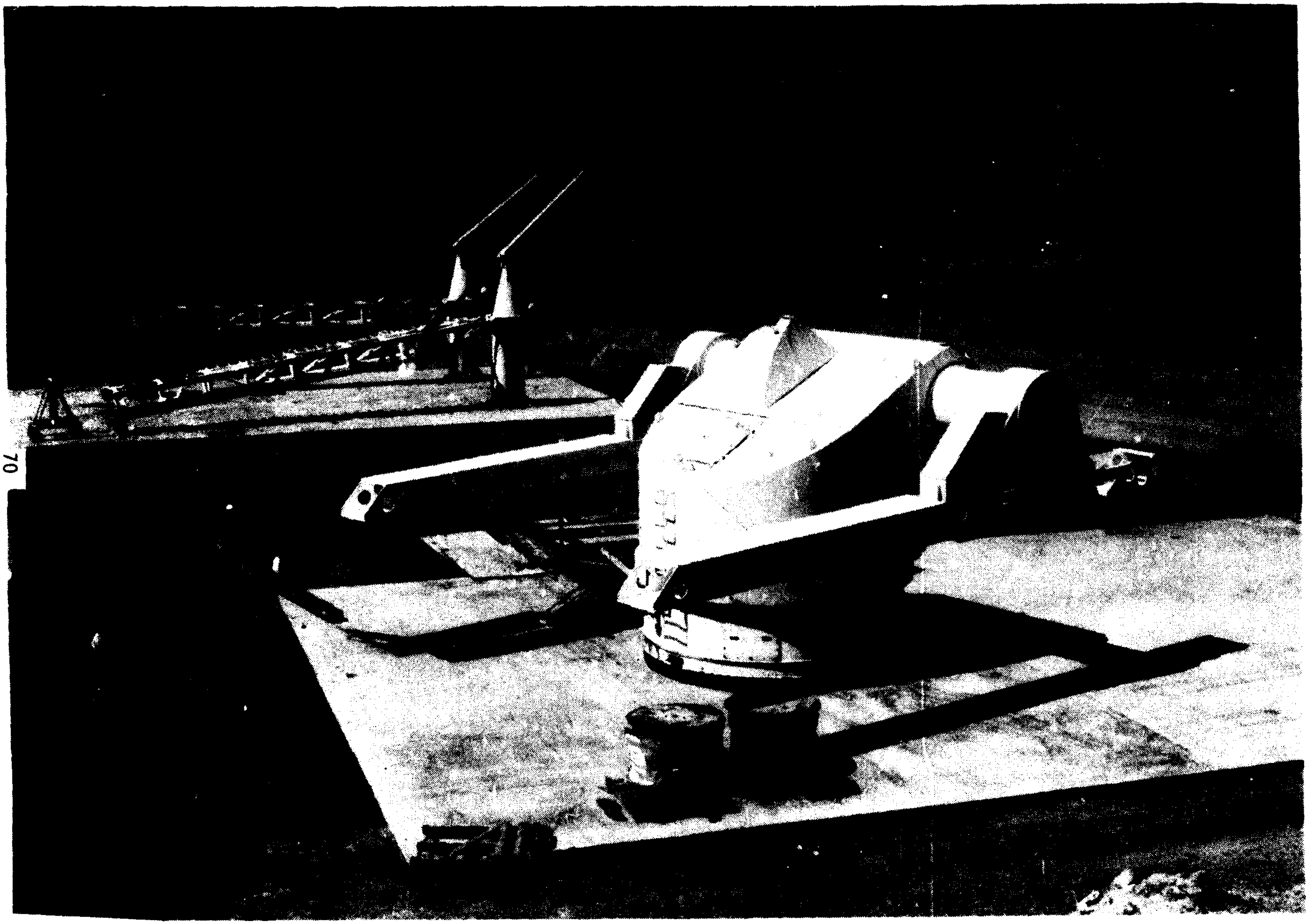


Figure 7.9. Rocket launcher site.

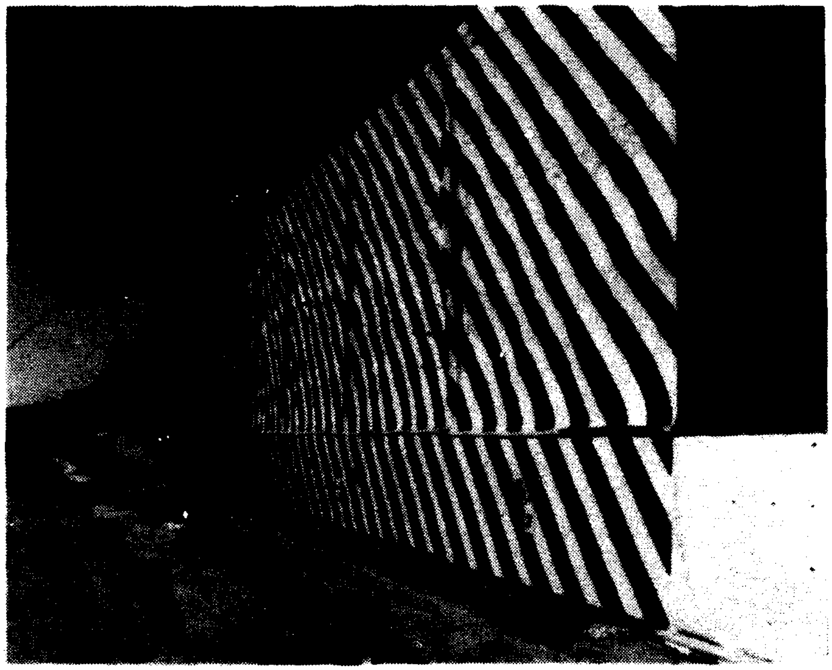


Figure 7.10. Photo backdrops.

Figure 7.11. BRL trees experiment.

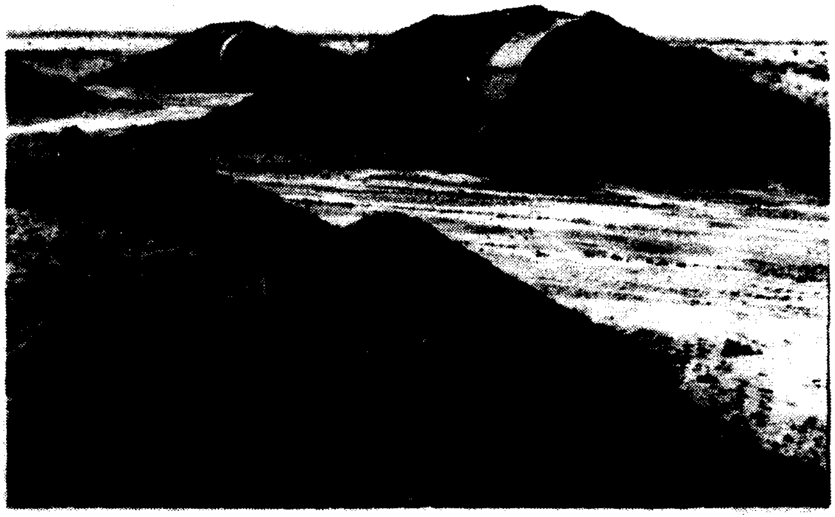


Figure 7.12. Instrumentation bunker.

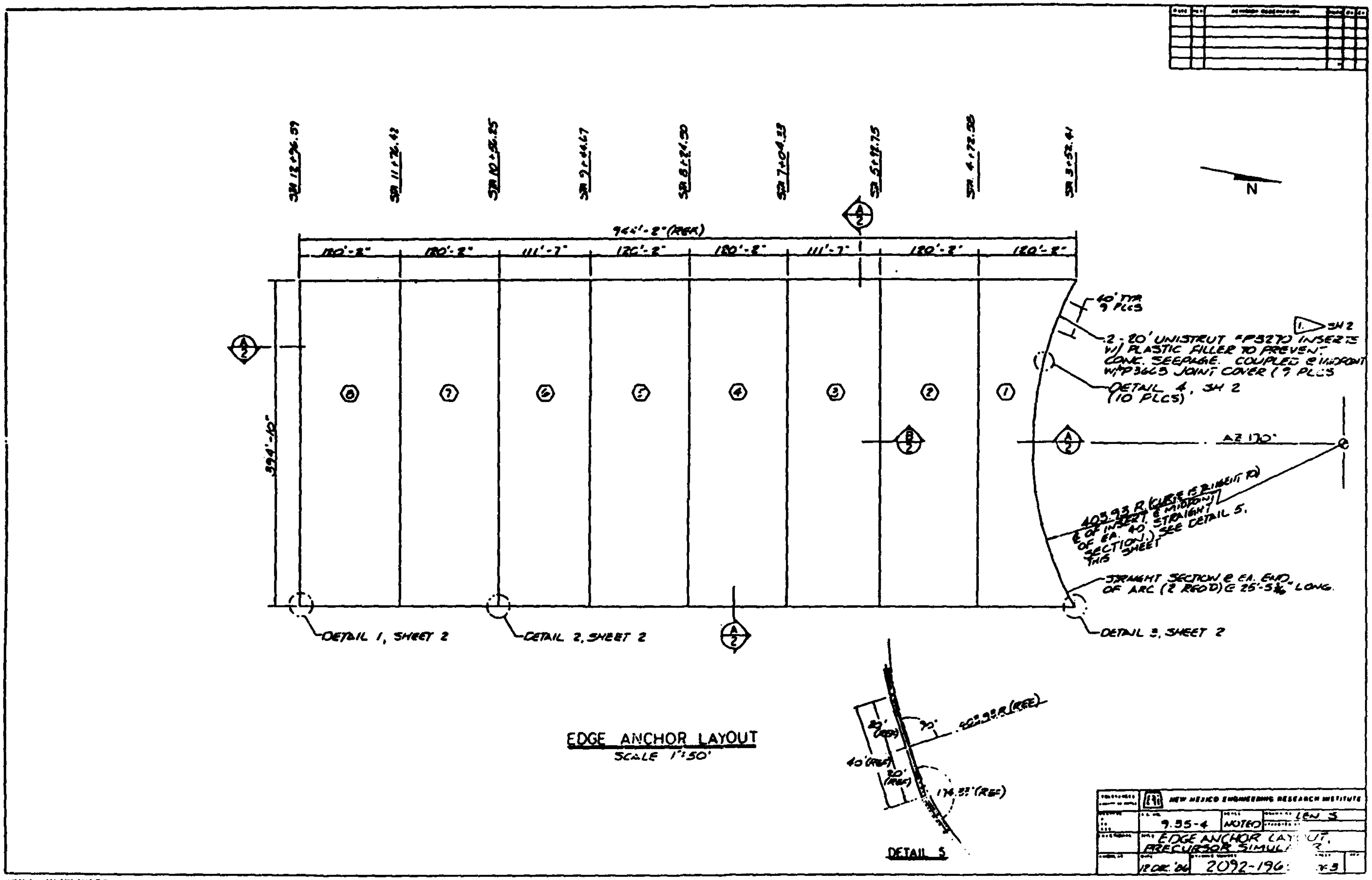


Figure 7.13. Edge anchor layout.

EDGE ANCHOR SYSTEM - SIDES

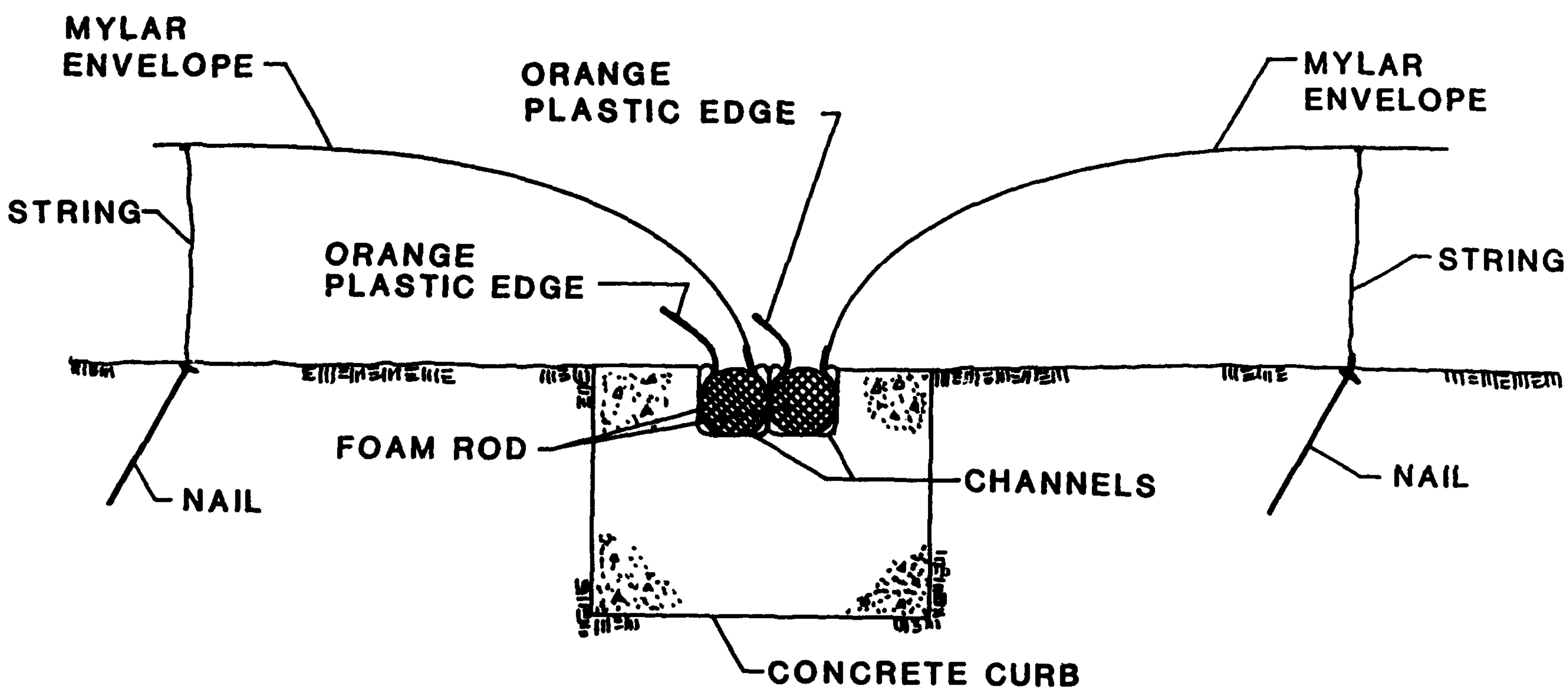


Figure 7.14. Edge anchor system - sides.

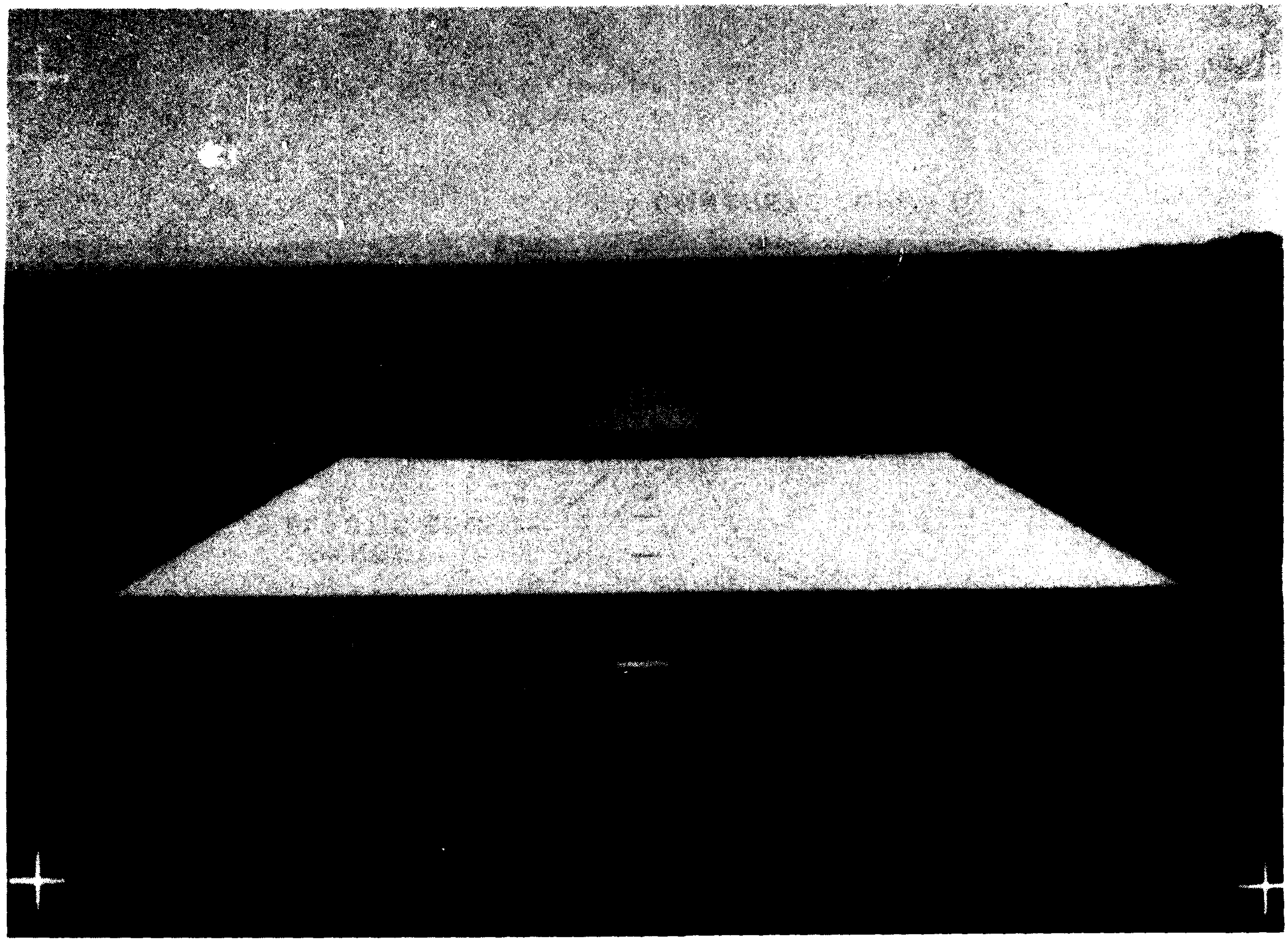


Figure 7.15. Picture of bag deployed.

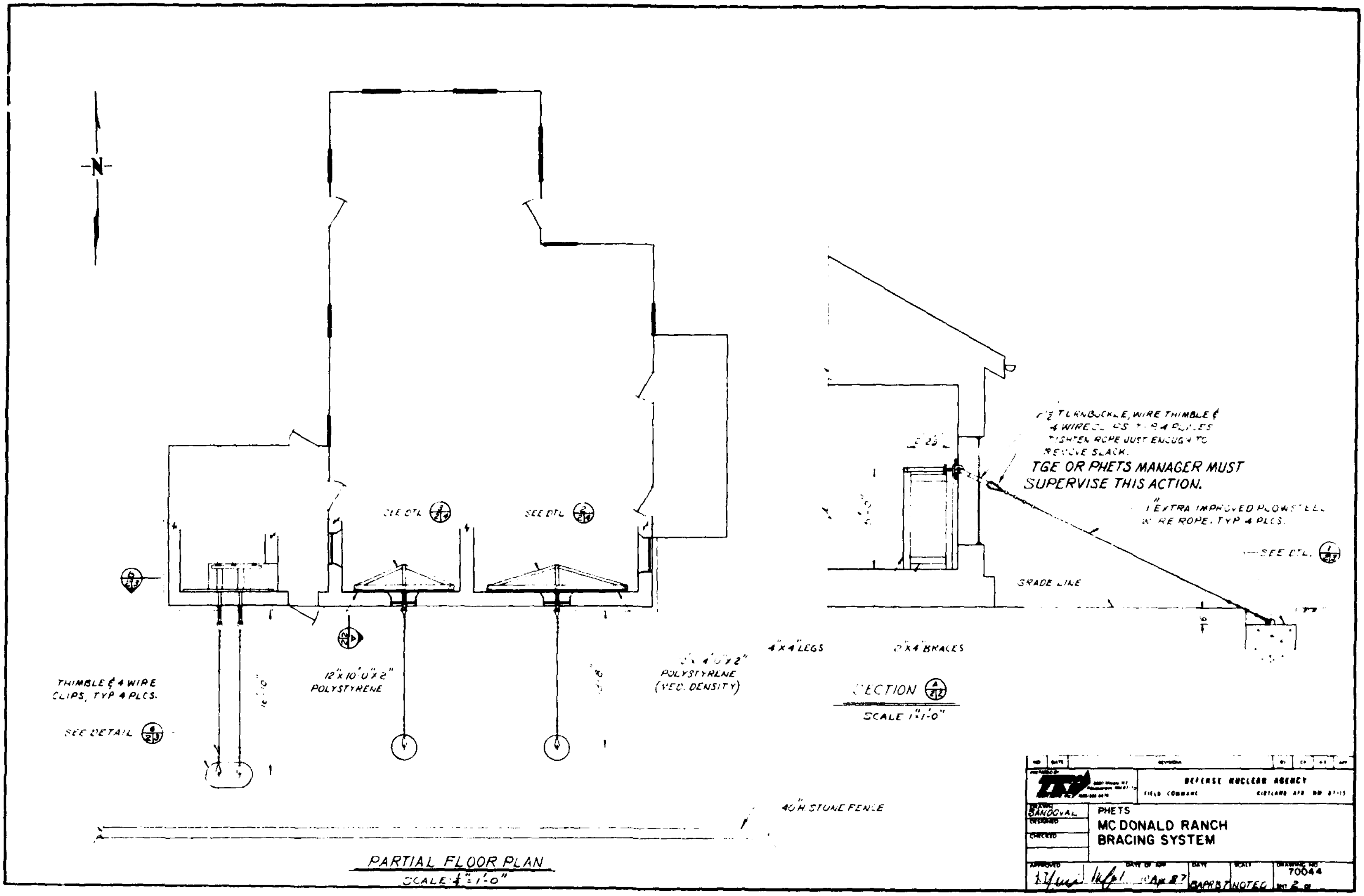


Figure 7.16. Reduced dug 70044 sheet 2.

SECTION 8

PREFIELDING, FIELDING AND D-DAY ACTIVITIES

8.1 PREFIELDING ACTIVITIES.

The first Project Officers Meeting (POM) was held at Field Command, Defense Nuclear Agency (FCDNA) the week of July 22, 1985. The BMO and HML contractor was not at the POM. They attended a separate POM on August 19, 1985 at FCDNA.

The second POM was held at FCDNA on 16-20 September 1987. A flight operations meeting was held 20 September 1985. In March-April 1986 time period the cart was designed for the deployment of the nuclear envelopes.

A POM was held at FCDNA 16-24 June 1986. In preparing The Environmental Assessment (EA) for MISTY PICTURE it was discovered that a survey was needed to determine if the Perigeen Falcon, an endangered species, was nesting in the nearby mountains. No nesting falcons were found and the test proceeded on schedule.

In June and July 1986, the helium control system and the TRS operations and maintenance cotract bids were received and evaluated. The helium control system was awarded to Gracon Corporation. The TRS contract was awarded to SAIC.

8.2 FIELDING ACTIVITIES.

The first onsite POM was held on 2 April 1987 and the 2nd and 3rd Field POM on 23 and 28 April. The charge container preparation was complete in April and ANFO loadings started on 22 April 1987. The same time the Timing and Firing (T&F) cabling and connector effort was 99% complete. The 50 kV LIPS started powering without problems, the playback instrumentation trailor in mid April.

The first MFP was held on 29 April (See Table 8-1). The second MFP on 7 May and the dress rehearsal 11 May 1987. The fourth and fifths on site POM were held 6 and 12 May 1987.

The MISTY PICTURE 45 Day countdown is given in Appendix G. The delay and hold criteria are shown in Appendix H. The MISTY PICTURE T-27 hour countdown is shown in Appendix I.

Table 8-1. MFP #1 operations

1. Objectives:

a. Exercise all mechanical and electronic systems in a close as possible to shot sequence.

b. Determine if any experiments or systems cause interference to other experiments.

c. Provide opportunity to exercise the countdown sequence.

MFP #1 WILL NOT BE A TEST OF THE EVACUATION AND REENTRY PROCEDURES. PEOPLE WILL NOT BE REQUIRED TO PROTECT EQUIPMENT BY PERFORMING SAND BAGGING, BERMING, BURYING, ETC.

2. Procedures:

a. Start the count at T-6 hours. (10:00 shot time.)

b. Follow the countdown as precisely as possible with the caveat that we will take enough time to get ready. A MFP is no good unless everyone is up and running.

c. The following activities will occur:

(1) TRS will cold flow all units except unit F. The area around the TRS units (300 feet) will be evacuated.

(2) Classified experiments will be uncovered for camera operations.

(3) Streak X-Ray (8704) will be operated. The area 10 feet around the experiment will be evacuated.

(4) Construction activities on the testbed will be limited.

d. The following non-shot day activities will occur:

(1) TRS safety crews will remain on the testbed.

(2) Security guards will remain on the testbed.

(3) Bunkers and shelters will be manned (except VALHALL II structure).

(4) Safety personnel will remain on the testbed.

(5) ANFO loading will continue until T-45 minutes.

(6) WSMR camera personnel can remain on the testbed near cameras except at following locations:

(a) Within 10 feet of the X-Ray experiment.

(b) TRS area (300 feet radius).

(7) Roadblocks for safety purposes will be established.

e. The following activities will be simulated:

(1) Meteorology launches.

(2) Focusing effects will be assumed good during weather evaluations.

(3) Helium filling operations/status.

(4) Meteorology detonations.

(5) Non-testbed communications with the exception of participating aircraft.

(6) Establishment of external roadblocks.

(7) Charge arming.

(8) Non-testbed radar avoidance.

(9) BRV rocket launches.

Table 8-1. MFP #1 operations (Concluded)

f. The following data will be collected:
   (1) Technical cameras will be run.
   (2) All data channels will be recorded:
      (a) Analog: Strip out only if noisy or problems.
      (b) Digital: Plot all channels.
g. Hold procedures may be practiced at some point.

8.3 D-DAY ACTIVITIES.

The Envelope deployment and helium fill operation are contained in Appendix J. The MISTY PICTURE operations plan is shown in Appendix K. Reentry and Manning Plans are in Appendix L. Appendix M describes requirements pertaining to the MISTY PICTURE Distinguished Visitors badging, transportation, manning and logistics.

APPENDIX A

LIST OF ACRONYMS AND ABBREVIATIONS

ACRONYMS

AB	Airblast
Admin	Administration
AFGL	Air Force Geophysics Laboratory
AFWL	Air Force Weapons Laboratory
AGL	Above Ground Level
ANFO	Ammonium Nitrate Fuel Oil
AO	Area of Operations
ARA	Applied Research Associates, Inc.
ARC	Aberdeen Research Center
ASL	Atmospheric Sciences Laboratory
ATTN	Attention
AV	AUTOVON
BMO	Ballistic Missile Office
BRL	Ballistic Research Laboratory
COMM	Commercial
CONF	Conference
CONT	Continued
DPR	Dusty Precursed Radial
DRI	Denver Research Institute
EB	East Bunker
EMT	Emergency Medical Technician
ENG	Engineer
EOD	Explosive Ordinance Disposal
EP	East Park
EXP	Experimenters
EXT	External
FCDNA	Field Command, Defense Nuclear Agency
FEMA	Federal Emergency Management Agency
FTS	Federal Telephone Service
GM	Ground Motion
GHZ	Gigahertz
GZ	Ground Zero

HDL	Harry Diamond Laboratory
IE	Instrumentation Engineer
ISI	Information Science Incorporated
KM	Kilometer
KV	Kilovolt
KHZ	Kilohertz
LANL	Los Alamos National Laboratory
LCC	Launch Control Complex
LOS	Loss of Signal
LOX	Liquid Oxygen
MA	Milliampere
MBA	Main Booster Assembly
mCi	Millicurries
MG	Milligram
MHZ	Megahertz
MRC	Mission Research Corporation
MP	MISTY PICTURE
MSL	Mean Sea Level
NASA	National Atmospheric and Space Administration
NLT	Not Later Than
NMERI	New Mexico Engineering Research Institute
NO	Net Operator
NP	North Park
NR	National Range
NWEF	Naval Weapons Evaluation Facility
NSWC	Naval Surface Weapons Center
PD	Program Director
PHETS	Permanent High Explosive Test Site
PK	Park
PMS	Particle Measuring Systems
PO	Project Officer
PS	Program Sponsor
PSL	Physical Sciences Laboratory
PT	Photo Technologist

RDF	Radio Direction Finder
RF	Radio Frequency
RKT	Rocket
RM	Room
RTE	Route
RV	Reentry Vehicle
SB	South Bunker
SNLA	Sandia National Laboratory, Albuquerque
TC	Test Control
TCP	Traffic Control Point
TD	Technical Director
T&F	Timing and Firing
TGD	Test Group Director
TGE	Test Group Engineer
TGS	Test Group Staff
TGSO	Test Group Security Officer
TRLR	Trailer
TRS	Thermal Radiation Source
UK	United Kingdom
USA	United States Army
USAF	United States Air Force
USMC	United Stated Marine Corps
USN	United States Navy
WB	West Bunker
WES	Waterways Experiment Station
WP	West Park
WSMR	White Sands Missile Range
WTH	Wind, Temperature, Humidity
WX	Weather

APPENDIX B

OPERATIONS REQUIREMENT AND DIRECTIVES

OR 96319	Aircraft Overflights
OR 96320	4880 Ton ANFO Event (MISTY PICTURE)
OD 96320A	4800 Ton ANFO Event (MISTY PICTURE)
OD 96320B	Project Tests
OD 96321C	Ground Checks

Universal Documentation System

MC SERIES

(PROGRAM SHORT TITLE)

OPERATION REQUIREMENT

OR NO. 96319

No. 96319

TEST DESIGNATOR(S)	TEST TITLE
None	Aircraft Overflights

20 February 1987
DOCUMENT DATE

WHITE SANDS MISSILE RANGE
NEW MEXICO

STEWS-NR-P FORM 50-R
1 Mar 86

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DISPOSITION FORM

For use of this form, see AR 340-15, the proponent agency is TAGO

S: 3 Apr 87

REFERENCE OR OFFICE SYMBOL	SUBJECT
STEWS-NR-PD	MC Series, OR 96319

TO SEE DISTRIBUTION FROM NR DATE 20 March 1987 CMT 1
Mr. Kilcrease/sp/678-4177

1. The subject OR is enclosed as the basis for your input to the OD.

2. Range derived requirements and the Missile Flight Safety Operations Plan, if any, should be forwarded to NR-PD and other appropriate organizations by DF not later than 30 Mar 87. If no CAT I range derived requirements exist, so state in writing.

3. Your plans for support of requirements in the OR and of derived requirements placed on your organization, together with restraints, should be furnished to NR-PD by 3 Apr 87.

4. Request your answer to NR-PD include cost estimates. Per test cost estimates should include each support system or service (standard rate) planned along with the quantity and/or time each system will be used. NR planning efforts associated with this document will cite expenditure order 37087307 and job UDS 963.

FOR THE DIRECTOR OF NATIONAL RANGE OPERATIONS:

Rodney S. Smith

Encl

RODNEY S. SMITH
Chief, Air and Sea Systems Branch

DISTRIBUTION:

See Page ii of
enclosed document

DA FORM AUG 60 2496 PREVIOUS EDITIONS WILL BE USED

OR NO. 96319	APPROVAL AUTHORITY	DATE: 20 February 1987
UDS PARAGRAPH 1010		TEST DESIGNATOR(S):

PROGRAM TITLE: MISTY PICTURE

1. All paragraph and subparagraph classification markings have been reviewed and have been determined to be properly marked in accordance with paragraph 4-202, DOD 5200.1-R.
2. None of the support requirements stated herein exceed the scope of previously accepted planning documents pertaining to this program.

FOR THE RANGE SPONSOR:

Signature PROGRAM SPONSOR
Title

My review of this document has established the following:

	Yes	No
(1) Scope of test is within PI/SC.	X	
(2) Information is adequate for test support.	X	
(3) It complies with policies and format (Range Users Handbook).	X	
(4) All support developments (if any) of the Range essential to this test are ready.	X	
(5) User funds are available to pay direct costs of support planning.	X	

Based on the above, this document is:

- [X] Accepted FOR THE RANGE
- [ ] Referred to Range Management

DATE: 20 MAR 87

NR Project Engineer

[illegible] 1987

RANGE MANAGEMENT COMMENTS (If applicable):

SECURITY INFORMATION: (General Declassification Schedule stamp)

STEWS NR-P Form 8
19 Jul 78 (Rev)

1

NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS WILL NOT BE USED

OR NO: 96319	DISTRIBUTION	REVISION NO:
PARAGRAPH 1020		OR TEST DESIGNATOR(S): None

AA.	1
AFC	1
*HSHM-MHC-PR	1
*ASNC-TWS.	3
*SLCAS-DP	1
IS-G	4
IS-N	1
*NR-AO	4
NR-CE	1
*NR-CF	2
*NR-CR	6
*NR-D	6
*NR-CS-S	1
*NR-CS-DMA	1
NR-PD	6
NR-PR	1
PL-P.	0
*SF.	1
*SD	1

AIR FORCE

AD-RUC.	1
AD-RUS	0
AD-RU	0
*6585 TG/AD-RUM, Holloman Air Force Base	1
6586 TS/DOS, Holloman Air Force Base	0
DET 1, 475 WEG Holloman Air Force Base	0
TE	
NOMTS	0

*REPLIES REQUIRED

OR/OD No. 96319	SECURITY CLASSIFICATION	REVISION No.
UDS PARAGRAPH: 1052		DATE: 20 Feb 1987

PROGRAM TITLE. MISTY PICTURE

USER SECURITY OFFICER: CPT Jim Sauer **PHONE:** 679-4185

CLASSIFICATION AUTH & DATE: Multiple Sources

This page will require revision upon any pertinent change to the projects Security Classification Guide. Any temporary change caused by an incident resulting from a specific test will be reported to the WSMR Range Control Office immediately. The pre-printed continuation form page will be used for additional entries or remarks.

I T E M	Classi-fication	Declassification Date
A. RAW DATA		
1. Radar Tapes		
2. Telemetry Tapes		
3. Cinetheodolite Film		
4. Telescope Film		
5. Fixed Camera Film	(S)	OADR
6.		
7.		
B. IN-TEST DATA (REAL TIME & ON-LINE)		
1. Trajectory Plots (Radar, RTDS, Etc.)		
2. Trajectory Tapes (Radar, RTDS, Etc.)		
3. Telemetry Plots (Oscillograms)		
4. Telemetry Tapes (Digital)		
5.		
6.		
C. POST-TEST DATA (QUICK-LOOK & VALIDATED)		
1. Trajectory $(x, y, z; \dot{x}, \dot{y}, \dot{z}; \ddot{x}, \ddot{y}, \ddot{z})$		
2. Miss distance		
3. Telemetry (Listings, Plots or Tapes)		
4. Events or Time (Specify items)		
a.		
b.		
c.		
5. Geodetic Survey Computation (Specify items)		
a.		
b.		
c.		
D. FREQUENCIES		
1.		
2.		
E. DOCUMENTARY & AERIAL PHOTOGRAPHY		
1. Stills		
2. Motion Picture		
3.		
F. RECOVERY (List Classified items)		
1. RV		
2. RV		
3.		
4.		
5.		
6.		

STEWS NR-P Form 16
1 Mar 79

III

NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

OR/OD No.	SECURITY CLASSIFICATION	REVISION No.
UDS PARAGRAPH: 1052		DATE:

PROGRAM TITLE: Ballistic Rocket Test

ITEM	Classi-fication	Declassification Date
G. RECOVERY AID (Information)		
1. Radar Look Angle at ground impact point		
2. Radar range to ground impact point		
3. Optical Instrument look angle at impact point		
4. Telemetry look angle to loss of signal		

PAGE 2 of
STEMS NR-P Form 16
1 Mar 79

iv

NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

1. PROGRAM INFORMATION (ADMINISTRATIVE AND TECHNICAL).

1000. ADMINISTRATIVE INFORMATION.

a. Except during actual missions, all questions involving support requirements should be referred to the White Sands Missile Range (WSMR) Program Sponsor (PS):

Mr. Lee Meadows
STEWS-NR-PD
White Sands Missile Range, NM 88002-5047
Phone: Comm/FTS (505) 678-1622, AV 258-1622

b. During actual missions, questions involving the particular operation should be referred to the Test Group Director:

MAJ Charles G. Walls, USA
Test Group Director
Field Command, Defense Nuclear Agency
Kirtland AFB, NM 87115-5000
Phone (Kirtland AFB): Comm/FTS (505) 844-4651
AV 244-4651
(WSMR Test Site): Comm/FTS (505) 679-4183
AV 349-4183

c. Questions concerning aircraft flight or site operations should be referred to:

CPT Garald J. Sauer JR., USA
Program Director
Field Command, Defense Nuclear Agency
Kirtland AFB, NM 87115-5000
Phone (Kirtland AFB): Comm/FTS (505) 844-4651
AV 244-4651
(WSMR Test Site): Comm/FTS (505) 679-4185
AV 349-4185

d. The MISTY PICTURE Control Activity will be located in the Administrative Trailer Park at the intersection of Route 7 and Route 20.

e. This test will be conducted on, and supported by, the Permanent High Explosives Test Site (PHETS).

f. Appendix 1 contains a listing of acronyms and abbreviations relating to the aircraft operational requirements.

g. Appendix B contains airspace requirements and aircraft flight profiles.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

1100. TEST PROGRAM OBJECTIVES. Several aircraft are to participate in photo-documenting the MISTY PICTURE event and post event high explosive test. Participation will depend on the status on the MISTY PICTURE event. Aircraft, which would perform other possible mission requirements, not related to data collection, will be scheduled separately.

1700. TEST ENVELOPE INFORMATION. Appendix 2 contains mission profile forms for airspace operations requirements (STEWS NR-P Form 14).

a. Experiment 3500 (B-52, B-1 overflight for crater analysis and collateral damage assessment). One (1) each B-52 and B-1 will be used to conduct post test target characterization and collateral damage assessment of the crater and surrounding test bed area. Subject aircraft will enter from the northeastern portion of the WSMR northern extension at 9,000 feet MSL. On the inbound track (at T+2 hours), the B-52 will decent to approximately 5,736 feet MSL for the fly-bys over GZ. Between passes, the B-52 will climb to 9,000 ft MSL and will exit WSMR (at T+3.25 hours) to the southwest (Truth or Consequences). The B-1 will descend to an altitude of 5,336 feet MSL during overflights (at T+6 hours) exiting WSMR to the northwest (Socorro) at T+7.2 hours at an altitude of 18,000 feet MSL. Each aircraft is to conduct 3 to 4 fly-bys. Subject aircraft will be participating in the dress rehearsal on T-3 days.

b. Experiment 3700 (Infrared Imagery). One Boeing 105 helicopter, based out of Alamogordo airport, will be used to conduct infrared imagery analysis of the dust cloud. Aircraft will depart point of origin at T-2 hrs bound for the SRC airfield, where it will stage from. Aircraft will enter WSMR airspace just north of Highway 380. Should the range be open, subject aircraft will fly from Alamogordo direct to SRC entering WSMR airspace just beyond Holloman AFB. After refueling at SRC, aircraft will proceed to an orbit point approximately 10 KM west of GZ (5 miles preferred, 12 miles is acceptable). Mission will be flown at an altitude of 6,180 feet MSL. This operation will commence at T-30 minutes and continue through T+1.5 hours. After the mission, subject aircraft will return to SRC for refueling and a film drop. Aircraft will exit WSMR airspace using the first mentioned entrance route for its return trip to Alamogordo. Subject aircraft will participate in the dress rehearsal on T-3 days. Aircraft has a 2 hour station time and requires 2 hours for turn around.

c. Experiment 8500. The following is a series of experiments which involve documentary photography from a number of aerial platforms. Each will be discussed separately below. Immediately following, is a list of those aircraft to be utilized in obtaining the necessary data from the MISTY PICTURE event:

--	2 each, RF-4B	--	2 each, OV-1D
--	2 each, F-14	--	1 each, CV-580
--	1 each, U-2	--	2 each, RF-4C'S
--	1 each, SR-71	--	1 each, Lear Jet
--	1 each, TR-1	--	1 each, CESSNA 180
--	1 each, KC-130		

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

(1) Aerial Photographs and Side-Looking Radar. Two (2) RF-4B'S, staging out of Holloman AFB, will be used to conduct aerial photography and radar analysis of the dust cloud. The aircraft will proceed from Holloman AFB in a northwesterly direction, along the WSMR western boundary until reaching Highway 380. The holding pattern will be flown at 10,000 ft MSL beginning at T-10 minutes conducting side-looking radar analysis until approximately T+6 minutes. Aircraft will be approximately 10 KM west of GZ at T-0. At T+6 minutes the aircraft will conduct 2 circuits of a stand off box pattern and then return to the north for refueling. At T+45 minutes subject aircraft will descend to 6,436 ft MSL to complete 6 passes over the test bed conducting the aerial photography portion of the mission. A KC-130 aircraft tanker will be orbiting over the northern extension of White Sands at 15 to 20 thousand feet MSL for aerial refueling. Aircraft will refuel in this area after the side-scan radar portion of the mission. Aircraft will exit the PHETS area to the south, west of Route 7. Subject aircraft will participate in the dress rehearsal on D-3. Aircraft station time is 1.5 hours without refueling.

(2) Aerial Photographs (Frame and Panoramic) and Line Scanning Infrared Sensor. Two (2) F-14'S staging out of Kirtland AFB will be used to conduct frame and Panoramic aerial photography and line scanning IR sensing of the dust cloud. According to the mission profile, subject aircraft will enter WSMR north west of GZ at the intersection of the WSMR boundary and highway 380. Flight altitude to WSMR will be 18,000 feet MSL. Aircraft will descend to 6,500 feet MSL for the photo passes which commence at T+1 hour and continue through T+1.5 hours. A return flight and subsequent passes has been scheduled for T+11 hours. Respective to all passes, all aircraft will exit the range northwest off GZ at an altitude above 10,000 feet MSL along the proposed inbound route. Subject aircraft will participate in the dress rehearsal on T-3 days.

(3) Long Range Optical Bar Panoramic Photography and High Resolution Radar. One (1) each U-2, staging out of Beale AFB, will be used to conduct crater and damage analysis. Subject aircraft will enter the missile range airspace at an altitude of 60,000+ feet MSL. Subject aircraft will fly over GZ in a northerly and southerly direction. Passes are to commence at T+60 minutes with a 20 minute loiter time. It is not currently known if subject aircraft will participate in the dress rehearsal on T-3 days.

(4) Long Range Optical Bar Panoramic Photography and High Resolution Radar. One each TR-1 aircraft, staging out of a currently unknown location will be used to conduct crater and damage analysis. Subject aircraft will enter the missile range airspace at an altitude of 60,000 feet MSL. Mission time will commence at T+1.5 hours. Loiter time is not currently known, however, it is not expected to exceed 30 minutes. It is not currently known if subject aircraft will participate in dress rehearsal on T-3 days.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

(5) High Resolution Radar Imagery. One (1) SR-71, staging out of Beale AFB will be utilized to conduct high resolution radar photography analysis of crater. Aircraft will not enter WSMR airspace and will stand-off to the northwest, 35-40 miles for its pass. Pass window is T+90 minutes through T+96 minutes. Altitude for this mission is published at 60,000+ feet MSL. It is not currently known if subject aircraft will participate in the dress rehearsal on T-3 days.

(6) Thermal Mapping Simulator. One (1) Lear Jet, staging out of Kirtland AFB, will be utilized to conduct thermal mapping of the MISTY PICTURE test bed. Subject aircraft will enter WSMR at the intersection of the Western Range Boundary and Highway 380. Passes will commence at T+2 hours. The aircraft will conduct 2 passes each at altitudes of 8236, 11,537 and 18,136 feet MSL. At T+3 hours aircraft will exit to the northeast of GZ at 18,136 feet MSL. Subject aircraft will participate in the dress rehearsal on T-3 days.

(7) Test Bed Aerial Photography. Two (2) RF-4C's, staging out of Kirtland AFB, will be utilized to conduct aerial photography of the MISTY PICTURE test bed. Subject aircraft will enter WSMR airspace at the intersection of the Western Range Boundary and Highway 380. Passes will commence at T+3 hours at an altitude of 12,100 feet MSL. Overflights of the GZ will be from east to west and north to south. A second, and similar pass is scheduled at an altitude of 9,600 feet MSL. Should refueling become necessary due to delays, subject aircraft will utilize the KC-130 aircraft mentioned in paragraph 1700, C(1) for aerial refueling. Aircraft will exit WSMR airspace to the northwest at T+3.5 hours on a parallel inbound course, at an altitude in excess of 8 thousand feet MSL. Subject aircraft will participate in the dress rehearsal on T-3 days.

(8) Stereophotography. A single Cessna 180, staging out of Socorro Municipal airport, will be utilized to monitor and document fireball, shockwave, ejecta and cloud development of the MISTY PICTURE event. The first passes are scheduled for T-3 days to document pre-shot test bed base line by stereophotography. An identical flight has been scheduled for T-2 days. Between the times of 0800-1100, and again between 1400-1700, subject aircraft will depart Socorro Municipal Airport and enter WSMR airspace at the intersection of the western boundary and Highway 380 at 6,936 feet MSL. Flight profile has been established as identical to that proposed for the T+3.5 hours photo passes below. Aircraft will depart WSMR on a parallel track to the inbound course. On event day, at T-30 minutes, the Cessna 180 will depart Socorro Municipal Airport and proceed to a loiter area 4.5 to 5.5 NM (Slant) West of GZ for the initial portions of the mission. It will remain in this loiter position (established as 1/2 mile in diameter) until T+5 minutes then the aircraft departs for Socorro Municipal Airport. Altitude for the loiter is established at 19,936 feet MSL. At T+3.5 hours, subject aircraft will re-enter WSMR airspace at the intersection of the Western Range Boundary and Highway 380 at an altitude of 6,936 feet MSL. Aircraft will conduct 3 passes over the GZ between the altitudes of 5,136 and 7,936 feet MSL. Aircraft will return for its last

set of passes on T+1 and T+0 days with constraints identical to the previous overflights. Aircraft will depart WSMR airspace by paralleling the inbound track at an altitude of 6,936 feet MSL. Subject aircraft will participate in the dress rehearsal scheduled for T-3 days.

(9) Aerial Photography, Side Looking Airborne Radar (SLAR) and Infrared Photography. Two (2) OV-10 Aircraft, staging out either Holloman AFB, Kirtland AFB or FT. Bliss, will be utilized to assist in documenting the MISTY PICTURE test event. At T-10 minutes through T+10 minutes, aircraft will loiter 36 miles northwest of GZ for its operations involving SLAR. At T+1.5 hours, a second flight of aircraft will enter the WSMR airspace at the intersection of the Western Range Boundary and Highway 380. Mission altitude is 5,936 feet MSL. Aircraft will proceed from the entry point to GZ for testbed overflights. Mission terminates at T+1.9 hours. Additional overflights are scheduled for T+11.5 hours. Subject aircraft will depart WSMR airspace to the northwest, paralleling the established inbound plot, at an altitude of 5,936 feet MSL. Aircraft will participate in the dress rehearsal on T-3 days.

(10) Pre and Post Event Documentation. A single CV-580 aircraft, staging out of Albuquerque airport, will be utilized to document pre and post MISTY PICTURE event. Subject aircraft will enter WSMR airspace from the northwest at the intersection of the Range Boundary and Highway 380. The mission will be conducted at 24,936 feet MSL. Passes are to commence at T-2 hours and will include three (3) passes to the northeast of GZ at offset ranges of 3.3, 4.5 and 5.7 NM respectively. Subject aircraft will then exit WSMR airspace, at, T+2 hours, to the northwest, paralleling the inbound track, at 25,000 feet MSL. Subject aircraft will participate in the dress rehearsal on T-3 days.

d. Experiment 8510. (BRV and Viper Search). Four Talos-Terrier missiles, each modified with a BRV, and 20 Viper dust sampling rockets will be launched within a window designated between T+1 and T+5 minutes. At T+1 hour through T+48 hours, 2 each UH-1H helicopters will begin a search of the impact areas designated for the rockets and BRV's. Search operations will be conducted at an altitude between 4,963 and 5,936 feet MSL. At T+2 days through T+7 days, these two helicopters will be joined by a third scout aircraft operating under the same constraints. Subject aircraft will stage out of the BRV launch site, located approximately 6 miles north of the MISTY PICTURE GZ. Aircraft will log no more than 20 hours each for total flight time. Aircraft will not participate in the dress rehearsal scheduled for T-3 days and will require radar vectoring to the impact plots of the BRV's.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

e. Experiment 8511. (In-Cloud Dust Sampling). One (1) Beech Baron Aircraft, staging out of Socorro Municipal airport, will be utilized for in-cloud dust sampling. Subject aircraft will penetrate WSMR airspace at the intersection of the Western Boundary and Highway 380 at 6,000 feet MSL. Aircraft will conduct numerous cloud penetrations between the altitudes of 6,000 and 25,000 feet MSL, beginning at T+5 minutes and ending at T+1.5 hours. Additional fly throughs are currently scheduled, under the similar flight constraints, for T+4 through T+8 hours. The proposed flights for T+4 and T+8 hours will be between 8,000 and 25,000 feet MSL. Subject A/C will participate in MFP 1 (scheduled for T-15 days), MFP 2 (scheduled for T-7 days), and the dress rehearsal currently scheduled for T-3 days.

f. Experiment 8530. (In-Cloud Dust and Inert Tracer Collecting. A single WB57F aircraft, staging out of El Paso International airport, will be utilized to collect inert tracers through in-cloud analysis. Subject aircraft will enter WSMR airspace along the northeastern portion of the northern range extension and proceed to a loiter position along highway 380. At T-0, aircraft will be holding over the northern range extension of WSMR, along Highway 380, at 35,000 feet MSL. At T+10 minutes aircraft will begin operations by flying through the dust cloud. Initial altitude for the first pass will be 19,500 feet MSL. Subsequent passes will descent from this altitude, but will not be lower than 10,000 feet MSL. Passes will be made from north to south. Window terminates at T+1 hours. A second and identical set of passes is scheduled for T+4 hours through T+5 hours. Subject aircraft will participate in the dress rehearsal currently scheduled for T-3 days.

g. Experiment 9030. (Overhead Photography of the MISTY PICTURE Test Bed). Two (2) each RF-4B aircraft, staging out of Holloman AFB, will penetrate WSMR airspace at the intersection of the eastern boundary and Highway 380. Assigned altitude for the operation is 27,000 feet MSL. At T-5 minutes through T+5 minutes, subject aircraft will conduct numerous overflights of the MISTY PICTURE test bed in a southwest to northeast oblong type pattern. If refueling becomes necessary a KC-130 tanker will be loitering over the northern range extension at 15,000 - 20,000 feet MSL for aerial refueling operations. Subject aircraft will participate in MFP 1 (scheduled for T-15 days), MFP 2 (scheduled for T-7 days), and the dress rehearsal currently scheduled for T-3 days. Additional practice runs are presently desired and will be coordinated separately.

h. Tethersonde Weather. Numerous tethersonde weather balloons will be launched from the Administration Park. Subject balloons will be tethered to a cable that will allow weather observations up to and including 8,000 feet MSL. Launches will be conducted well in advance of the event and will continue up to and including T-15 minutes.

i. Meteorological Rocket Launch. At T-2 minutes a weather rocket will be launched from the Small Missile Range (location to be determined). Flight profile will be from surface to 55,000 feet MSL in a northerly direction. The rocket will not fall closer than [illegible] miles of GZ.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

2000. Test Operational Concepts. Operational concepts for the MISTY PICTURE test event are found in table 1 below.

+/- TIME	EVENT	ACTIVITY
T-15 DAYS	CONDUCT MFP NO. 1 AT 1000 HOURS (TRS HOT TEST, AIRCRAFT PARTICIPATION, PULL FILM IN ALL CAMERAS).	TGD
T-15 DAYS	MFP DE-BRIEF AT 1500 HOURS.	TGD/TD/PO
T-7 DAYS	CONDUCT MFP NO. 2 AT 1000 HOURS IF REQUIRED (TRS HOT TEST, PULL FILM).	TGD
T-7 DAYS	MFP NO. 2 DE-BRIEF AT 1500 HOURS, IF REQUIRED.	TGD/TD/PO
T-4 DAYS	REPORT READINESS OF ALL EXPERIMENTS FOR DRESS REHEARSAL.	TGD
T-3 DAYS	DRESS REHEARSAL (TRS HOT TEST, AIRCRAFT PARTICIPATION, PULL FILM IN ALL CAMERAS)	TGD
T-3 DAYS	DRESS REHEARSAL CRITIQUE AT 1500 HRS.	TD/PO
T-2 DAYS	CESSNA 180 CONDUCTS OVERFLIGHTS	CHEROKEE
T-1 DAYS	CESSNA 180 CONDUCTS OVERFLIGHTS	CHEROKEE
T-6 HRS	METEOROLOGY BALLOON LAUNCH.	WSMR/ASL
T-210 MIN	METEOROLOGY BALLOON LAUNCH.	WSMR/ASL
T-120 MIN	PHONE EVENT STATUS TO AIRCRAFT STAGING LOCATIONS: SOCORRO (505) 835-9973 KIRTLAND AFB AV 244-9070 HOLLOMAN AFB AV 867-2209 BEALE AFB AV 368-4114/2186 EL PASO AIRPORT (915) 524-7327 ALBUQUERQUE APT (505) ___-____ #'S TO BE CONFIRMED 22 MAR 87	AUTOMETRIC

TABLE 1. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-120 MIN	CV-580 PRE-EVENT PASSES COMMENCE	AUTOMETRIC
T-75 MIN	CONFIRM HIGH ALTITUDE AIRCRAFT STATUS BEALE AFB (AV 368-4144/2186).	AUTOMETRIC
T-70 MIN	CONFIRM AIRCRAFT STATUS AT SOCORRO, EL PASO, BEALE, ALBUQUERQUE, AND HOLLOMAN AIR BASES AND AIRPORTS (PASS CURRENT TESTBED WEATHER). SOCORRO (505) 835-9973 HOLLOMAN AV 867-2209 EL PASO (915) 524-7327 KIRTLAND AFB AV 244-9070 ALBUQUERQUE (505) ___-____ #'S TO BE CONFIRMED 22 JAN 86	AUTOMETRIC
T-66 MIN	METEOROLOGY BALLOON LAUNCH.	WSMR/ASL
T-60 MIN	BOEING 105 MISSION INITIATES.	AUTOMETRIC
T-55 MIN	PMS AIRCRAFT LAUNCH.	PMS
T-35 MIN	LAUNCH WB57 AIRCRAFT.	NASA
T-35 MIN	CONFIRM BEECH BARON IS HOLDING.	CHEROKEE
T-30 MIN	RF-4 AIRCRAFT LAUNCH.	USMC
T-30 MIN	CONFIRM BOEING-105 IS HOLDING.	CHEROKEE
T-30 MIN	CONFIRM WB57F IS HOLDING.	CHEROKEE
T-30 MIN	CONFIRM CESSNA 180 IS HOLDING.	CHEROKEE
T-24 MIN	CONFIRM PMS AIRCRAFT IS IN ORBIT AND HOLDING.	CHEROKEE
T-19 MIN	CONFIRM AIRCRAFT STATUS AT KIRTLAND AFB (AV 244-9070).	AUTOMETRIC

TABLE 1. MISTY PICTURE COUNTDOWN.*

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-18 MIN	CONFIRM HIGH ALTITUDE AIRCRAFT STATUS AT BEALE AFB (AV 368-4114/2186).	AUTOMETRIC
T-15 MIN	CONFIRM RF-4 AND WB57 AIRCRAFT ARE IN HOLDING ORBIT.	CHEROKEE
T-10 MIN	CONFIRM RF-4B's (8500) ARE HOLDING.	CHEROKEE
T-10 MIN	CONFIRM OV-1D'S (8500) ARE HOLDING.	CHEROKEE
T-5 MIN	ANNOUNCE "T-FIVE MINUTES." FINAL TAF SEQUENCING BEGINS.	NO
T-5 MIN	RF-4B's OVERFLIGHTS COMMENCE.	CHEROKEE
T-3 MIN	TURN OFF TETHERSONDE TRANSMISSIONS.	SNLA
T-2 MIN	NOTIFY ASL TO LAUNCH METEOROLOGY ROCKET.	NO/SNLA
T-60 SEC	ANNOUNCE "T-SIX ZERO SECONDS." START 10 SECOND COUNTDOWN INTERVALS.	NO
T-50 SEC	ANNOUNCE "T-FIVE ZERO SECONDS."	NO
T-40 SEC	ANNOUNCE "T-FOUR ZERO SECONDS."	NO
T-30 SEC	ANNOUNCE "T-THREE ZERO SECONDS."	NO
T-20 SEC	ANNOUNCE "T-TWENTY SECONDS."	NO
T-10 SEC	ANNOUNCE "T-TEN SECONDS."	NO
T-5 SEC	ANNOUNCE "FIVE."	NO
T-4 SEC	ANNOUNCE "FOUR."	NO
T-3 SEC	ANNOUNCE "THREE."	NO
T-2 SEC	ANNOUNCE "TWO."	NO
T-1 SEC	ANNOUNCE "ONE."	NO

TABLE 1. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

TIME + / -	EVENT	ACTIVITY
T-0	DETONATE CHARGE.	TAF
T+1	RF-4B (9030) OVERFLIGHTS TERMINATE.	CHEROKEE
T+1 MIN	LAUNCH WINDOW OPEN FOR BRV AND VIPER	SPAS/PDA
T+2 MIN	ANNOUNCE "T+2 MINUTES."	NO
T+3 MIN	ANNOUNCE "T+3 MINUTES."	NO
T+3 MIN	NOTIFY AIRCRAFT AT KIRTLAND AFB OF EVENT EXECUTION (AV 244-9070).	AUTOMETRIC
T+4 MIN	NOTIFY HIGH ALTITUDE AIRCRAFT OF EVENT EXECUTION (AV 368-4114/2186).	AUTOMETRIC
T+5 MIN	BRV AND LOKI LAUNCH WINDOWS CLOSED.	INFORMATION
T+5 MIN	CESSNA 180 MISSION TERMINATES.	CHEROKEE
T+5 MIN	BEACH BARON PASSES COMMENCE.	CHEROKEE
T+5 MIN	RF-4B PASSES COMMENCE.	CHEROKEE
T+10 MIN	WB57F PASSES COMMENCE.	CHEROKEE
T+10 MIN	OV-1D MISSION TERMINATES.	CHEROKEE
T+55 MIN	RF-4B PASSES TERMINATE.	CHEROKEE
T+60 MIN	CESSNA 180 (8500) PASSES COMMENCE.	CHEROKEE
T+60 MIN	F-14 OVERFLIGHTS COMMENCE.	CHEROKEE
T+60 MIN	U-2 OVERFLIGHT COMMENCES.	CHEROKEE
T+60 MIN	LAUNCH BRV/LOKI RECOVERY AIRCRAFT.	CHEROKEE
T+60 MIN	WB57F PASSES TERMINATE.	CHEROKEE
T+78 MIN	U-2 OVERFLIGHTS TERMINATE.	CHEROKEE
T+85 MIN	F-14 OVERFLIGHTS TERMINATE.	CHEROKEE

TABLE 1. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

TIME + / -	EVENT	ACTIVITY
T+90 MIN	BEECH BARON PASSES TERMINATE.	CHEROKEE
T+90 MIN	BOEING 105(H) MISSION TERMINATES.	CHEROKEE
T+90 MIN	SR-71 FLY-BY COMMENCES.	INFORMATION
T+90 MIN	RF-4B PASSES TERMINATE	CHEROKEE
T+90 MIN	OV-1D PASS COMMENCES.	CHEROKEE
T+96 MIN	SR-71 FLY-BY COMPLETED.	CHEROKEE
T+115 MIN	OV-1D PASSES TERMINATES.	CHEROKEE
T+2 HRS	LEAR JET PASSES COMMENCE.	CHEROKEE
T+2 HRS	CV-580 POST EVENT PASSES TERMINATES.	CHEROKEE
T+2 HRS	B-52 OVERFLIGHTS COMMENCE.	CHEROKEE
T+3 HRS	RF-4C PASSES COMMENCE.	CHEROKEE
T+3 HRS	LEAR JET PASSES TERMINATE.	CHEROKEE
T+3 HRS	CESSNA 180 PASS COMMENCES.	CHEROKEE
T-3.25HRS	B-52 OVERFLIGHTS TERMINATE.	CHEROKEE
T+3.5 HRS	RF-4C PASSES TERMINATE.	CHEROKEE
T+3.5 HRS	CESSNA 180 PASSES COMMENCE.	CHEROKEE
T+4 HRS	BEECH BARON PASSES COMMENCE.	CHEROKEE
T+4 HRS	WB57F PASSES COMMENCE	CHEROKEE
T+4 HRS	LEAR JET PASSES COMMENCE.	CHEROKEE
T+5 HRS	WB57F PASSES TERMINATE.	CHEROKEE
T+5.5 HRS	CESSNA 180 PASSES TERMINATE.	CHEROKEE

TABLE 1. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

TIME + / -	EVENT	ACTIVITY
T+6 HRS	B-1B OVERFLIGHTS COMMENCE.	CHEROKEE
T+7.18 HRS	B-1B OVERFLIGHTS TERMINATE	CHEROKEE
T+8 HRS	BEACH BARON PASSES TERMINATE.	CHEROKEE
T+11 HRS	F-14's COMMENCE PASSES.	CHEROKEE
T+11.5 HRS	OV-1D PASS COMMENCES.	CHEROKEE
T+12 HRS	OV-1D DEPART WSMR AIRSPACE.	CHEROKEE
T+1 DAY	CESSNA 180 PASS COMMENCES.	CHEROKEE
T+1 DAY	UH-1H LAUNCHES FOR BRV SEARCH.	CHEROKEE
T+2 DAYS	CESSNA 180 PASSES COMMENCE.	CHEROKEE
T+2 DAYS	UH-1H LAUNCHES FOR BRV SEARCH.	CHEROKEE
T+3 DAYS	OH-58 AND UH-1 LAUNCH FOR BRV SEARCH.	CHEROKEE
T+4 DAYS	OH-58 AND UH-1 LAUNCH FOR BRV SEARCH.	CHEROKEE
T+5 DAYS	OH-58 AND UH-1 LAUNCH FOR BRV SEARCH.	CHEROKEE
T+6 DAYS	OH-58 AND UH-1 LAUNCH FOR BRV SEARCH.	CHEROKEE
T+7 DAYS	OH-58 AND UH-1 LAUNCH FOR BRV SEARCH.	CHEROKEE

TABLE 1. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

3400. OTHER TECHNICAL SUPPORT.

a. Frequency Control and Analysis.

(1) Frequency Assignments.

(a) Experiment 3500.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
B52 AND H1B	HF 2-30 MHZ UHF 9375 MHZ SEE RFA 4.3 GHZ 8.7-8.9 GHZ 225-400 MHZ		HF RADIOS AN/APX-64 IFF,AN/APN-69A OY-73/ASQ-176 RADAR AN/APN-224 RADAR ALTIM. AN/APN-218 DOPPLER RADAR UHF RADIOS
NOTE: For other frequencies, see Request for Frequency Authorization (RFA) dated ________(to be out 18 Dec 86).			

(b) Experiment 3700.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
BOEING 105	VHF 171.95MHZ VHF 171.20MHZ		RADIO COMMUNICATIONS RADIO COMMUNICATIONS TRANSPONDER DOPPLER NAVIGATION RADAR ALTIMETER

(c) Experiment 8500.

1. RF-4B

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
RF-4B	UHF225-400MHZ HF 2.0-29MHZ 962-1213MHZ 1500-1660MHZ 9.6GHZ 16.5GHZ		RADIO COMMUNICATIONS RADIO COMMUNICATIONS TACAN ARA SLAR RADAR TERRAIN AVOIDANCE

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

2. F-14.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
F-14	UHF225-400MHZ		ARC-51A RADIO COMMO
			ARC-182 (V)
			ARC-159 HACE QUICK
	265-285MHZ		ARR-69
	4.2-4.4GHZ		RADAR ALTIMETER APN-194
	1090MHZ		TRANSPONDER
	962-1024MHZ		TACAN ARN-84
	1151-1213MHZ		TACAN ARN-118
	300-325MHZ		DIGITAL DATA LINK
	1030MHZ		INTERROGATOR
	962-1213MHZ		JTIDS/LINK 16
	2.5-18.2GHZ		ALQ-165
	2.0-10GHZ		ALQ-126B
	2.0-8.0 GHZ		ALQ-100

3. U-2/TR-1.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
U-2 / TR-1	UHF		RADIO COMMUNICATIONS
	VHF		RADIO COMMUNICATIONS
	HF		RADIO COMMUNICATIONS
			TRANSPONDER
			DOPPLER NAVIGATION
			RADAR ALTIMETER
			ACQUISITION RADAR

4. SR-71.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
SR-71	UHF		RADIO COMMUNICATIONS
	VHF		RADIO COMMUNICATIONS
	HF		RADIO COMMUNICATIONS
			RADAR IMAGING
			ACQUISITION RADAR
			RADAR ALTIMETER
			TRANSPONDER
			DOPPLER NAVIGATION

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 95319
DATE: 20 FEBRUARY 1987

5. LEAR JET.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
LEAR JET	UHF 1041-1083MH		RADIO COMMUNICATIONS COLLINS 8ME-40
	1104-1148MH		
	VHF 118-136MHZ		RADIO COMMUNICATIONS COLLINS
	1090 ± 2.5M		TRANSPONDER WILCOX 814B
			DOPPLER NAVIGATION
			RADAR ALTIMETER
	X BAND		WEATHER RADAR RCA PRIMUS 400
	121.5 & 243		ELT
	459.7-460 M		WULFSBERG FLITE PHONE III

6. 2 EA. RF-4C.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
RF-4C	UHF225-400MHZ		RADIO COMMUNICATIONS
	VHF		RADIO COMMUNICATIONS
	FM		RADIO COMMUNICATIONS
	HF 2-298.99		RADIO COMMUNICATIONS
			ACQUISITION RADAR
			TERRAIN AVOIDANCE RADAR
			TRANSPONDER
			DOPPLER NAVIGATION
			RADAR ALTIMETER

7. CESSNA 180.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
CESSNA 180	VHF30-300MHZ		RADIO COMMUNICATIONS NARCO
			TRANSPONDER REGENCY
	4 BAND FREE RUN		RADAR ALTIMETER BONZER

8. OV-10.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
OV-1D	UHF225-399.99	9W	RADIO COMMUNICATIONS ARC-164
	VHF116-150MHZ	10W	RADIO COMMUNICATIONS ARC-115
	FM 30-76MHZ	10W	RADIO COMMUNICATIONS ARC-114
	HF 2-30 MHZ	100W	RADIO COMMUNICATIONS ARC-102
			DOPPLER NAVIGATION
			RADAR ALTIMETER
			TRANSPONDER
			ACQUISITION RADAR SLAR AN/APS-94F

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

9. CV-580.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
CV-580	UHF225-400MHZ	5W	RADIO COMMUNICATIONS AN/ARC-164
	VHF117-136MHZ	5W	RADIO COMMUNICATIONS KINGKTR-9000
	FM40.1-40.13MHZ		RADIO COMMUNICATIONS GENAVE GMT-240L
			TRANSPONDER
	9300-9490MHZ		NAVIGATION MAGNETRON TUNABLE
	4300MHZ		RADAR ALTIMETER COLLINS AL-101
	5400+ 20MHZ		WEATHER RADAR RCA AVQ-10
	121.5 + 243.0		ELT MERL, INC
	459.7-460MHZ		FLIGHTFONE III WULFSBERG RT-18
	25-28 &	25W	MOXY LOW BAND FM
	29.7-50MHZ		

(d) EXPERIMENT 8510.

1. UH-1H HELICOPTER.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
UH-1H	UHF 225-399.99	10W	RADIO COMMUNICATIONS ARC-164
	FM 30-75.95	10W	RADIO COMMUNICATIONS ARC-114
	VHF 116-150MHZ	10W	RADAR COMMUNICATIONS ARC-115
			TRANSPONDER

2. Scout Helicopter.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
OH-58A	UHF 225-399.99	10W	RADIO COMMUNICATIONS ARC-164
	VHF 116-150MHZ	10W	RADIO COMMUNICATIONS ARC-115
	FM 30-76MHZ	10W	RADIO COMMUNICATIONS ARC-114
			RADAR ALTIMETER
			TRANSPONDER

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

(e) Experiment 8511.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
BEECH BARON	UHF VHF		RADIO COMMUNICATIONS RADIO COMMUNICATIONS WEATHER RADAR RADAR ALTIMETER DOPPLER NAVIGATION RADAR ALTIMETER TRANSPONDER

(f) Experiment 8530.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
WB57F	UHF200-400MHZ VHF118-135MHZ HF-NOT USED	10W 20W	RADIO COMMUNICATIONS RADIO COMMUNICATIONS RADIO COMMUNICATIONS WEATHER RADAR TRANSPONDER DOPPLER NAVIGATION RADAR ALTIMETER

(g) Experiment 9030.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
RF-4B	UHF225-400MHZ HF 2.0-298.99 9.6GHZ 16.5GHZ 1600-1660MHZ 962-1213MHZ		RADIO COMMUNICATIONS RADIO COMMUNICATIONS SLAR TERRAIN AVOIDANCE RADAR TRANSPONDER ARA TACAN

(h) Rawinsonde Operations.

RF TRANSMITTER	FREQUENCY	POWER	TYPE OF EQUIPMENT
RAWINSONDE	403.5MHZ	.5W	WEATHER OBSERVATIONS

h. Aircraft.

(1) Aircraft coordination information. All aircraft (primarily military) which include lasers as an integral operating system, will have said systems off and safed. Those experiments which require such equipment to aim or range documentary photographic equipment are to coordinate for laser operations well in advance.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE 20 FEBRUARY 1987

(2) Range measurement data requirements.

(a) Experiment 3500. Requirements stated for radar tracking (position plot) and 2 C-band Transponders which WSMR Install AT SAC base.

(b) Experiment 3700. No requirements stated.

(C) Experiment 8500.

(1) RF-4B. Skin track plot

(2) F-14. No requirements stated.

(3) U-2/TR-1. No requirements stated.

(4) SR-71. No requirements stated.

(5) Lear Jet. No requirements stated.

(6) RF-4C. No requirements stated.

(7) CESSNA 180. Requirements for radar tracking and plot (x, y, z) 1 each C-band transponder which WSMR will install.

(8) OV-1D. No requirements stated.

(9) CV-580. No requirements stated.

(d) Experiment 8510.

(1) UH-1H. Requirements stated for Vectoring TO BRV's from H+1 through H+5.

(2) OH-58A No stated requirements.

(e) Experiment 8511. Requirements stated for informal radar vectoring and 1 each C-Band transponder which WSMR will install.

(f) Experiment 8530. Requirements stated for x, y, z plotting and one each C-band transponder. WSMR will install.

(g) Experiment 9030. Skin track plot.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

5300. SUPPLY/STORAGE/SERVICES.

a. Security. Film received shortly after the MISTY PICTURE event, will be stored at the Admin Park until transported to White Sands Missile Range for processing. For more information on this topic, see the MISTY PICTURE Security Plan.

b. Fire Protection. Only that fire protection standard to operations of SRC and PHETS is required.

c. Utilities.

(1) Experiment 3700. Experimenter requires a 110V outlet at North Oscura Peak (NOP).

d. Fuels and Lubricants.

(1) Experiment 3700. Subject aircraft will be staging out of SRC airfield and will require refueling on call (not more than 200 gallons). Type of fuel required to be available is JP-4. Type fuel nozzle required is ___________.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

APPENDIX 1

ACROMYMS

AFB-----Air Force Base

AGL-----Above Ground Level

AV------AUTOVON

COMM----Commercial

COMMO---Communications

ELB-----Emergency Locator Beacon

ETL-----Engineer Topographic Laboratory

FL------Flight Level

FM------Frequency Modulating

FPS-----Feet Per Second

FT------Feet

FTS-----Federal Telephone Service

GHZ-----Giga-Hertz

GZ------Ground Zero

HF------High Frequency

IFF-----Indicator, Friend or Foe

IR------Infrared

KM------Kilometers

MHZ-----Mega-Hertz

MSL-----Mean Sea Level

NASA----National Aeronautics and Space Administration

NM------Nautical Miles

NOP-----North Oscura Peak

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96319
DATE: 20 FEBRUARY 1987

OPS-----Operations

OR------Operational Requirements

PD------Program Director

PHETS---Permanent High Explosive Test Site

PMS-----Partical Measurement Systems

PO------Project Officer

POC-----Point of Contact

PS------Program Sponsor

RF------Radio Frequency

RFA-----Request for Frequency Authorization

RKT-----Rocket

SAC-----Strategic Air Command

SLAR----Side Looking Airborne Radar

SNLA----Sandia National Laboratories, Albuquerque

SRC-----Stallion Range Center

TC------Test Control

TD------Technical Director

TGD-----Test Group Director

TRL-----Trailer

TRS-----Thermal Radiation Source

UHF-----Ultra High Frequency

USA-----United States Army

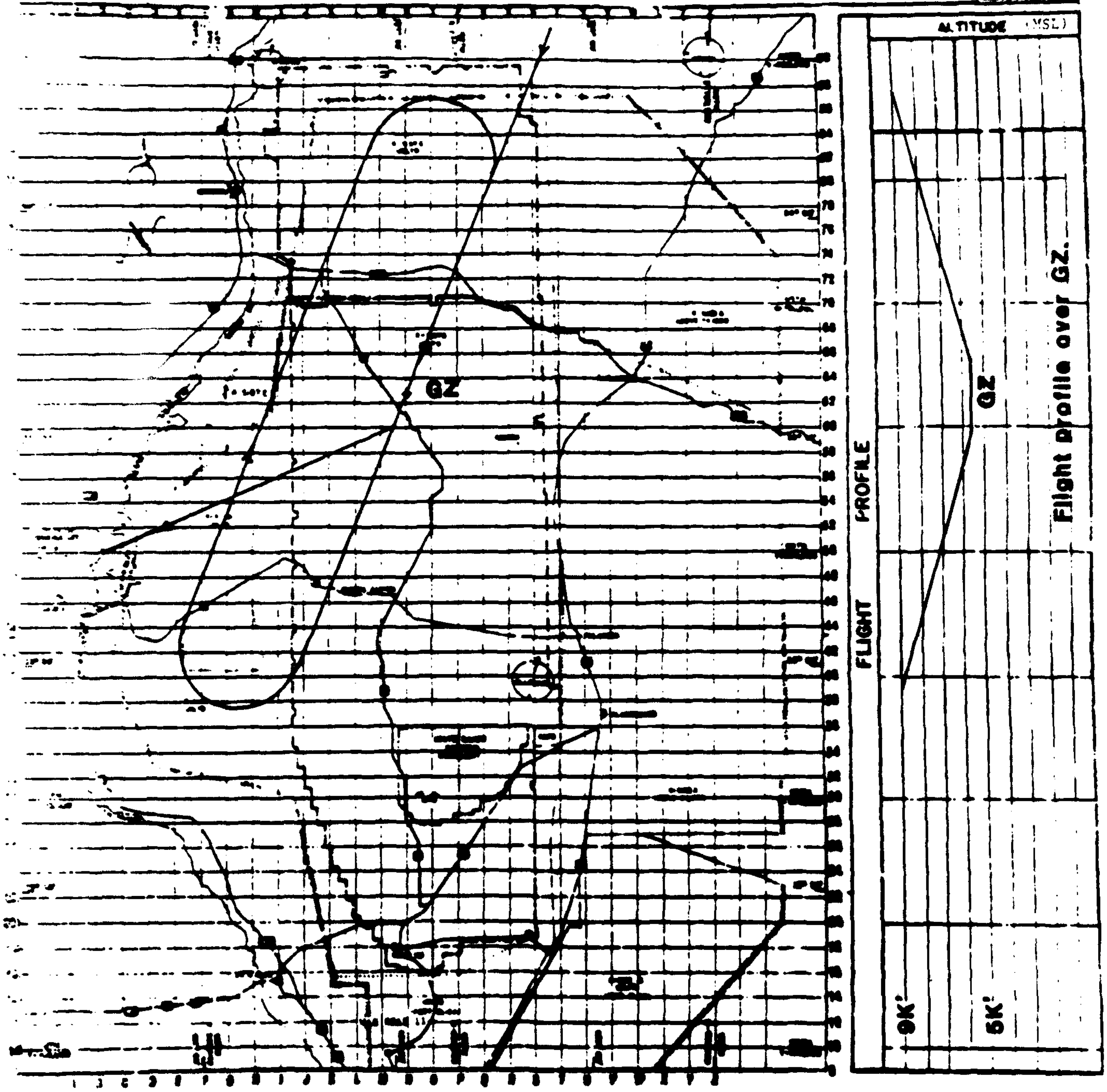
USMC----United States Marine Corps

VHF-----Very high Frequency

20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None



B-52 **MISSION PROFILE** EXP # 3500

360 KTAS
6000 FPM
2G
33°37'N
106°28'W
1.5 Hours
None
None

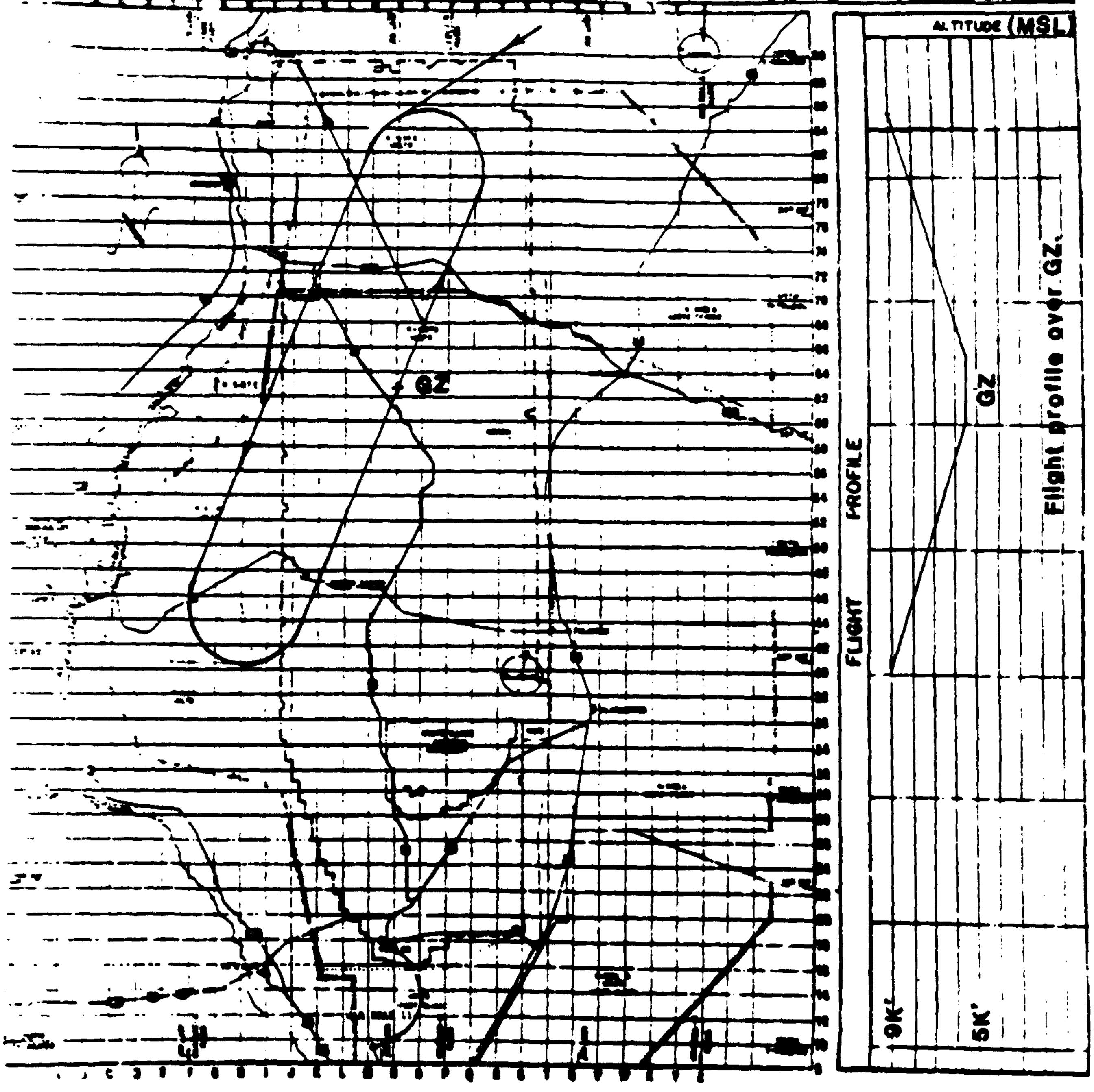
A/C will fly a clockwise racetrack pattern entering WSMR airspace from the northeast and exiting to the southwest. Approximately 3 to 4 fly-bys of GZ will be conducted. Time on station T+2 hours - T+3.5 hours. A/C will fly this pattern on both dress rehearsal and event.

NATIONAL RANGE USERS HANDBOOK

20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None



MISSION PROFILE

B-1

EXP # 3500

540 KTAS
6000 FPM
2G

33°37'N
106°28'W

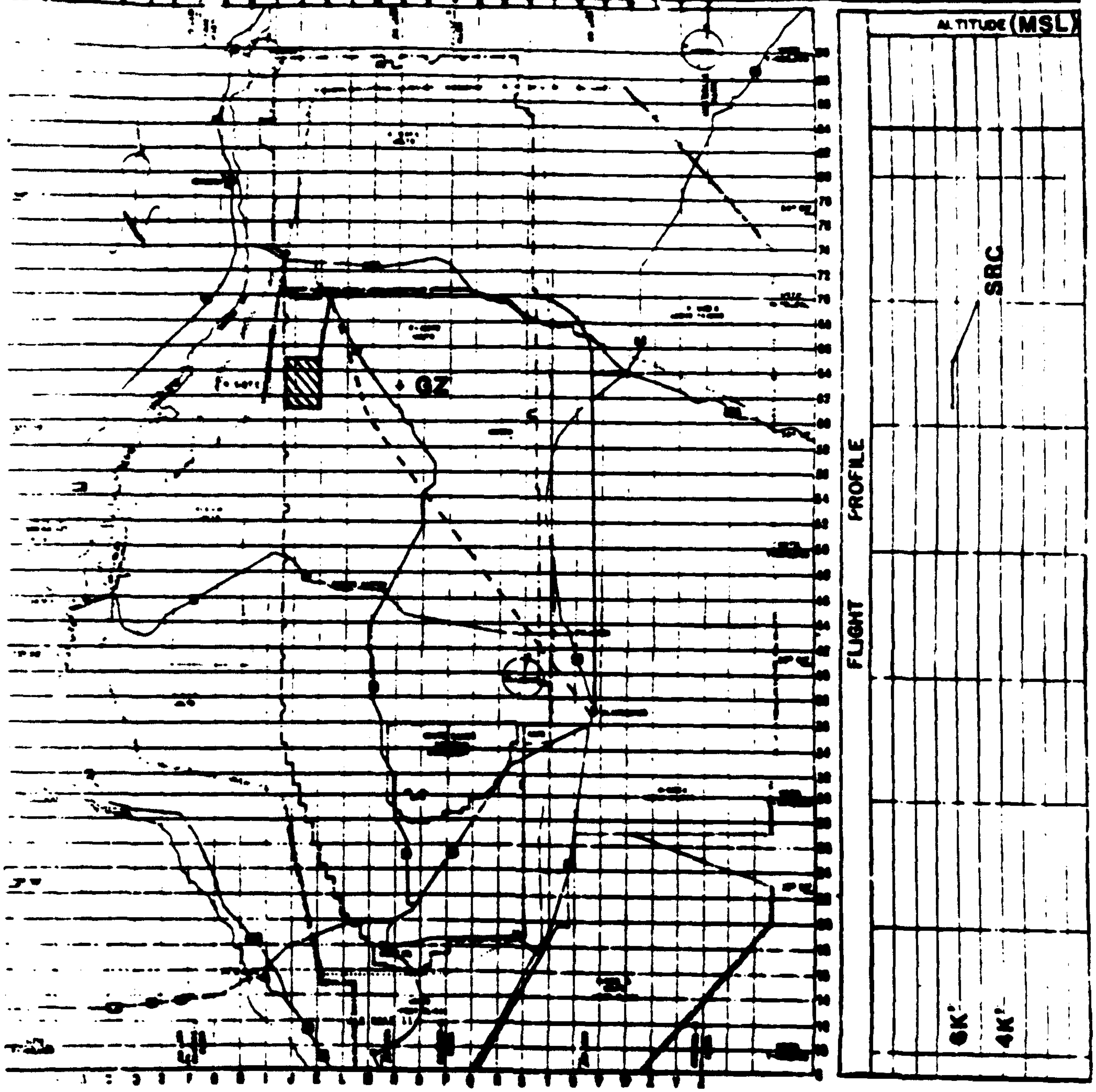
1.2 Hours
None
None

A/C will fly a counter-clockwise racetrack pattern entering WSMR from the northeast and exiting to the northwest. Approximately 3 to 4 fly-bys of GZ will be conducted. Time on station T+6 hours - T+7.2 hours. A/C will fly this pattern on both dress rehearsal and event.

20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None



Boeing 105 Helicopter

MISSION PROFILE

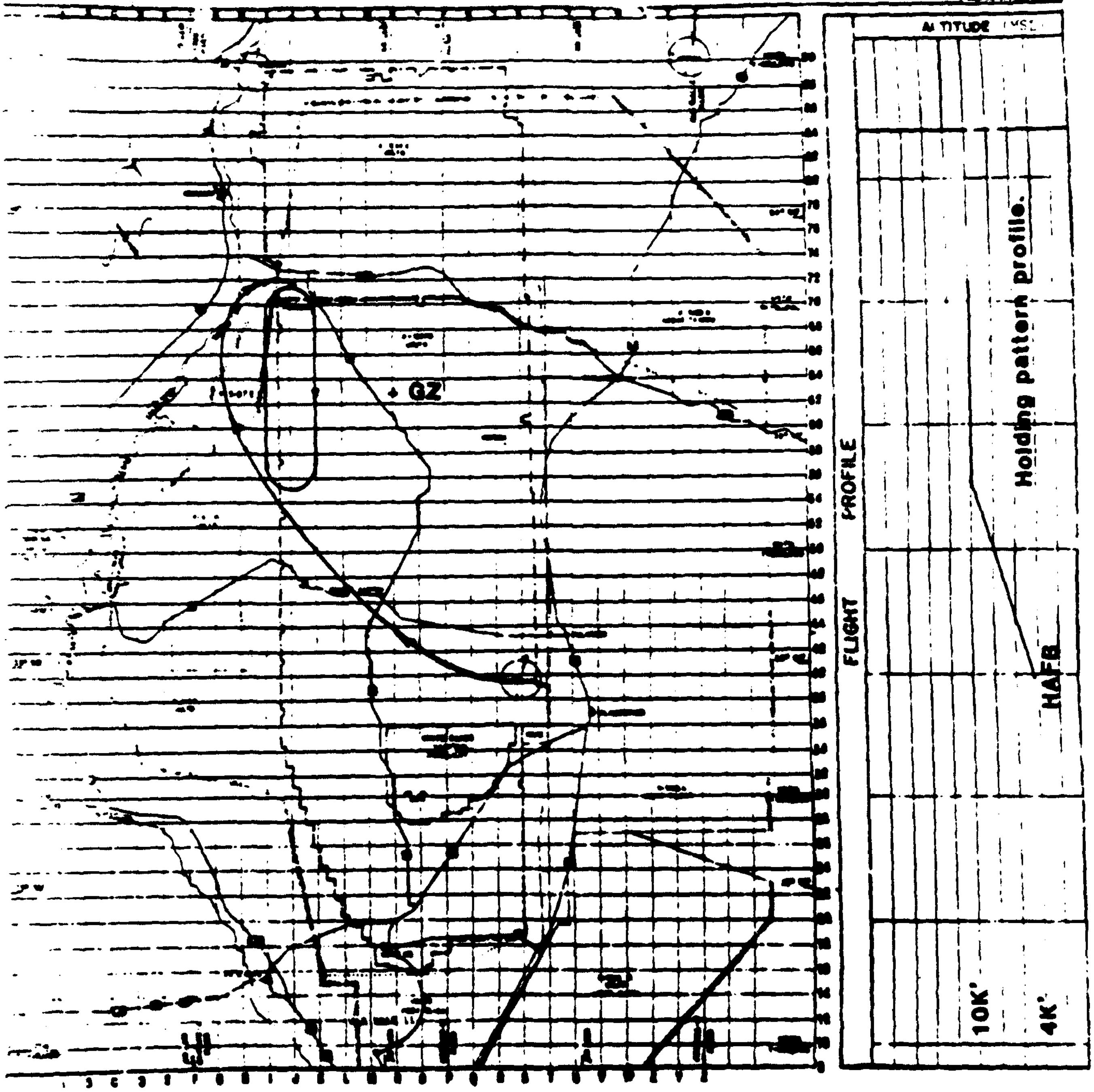
EXP # 3700

A/C will depart Alamogordo airport at T-2 hours and arrive at SRC at T-1.25 hours, refuel, and depart SRC at T-30 minutes to orbit pattern. Time on station T-30 minutes - T+1.5 hours. A/C will leave orbit pattern, return to SRC to refuel and return to Alamogordo airport. A/C will fly this pattern on both dress rehearsal and event.

OR No. 96319 | 20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None



MISSION PROFILE

EXP # 8500

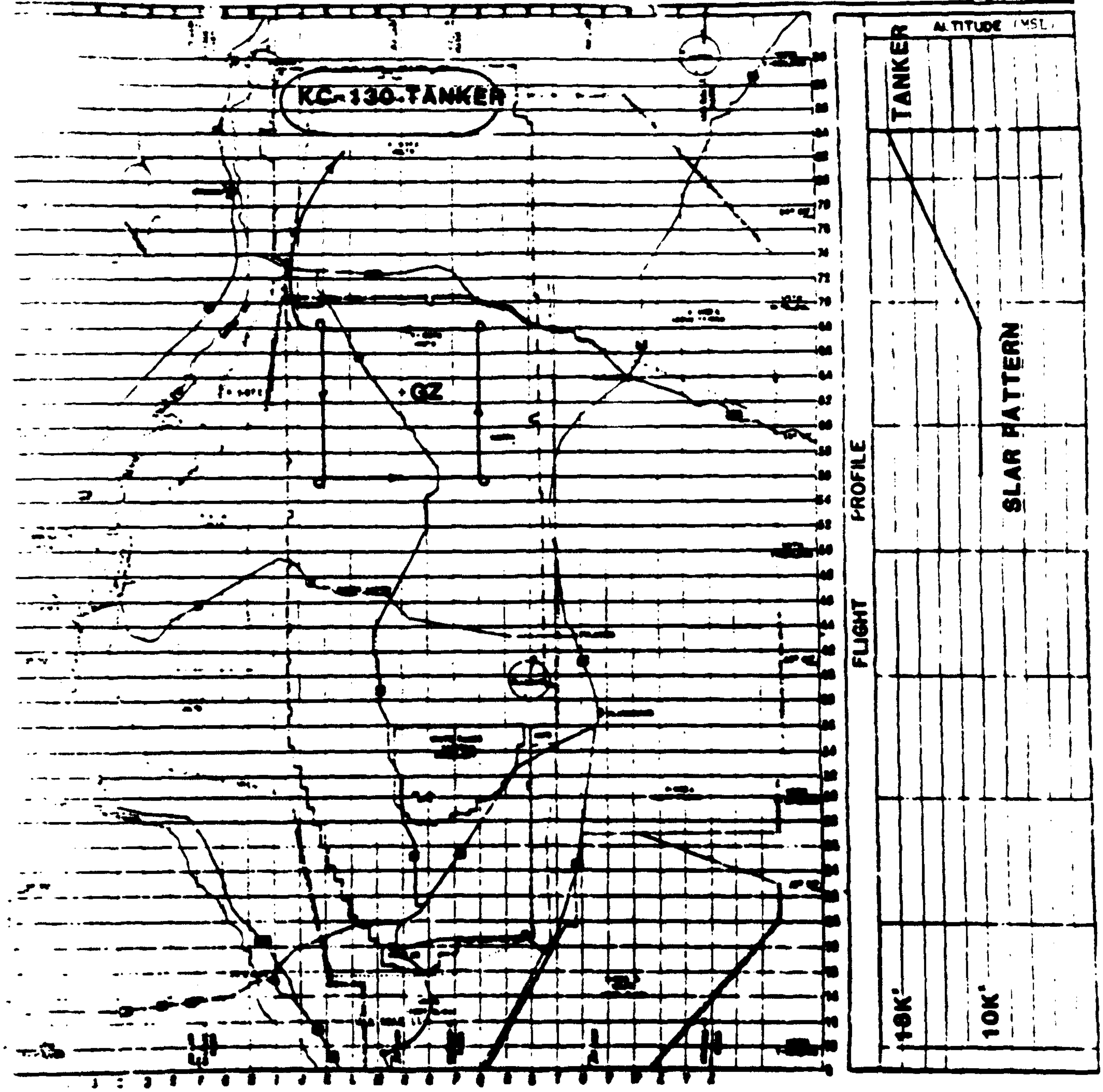
	RF-4B	RF-4B		
	360-400 KTAS	360-400 KTAS		
	1 Hour 15 Min	1 Hour 15 Min		

Phase 1: Two each RF-4Bs will depart Holloman AFB at T-20 minutes and enter a holding pattern west of GZ until the missile firings have completed (approximately T+6 minutes). A/C will fly this pattern on both dress rehearsal and event.

OR 296319
20 Feb 81

AIRSPACE OPERATIONS REQUIREMENTS

TEST None



RF-4B RF-4B **MISSION PROFILE** EXP # 8500

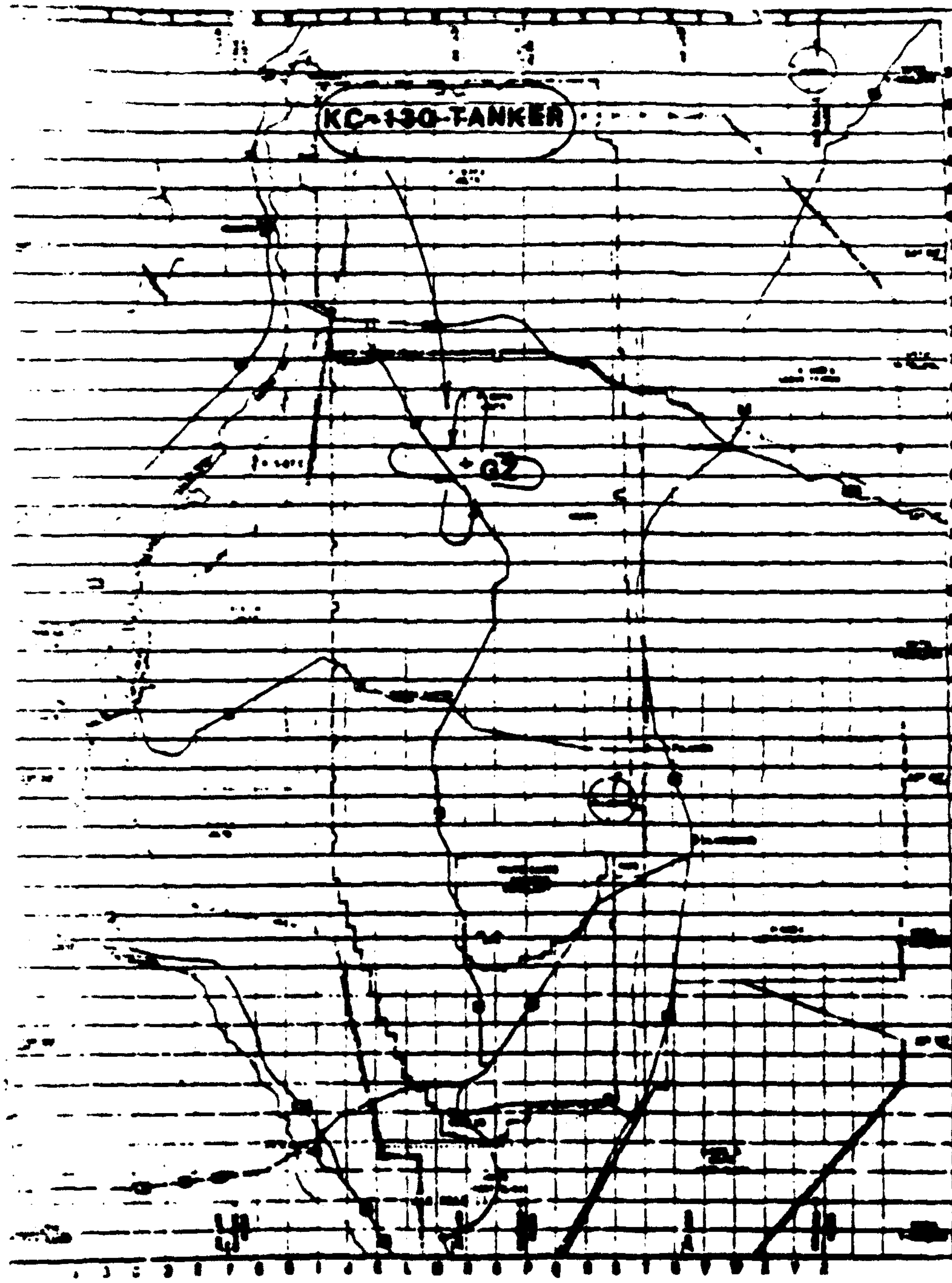
	360-600 KTAS	360-600 KTAS		
	1 Hour 15 Min	1 Hour 15 Min		

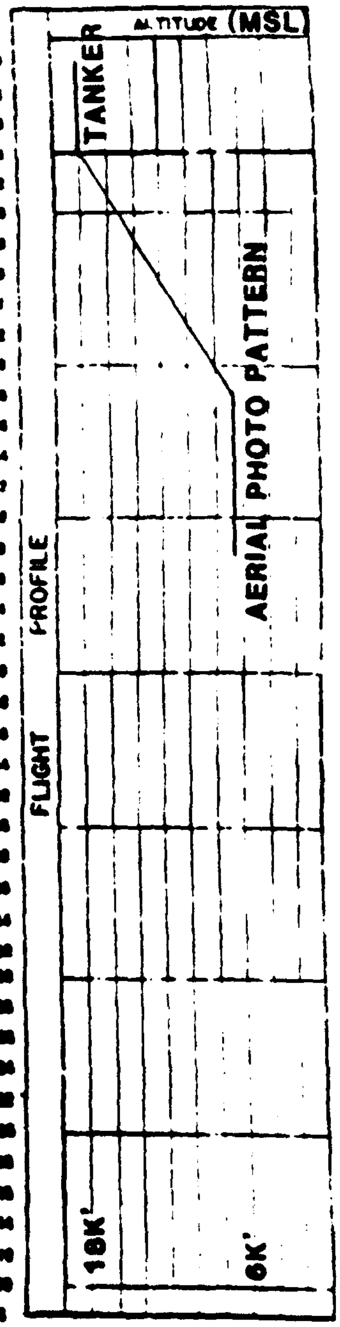
Phase 2: After missile firings are complete, approximately T+6 minutes, A/C will exit holding pattern and fly a square box pattern around GZ. Two passes are planned. A/C will exit square box pattern and rendezvous with KC-130 Tanker. Time on station T+6 minutes - T+15 minutes. A/C will fly this pattern on both dress rehearsal and event.

"20 Feb 87"

AIRSPACE OPERATIONS REQUIREMENTS

None





MISSION PROFILE

EXP # 8500

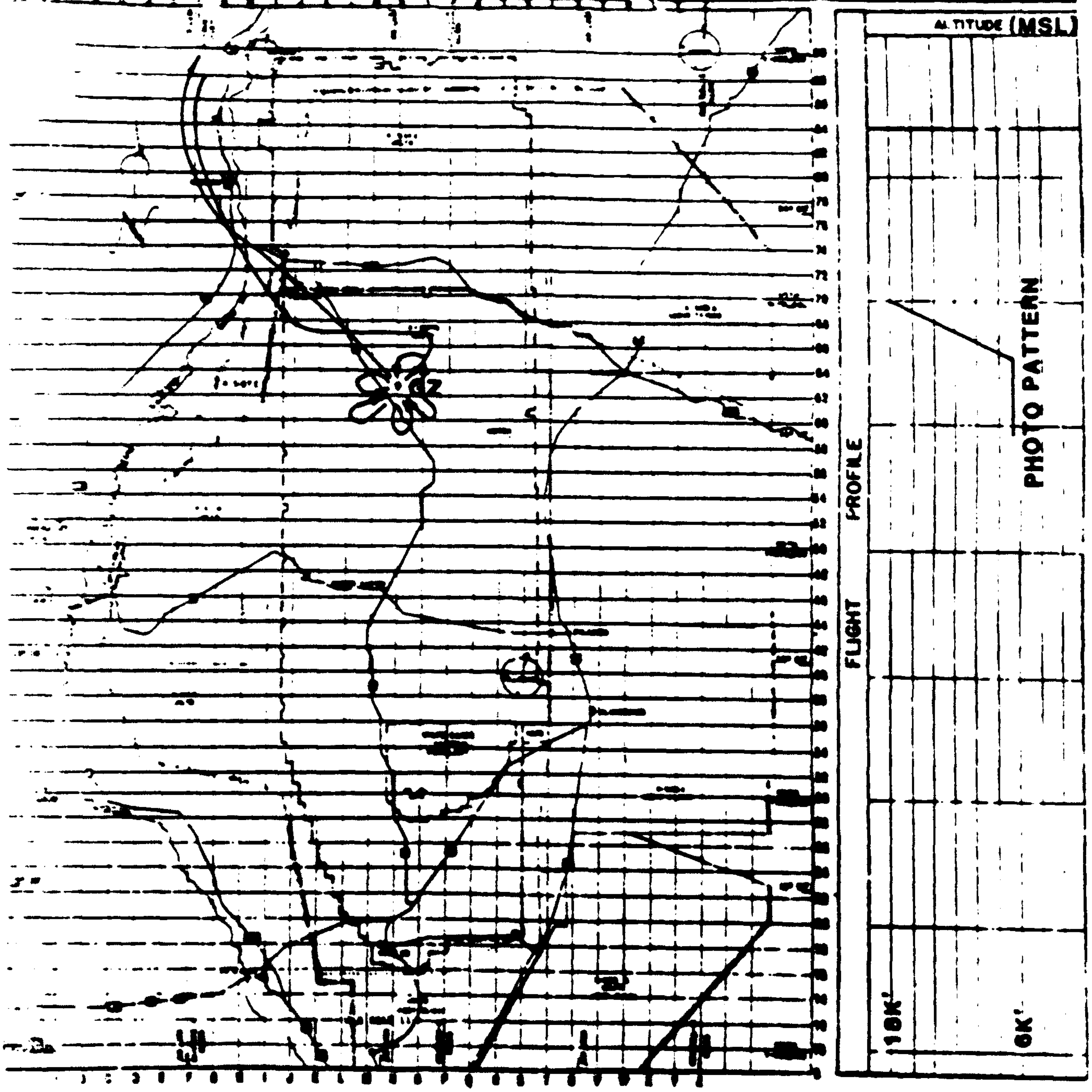
	RF-4B	RF-4B		
	360-400 KTAS	360-400 KTAS		
	1 Hour 15 Min	1 Hour 15 Min		

Phase 3: At approximately T+45 minutes A/C will return to GZ for multiple (6 ea.) passes at 6,436 feet MSL. After passes, A/C will return to HAFB. A/C will fly this pattern on both dress rehearsal and event.

20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None



F-14 **MISSION PROFILE** EXP # 8500

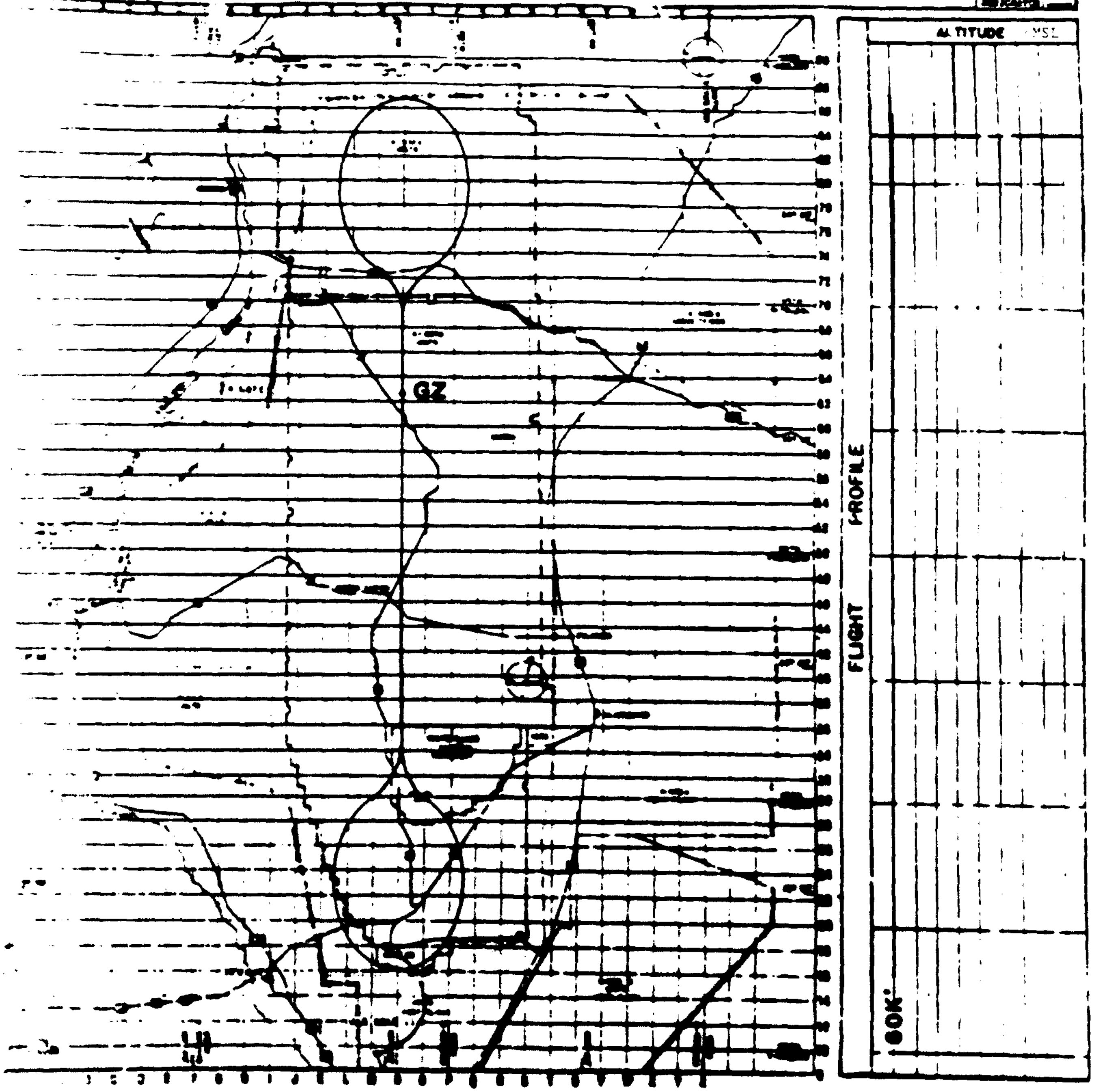
			250 KTS	250 KTS
			30 Min	30 Min

Two each F-14 Tarps will takeoff from Kirtland AFB upon notification by telephone of detonation. A/C will enter the range at 18,000 feet MSL, descend to 6,500 feet MSL for multiple passes of G2, and exit the range in excess of 10,000 feet MSL in the northwest corner. Time on station T+1 hour - T+1.5 hours. A/C will fly this pattern on dress rehearsal, event, and T+11 hours on event day.

AIRSPACE OPERATIONS REQUIREMENTS

20 Feb 87

None



MISSION PROFILE

U-2

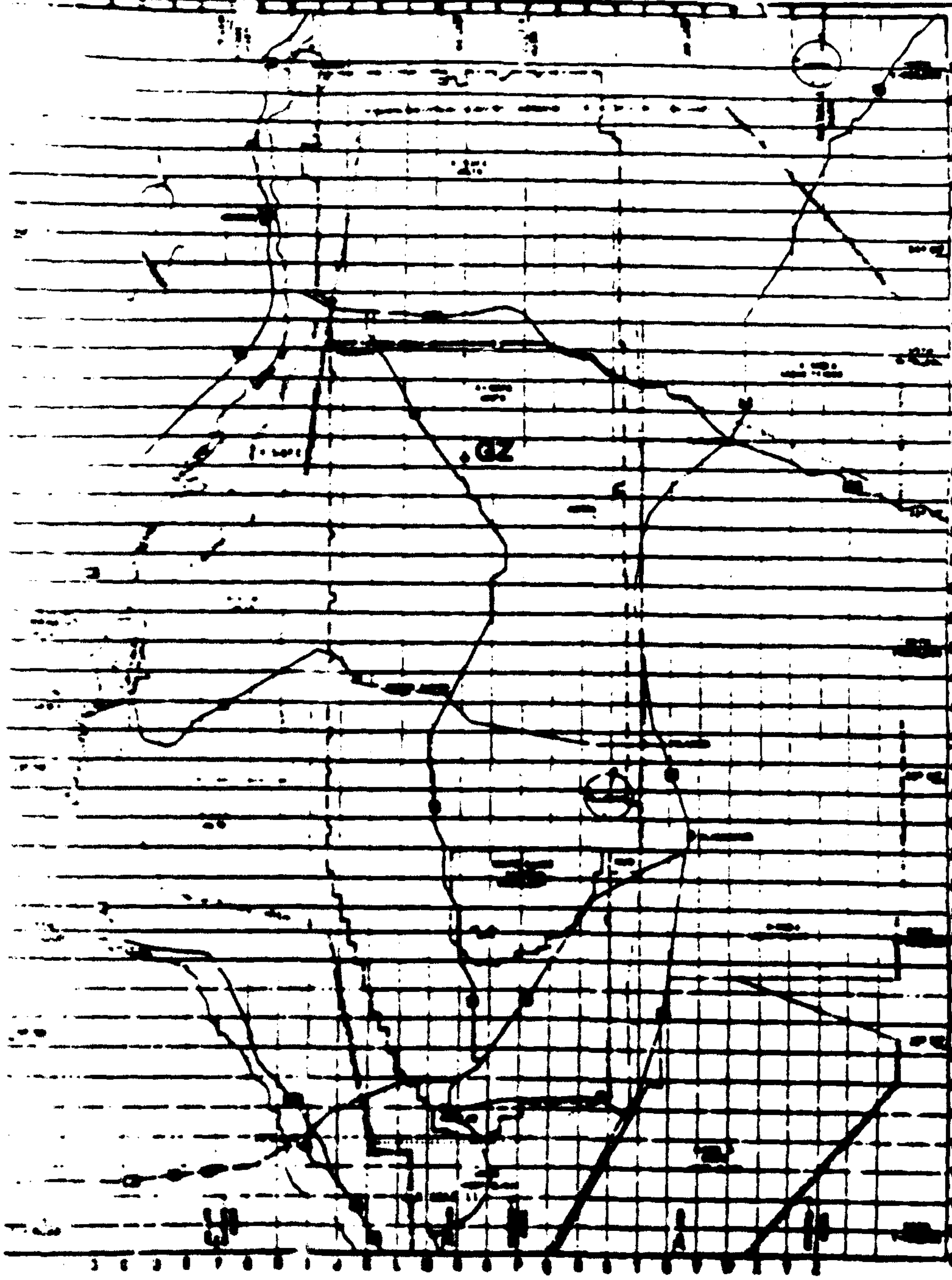
EXP 4 4500

A/C will enter WSMR airspace in excess of 60,000 feet MSL and fly a north to south pattern making several passes. Time on station T+1 hour-T+1 hour 20 minutes.

ORD NO. 96319
DATE 20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

TEST None



ALTITUDE (MSL)

FLIGHT PROFILE

60K'

MISSION PROFILE

EXP # 8500

TR-1

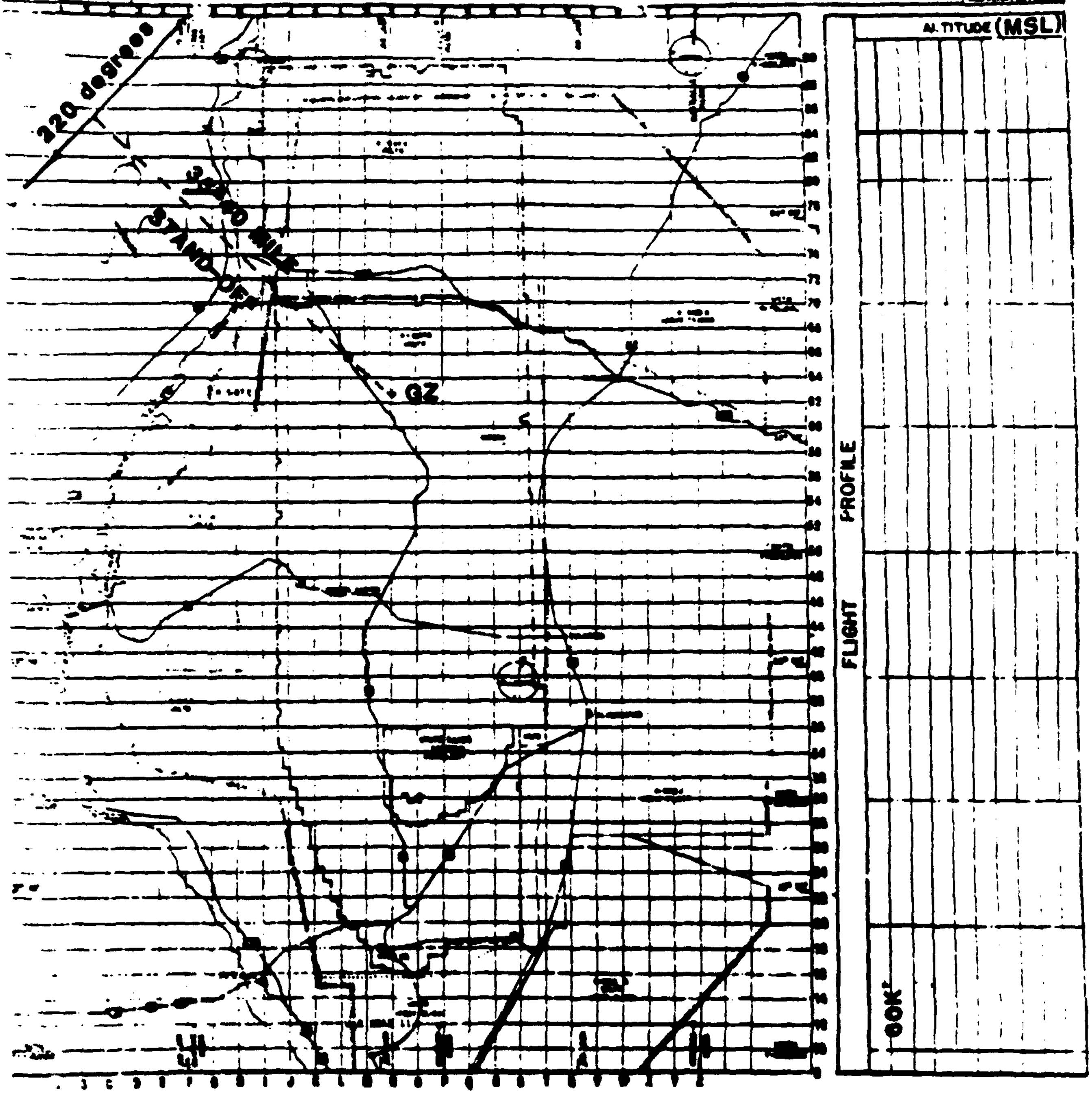
REMARKS

A/C will enter WSMR airspace in excess of 60,000 feet MSL. Time on station approximately T+1.5 hours - T+2 hours.

20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None



SR-71 MISSION PROFILE EXP # 8500

Mach 2

220°

A/C will not enter WSMR airspace but standoff 35-40 miles to the northwest. A/C will be in excess of 60,000 feet MSL and make one pass on a bearing of 220°. Time on station will begin at approximately T+90 minutes.

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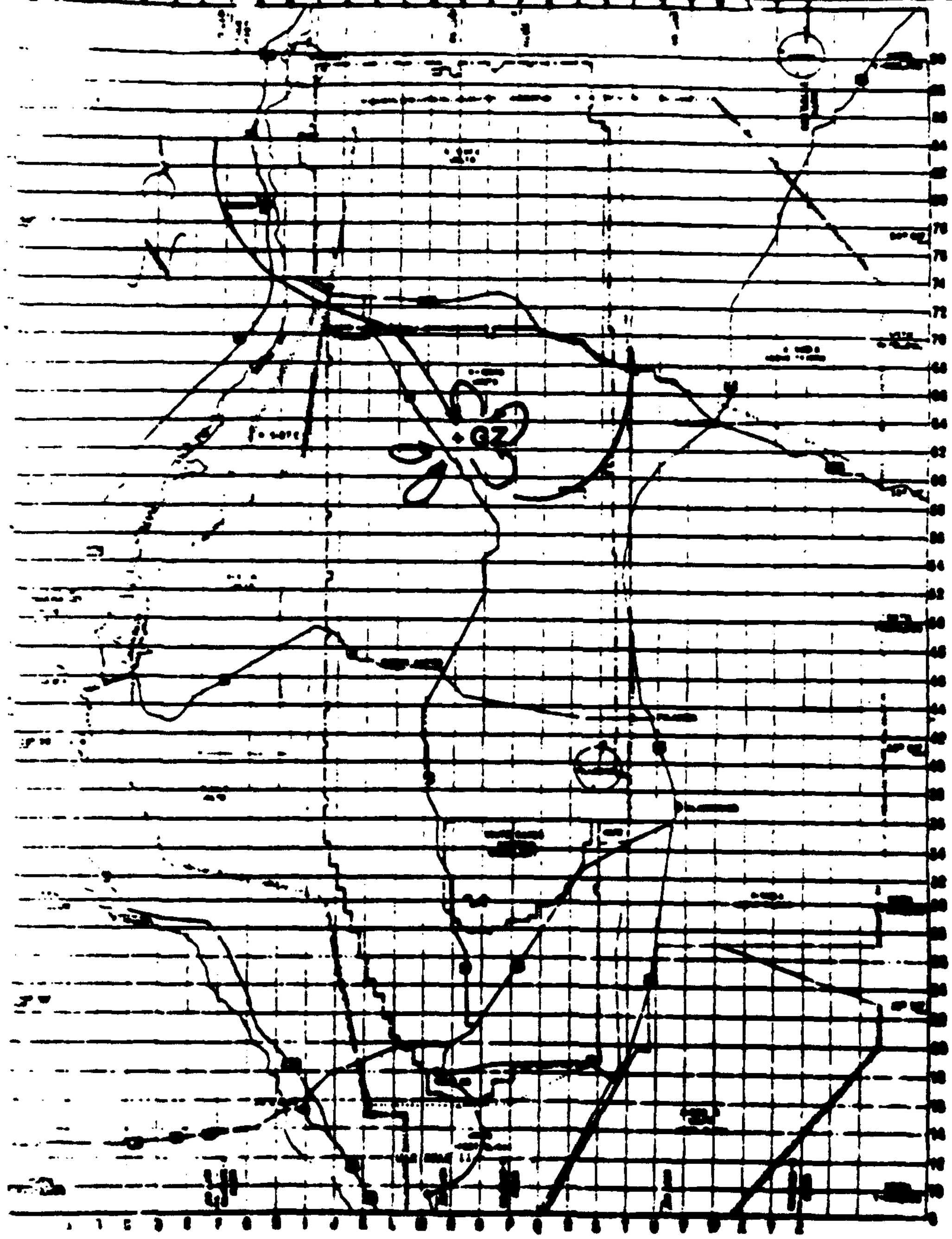
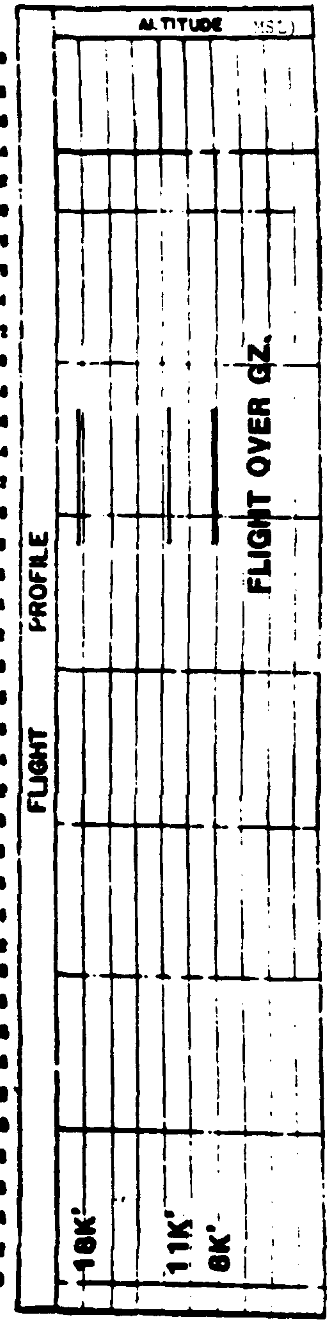
20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None





MISSION PROFILE

LEAR

EXP # 8500

200-400 KTS

A/C will depart Kirtland AFB upon telephone notification of charge detonation. A/C will perform 2 passes each at 8,236/11,537/18,136 feet MSL altitudes. Time on station T+2 hours - T+3 hours. A/C will fly this pattern on both dress rehearsal and event.

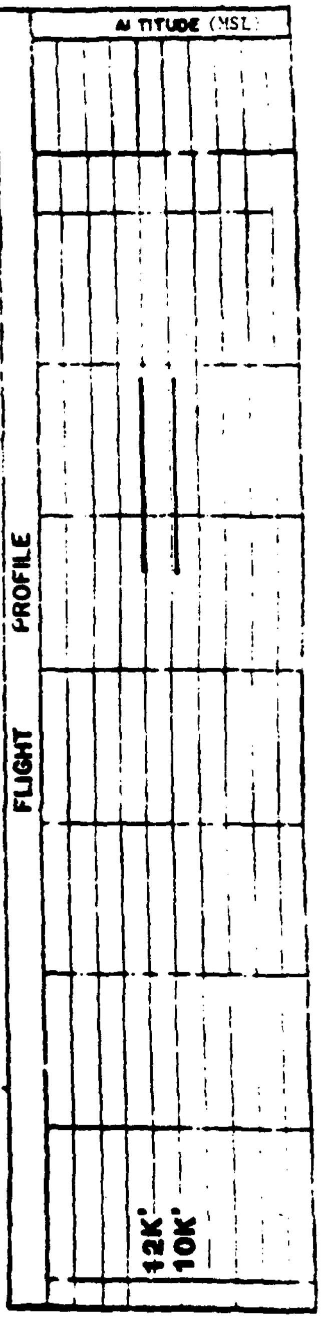
NATIONAL RANGE USERS HANDBOOK

OK 663197
20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None

ALTITUDE (MSL)



MISSION PROFILE

EXP # 8500

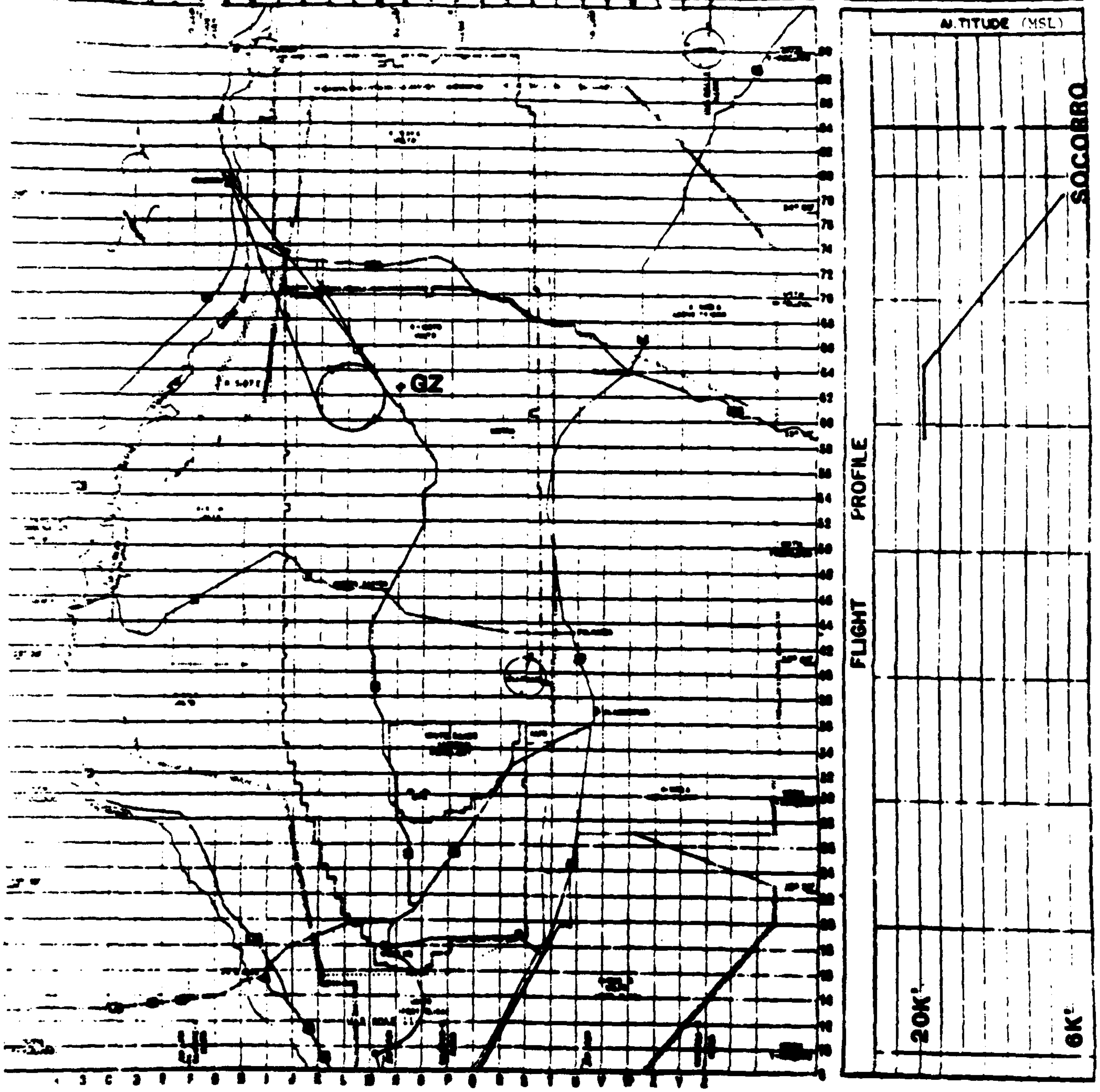
RF-4C	RF-4C		
9	10	3	4
250-350 KTS	250-350 KTS		
30 Min	30 Min		

Two RF-4Cs will depart Kirtland AFB and enter WSMR airspace in the northwest corner. A/C will make several passes at 9,600 feet MSL and 12,100 feet MSL altitudes over GZ. Time on station T+3 hours - T+3.5 hours. A/C will fly this pattern on both dress rehearsal and event.

OR# 96319
20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

TEST None



CESSNA 180 **MISSION PROFILE** EXP # 8500

VEHICLE 1	VEHICLE 2	VEHICLE 3	VEHICLE 4
120 KTS			
Varies			

Remarks:

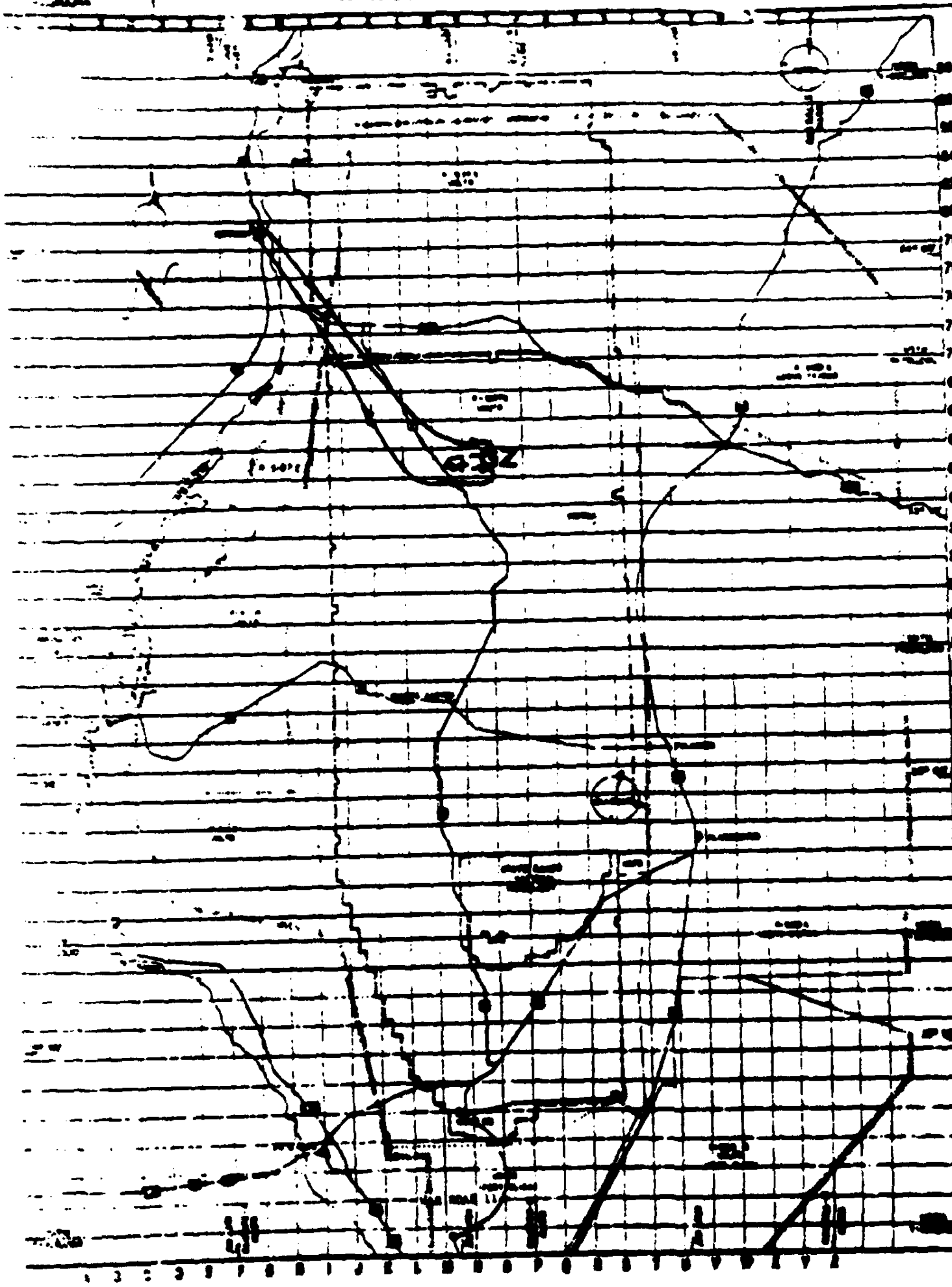
Phase 1: A/C will depart Socorro airport at T-30 minutes, enter WSMR airspace in the northwest corner at 19,936 feet MSL, and proceed to an orbit pattern. Time on station T-30 minutes - T+5 minutes. A/C will fly this pattern on *dress rehearsal and event.*

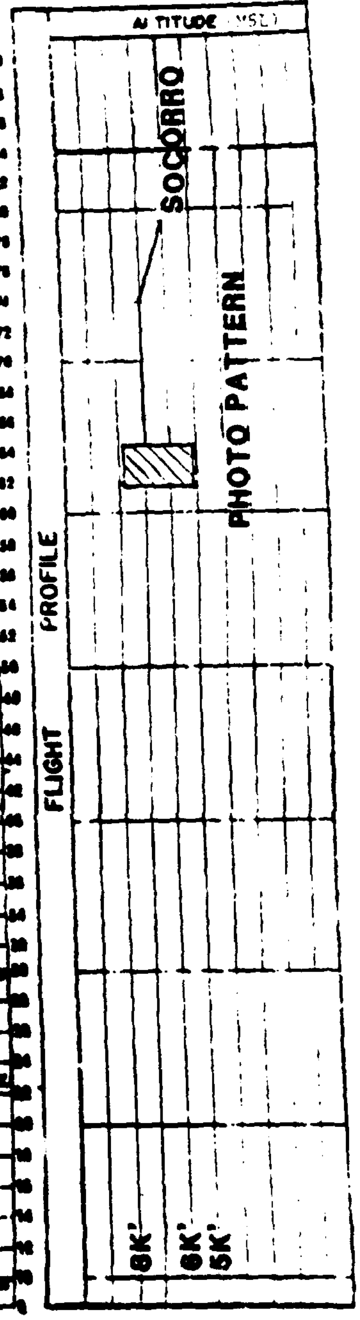
NATIONAL RANGE USERS HANDBOOK

20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

TEST None





MISSION PROFILE

CESSNA 180

EXP # 8500

11

120 KTS

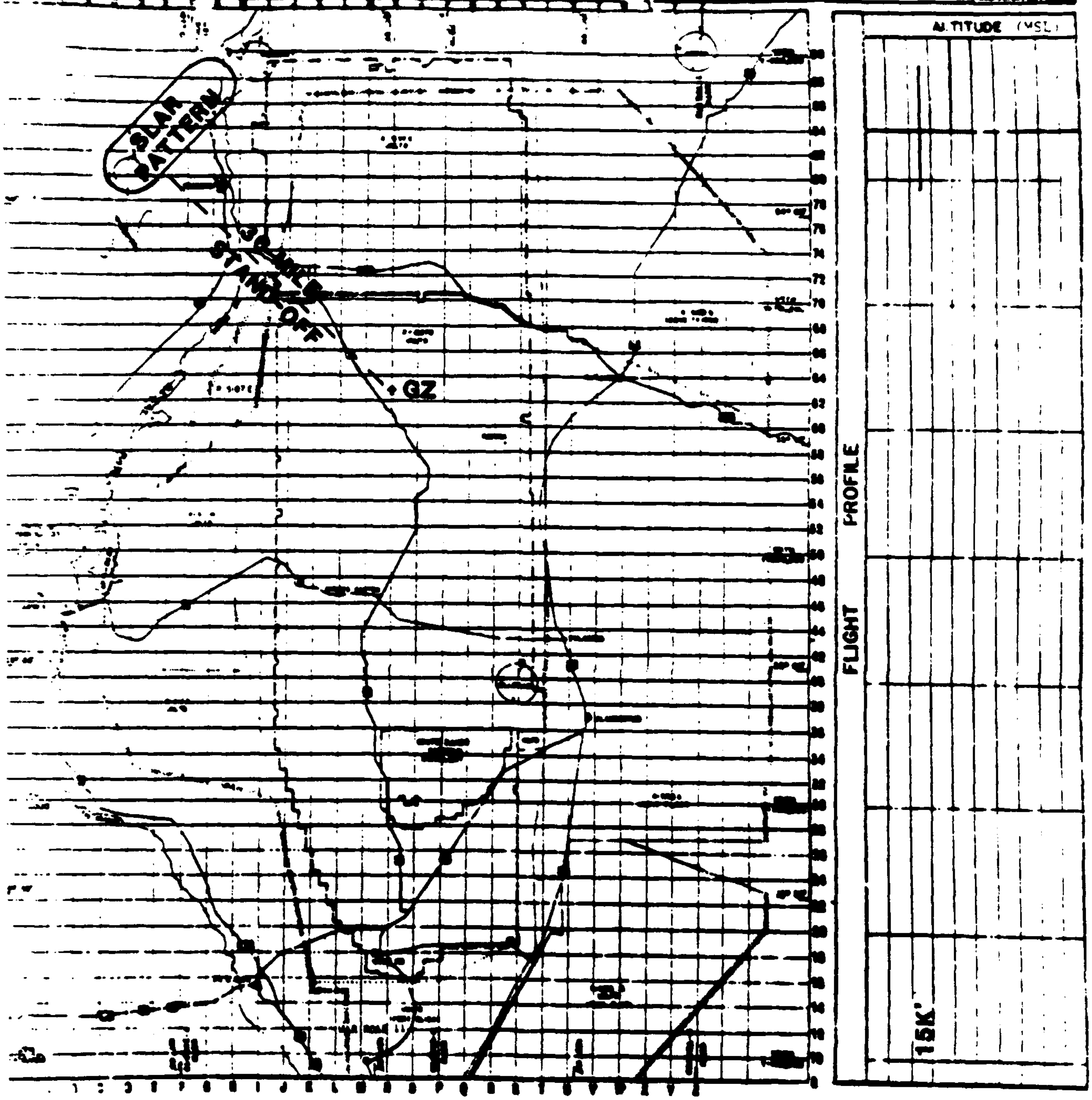
Phase 2: A/C will enter WSMR airspace in the northwest corner at 6,936 feet MSL and make 3 passes over GZ at altitudes ranging between 5,136-7,936 feet MSL. Time on station will begin at T+3.5 hours. A/C will fly this pattern on dress rehearsal T-2 day, event, T+1 day, and T+2 day.

NATIONAL RANGE USERS HANDBOOK

OR #98319
20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

TEST None



MISSION PROFILE EXP # 8500

	OV-1D VEHICLE 12	OV-1D VEHICLE 13	VEHICLE 3	VEHICLE 4
	180 KTS	180 KTS		
	Varies	Varies		
	20 Min	20 Min		

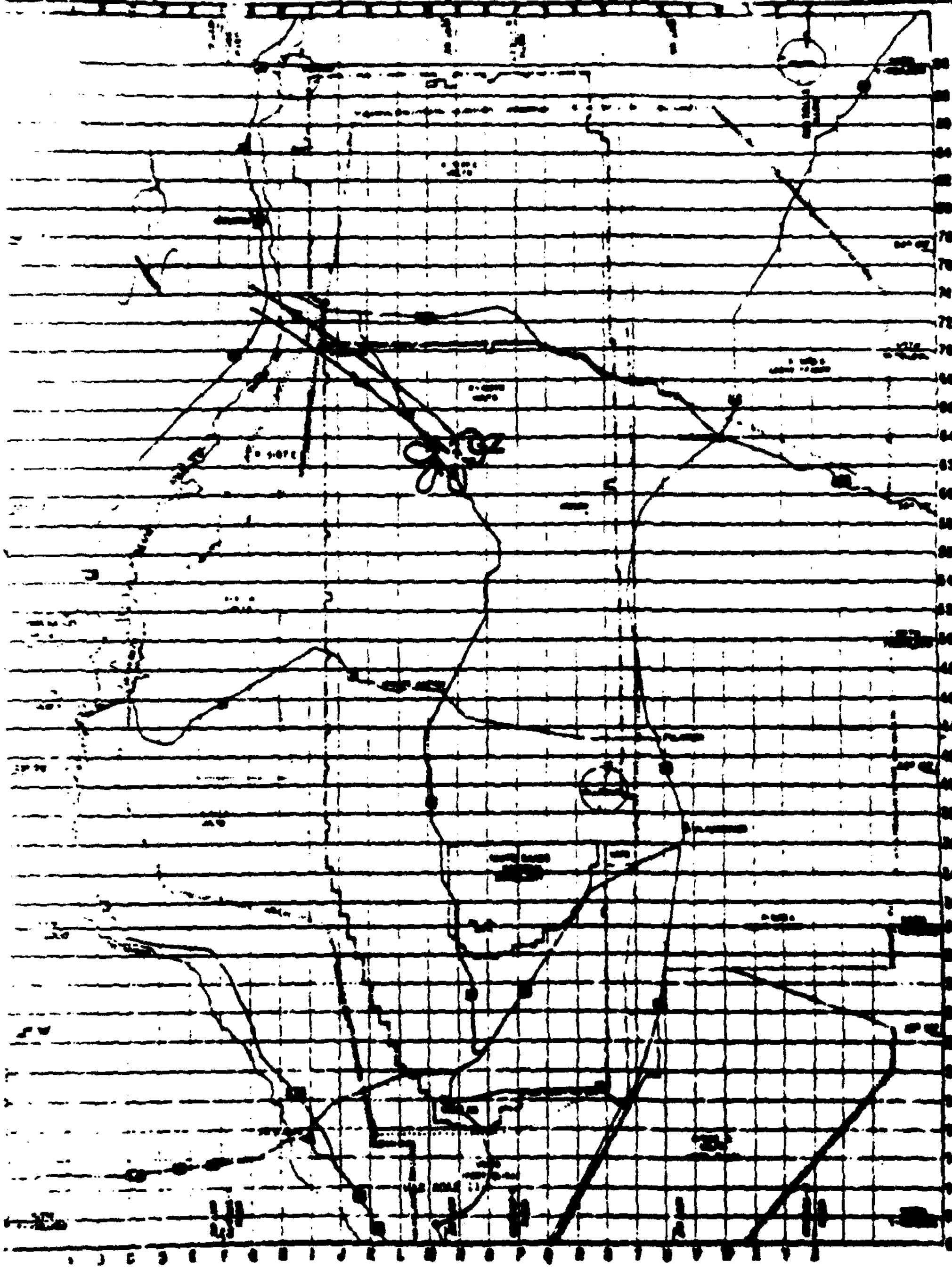
Remarks:

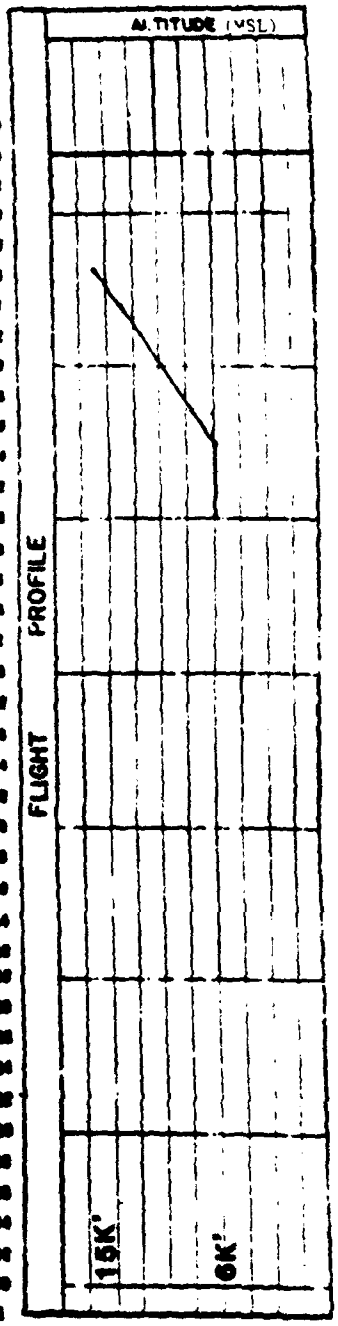
Phase 1: Two OV-1D A/C will fly racetrack pattern at 36 miles standoff from GZ at 15,000 feet MSL. Time on station T-10 minutes - T+10 minutes. A/C will fly this pattern on both dress rehearsal and event.

OR # 96319
20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None





MISSION PROFILE

EXP # 8500

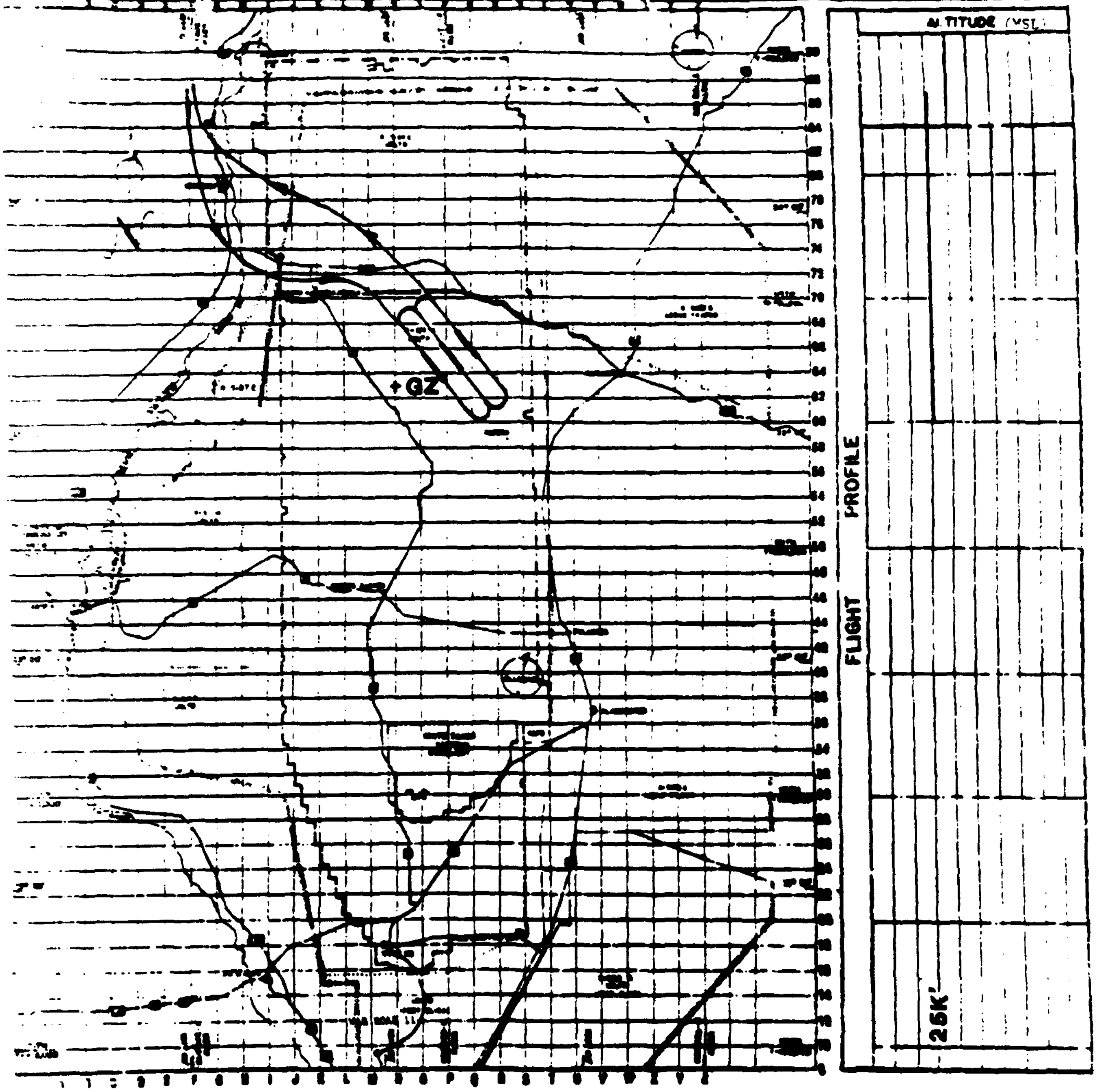
	OV-1D	OV-1D		
	12	13		
	180 KTAS	180 KTAS		
	Varies	Varies		
	24 Min	24 Min		

Phase 2: Two OV-1D A/C will enter WSMR airspace in the northwest corner and descend to 5,936 feet MSL for several passes over GZ. Time on station T+1 hour 30 minutes - T+1 hour 54 minutes. A/C will fly this pattern on dress r.hearsal, event, and T+11.5 hours on event day.

OR-FA 96319
20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None



MISSION PROFILE

CV-580

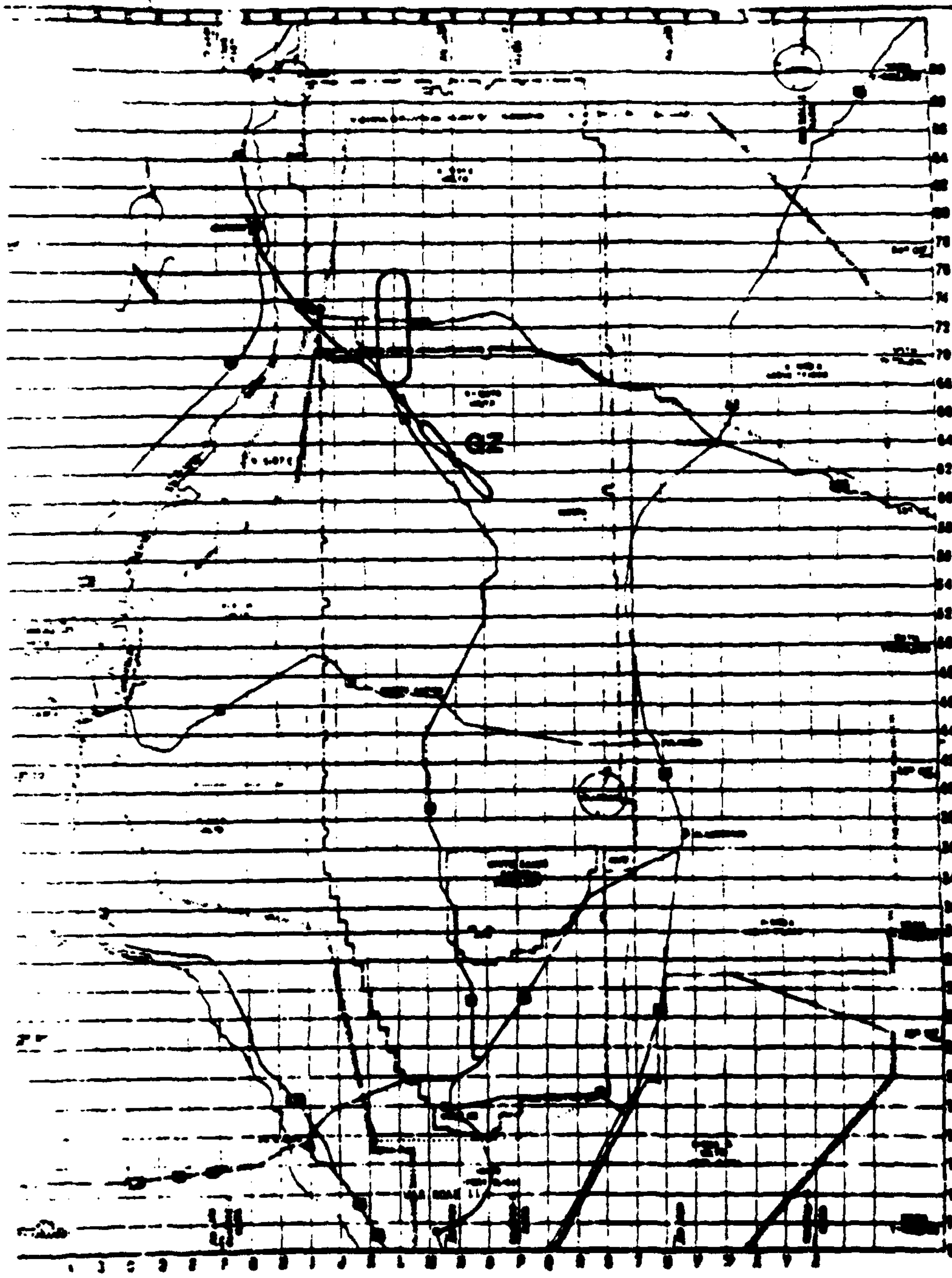
EXP # 8500

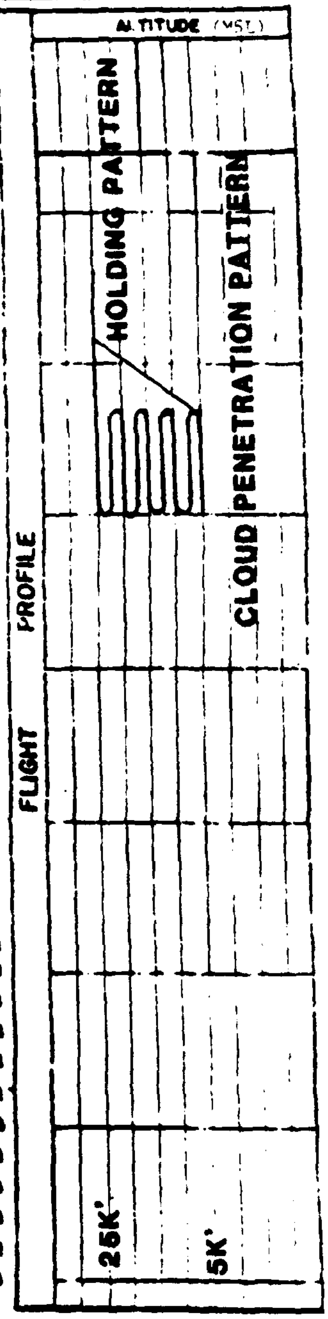
	14				Remarks:
Speed	180 KTS				A/C will enter WSMR airspace in the northwest corner at 24,936 feet MSL. A/C will make three passes to the northeast of GZ at offset ranges of 3.3, 4.5, and 5.7 nautical miles and exit the range in the northwest corner. Time on station T-2 hours - T+2 hours. A/C will fly this pattern on both dress rehearsal and event.
	20°/200° Approx.				
Time on station	4 Hours				

ORMS 96319 20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

TEST DESIGNATOR None





BEECH BARON

MISSION PROFILE

EXP # 8511

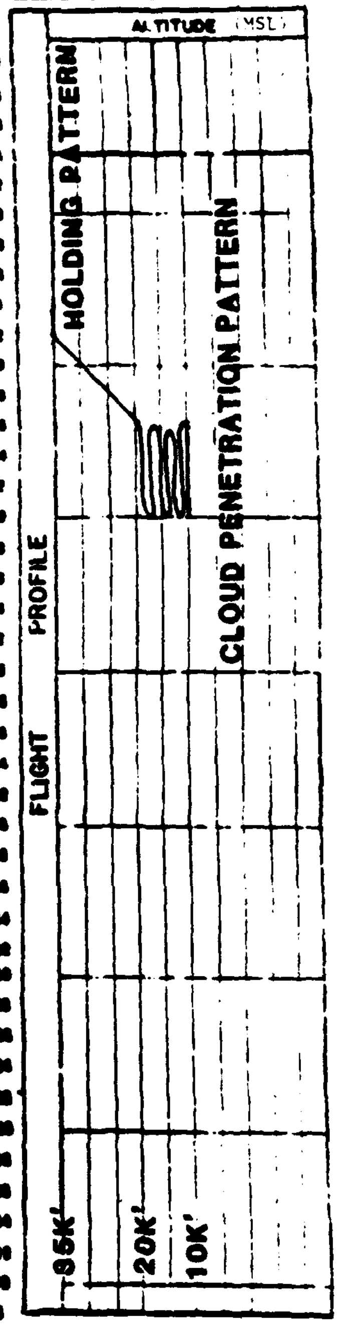
Remarks:

A/C will enter WSMR airspace in the northwest corner at 6,000 feet MSL and fly numerous cloud penetrations from 6,000 - 25,000 feet MSL. Time on station T+5 minutes - T+1.5 hours. A/C will fly this pattern on MFP1, MFP2, dress rehearsal, and event. Also, A/C will fly similar pattern at T+4 hours and T+8 hours on event day with altitude ranging from 8,000 feet MSL - 25,000 feet MSL.

AIRSPACE OPERATIONS REQUIREMENTS

20 Feb 87

None



WB 57F

MISSION PROFILE

EXP # 8530

	VEHICLE 1	VEHICLE 2	VEHICLE 3	VEHICLE 4
Speed	120 KTAS			
Climb Rate	6000 FPM			
Turn Rate	360°/Min			

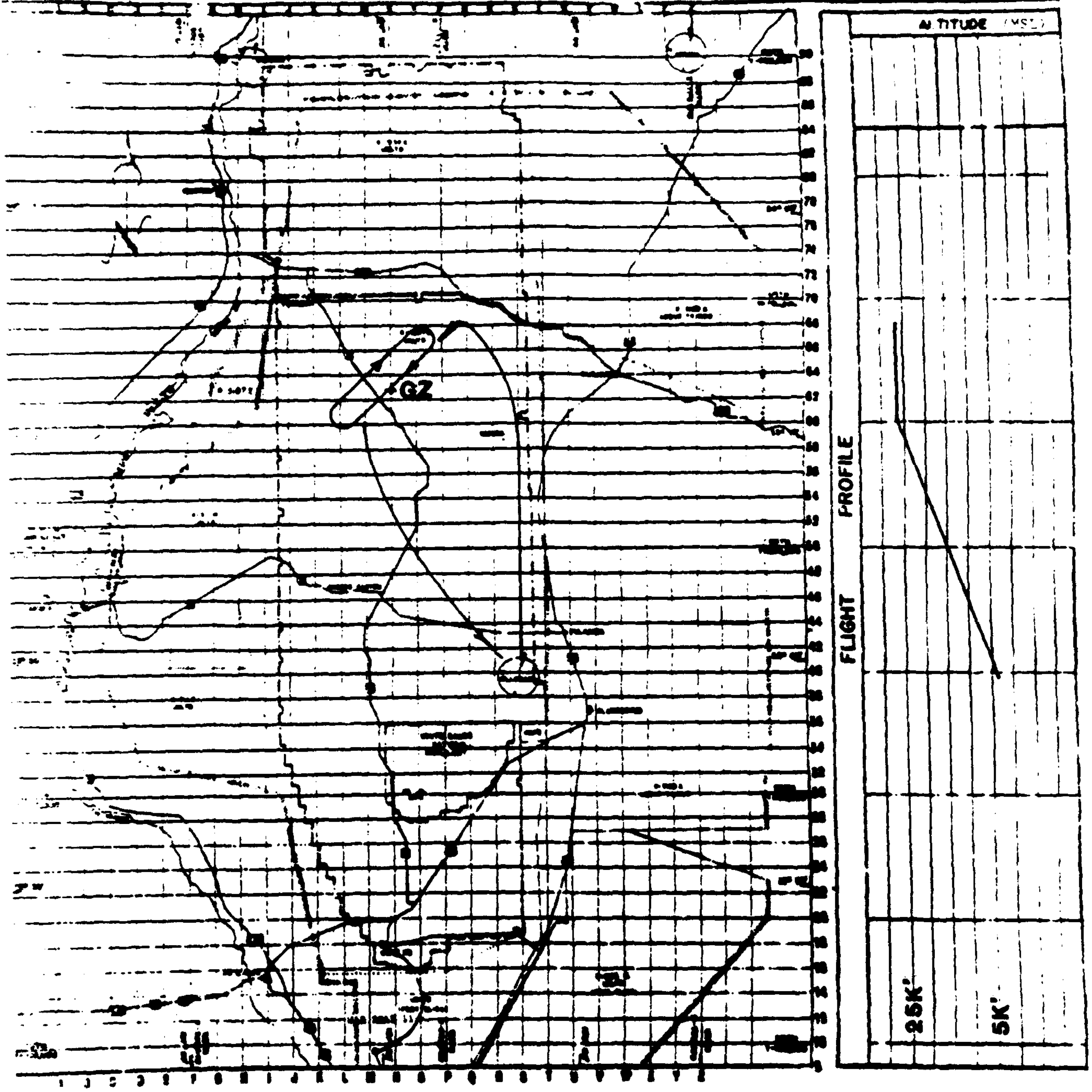
Remarks:

A/C will enter WSMR airspace along the northeastern portion and proceed to holding orbit at 35,000 feet MSL. A/C will descend and fly through dust cloud from 19,500 feet MSL down to 10,000 feet MSL.
Time on station for passes T+10 minutes - T+1 hour.
A/C will fly this pattern on dress rehearsal event.
Also, A/C will fly pattern at T+4 and T+5 hours on event day.

OR 96319
20 Feb 87

AIRSPACE OPERATIONS REQUIREMENTS

None



MISSION PROFILE

EXP # 9030

	RF-4B	RF-4B		
Speed	420 KTAS	420 KTAS		
	10 Min.	10 Min.		

Two each A/C will stage from Holloman AFB. A/C will make numerous passes over GZ in racetrack pattern at 27,000 feet MSL. Time on station T-5 minutes - T+5 minutes. A/C will fly this pattern on MFP1, MFP2, dress rehearsal, and event.

Universal Documentation System

MISTY PICTURE

(PROGRAM SHORT TITLE)

OPERATION REQUIREMENT

OR NO. 96320

No. 96320

TEST DESIGNATOR(S)	TEST TITLE
None	4880 Event

4 February 1987
DOCUMENT DATE

WHITE SANDS MISSILE RANGE
NEW MEXICO

STEWS-NR-P FORM 50-R
1 Mar 86

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OR NO. 96320	APPROVAL AUTHORITY	DATE: 4 FEBRUARY 1987
UDS PARAGRAPH 1010		TEST DESIGNATOR(S):

PROGRAM TITLE: MISTY PICTURE

1. All paragraph and subparagraph classification markings have been reviewed and have been determined to be properly marked in accordance with paragraph 4-202, DOD 5200.1-R.
2. None of the support requirements stated herein exceed the scope of previously accepted planning documents pertaining to this program.

FOR THE RANGE SPONSOR:

[signature] — Signature

PROGRAM SPONSOR — Title

My review of this document has established the following:

	Yes	No
(1) Scope of test is within PI/SC.	☑	☐
(2) Information is adequate for test support.	☑	☐
(3) It complies with policies and format (Range Users Handbook).	☑	☐
(4) All support developments (if any) of the Range essential to this test are ready.	☑	☐
(5) User funds are available to pay direct costs of support planning.	☑	☐

Based on the above, this document is:

☑ Accepted FOR THE RANGE

☐ Referred to Range Management

[signature]
NR Project Engineer

DATE: 25 FEB 1987

RECEIVED [illegible] 25 FEB 1987

RANGE MANAGEMENT COMMENTS (if applicable):

SECURITY INFORMATION: (General Declassification Schedule stamp)

STEWS NR-P Form 8
19 Jul 78 (Rev)

i

NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS WILL NOT BE USED

OR NO: 96320	DISTRIBUTION	REVISION NO:
PARAGRAPH 1020		OR TEST DESIGNATOR(S): None

AA. 1	AIR FORCE
AFC 1	AD-RUC. 1
*HSHM-MHC-PR 1	AD-RUS 0
*ASNC-TWS. 3	AD-RU 0
*SLCAS-DP 1	*6585 TG/AD-RUM, Holloman Air Force Base 1
IS-G 4	6586 TS/DOS, Holloman Air Force Base 0
IS-N 1	DET 1, 475 WEG Holloman Air Force Base 0
*NR-AO 4	
NR-CE 1	
*NR-CF 2	. . . .
*NR-CR 6	. . . .
*NR-D 6	. . . .
*NR-CS-S 1	. . . .
*NR-CS-DMA 1	. . . .
NR-PD 6	. . . .
NR-PR 1	. . . .
PL-P. 0	. . . .
*SF. 1	. . . .
*SD 1	NOMTS 0
. . . .	. . . .
. . . .	. . . .
. . . .	. . . .
. . . .	. . . .
. . . .	
. . . .	

*Replies Required

OR/OD No. 96320	SECURITY CLASSIFICATION	REVISION No.
UDS PARAGRAPH: 1052		DATE: 4 February 87

PROGRAM TITLE: MISTY PICTURE

USER SECURITY OFFICER: CPT Jim Sauer PHONE: 679-4183/4184

CLASSIFICATION AUTH & DATE:

This page will require revision upon any pertinent change to the projects Security Classification Guide. Any temporary change caused by an incident resulting from a specific test will be reported to the WSMR Range Control Office immediately. The pre-printed continuation form page will be used for additional entries or remarks.

ITEM	Classification	Declassification Date
A. RAW DATA		
1. Radar Tapes	U	
2. Telemetry Tapes	U	
3. Cinetheodolite Film	U	
4. Telescope Film	S	OADR
5. Fixed Camera Film	S	OADR
6.		
7.		
B. IN-TEST DATA (REAL TIME & ON-LINE)		
1. Trajectory Plots (Radar, RTDS, Etc.)	U	
2. Trajectory Tapes (Radar, RTDS, Etc.)	U	
3. Telemetry Plots (Oscillograms)	U	
4. Telemetry Tapes (Digital)	U	
5.		
6.		
C. POST-TEST DATA (QUICK-LOOK & VALIDATED)		
1. Trajectory ($x, y, z; \dot{x}, \dot{y}, \dot{z}; \ddot{x}, \ddot{y}, \ddot{z}$)	U	
2. Miss distance	U	
3. Telemetry (Listings, Plots or Tapes)	U	
4. Events or Time (Specify items)	U	
a.		
b.		
c.		
5. Geodetic Survey Computation (Specify items)		
a.		
b.		
c.		
D. FREQUENCIES		
1.		
2.		
E. DOCUMENTARY & AERIAL PHOTOGRAPHY		
1. Stills	S	OADR
2. Motion Picture	S	OADR
3.		
F. RECOVERY (List Classified items)		
1. RV	SNSI	OADR
2. RV	CFRD	OADR
3.		
4.		
5.		
6.		

OR/OD No. 96320	SECURITY CLASSIFICATION	REVISION No.
UDS PARAGRAPH: 1052		DATE: 4 FEB 87

PROGRAM TITLE:

ITEM	Classi-fication	Declassification Date
G. RECOVERY AID (Information)		
1. Radar Look Angle at ground impact point	U	
2. Radar range to ground impact point	U	
3. Optical Instrument look angle at impact point	U	
4. Telemetry look angle to loss of signal	U	
H. OTHER ITEMS		

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

1. PROGRAM INFORMATION, ADMINISTRATIVE AND TECHNICAL.

1000. ADMINISTRATIVE INFORMATION.

a. All questions involving support requirements should be referred to the White Sands Missile Range (WSMR) Program Sponsor (PS), except during actual missions:

Mr. Lee Meadows
STEWS-NR-PD
White Sands Missile Range, NM 88002-5047
COMM/FTS (505) 678-1622, AV 258-1622

b. During actual missions, questions involving the particular operation should be referred to the Test Group Director:

MAJ Charles G. Walls, USA
Test Group Director (TGD)
Field Command, Defense Nuclear Agency (FCDNA)
Kirtland AFB, NM 87115-5000
Kirtland AFB: COMM/FTS (505) 844-4651
AV 244-4651
WSMR: COMM/FTS (505) 679-4183
AV 349-4183

c. Questions concerning engineering services or site construction should be directed to:

LT Stephen Crawford, USAF or
CPT Mike Patterson, USA
Test Group Engineer (TGE)
Field Command, Defense Nuclear Agency (FCDNA)
Kirtland AFB, NM 87115-5000
Kirtland AFB: COMM/FTS (505) 844-8261
AV 244-8261
WSMR: COMM/FTS (505) 679-4303
AV 349-4303

d. Questions concerning security or other site operations should be addressed to:

CPT Jim Sauer, USA
Program Director (PD)
Field Command, Defense Nuclear Agency
Kirtland AFB, NM 87115-5000
Kirtland AFB: COMM/FTS (505) 844-4651
AV 244-4651
WSMR: COMM/FTS (505) 679-4185
AV 349-4185

e. Questions concerning safety, logistics or other site operations should be addressed to:

LT Ken Fladager, USN
Program Director (PD)
Field Command, Defense Nuclear Agency
Kirtland AFB, NM 87115-5000
Kirtland AFB: COMM/FTS (505) 844-4398
AV 244-4398
WSMR: COMM/FTS (505) 679-4398
AV 349-4398

f. Questions concerning Thermal Radiation Sources, precursor or other site operations should be addressed to:

LT Dan Lehr, CEC, USN
Program Director (PD)
Field Command, Defense Nuclear Agency
Kirtland AFB, NM 87115-5000
Kirtland AFB: COMM/FTS (505) 844-4651
AV 244-4651
WSMR: COMM/FTS (505) 679-4184
AV 349-4184

g. The MISTY PICTURE control activity will be located in the administrative trailer park at the intersection of Route 7 and Route 20.

h. This test will be conducted on and supported by the Permanent High Explosives Test Site (PHETS).

i. Appendix 1 contains a listing of acronyms and abbreviations relating to the MISTY PICTURE test.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

1100. PROGRAM AND MISSION INFORMATION.

a. Test Program Objectives. MISTY PICTURE will be a High Explosive (HE) event designed to provide a blast, thermal, and shock environment for the Department of Defense (DOD), U.S. Government Agencies, and foreign governments sponsoring target experiments. For selected experiments, seven Thermal Radiation Sources (TRS) are placed at varying distances from Ground Zero (GZ) to augment the blast and shock environment by providing thermal radiation. The TRS will operate just prior to detonation of the explosive charge. Execution is currently scheduled for 14 May 1987. MISTY PICTURE will detonate 4,880 tons of Ammonium Nitrate Fuel Oil (ANFO) placed at ground level. Test objectives are to:

(1) Record blast and shock environment.

(2) Record damage to weapons, shelters and systems.

(3) Record synergistic effects of blast and thermal environments.

(4) Increase weapons effects data base.

In addition to the before mentioned objectives, four Talos/Terrier missiles and 20 Viper rockets will be fired into the dust cloud produced by the MISTY PICTURE detonation during the T+1 minute to T+3 minute time period. The missile payloads are ballistic re-entry vehicles being tested for the effects of dust erosion on their surfaces and trajectories. The rockets are samplers to define the environment that the re-entry vehicles were exposed to. The Vipers will be fired in volleys of 4, before and after each Talos/Terrier firing (five volleys of 4).

b. Test Program Restraints.

(1) Meteorological conditions (particularly wind and temperature), that (a) adversely affect the atmospheric acoustic propagation structure; (b) cause dust to blow and thus reduce visibility or affect camera coverage; (c) cause excessive cloud cover which would adversely affect aerial photography; or (d) adversely impact the precursor experiments could result in a test hold.

(2) Test execution is scheduled for 1000 hours with a test window extending until 1430 hours.

(3) The test could be placed in a hold condition (a) due to unspecified instrumentation or equipment malfunctions; (b) during periods of unfavorable satellite coverage of the testbed.

(4) Firing of the Talos/Terrier missiles and the Viper rockets are dependent upon the status of the MISTY PICTURE event.

1300. SYSTEM INFORMATION.

a. The charge will consist of 4,880 tons of ANFO pumped into a segmented hemispherical, fiberglass container. Figure 1 is a graphic representation of the charge container. The platform for the charge container is laminated wood. Particulars about the charge are contained on STEWS-NR-P Form 1 found on page 11.

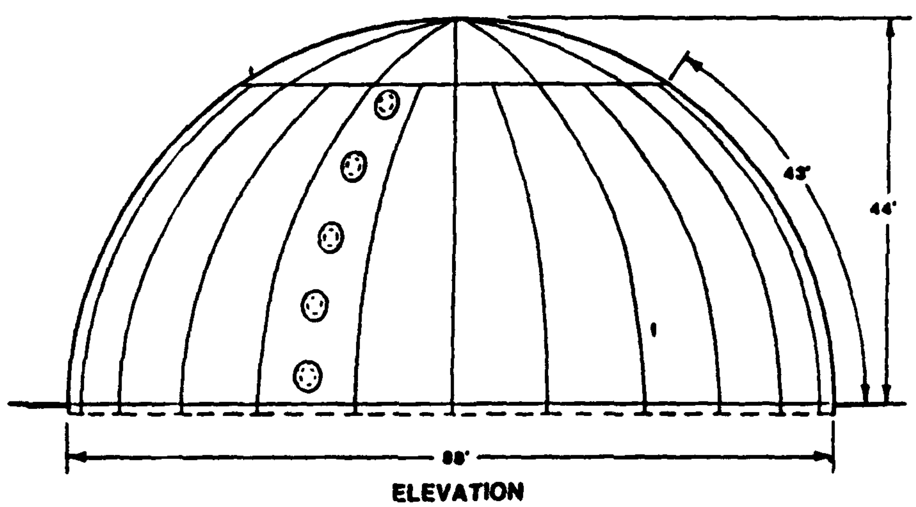

FIGURE 1. MISTY PICTURE SEGMENTED HEMISPHERE.

b. The event will be conducted on the PHETS utilizing the administrative trailer park, instrumentation trailer parks, road network, and primary radials. Figure 2 is a display of the testbed with respect to the missile range. Figure 3 is a testbed layout.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

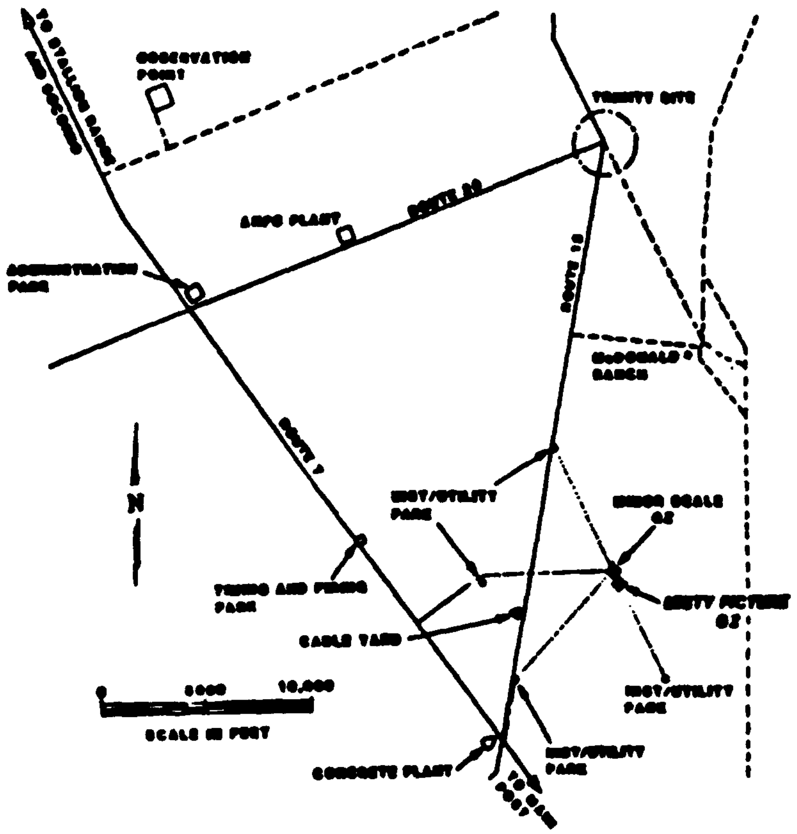

FIGURE 2. PERMANENT HIGH EXPLOSIVE TEST SITE.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

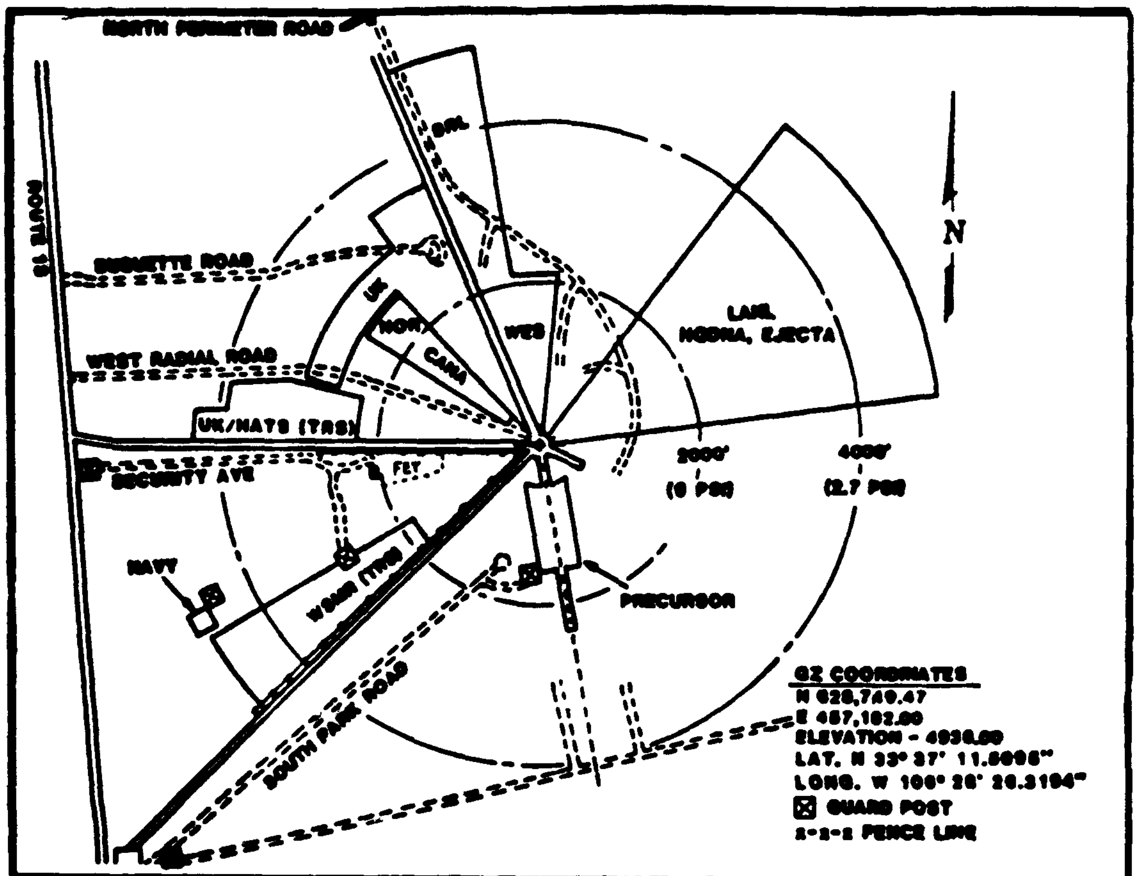

FIGURE 3. MISTY PICTURE TESTBED LAYOUT.

c. Missile/Rocket System Information.

(1) The two stage missiles consist of:

(a) Military qualified, operational surplus Talos (MK11, MOD-5) stage 1 solid rocket motors. The first stage Talos is 154.11 inches in length, 30.12 inches in diameter and uses a class B SRM propellant.

(b) Terrier (MK12, MOD-0) rocket motors. The second stage Terrier is 161.89 inches in length, 18 inches in diameter and uses a class B SRM propellant.

(c) Total propellant weight per two stage rocket is 4020 lbs.

(2) The two stage rocket payloads consist of four ballistic re-entry nosetips, 508 lbs in weight, 88.9 inches in length and 18 inches in diameter at the base.

(3) The 20 Viper rocket dust collectors consist of a 109 inch length Viper booster rocket, a 8 inch separation and parachute section, and a 23 inch dust collector nose section. Each rocket motor contains 37 lbs of propellant which includes the igniters.

1400. SYSTEM INSTRUMENTATION.

a. On Board Instrumentation.

(1) AC-down UHF beacon on the 4 BRV's and the twenty dust collectors. Microelectronics MOD.224 radio transmitter operating on a frequency of 242 MHZ at .25 watts. Battery life of transmitters is not expected to exceed 48 hours.

(2) For information on the BRV telemetry frequencies see Appendix 2.

1500. REQUESTING AGENCY'S INSTRUMENTATION. No currently stated requirements. Most target response and phenomenology will be provided by various experimenters. A tabular listing of experimenters is in Appendix 2.

a. Free field airblast instrumentation will be designed and installed by the U.S. Army Ballistic Research Laboratory (BRL). Recordings and instrumentation cabling will be accomplished by FCDNA.

b. Free field ground motion gauge instrumentation will be designed and installed by the U.S. Army Waterways Experiment Station (WES). Recordings and instrumentation cabling will be accomplished by FCDNA.

c. Instrumentation data recording along with timing and firing (T&F) signals will be done by Bendix Field Engineering Corporation (BFEC).

d. Firing for the event will be accomplished by Sandia National Laboratory, Albuquerque (SNLA).

e. Most target response and phenomenology instrumentation will be provided by various experimenters.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

1500. SYSTEM READINESS PROCEDURES/TESTS. D-69 Day Countdown is provided in Table 1.

+/- TIME	EVENT	ACTIVITY
T-69 DAYS	2 COLD/3 HOT BURNS ON TRS UNIT #1	TRS/TGD
T-62 DAYS	2 COLD/3 HOT BURNS ON TRS UNIT #2	TRS/TGD
T-55 DAYS	2 COLD/3 HOT BURNS ON TRS UNIT #3	TRS/TGD
T-53 DAYS	START SIGNAL DRY RUNS ON REQUEST BY EXPERIMENTER.	IE
T-53 DAYS	TECHNICAL AND DIAGNOSTIC CAMERA INSTALLATION BEGINS.	WSMR/DRI
T-51 DAYS	BETS COMMENCES	PD
T-48 DAYS	COMMENCE NON-SCHEDULE DAILY SIGNAL DRY RUNS.	IE/TRS
T-48 DAYS	2 COLD/3 HOT BURNS ON TRS UNIT #4	TRS/TGD
T-43 DAYS	VERIFY ANFO PLANT OPERATIONAL.	PD
T-41 DAYS	2 COLD/3 HOT BURNS ON TRS UNIT #5	TRS/TGD
T-35 DAYS	SAMS SYSTEM OPERATIONAL	ASL
T-34 DAYS	2 COLD/3 HOT BURNS ON TRS UNIT #6	TRS/TGD
T-30 DAYS	MISTY PICTURE TEST PLACED ON WSMR 30 DAY SCHEDULE.	WSMR-NR-PD
T-27 DAYS	2 COLD/3 HOT BURNS ON TRS UNIT #7	TRS/TGD
T-25 DAYS	TRS COLLECTIVE BURN (21 HOT/14 WARM).	TRS/SAIC
T-24 DAYS	CONDUCT TEST BRIEFING TO WSMR.	TGD/WSMR
T-20 DAYS	COMPLETE DIAGNOSTIC CAMERA INSTALLATION.	WSMR
T-20 DAYS	FINALIZE SECURITY ARRANGEMENTS FOR GZ.	TGSO
T-20 DAYS	COMPLETE TECHNICAL CAMERA INSTALLATION.	WSMR/DRI

TABLE 1. 69 COUNTDOWN

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+/- TIME	EVENT	ACTIVITY
T-18 DAYS	GZ SECURITY BEGINS.	USAF SP
T-18 DAYS	DELIVER MAIN BOOSTER ASSEMBLY (MBA).	PD
T-17 DAYS	REPORT STATUS OF EXPERIMENTS FOR UPCOMING MFP (MANDATORY FULL PARTICIPATION) NO. 1 TO TGD.	TD/IE
T-17 DAYS	ANFO LOADING BEGINS.	PD
T-15 DAYS	CONDUCT MFP NO. 1 AT 1000 HOURS (TRS HOT TEST, AIRCRAFT PARTICIPATION, PULL FILM IN ALL CAMERAS, TRS COLD BURN).	TGD
T-14 DAYS	MFP DE-BRIEF AT 1500 HOURS.	TD/PROJECT OFFICERS (PO)
T-13 DAYS	REVIEW TECHNICAL FILM COVERAGE WITH EXPERIMENTERS.	TD/PT/NR-DO
T-11 DAYS	SUBMIT STATUS REPORT ON ANFO LOADING TO TGD.	PD
T-9 DAYS	REPORT STATUS OF EXPERIMENTS FOR UPCOMING MFP (MANDATORY FULL PARTICIPATION) NO. 2 TO TGD.	TD/IE
T-8 DAYS	COMPLETE ANFO LOADING. REPORT READINESS TO TGD.	PD
T-7 DAYS	MISTY PICTURE TEST PLACED ON WSMR 7 DAY SCHEDULE.	WSMR-NR-PD
T-7 DAYS	CONDUCT MFP NO. 2 AT 1000 HOURS IF REQUIRED (TRS HOT TEST, PULL FILM). 7 TRS COLD BURN.	TGD
T-7 DAYS	COMPLETE OP PREPARATIONS.	PD
T-7 DAYS	ADJUST CAMERAS AND REPORT READINESS OF CAMERAS TO TGD.	WSMR/DRI/PT

TABLE 1. D- COUNTDOWN

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ /- TIME	EVENT	ACTIVITY
T-6 DAYS	MFP NO. 2 DE-BRIEF AT 1500 HOURS, IF REQUIRED.	TD/PO
T-6 DAYS	OBTAIN READINESS OF ALL EXPERIMENTS FOR DRESS REHEARSAL.	TGD
T-5 DAYS	MISTY PICTURE TEST CODED IN WSMR SCHEDULING SYSTEM.	WSMR
T-3 DAYS	BEGIN METEOROLOGY BLAST FOCUSING DETONATION TESTS.	SNLA/ASL
T-3 DAYS	DRESS REHEARSAL (TRS HOT TEST)	TGD
T-3 DAYS	DRESS REHEARSAL CRITIQUE AT 1500 HRS.	TGD/PO
T-2 DAYS	WSMR COUNTDOWN BRIEFING AT 1500 HRS.	TGD
T-1 DAYS	FINAL EXPERIMENT STATUS TO TGD BY 1000 HOURS.	TGD/PO
T-1 DAYS	TRS ALUMINUM FILL (9 HRS.). TRS NITROGEN FILL (6 HRS.).	TRS/SAIC
T-1 DAYS	LOAD CAMERAS.	WSMR/DRI
T-1 DAYS	BEGIN BAG DEPLOYMENT.	DNA/NMERI
T-0	TRS LIQUID OXYGEN FILL (10 HRS.). TRS UNIT CHECKOUT AND SEALING.	TRS/TGD
T-0	FINAL DECISION ON EVENT STATUS. CHECK STATUS OF ROADBLOCKS.	TGD/TD
T-0	PRE-ARM CHARGE.	SNLA/NSWC
	EVENT (SEE EVENT COUNTDOWN).	
T+1 HOUR	BRV RECOVERY STARTS.	WSMR/HQDNA
T+1 DAYS	TRS REMOVAL STARTS.	TRS/TGD
T+14 DAYS	TRS REMOVAL COMPLETE.	TRS/TGD
T+15 DAYS	EOD GAUGE MOUNT REMOVAL.	TGE

TABLE 1. D- COUNTDOWN

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

1700. <u>TALOS/TERRIER MISSILE AND VIPER ROCKET TEST ENVELOPE INFORMATION.</u> See attached range maps and enclosures on pages 35 thru 40.

1800. <u>OPERATIONAL HAZARDS.</u> Several activities in preparation for the MISTY PICTURE event involve hazardous operations or hazardous materials. These operations are summarized on the STEWS-NP-P Form 1's that follow.

OPERATIONAL HAZARDS			1. DATE: 4 FEB 87
2. PROGRAM TITLE: MISTY PICTURE	3. VEHICLE NAME: Explosive Charge	4. OR NUMBER: 96320	5. TEST DSG: MISTY PICTURE
6. SERIAL NUMBER: MP-1	7. LAUNCH LOCATION	8. IMPACT LOCATION: PHETS Northern Range	

9. ITEM	10. ITEM DESCRIPTION	11. LOCATION
1	4880 Tons Ammonium Nitrate and Fuel Oil (ANFO) blasting agent.	Delivery bulk carrier trucks, mixing plant North Range 1.45 miles east of Route 7 on Route 20, MISTY PICTURE GZ.
2	310 pound Octol Booster.	

12.

Ammonium Nitrate and diesel fuel oil will be delivered in separate vehicles to a mixing plant located 1.45 miles east of the intersection of Routes 7 and 20, Northern Range, WSMR. The diesel fuel will be mixed with the ammonium nitrate in augers at the mixing facility and gravity loaded into bulk carriers for delivery to GZ. Vehicles used for the transportation of ANFO will be appropriately marked, as will the mixing plant. A 310 pound Octal booster will be placed (at ground level) inside the 44 foot radius, fiberglass, hemispherical container. The container will then be loaded with 4,880 tons of ANFO. The ANFO will be pneumatically loaded from up to 6 bulk-carrier trucks simultaneously until the operation is completed. The ANFO charge and Octal booster will be armed as part of the event sequence countdown and fired using the event timing and firing system. The testbed will be cleared of all personnel prior to arming.

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) No .
b. If 13a is Yes, is the use of the materials governed by NASC procedures? _____
c. If 13b is Yes, the quantity of material is in Category _____ (A, B, or C).
d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact _____. WSMR Safety Office _____.
e. If in Category B, was (Answer Yes or No to the following):
(1) It included in the Quarterly Tabular List? _____
(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact _____; WSMR Safety Office _____?
(3) A Safety Summary for its use forwarded to WSMR Safety Office _____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

Charles H Walls	4 FEB 87	[signature]	24 FEB 87
Test Conductor	Date	Range Sponsor	Date

STEWS NR-P FORM 1
19 Jul 78 (Rev)

NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS WILL NOT BE USED

OPERATIONAL HAZARDS				1. DATE: 4 FEB 87
2. PROGRAM TITLE: MISTY PICTURE	3. VEHICLE NAME: Beta Densitometers		4. OR NUMBER: 96320	5. TEST DSG: MISTY PICTURE
6. SERIAL NUMBER: MP-2	7. LAUNCH LOCATION		8. IMPACT LOCATION: PHETS Northern Range	

9. ITEM	10. ITEM DESCRIPTION	11. LOCATION
1.	Densitometer gauges, each with an Amersham Corp. Promethium-145 Beta source, 500 mCi.	MISTY PICTURE testbed

12.
Nine (9) Promethium-147 Beta source gauges will be installed on two radials of the MISTY PICTURE testbed. These gauges and sources have been used on previous events.

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) Yes.
b. If 13a is Yes, is the use of the materials governed by NASC procedures? Yes
c. If 13b is Yes, the quantity of material is in Category A (A, B, or C).
d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact Yes. WSMR Safety Office Yes.
e. If in Category B, was (Answer Yes or No to the following):
(1) It included in the Quarterly Tabular List? ____
(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact ____; WSMR Safety Office ____?
(3) A Safety Summary for its use forwarded to WSMR Safety Office ____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

Charles G Wesley 4 Feb 87 — Test Conductor, Date

Dmw K Meadows 24 Feb 87 — Range Sponsor, Date

STEWS NR-P FORM 1
19 Jul 78 (Rev)

NATIONAL RANGE USERS HANDBOOK

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OPERATIONAL HAZARDS

2. PROGRAM TITLE: MISTY PICTURE	3. VEHICLE NAME: Pyrotechnic Ejecta	4. OR NUMBER: 96320	1. DATE: 4 FEB 87 5. TEST DSG: MISTY PICTURE
6. SERIAL NUMBER: MP-3	7. LAUNCH LOCATION	8. IMPACT LOCATION: PHETS Northern Range	

9. ITEM	10. ITEM DESCRIPTION	11. LOCATION
1	No more than 25 bowling balls each containing 2 pounds of pyrotechnic mixture	Starting +45 feet from GZ and 11 foot intervals

12.
A number of bowling balls will be placed on the testbed. Each ball contains approximately two pounds of a 40% magnesium and 60% teflon pyrotechnic wax based mixture which will be initiated by an Atlas M-100 electric match containing 16 MG of class C pyrotechnic material. The pyrotechnics will be fired on test runs and at event zero time through the timing and firing system (1/2 amp, 50 ms signal).

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) No .
b. If 13a is Yes, is the use of the materials governed by NASC procedures? ____
c. If 13b is Yes, the quantity of material is in Category ____ (A, B, or C).
d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact ____. WSMR Safety Office ____.
e. If in Category B, was (Answer Yes or No to the following):
(1) It included in the Quarterly Tabular List? ____
(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact ____; WSMR Safety Office ____?
(3) A Safety Summary for its use forwarded to WSMR Safety Office ____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

Charles Y Wells	4 Feb 87	[signature] Meadows	24Feb87
Test Conductor	Date	Range Sponsor	Date

STEWS NR-P FORM 1
19 Jul 78 (Rev)

NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS WILL NOT BE USED

OPERATIONAL HAZARDS			1. DATE: 4 FEB 87
2. PROGRAM TITLE: MISTY PICTURE	3. VEHICLE NAME: Streak X-ray tube	4. OR NUMBER: 96320	5. TEST DSG: MISTY PICTURE
6. SERIAL NUMBER: MP-4	7. LAUNCH LOCATION	8. IMPACT LOCATION: PHETS Northern Range	

9. ITEM	10. ITEM DESCRIPTION	11. LOCATION
1	Kerex X-ray tube, 631 Roentgens/hour at one meter, 30 KV at 9-10 ma.	MISTY PICTURE testbed

12. An underground vault will be emplaced on the testbed with two sails projecting above ground level. The X-ray source transmits from one sail to detectors on the other sail. Sails are 4-6 inches apart. Area will be roped off during calibration.

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) No.
b. If 13a is Yes, is the use of the materials governed by NASC procedures? ____
c. If 13b is Yes, the quantity of material is in Category ____ (A, B, or C).
d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact ____. WSMR Safety Office ____.
e. If in Category B, was (Answer Yes or No to the following):
(1) It included in the Quarterly Tabular List? ____
(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact ____; WSMR Safety Office ____?
(3) A Safety Summary for its use forwarded to WSMR Safety Office ____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

Charles J. [illegible]	4 Feb 87	[illegible]	24 Feb 87
Test Conductor	Date	Range Sponsor	Date

STEWS NR-P FORM 1
19 Jul 78 (Rev)

NATIONAL RANGE USERS HANDBOOK

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OPERATIONAL HAZARDS

1. DATE: 4 FEB 87			
2. PROGRAM TITLE: MISTY PICTURE	**3. VEHICLE NAME:** Soil Moisture Density Gauge	**4. OR NUMBER:** 96320	**5. TEST DSG:** MISTY PICTURE
6. SERIAL NUMBER: MP-5	**7. LAUNCH LOCATION**	**8. IMPACT LOCATION:** PHETS Northern Range	

9. ITEM	10. ITEM DESCRIPTION	11. LOCATION
1	Troxler soil characterization gauge with 8 mCi Cesium-137 and 40 mCi Americium-241 sources.	MISTY PICTURE testbed

12.
A surface moisture density gauge containing small quantities of radioactive material will be used to take soil samples pre- and post-shot in the precursor region of the testbed. When not in use, the gauge will be properly stored.

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) Yes.
b. If 13a is Yes, is the use of the materials governed by NASC procedures? Yes
c. If 13b is Yes, the quantity of material is in Category A (A, B, or C).
d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact Yes. WSMR Safety Office Yes.
e. If in Category B, was (Answer Yes or No to the following):
(1) It included in the Quarterly Tabular List? ____
(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact ____; WSMR Safety Office ____?
(3) A Safety Summary for its use forwarded to WSMR Safety Office ____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

Charles H. Wilkins	4 Feb 87	[signature]	24 Feb 87
Test Conductor	Date	Range Sponsor	Date

STEWS NR-P FORM 1
19 Jul 78 (Rev)

NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS WILL NOT BE USED

OPERATIONAL HAZARDS			1. DATE: 4 FEB 87
2. PROGRAM TITLE: MISTY PICTURE	3. VEHICLE NAME: BRV Mounted on Talos Missile	4. OR NUMBER: 96320	5. TEST DSG: MISTY PICTURE
6. SERIAL NUMBER: MP-6	7. LAUNCH LOCATION 6 miles north of MP GZ.	8. IMPACT LOCATION: See Figure 4 of para 2100(a)	

9. ITEM	10. ITEM DESCRIPTION	11. LOCATION
1	Four (4) BRV's mounted on four (4) Talos missiles.	Approximately 6 miles north of MISTY PICTURE GZ.

12.

Four (4) Talos missiles with modified nose cones will be launched from a missile launch site approximately 6 miles north of the MISTY PICTURE GZ. Missiles will be launched in a T+1 through T+5 launch window with a preferred launch time of T+1 through T+3. The first stage of the Talos launch vehicle will fall short of the MISTY PICTURE testbed. The second stage and BRV will continue through the dust cloud climbing to a maximum altitude of 41,000 feet MSL. Actual altitude attained is dependent on firing elevation. The second stage of Talos will separate and fall somewhere to the south of the MISTY PICTURE GZ. The BRV will separate and return to earth via parachute. BRV should impact south of the MISTY PICTURE GZ. For more information see Figure 4 of paragraph 2100(a).

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) No.
b. If 13a is Yes, is the use of the materials governed by NASC procedures? ____
c. If 13b is Yes, the quantity of material is in Category ____ (A, B, or C).
d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact ____. WSMR Safety Office ____.
e. If in Category B, was (Answer Yes or No to the following):
(1) It included in the Quarterly Tabular List? ____
(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact ____; WSMR Safety Office ____?
(3) A Safety Summary for its use forwarded to WSMR Safety Office ____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

[signature]	4 Feb 87	[signature]	24 Feb 87
Test Conductor	Date	Range Sponsor	Date

STEWS NR-P FORM 1
19 Jul 78 (Rev)

NATIONAL RANGE USERS HANDBOOK

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OPERATIONAL HAZARDS

1. DATE: 4 FEB 87

2. PROGRAM TITLE:	**3. VEHICLE NAME:**	**4. OR NUMBER:**	**5. TEST DSG:**
MISTY PICTURE	Viper Rockets	96320	MISTY PICTURE

6. SERIAL NUMBER:	**7. LAUNCH LOCATION**	**8. IMPACT LOCATION:**
MP-7	4 miles north of the MISTY PICTURE GZ.	See Figure 5 of paragraph 2100(a)

9. ITEM	**10. ITEM DESCRIPTION**	**11. LOCATION**
1	20 Viper Rockets	4 miles north of the MISTY PICTURE GZ.

12.

Twenty (20) Viper rockets will be launched from an area approximately 4 miles north-northwest of GZ. These are single stage rockets with a maximum range of 18,321 meters. These will be launched prior to the launch of each Talos missile to characterize the dust environment. Launch window is identified at T+1 through T+5 with a preferred window of T+1 through T+3.

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) No.

b. If 13a is Yes, is the use of the materials governed by NASC procedures? _____

c. If 13b is Yes, the quantity of material is in Category _____ (A, B, or C).

d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact _____. WSMR Safety Office _____.

e. If in Category B, was (Answer Yes or No to the following):

(1) It included in the Quarterly Tabular List? _____

(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact _____; WSMR Safety Office _____?

(3) A Safety Summary for its use forwarded to WSMR Safety Office _____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

[illegible]	4 Feb 87	[illegible]	24 Feb 87
Test Conductor	Date	ge Sponsor	Date

STEWS NR-P FORM 1
19 Jul 78 (Rev)

NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS WILL NOT BE USED

OPERATIONAL HAZARDS

OPERATIONAL HAZARDS			**1. DATE:** 4 FEB 87
2. PROGRAM TITLE: MISTY PICTURE	**3. VEHICLE NAME:** TRS Units	**4. OR NUMBER:** 96320	**5. TEST DSG:** MISTY PICTURE
6. SERIAL NUMBER: MP-8	**7. LAUNCH LOCATION**	**8. IMPACT LOCATION:** PHETS Northern Range	

9. ITEM	10. ITEM DESCRIPTION	11. LOCATION
1.	Item of equipment mixes liquid oxygen (LOX) with alumium powder and ignites compound to simulate temperatures characteristic of nuclear detonations. System has been used on similar previous events.	PHETS northern range

12.

There will be seven (7) TRS units located on the testbed. A minimum of three (3) cold flow tests and six (6) hot burns per unit (for a total of twenty-one (21) cold flow tests and forty-two (42) hot burns) will be conducted prior to MISTY PICTURE. In a cold flow test Liquid Oxygen (LOX) and powdered aluminum are mixed together under pressure (125 psi) without a heat source. With a hot burn the LOX and aluminum mixture is ignited and a flame with temperatures up to 3000° K can be generated. A hydrogen-oxygen torch is utilized as the ignition source. Each cold flow and hot burn test will be less than 3 seconds in duration.

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) No.
b. If 13a is Yes, is the use of the materials governed by NASC procedures? ____
c. If 13b is Yes, the quantity of material is in Category ____ (A, B, or C).
d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact ____. WSMR Safety Office ____.
e. If in Category B, was (Answer Yes or No to the following):
(1) It included in the Quarterly Tabular List? ____
(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact ____; WSMR Safety Office ____?
(3) A Safety Summary for its use forwarded to WSMR Safety Office ____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

[signature]	4 Feb 87	[signature]	24 Feb 87
Test Conductor	Date	Range Sponsor	Date

STEWS NR-P FORM 1
19 Jul 78 (Rev)

NATIONAL RANGE USERS HANDBOOK

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OPERATIONAL HAZARDS			1. DATE: 4 FEB 87
2. PROGRAM TITLE: MISTY PICTURE	3. VEHICLE NAME: LOX Operations	4. OR NUMBER: 96320	5. TEST DSG: MISTY PICTURE
6. SERIAL NUMBER: MP-9	7. LAUNCH LOCATION	8. IMPACT LOCATION: PHETS Northern Range	

9. ITEM	10. ITEM DESCRIPTION	11. LOCATION
1.	Containerized liquid oxygen (LOX).	PHETS northern range

12.

Liquid Oxygen (LOX) is used as the oxidizing agent for the thermal radiation source (TRS) units. There will be a LOX storage area with a minimum of a 50 foot clear zone. A portable LOX trailer will be filled at the LOX storage area and the trailer will then be used to refuel the TRS units.

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) No.
b. If 13a is Yes, is the use of the materials governed by NASC procedures? _____
c. If 13b is Yes, the quantity of material is in Category _____ (A, B, or C).
d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact _____. WSMR Safety Office _____.
e. If in Category B, was (Answer Yes or No to the following):
(1) It included in the Quarterly Tabular List? _____
(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact _____; WSMR Safety Office _____?
(3) A Safety Summary for its use forwarded to WSMR Safety Office _____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

Test Conductor	Date	Range Sponsor	Date
[signature]	4 Feb 87	[signature]	24 Feb 87

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NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS WILL NOT BE USED

OPERATIONAL HAZARDS			1. DATE: 4 FEB 87
2. PROGRAM TITLE: MISTY PICTURE	3. VEHICLE NAME: High Pressure Helium Operations	4. OR NUMBER: 96320	5. TEST DSG: MISTY PICTURE
6. SERIAL NUMBER: MP-10	7. LAUNCH LOCATION	8. IMPACT LOCATION: PHETS Northern Range	

9. ITEM	10. ITEM DESCRIPTION	11. LOCATION
1.	Helium flow and control units (high pressure hazard only).	PHETS northern range

12.

Helium, at pressures up to 300 psig, will be used to fill eight (8) mylar envelopes. It is estimated that 1.7 MCF of helium will be required. Entrance into the helium atmosphere may be necessary but is not anticipated. Following MISTY PICTURE detonation a re-entry team will enter the testbed and safe the high pressure helium system.

13. RADIOACTIVE HAZARDS

a. Is radioactive material used in this test? (Answer Yes or No) No.
b. If 13a is Yes, is the use of the materials governed by NASC procedures? ____
c. If 13b is Yes, the quantity of material is in Category ____ (A, B, or C).
d. If in Category A, has a Safety Summary been forwarded to (Answer Yes or No) Agency Contact ____. WSMR Safety Office ____.
e. If in Category B, was (Answer Yes or No to the following):
(1) It included in the Quarterly Tabular List? ____
(2) A copy of the Quarterly Tabular List forwarded to: Agency Contact ____; WSMR Safety Office ____?
(3) A Safety Summary for its use forwarded to WSMR Safety Office ____?

14. THE HAZARDS LISTED ABOVE ARE DESCRIBED COMPLETELY AND THERE ARE NO OTHER HAZARDOUS CONDITIONS ASSOCIATED WITH THIS TEST OPERATION.

Charles H Wells	4 Feb 87	Roger L Meadows	24 Feb 87
Test Conductor	Date	Range Sponsor	Date

STEWS NR-P FORM 1
19 Jul 78 (Rev)

NATIONAL RANGE USERS HANDBOOK

PREVIOUS EDITIONS WILL NOT BE USED

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

2 & 3. TEST/MISSION OPERATIONAL REQUIREMENTS.

2000. TEST OPERATIONAL CONCEPTS. Operational concepts for the MISTY PICTURE test event are found in Table 2 below.

+ / - TIME	EVENT	ACTIVITY
T-20 HRS	HOLD POINT, IF REQUIRED.	TGD/TD
T-20 HRS	WEATHER AND OPSEC EVALUATION.	TGD/TD/PD
T-20 HRS	COMMENCE TRS FUELING.	TRS/SAIC
T-13 HRS	BEGIN BAG DEPLOYMENT.	DNA/NMERI
T-8 HRS	COMMENCE TRS CHECKOUT.	TRS/SAIC
T-7 HRS	HOLD POINT, IF REQUIRED.	TGD/TD
T-7 HRS	COMMENCE LOX TOP-OFF.	TRS/SAIC
T-6 HRS	METEOROLOGY BALLOON LAUNCH.	WSMR/ASL
T-6 HRS	START SIGNAL DRY RUNS FOR WSMR NR-DO.	IE
T-5 HRS	ESTABLISH COMMUNICATIONS WITH RANGE CONTROL.	NET OPERATOR (NO)
T-5 HRS	MAKE "GO" DECISION BASED ON WEATHER. ANNOUNCE WIND SPEED.	TGD/TD/NO
T-5 HRS	ESTABLISH COMMUNICATIONS WITH BUNKERS AND TRAILERS: EB 1 ( ) NB 1 ( ) WB 2 ( ) EB 2 ( ) SB-1 ( ) WT 1 ( ) EB 3 ( ) SB-2 ( ) CANADA ( ) EB 4 ( ) SB-3 ( ) MRT ( ) EB 5 ( ) WB-1 ( ) NMERI ( ) T & F ( )	NO

TABLE 2. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-270 MIN	START SIGNAL DRY RUNS FOR EXPERIMENTERS.	IE
T-240 MIN	HOLD POINT, IF REQUIRED.	TGD/TD
T-240 MIN	COMMENCE LOCAL COUNTDOWN BROADCAST ON THE HOUR. ANNOUNCE "H-4 HOURS". ANNOUNCE WIND SPEED.	NO
T-240 MIN	ANNOUNCE "COMMENCE HELIUM FILL".	PD
T-210 MIN	METEOROLOGY BALLOON LAUNCH.	WSMR/ASL
T-210 MIN	ESTABLISH COMMUNICATIONS WITH ALL SITES AND TRAILERS (USE CHECKLIST). SITES TO RESPOND IN SEQUENCE AND RESPOND WITH "_______ IS ON THE AIR". MILLERS WATCH ( ) ATOM ( ) TRS ( ) ROUTE 13 SOUTH( ) HILLTOP ( ) GUS ( ) JIM ( ) T&F ( ) GAP ( ) DRI ( ) WSMR T&F ( ) SNLA ( ) WT 1 ( ) MCDONALD'S RANCH ( ) EB 1 ( ) EB 2 ( ) EB 3 ( ) EB 4 ( ) EB 5 ( ) CANADA ( ) WB 1 ( ) WB 2 ( ) PLOSS SITE ( ) WORLEY SITE ( ) NB 1 ( ) SB 1 ( ) SB 2 ( ) SB 3 ( ) SAIL HOIST CREW ( ) RISINGER SITE ( )	NO
T-180 MIN	OPEN RANGE NET. ANNOUNCE "T-ONE EIGHT ZERO MINUTES". ANNOUNCE WIND SPEED.	NO
T-178 MIN	REPORT READINESS OF TECHNICAL CAMERAS TO TEST CONTROL.	PT
T-175 MIN	HELIUM FILL STATUS REPORT GIVEN TO TEST CONTROL.	PD/GRACON
T-150 MIN	HOLD POINT, IF REQUIRED.	TGD/TD

TABLE 2. MISTY PICTURE COUNTDOWN.

PROGRAM NAME: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-150 MIN	COMMENCE TRS FINAL CHECKOUT.	TRS/SAIC
T-150 MIN	ANNOUNCE "30 MINUTE WARNING FOR COMPLETION OF SIGNAL DRY RUNS.	IE
T-150 MIN	MAKE "GO" DECISION BASED ON WEATHER CONDITIONS/BLAST FOCUSING. REPORT STATUS TO WSMR RANGE CONTROL.	TGD/TD
T-150 MIN	EXPERIMENTERS COMMENCE CLEARING OF TESTBED.	TGSO/PO
T-126 MIN	ANNOUNCE "METEOROLOGY DETONATION IN 5 MINUTES".	NO
T-122 MIN	ANNOUNCE "METEOROLOGY DETONATION IN 1 MINUTE."	NO
T-121 MIN	METEOROLOGY DETONATION (10 SEC COUNT)	NO
T-120 MIN	ANNOUNCE "T-ONE TWO ZERO MINUTES". ANNOUNCE WIND SPEED AND DIRECTION.	NO
T-120 MIN	HELIUM FILL STATUS REPORT GIVEN TO TEST CONTROL (TC).	PD/GRACON
T-120 MIN	PHONE TEST STATUS TO AIRCRAFT STAGING LOCATIONS: SOCORRO (505) 835-9973 KIRTLAND AFB AV 244-9070 HOLLOMON AFB AV 867-2209 BEALE AFB AV 368-4114/2186 EL PASO AIRPORT (915) 524-7327 ALBUQUERQUE (505) ___-____	AUTOMETRIC
T-120 MIN	ANNOUNCE "SIGNAL DRY RUNS ARE NOW COMPLETE."	IE
T-120 MIN	ESTABLISH EXTERNAL ROADBLOCKS.	WSMR

TABLE 2. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-110 MIN	INFORM TC THAT EXPERIMENTER PERSONNEL ARE CLEAR OF RANGE. ONLY AUTHORIZED PERSONNEL REMAIN ON TESTBED.	TGSO
T-105 MIN	SAIL HOIST DECISION MADE BASED ON WIND CONDITIONS.	TGD/TD
T-90 MIN	BLAST FOCUSING REPORT MADE TO TC.	SNLA/ASL
T-90 MIN	HELIUM FILL STATUS REPORT GIVEN TO TC.	PD/GRACON
T-75 MIN	CONFIRM HIGH ALTITUDE AIRCRAFT STATUS BEALE AFB (AV 368-4114/2186).	NO
T-75 MIN	ALL PARKS CLEARED OF UNAUTHORIZED PERSONNEL.	TGSO
T-70 MIN	CONFIRM AIRCRAFT STATUS AT SOCORRO, EL PASO, BEALE, ALBUQUERQUE, AND HOLLOMON AIR BASES AND AIRPORTS (PASS CURRENT TESTBED WEATHER). SOCORRO (505) 835-9973 HOLLOMON AV 867-2209 EL PASO (915) 524-7327 KIRTLAND AFB AV 244-9070 ALBUQUERQUE (505) - BEALE AFB AV ~~368-4144~~/2186	AUTOMETRIC
T-70 MIN	DEPART CAMERA LOCATIONS.	PT/WSMR (NR-DO) ISI/DRI
T-66 MIN	ANNOUNCE "METEOROLOGY DETONATION IN 5 MINUTES."	NO
T-66 MIN	METEOROLOGY BALLOON LAUNCH.	WSMR/ASL

TABLE 2. MISTY PICTURE COUNTDOWN

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-65 MIN	FINAL READINESS CHECK: WB 1 ( ) WB ( ) WT 1 ( ) NB 1 ( ) PLOSS SITE ( ) CANADA ( ) MRT ( ) WORLEY SITE ( ) SB 1 ( ) SB 2 ( ) SB 3 ( ) RISINGER SITE ( ) WES EP ( ) SAIL HOIST CREW ( ) EB 1 ( ) EB 2 ( ) EB 3 ( ) EB 4 ( ) EB 5 ( ) T&F ( )	NO
T-62 MIN	HOLD POINT, IF REQUIRED.	TGD/TD
T-62 MIN	ANNOUNCE "METEOROLOGY DETONATION IN 1 MINUTE."	NO
T-61 MIN	METEOROLOGY DETONATION (10 SECOND COUNTDOWN).	NO
T-60 MIN	ANNOUNCE "T-SIX ZERO MINUTES." COMMENCE COUNTDOWN ON RANGE NET IN 10 MINUTE INTERVALS. ANNOUNCE WIND SPEED AND DIRECTION.	NO
T-60 MIN	REPORT TRS READINESS STATUS.	TRS TGD
T-60 MIN	UNCOVER WSMR CLASSIFIED EXPERIMENTS.	WSMR (TE-N)
T-60 MIN	FET PROJECT PERSONNEL DEPART TESTBED.	TGSO
T-60 MIN	FINAL READINESS CHECK. RESPOND WITH "________ IS READY FOR THE EVENT." MILLERS WATCH ( ) DRI ( ) WSMR T&F (MCDONALD'S RANCH ( ) PLOSS SITE ( ) ADMIN EXTERNAL ( ) WORLEY SITE ( ) RISINGER SITE ( ) SAIL HOIST CREW ( )	NO
T-55 MIN	PMS AIRCRAFT LAUNCH.	PMS
T-55 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD/GRACON
T-55 MIN	BEGIN SWITCH TO HELIUM RESERVE TANKS.	PD/GRACON
T-55 MIN	COMMENCE RADAR AVOIDANCE AROUND TEST-BED UNTIL T-20 MINUTES.	WSMR-NR

TABLE 2. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-51 MIN	REPORT SURFACE WIND TO TGD. NO ANNOUNCES CONDITIONS.	WSMR/ASL
T-50 MIN	ANNOUNCE "T-FIVE ZERO MINUTES". ANNOUNCE WIND SPEED AND DIRECTION.	NO
T-50 MIN	ARMING PARTY ENTERS TESTBED.	SNLA/NSWC/TGSS
T-46 MIN	BLAST FOCUSING REPORT MADE TO TC.	SNLA
T-45 MIN	HOLD POINT, IF REQUIRED.	TGD/TD
T-45 MIN	COMPLETE SWITCH TO HELIUM RESERVE TANKS.	PD/GRACON
T-45 MIN	TRS/WSMR/GRACON/TRAILER/BUNKER AND SAIL HOIST CREWS DEPART TESTBED.	TRS/WSMR/ GRACON
T-45 MIN	NOTIFY SP TO LEAVE TESTBED.	TGSO
T-42 MIN	HELIUM STATUS REPORT GIVEN TO TC	PD/GRACON
T-40 MIN	NOTIFY INTERNAL ROADBLOCKS TO ASSEMBLE AND DEPART TESTBED.	TGSO
T-40 MIN	ANNOUNCE "T-FOUR ZERO MINUTES."	NO
T-35 MIN	LAUNCH WB57 AIRCRAFT.	NASA
T-35 MIN	REPORT "TESTBED IS CLEAR EXCEPT FOR ARMING / SAFETY PARTY."	TGSO
T-30 MIN	HOLD POINT, IF REQUIRED.	TGD/TD
T-30 MIN	ANNOUNCE "T-THREE ZERO MINUTES."	NO
T-30 MIN	RF-4 AIRCRAFT LAUNCH.	USMC
T-30 MIN	ARMING PARTY REQUESTS PERMISSION FROM TGD TO ARM CHARGE.	SNLA/NSWC
T-30 MIN	AUTHORIZE ARMING OF CHARGE.	TGD
T-25 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD/GRACON

TABLE 2. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-25 MIN	REPORT ARMING COMPLETE. ARMING PARTY DEPARTS GZ AND RETURNS TO T&F VAN. NOTIFY RANGE CONTROL.	SNLA/NSWC/NO
T-24 MIN	CONFIRM PMS AIRCRAFT IS IN ORBIT AND HOLDING.	CHEROKEE/NO
T-20 MIN	ANNOUNCE "T-TWO ZERO MINUTES."	NO
T-20 MIN	LIFT RADAR AVOIDANCE AROUND TESTBED.	WSMR-NR
T-20 MIN	REPORT RE-ENTRY LINE-UP STATUS.	PD
T-19 MIN	CONFIRM AIRCRAFT STATUS AT KIRTLAND AFB (AV 244-9070).	AUTOMETRIC
T-18 MIN	CONFIRM HIGH ALTITUDE AIRCRAFT STATUS AT BEALE AFB (AV 368-4114/2186).	AUTOMETRIC
T-16 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD/GRACON
T-15 MIN	HOLD POINT, IF REQUIRED.	TGD/TD
T-15 MIN	CONFIRM RF-4 AND WB57 AIRCRAFT ARE IN HOLDING ORBIT.	CHEROKEE/NO
T-15 MIN	MANNED STATION PERSONNEL ACCOUNTABILITY CHECK. RESPOND WITH "ALL PERSONNEL AT _____ ARE IN POSITION AND ACCOUNTED FOR." PLOSS SITE ( ) WORLEY SITE ( ) PMS AC ( ) RISINGER SITE ( ) T&F ( ) TRS ( ) WSMR T&F ( ) ADMIN EXT ( )	NO
T-12 MIN	REPORT TESTBED STATUS TO RANGE CONTROL. CONFIRM RANGE "GREEN."	NO
T-10 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD/GRACON
T-10 MIN	NOTIFY SP TO DEACTIVATE ADMIN. TCP.	TGSO
T-9 MIN	ANNOUNCE "T-NINE MINUTES."	NO

TABLE 2. MISTY PICTURE COUNTDOWN

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-8 MIN	ANNOUNCE "T-EIGHT MINUTES."	NO
T-7 MIN	ANNOUNCE "T-SEVEN MINUTES."	NO
T-7 MIN	ANNOUNCE "METEOROLOGY DETONATION IN 5 MINUTES."	SNLA
T-6 MIN	ANNOUNCE "T-SIX MINUTES."	NO
T-6 MIN	REQUEST PERMISSION FROM TC TO READY FIRING PANEL.	SNLA
T-6 MIN	DIRECT "READY THE FIRING PANEL."	NO
T-6 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD/GRACON
T-6 MIN	SURFACE WIND REPORT TO T&F.	TRS
T-6 MIN	CONFIRM RANGE "GREEN."	NO
T-5 MIN	HOLD POINT, IF REQUIRED.	TGD/TD
T-5 MIN	ANNOUNCE "T-FIVE MINUTES." FINAL T&F SEQUENCING BEGINS.	NO
T-5 MIN	ESTABLISH READY-HOLD COMMUNICATIONS WITH NR.	TD
T-5 MIN	CONFIRM FIRING PANEL READY. ARMING COMPLETE.	TD
T-4 MIN	ANNOUNCE "T-FOUR MINUTES."	NO
T-3 MIN	ANNOUNCE "T-THREE MINUTES."	NO
T-3 MIN	TURN OFF TETHERSONDE TRANSMISSIONS.	SNLA/ASL
T-2.5 MIN	START RECORDERS.	T&F
T-2.5 MIN	IGNITE TRS BURNERS.	TRS TD
T-2 MIN	ANNOUNCE "T-TWO MINUTES."	NO

TABLE 2. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T-2 MIN	METEOROLOGY DETONATION (NO COUNTDOWN)	SNLA
T-1.5 MIN	ANNOUNCE "T-NINE ZERO SECONDS."	NO
T-75 SEC	ANNOUNCE "TURN OFF POWER TO HELIUM SYSTEM."	NO
T-70 SEC	TRS PRESSURIZATION.	TRS
T-65 SEC	CONFIRM HELIUM SYSTEM DE-ENERGIZED.	PD/GRACON
T-60 SEC	ANNOUNCE "T-SIX ZERO SECONDS." START 10 SECOND COUNTDOWN INTERVALS.	NO
T-50 SEC	ANNOUNCE "T-FIVE ZERO SECONDS."	NO
T-45 SEC	CONFIRM HIGH VOLTAGE.	TD
T-40 SEC	ANNOUNCE "T-FOUR ZERO SECONDS."	NO
T-30 SEC	ANNOUNCE "T-THREE ZERO SECONDS."	NO
T-20 SEC	ANNOUNCE "T-TWENTY SECONDS."	NO
T-10 SEC	ANNOUNCE "T-TEN SECONDS."	NO
T-5 SEC	ANNOUNCE "FIVE."	NO
T-4 SEC	ANNOUNCE "FOUR."	NO
T-3 SEC	ANNOUNCE "THREE."	NO
T-2 SEC	ANNOUNCE "TWO."	NO
T-1 SEC	ANNOUNCE "ONE."	NO
T-0	DETONATE CHARGE.	T&F
T+30 SEC	ANNOUNCE "T+30 SECONDS."	NO
T+30 SEC	SAFE FIRING SYSTEM.	SNLA
T+40 SEC	ANNOUNCE "T+40 SECONDS."	NO

TABLE 2. MISTY PICTURE COUNTDOWN.

PROGRAM NAME: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T+50 SEC	ANNOUNCE "T+50 SECONDS."	NO
T+1 MIN	ANNOUNCE "T+1 MINUTE."	NO
T+1 MIN	METEOROLOGY BALLOON LAUNCH. TURN ON TETHERSONDE.	WSMR/ASL/ SNLA
T+1 MIN	REPORT SAFING OF FIRING SYSTEM TO TC.	T&F
T+1 MIN	NOTIFY ASL TO LAUNCH METEOROLOGY RKT FROM SMALL MISSILE RANGE.	NO/SNLA
T+1 MIN	LAUNCH WINDOW OPEN FOR BRV AND VIPER	SPAS/PDA
T+2 MIN	ANNOUNCE "T+2 MINUTES."	NO
T+2 MIN	REPORT TEST EXECUTION AND SAFE FIRING SYSTEM TO RANGE CONTROL.	TGD
T+2 MIN	MANNED STATION PERSONNEL ACCOUNT-ABILITY CHECK: MILLERS WATCH ( ) TRS ( ) T&F ( ) GAP ( ) DRI ( ) WSMR T&F ( ) MCDONALD'S RANCH ( )	NO
T+3 MIN	ANNOUNCE "T+3 MINUTES."	NO
T+3 MIN	NOTIFY AIRCRAFT AT KIRTLAND AFB OF EVENT EXECUTION (AV 244-9070).	AUTOMETRIC
T+4 MIN	ANNOUNCE "T+4 MINUTES."	NO
T+4 MIN	NOTIFY HIGH ALTITUDE AIRCRAFT OF EVENT DETONATION (AV 368-4114/2186).	AUTOMETRIC
T+5 MIN	ANNOUNCE "T+5 MINUTES."	NO
T+5 MIN	BRV AND VIPER FIRING WINDOWS CLOSED. REPORT SAFING OF ARMING AND FIRING PANEL TO TC.	SPAS/PDA

TABLE 2. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

+ / - TIME	EVENT	ACTIVITY
T+5.5 MIN	IF BRV/VIPER MISFIRE, DEPRESS LAUNCHER INTO BERM AND SAFE FIRING SYSTEM. NOTIFY TGD OF SITUATION.	SPAS/PDA
T+6 MIN	ANNOUNCE "T+6 MINUTES." TERMINATE RANGE COUNT.	NO
T+6 MIN	COMMENCE PHASE 1 RE-ENTRY FROM T&F PK	TGSO
T+10 MIN	RESET HALON FIRE PROTECTION SYSTEMS.	TRL OPS
T+10 MIN	COMMENCE VIP TOUR (LOAD BUSES).	VIP OIC
T+11 MIN	COMMENCE PHASE 2 RE-ENTRY.	TGSO
T+20 MIN	SAFETY PARTY REPORTS PROGRESS.	TGSS
T+20 MIN	REPORT TO WSMR RANGE CONTROL "TESTBED SAFE AND SECURITY CONTROLS ARE BEING ESTABLISHED."	NO
T+30 MIN	BRV RECOVERY OPERATIONS COMMENCE.	SPAS/PDA
T+30 MIN	SET INTERNAL ROADBLOCKS/LIFT EXTERNAL ROADBLOCKS.	TGSO/WSMR
T+40 MIN	TRANSPORT PRESS TO STALLION RANGE CENTER.	PAO
T+60 MIN	REPORT STATUS OF SECURITY EFFORT.	TGSO
T+65 MIN	COMMENCE PHASE 3 RE-ENTRY.	TGSO
T+70 MIN	VIP TOUR ARRIVES AT TESTBED.	VIP OIC
T+70 MIN	PRESS INTERVIEW.	TBD
T+110 MIN	VIP TOUR ESCORTED OFF OF TESTBED.	VIP OIC
T+4 HRS	COMMENCE PHASE 4 RE-ENTRY.	TGSO
T+4 HRS	CLOSE RANGE NET.	NO
T+6 HRS	QUICK LOOK REPORTS SUBMITTED TO TGD/TD.	PO
T+1 DAY	24 HOUR REPORT	TGD/TD

TABLE 2. MISTY PICTURE COUNTDOWN.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

2100. TALOS/VIPER MISSILE METRIC MEASUREMENT AND DATA.

a. Figure 4 displays the upper limit ground impact for the Talos-Terrier with a 508 pound payload. Figure 5 outlines the Viper sampling rocket ground impact footprints. Also, see attached STEWS-NR-P 15-3 forms immediately following.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

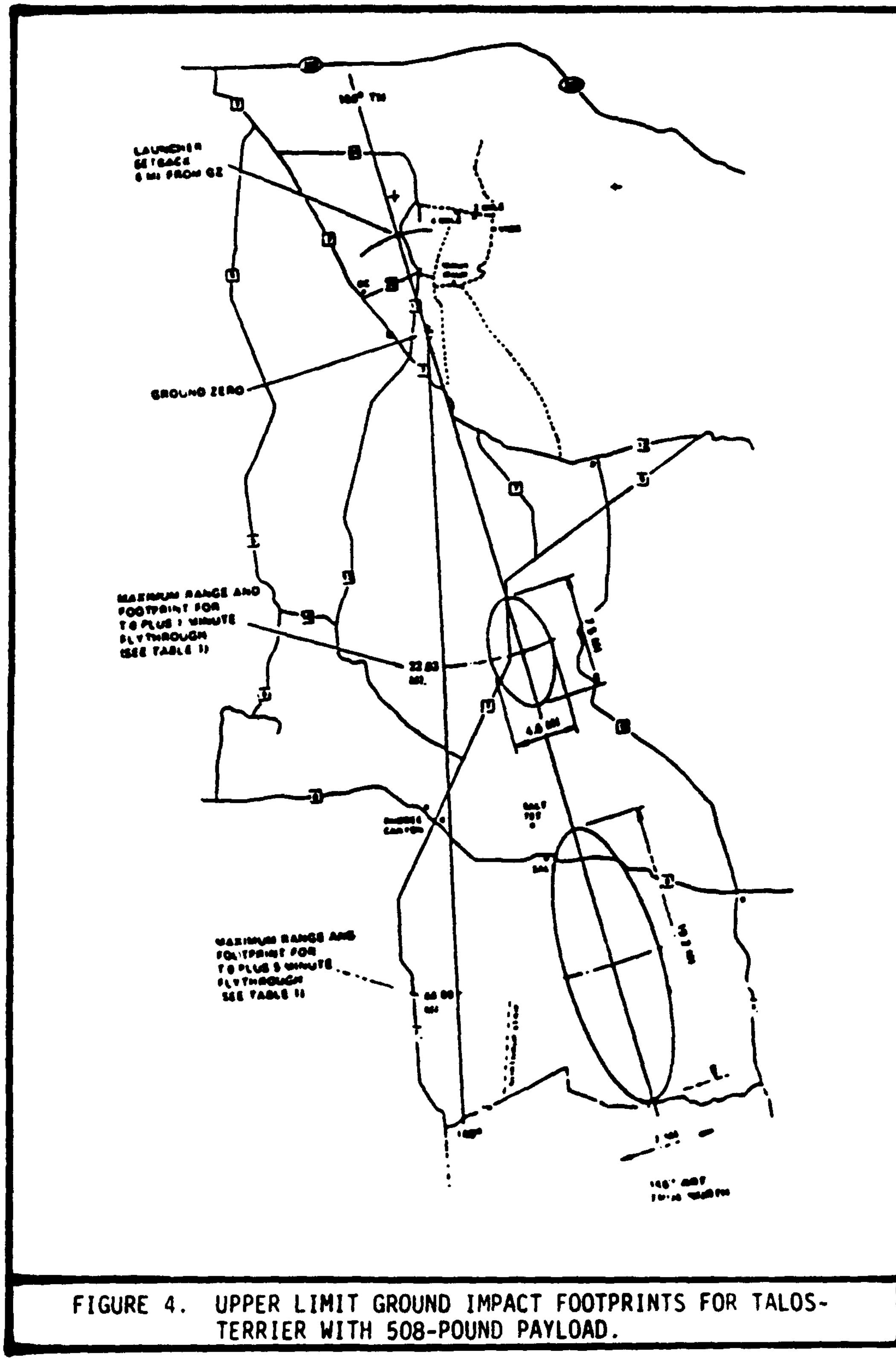


FIGURE 4. UPPER LIMIT GROUND IMPACT FOOTPRINTS FOR TALOS-TERRIER WITH 508-POUND PAYLOAD.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

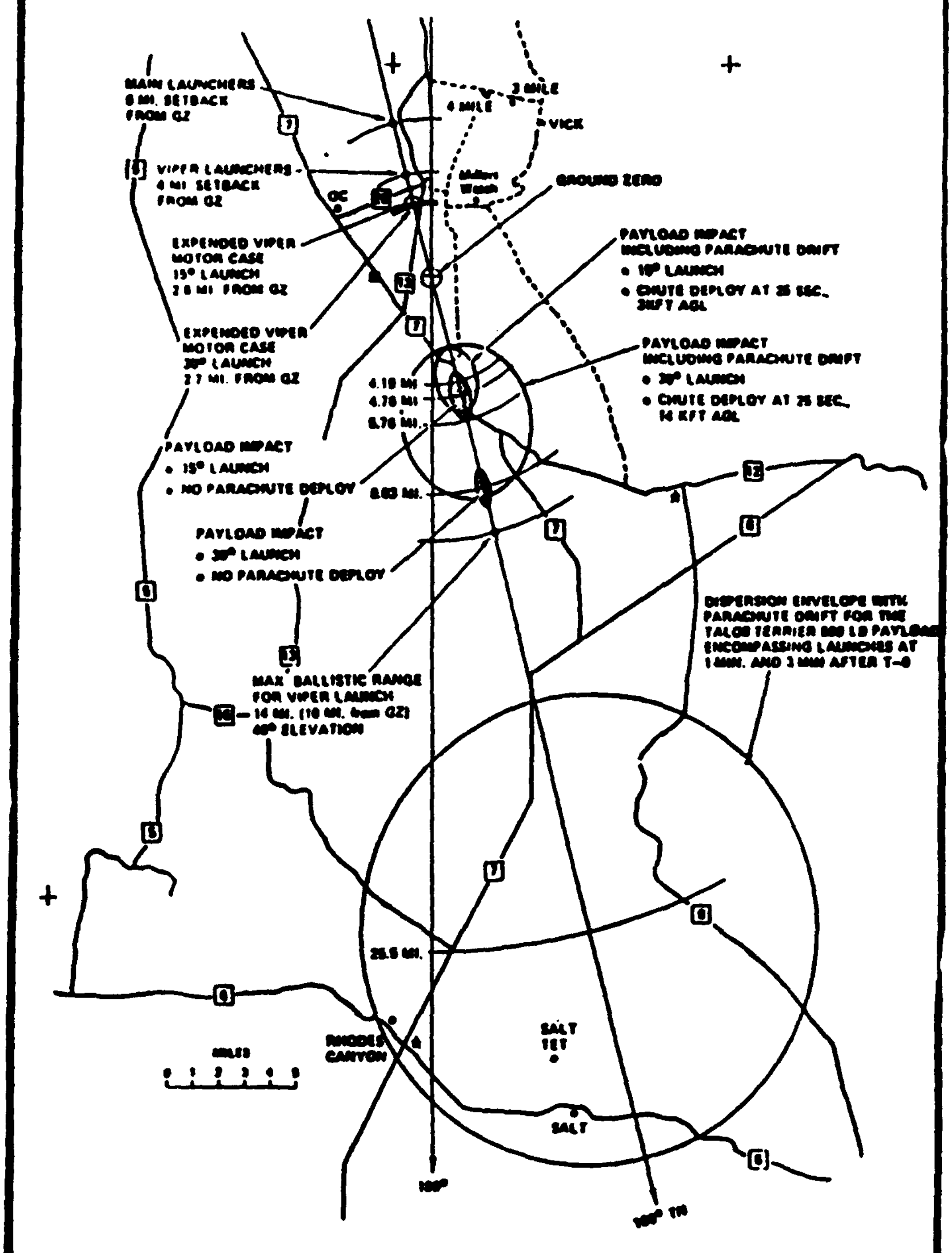


FIGURE 5. VIPER SAMPLING ROCKET GROUND IMPACT FOOTPRINTS.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

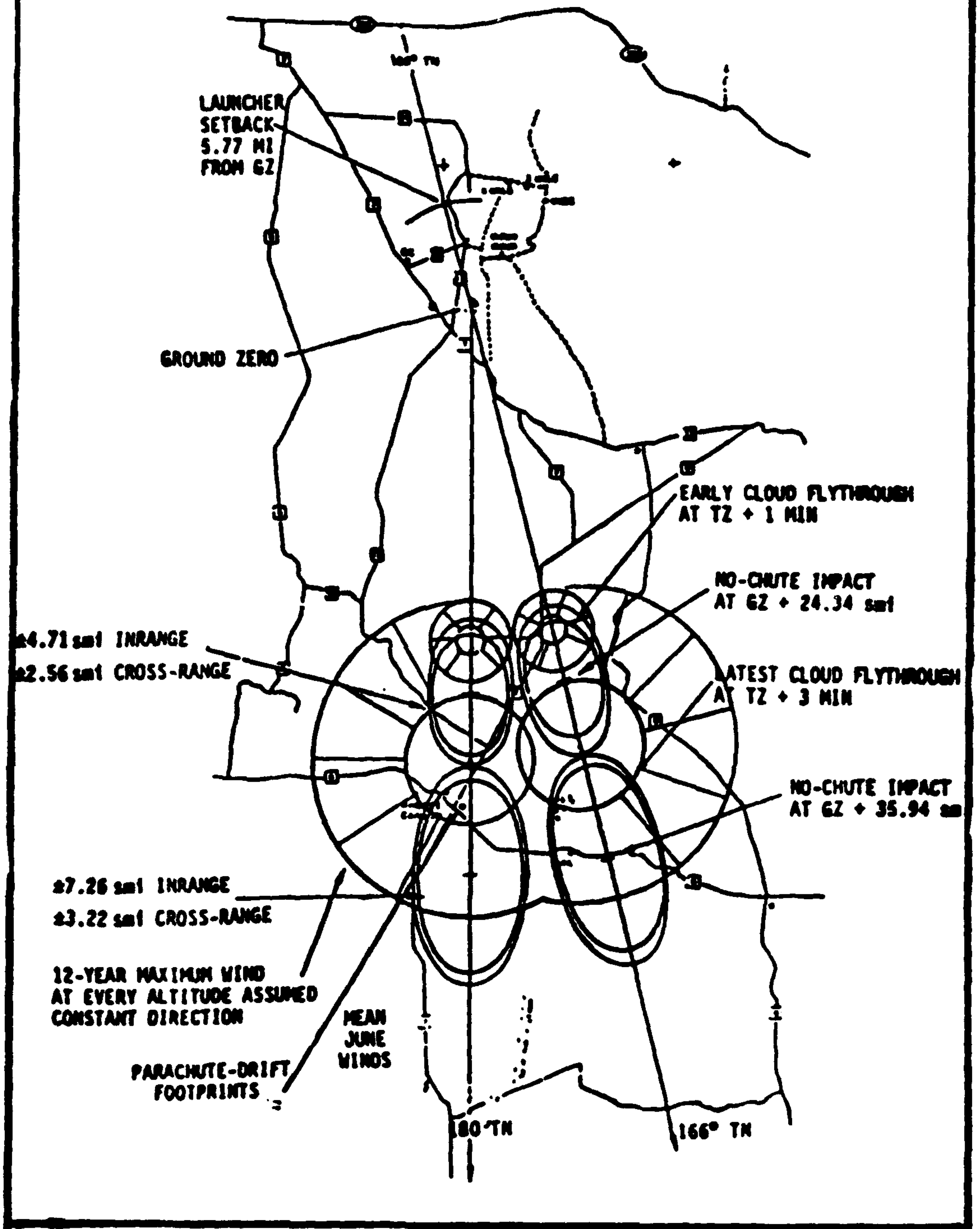
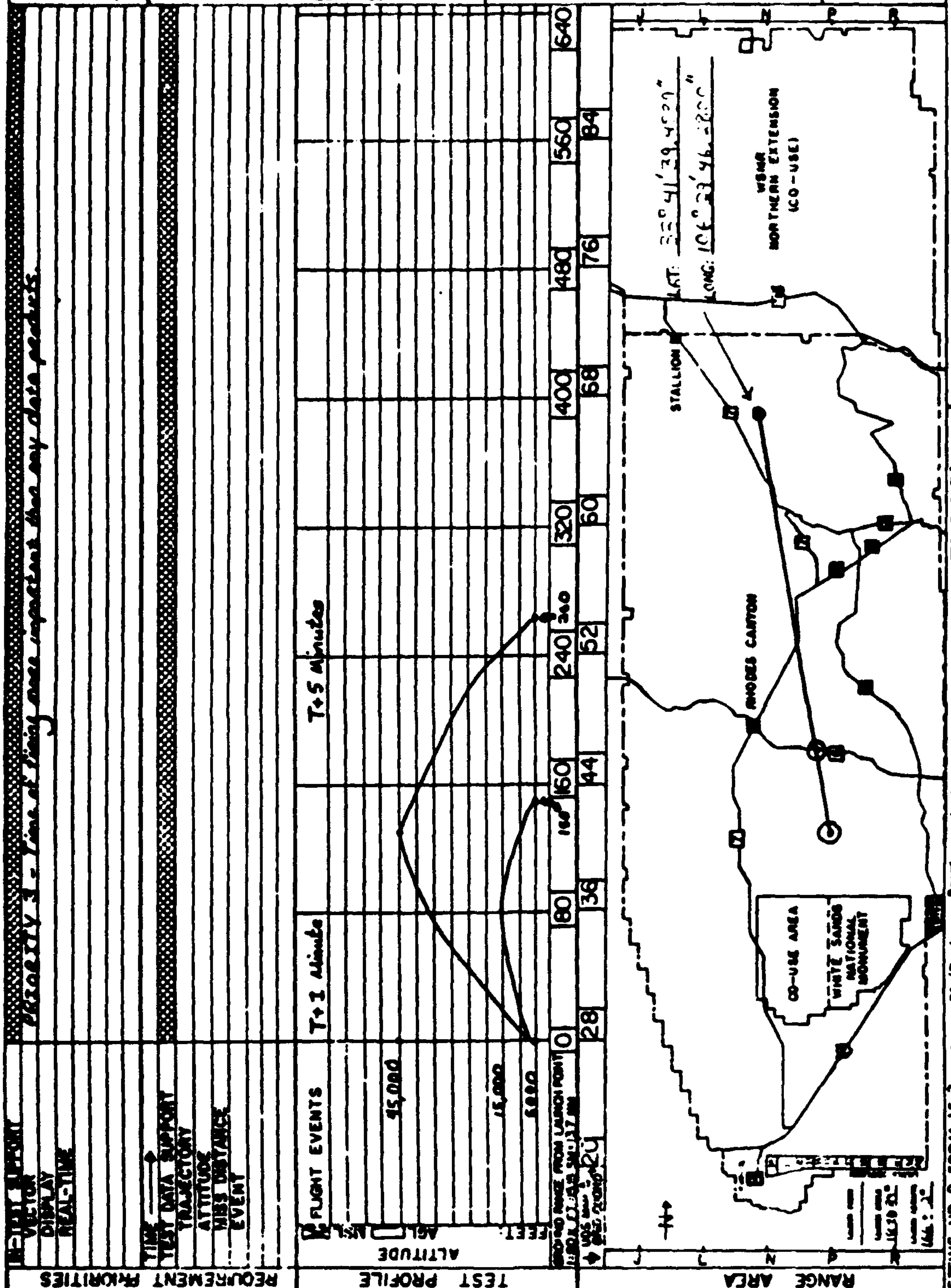
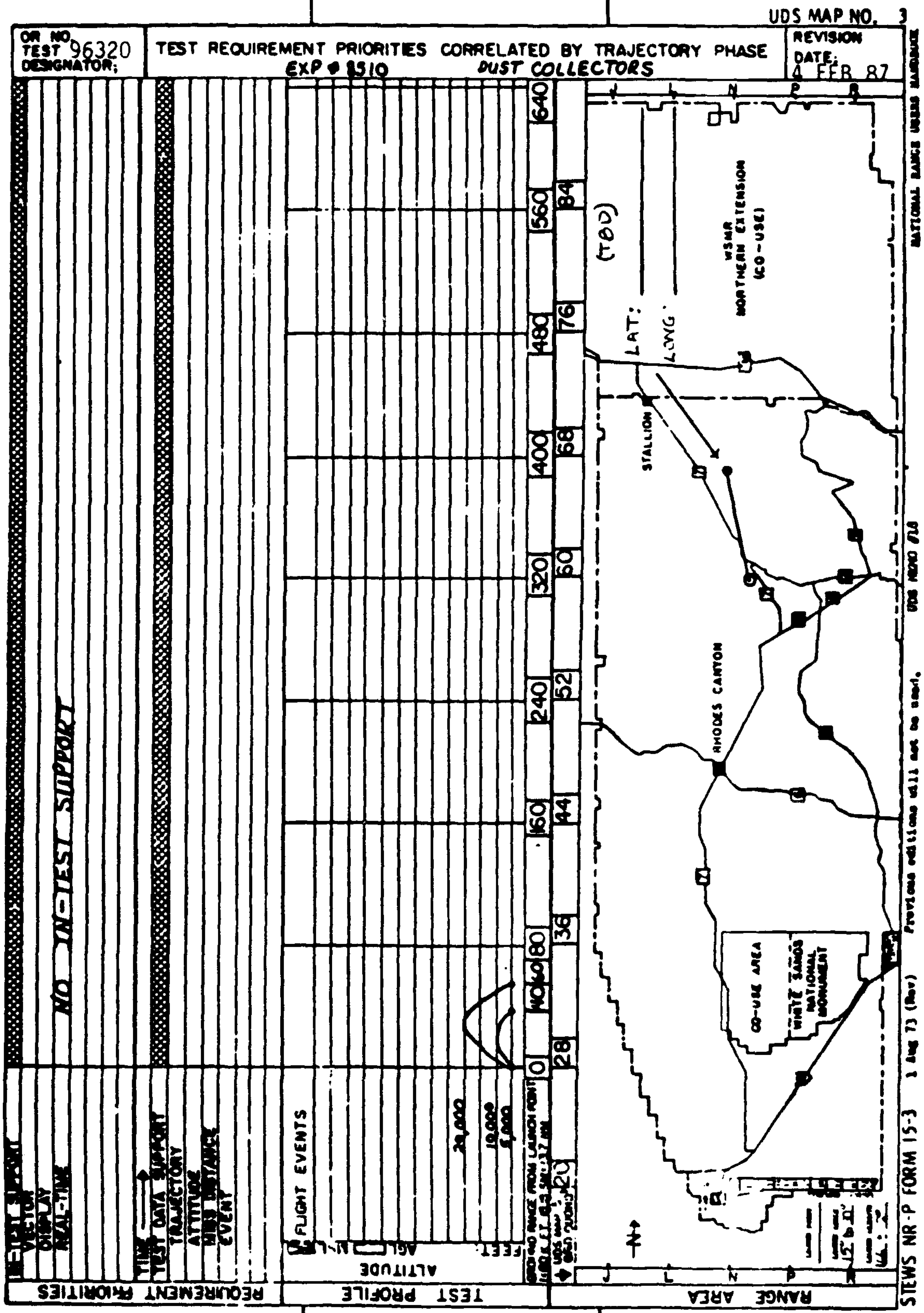


FIGURE 6. COMPOSITE GROUND FOOTPRINT WITH UPPER-LIMIT PARACHUTE DRIFT FOR TALOS-TERRIER WITH 508-POUND PAYLOAD.

UDS MAP NO. 3

OR NO. TEST DESIGNATOR: 96320	TEST REQUIREMENT PRIORITIES CORRELATED BY TRAJECTORY PHASE EXP # 8510 TALOS/TERRIERS	REVISION DATE: 4FEB88




UDS MAP NO. 3
OR NO. TEST DESIGNATOR: 96320
TEST REQUIREMENT PRIORITIES CORRELATED BY TRAJECTORY PHASE
EXP # 8510 DUST COLLECTORS
REVISION DATE: 4 FEB 87
NO IN-TEST SUPPORT
REQUIREMENT PRIORITIES
TEST PROFILE
RANGE AREA
FLIGHT EVENTS
ALTITUDE
FEET
20,000
10,000
5,000
0 80 160 240 320 400 480 560 640
20 28 36 44 52 60 68 76 84
(TBD)
LAT:
LNG:
WSMR NORTHERN EXTENSION (CO-USE)
STALLION
RHODES CANYON
CO-USE AREA
WHITE SANDS NATIONAL MONUMENT
J L N P R
STEWS NR-P FORM 15-3 1 Aug 73 (Rev)
Previous editions will not be used.
NATIONAL RANGE USERS HANDBOOK

b. Other Test Data. Latitude, longitude and altitude to LOS is requested for the BRV's from tracking radars within 30 minutes of firing. If metric data is not available from radars, predicted impact points will be utilized.

2200. TALOS/TERRIER MISSILE TELEMETRY MEASUREMENTS AND DATA.

a. Telemetry data is priority III.

b. Require TMR data from at least 2 radars.

c. Telemetry data forms transmitted under separate cover.

2600. OTHER SYSTEMS. See Appendix 2 for a tabular description of experimenters participating on MISTY PICTURE.

2700. GROUND COMMUNICATION.

a. Intercommunications.

(1) A discrete point to point net between Trailer A (Test Control) in the Administration Park and the Timing and Firing trailer in the T&F Park is required.

(2) A discrete point to point net between Trailer A (Test Control) in the Administration Park and WSMR Range Control is required.

(3) A discrete point to point from the MISTY PICTURE Test Control trailer to the BRV Launch Control trailer is required.

b. Telephones.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

(1) Admin Park. Table 3 lists those telephone requirements for the MISTY PICTURE Admin Park. Operators will be instructed that only MAJ Walls may authorize toll calls.

TRAILER	AGENCY	# UNITS	# LINES/TRL	AV/FTS	CLASS C	NUMBER
ADMIN	DNA RM 1	2	3 W/PAGER	Y	N	4183/4184
ADMIN	DNA RM 2	1	2 W/CALL PI	Y	N	4185
ADMIN	DNA RM 3	1		Y	N	4184
ADMIN	DNA RM 4	1		Y	N	4218
ADMIN	DNA RM 6	1		Y	N	4476
ADMIN	DNA RM 7	1		Y	N	4398
CONF		1		Y	N	
1-A	TRW	1	3	N	Y	
1-B	TRW	1		N	Y	
1-C	OPEN	-		-	-	-
1-D	ISI	1		N	Y	
2-A	OPEN	-	3	-	-	-
2-B	CANADA	1		N	Y	
2-C	NORWAY	1		N	Y	
2-D	SAIC	1		N	Y	
3-A	HDL	1	2	Y	Y	
3-B	HDL	0		-	-	
3-C	HDL	0		-	-	
3-D	H-TECH	1		N	Y	
4-A	NSWC	1	4	Y	Y	

TABLE 3. TELEPHONE REQUIREMENTS FOR MISTY PICTURE.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

TRAILER	AGENCY	# UNITS	# LINES/TRL	AV/FTS	CLASS C	NUMBER
4-B	NWEF	1		Y	Y	
4-C	WES(DPR)	1		N	Y	
4-D	WES(GM)	1		N	Y	
5-A	ARMTE	1	1	Y	Y	
5-B	ARMTE	1		Y	Y	
5-C	ARMTE	0		N	Y	
5-D	ARMTE	-		N	N	
6-A	BMO	1	1	Y	Y	
6-B	BMO	0		N	Y	
6-C	BMO	0		-	-	
6-D	BMO	1		-	-	
7-A	DRI	1	5	N	Y	
7-B	AFWLWERT	2		N	Y	
7-C	NMERI	1		N	Y	
7-D	UK	1		N	Y	
8-A	BRL	1	2	Y	N	
8-B	BRL	1		N	Y	
8-C	BRL	1		N	Y	
8-D	BRL	0		-	-	
9-A	BMO SHOP	1	1	N	N	
9-B	BMO SHOP	1		N	Y	
9-C	BMO SHOP	0		-	-	
9-D	BMO SHOP	0		-	-	

TABLE 3. TELEPHONE REQUIREMENTS FOR MISTY PICTURE.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

TRAILER	AGENCY	# UNITS	# LINES/TRL	AV/FTS	CLASS C	NUMBER
10-A	BMO SHOP	1	1	N	Y	
10-B	BMO SHOP	1		N	Y	
10-C	BMO SHOP	0		-	-	
10-D	BMO SHOP	0		-	-	
11-A	TRI ENG	1	1	Y	N	
11-B	TRI ENG	1		Y	N	
11-C	TRI ENG	1		Y	N	
11-D	TRI ENG	0		-	-	
12-A	OPEN	-		-	-	
12-B	OPEN	-		-	-	
12-C	OPEN	-		-	-	
12-D	OPEN	-		-	-	
13	OPEN	-		-	-	
14-A	PHOTO	1	2	N	Y	
14-B	PHOTO	0		-	-	
14-C	PHOTO	0		-	-	
14-D	PHOTO	1		Y	N	
15-A	PHOTO	1PRATHER	2	Y	N	
15-B	PHOTO	0		-	-	
15-C	PHOTO	1DIXON		Y	N	
15-D	PHOTO	2MEADOWS		Y	N	
16-A	TRS	1	4	Y	N	
16-B	SAIC	1		N	Y	
16-C	OPEN	-		-	-	

TABLE 3. TELEPHONE REQUIREMENTS FOR MISTY PICTURE.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

TRAILER	AGENCY	# UNITS	# LINES/TRL	AV/FTS	CLASS C	NUMBER
16-D	SPTD	1		Y	N	
17-A	WX TLR	1	1	N	Y	
17-B	WX TLR	1		N	Y	
17-C	WX TLR	1		N	Y	
17-D	WX TLR	0		-	-	
18-A	PA-1	1	4	Y	N	4186
18-B	PA-2	1		Y	N	4186
18-C	SAFETY	0		Y	N	
18-D	MRC	1		N	Y	
18-E	IE	1		Y	N	4482
19-A	USAF SP	1	3	Y	N	
19-B	USAF SP	0		-	-	
19-C	CI	1		Y	N	
19-D	SD-S	1		Y	N	
20-A	DYNAELEC	1	1	N	Y	
20-B	DYNAELEC	1		N	Y	
20-C	DYNAELEC	0		-	-	
20-D	DYNAELEC	0		-	-	
21	OPEN	-		-	-	
22	OPEN	-		-	-	
23-A	ARC	1	3	N	Y	
23-B	ARC	1		N	Y	

TABLE 3. TELEPHONE REQUIREMENTS FOR MISTY PICTURE.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

TRAILER	AGENCY	# UNITS	# LINES/TRL	AV/FTS	CLASS C	NUMBER
23-C	RDA	1		N	Y	
23-D	WRL	1		N	Y	
24-A	BRL(AB)	1	1	Y	N	
24-B	BRL(AB)	1		Y	N	
24-C	BRL(AB)	1		Y	N	
24-D	BRL(AB)	0		-	-	
25-A	PHOTO	1	1	Y	N	
25-B	PHOTO	1		Y	N	
25-C	PHOTO	0		-	-	
25-D	PHOTO	0		-	-	

TABLE 3. TELEPHONE REQUIREMENTS FOR MISTY PICTURE.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

(2) Table 4 lists those requirements for telephone/intercom support in areas other than the Admin Park.

TRAILER	AGENCY	# UNITS	# LINES/TRL	AV/FTS	CLASS C	NUMBER
BRV ROC CONT	SPAS/PDA	1	1	0	1	
BRV ADM	SPAS/PDA	1	2	1	1	
SURF SIT	SPAS/PDA	1	2	1	1	
SEC.AO	WSMRARMT	1	1	-	1	
SO.PK.	WSMRARMT	1	1	1	-	
W. PK.	AFWL RAM	1	1	-	1	
W. PK.	WES	1	1	-	1	
T&F PK.	TRS	1	1	1	-	
T&F PK.	GRACON	1	1	1	-	
T&F PK.	T&F VAN	1	1	1	-	
T&F PK.	SNLAWXDT	1	1	-	1	
GZ	ENG	1	1	1	-	
GZ	NMERI	1	1	-	1	
OP	VIP TENT	2	2	2	-	
SRC	WX	1	1	1	-	
W.PK/AD	TGE	1	1	1	-	4303
N. PK.	NMERI	1	1	-	1	

TABLE 4. TELEPHONE REQUIREMENTS FOR MISTY PICTURE.

(3) Table 5 lists those requirements for data transmissions.

AGENCY	QTY	FROM	TO
BRV	1	GND RAWINSONDE	LAUNCH CONTROL TRAILER

TABLE 5. DATA COMMUNICATIONS REQUIREMENTS

c. Public Address System. An outdoor public address system will be required at the Observation Point. Design will be dictated by the layout of the Observation Point.

d. Ground/Ground Radio Communications. FCDNA will provide 115 radios with antennas for use on this event.

2800. OTHER COMMUNICATIONS. On event day, motion picture and still photographic coverage for the press will be required as outlined in the Public Affairs Plan.

3000. REAL-TIME DATA DISPLAY AND CONTROL.

a. The use of a range furnished digital countdown clock will be required in the Test Control Center during the months of April and May.

b. Aircraft radar vectoring for recovery operations of the impact location of the RV is required. Contractor provided radio direction finders (RDF's) will need to be installed on the range provided UH-1H helicopters. Installation of these will be accomplished by the Army Air contingent. See paragraph 3300.

3100. PHOTOGRAPHIC.

a. Documentary Photography. Documentary photography will be accomplished by WSMR. Still, video, and motion picture support will be required. Scheduling will be on an as-needed basis between 6 January and 31 May, 1987. Primary points of contact are LT (USN) Fladager for documentation photo and CPT (USA) Sauer for motion picture production. The following is required for Talos and Viper experiments:

(1) Video coverage - Real time video coverage (2 each) of the Viper launch site and real time video coverage (1 each) of the BRV launch site is needed. The purpose is to verify missile/rocket launch. The monitors will be in the LCC trailer at the BRV site.

b. Optical Instrumentation.

(1) Time-correlated photography (high speed cameras) are required to photograph external and internal motions and damage mechanisms of vehicles, weapon systems, structures, and anthropomorphic dummies under the influence of a high pressure shockwave and TRS units. Timing will be required and internal lighting will be needed for some cameras. WSMR will be required to provide the necessary protective housings, film, processing, and reproduction services. Point of contact is Mr. Prather.

(2) Time correlated photography (high speed cameras ranging from 2 frames per minute to 10,000 frames per second) is required to obtain cine photographs of the detonation fireball, surface surge, shockwave expansion, cloud formation, and rise from zero time to T+60 minutes (see Appendix 3). Point of contact for blast diagnostics is Mr. Prather.

c. Instrumentation. Special launch site optical.

(1) 8 radar tracking cameras (acquisition aided) for BRV tracking. How the cameras receive the information in regards to links between the tracking radar and camera pointing device is of no concern so long as the system operates and provides the necessary data.

(2) 8 total (2 per re-entry vehicle) fixed point cameras to observe attitude of BRV exiting from cloud.

(3) 8 additional cameras near the launch sites to observe launch.

(4) The BRV targets will move from north to south on a true azimuth of 166 degrees and accelerate to 6500 fps. Dimensions of the BRV to cloud entry: 37 feet length, 32 inch diameter. Dimensions of the BRV at cloud exit: 8 feet length, 18 inch diameter.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

3200. METEOROLOGICAL.

a. Forecasts. Forecasts of high surface winds (in excess of 20 knots) and/or electrical storms in the Trinity area are required from D-15 days through event execution. These warnings should be phoned to a test representative at the Administrative Trailer Park (679-4183). A test representative will call the duty forecaster (678-1032/2605) when additional information is required.

b. All meteorological support required for this event will be provided as outlined in the Interservice Support Agreement (ISSA), with enclosures, between ASL and FCDNA, dated February 1987. Coordination for changes to the basic document or enclosures will be done directly with ASL representatives.

3300. RECOVERY.

a. EOD support may be required in the event of a misfire or partial detonation. EOD support may also be required by SPAS/PDA to ensure safe recovery of experimental items from impact areas within dud zones. Such support is not required in the evnet of Talos/Viper misfire. this function will be provided by the USN/contractor. Personnel participating in these operations require a current and validated security clearance. Level required is secret.

b. BRV/Viper Recovery.

(1) The four BRV's and the 20 dust collectors are to be recovered. Two of the four BRV's are classified confidential and secret, respectively, and have recovery priority. The goal is to recover the 4 BRV's within 48 hours and the remaining dust collectors NLT D+7.

(2) The initial 48 hour recovery search will utilize 2 UH-1's with RDFs. Each UH-1 will have a EOD representative and a contractor representative on board. Additionally, each UH-1 will be equipped with 3 foot long marking stakes, a hammer, and surveyor flags. Six sets of detailed WSMR quadrangle maps to identify ground locations are needed. The ground recovery teams will utilize three 3/4 ton pickups, 2 flatbed trucks and a 5 ton wrecker. Each ground recovery crew will include a contractor representative. The UH-1's will require RV impact point vectoring for the initial 3-4 hours. The air recovery teams will mark the location of any payload found with a stake and flag and notify the ground teams of its location. Air teams should disconnect the parachute riser lines or bunch up the chute and cover the payload with it (under the direction of the contractor representative). The ground recovery team will recover and transport the payload back to the launch complex.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

(3) One UH-1 will start at the most downrange predicted impact point and work uprange while the other will start at the furthest uprange point and work downrange. This operation will commence at T+1 hour. For the T+48 to +72 hour period, an OH-58 scout helicopter will be added for visual search. Total flight time is not to exceed 20 hrs for each of the 3 aircraft (20 hours per aircraft. Beyond T+72 hours, the search will be by ground units only. Classified RVs warrant a continued search period up to T+7. A backhoe needs to be on standby to recover any payload which may have impacted as a projectile and buried itself up to 12 feet below the surface. All recovered payloads will be taken to the LCC for analysis. There are no safety hazards associated with the payloads.

3400. OTHER TECHNICAL SUPPORT.

a. Frequency Control and Analysis-Approved Frequencies.

ID #	FREQUENCY	PURPOSE	PERIOD OF USE
MP1 (CAL AA111)	139.05 MHZ	TEST CONTROL A/G	1 JAN-31 JUN 87
MP2 "	141.45 MHZ	INSTRUMENTATION A/G	1 JAN-31 JUN 87
MP3 "	139.10 MHZ	INSTRUMENTATION A/G	1 JAN-31 JUN 87
MP4 "	139.25 MHZ	INSTRUMENTATION A/G	1 JAN-31 JUN 87
MP5 "	166.00 MHZ	INSTRUMENTATION A/G	1 JAN-31 JUN 87
MP6 (85-009)	139.625MHZ	TOADS/AFWL	1 MAR-31 JUN 87
MP7 (85-008)	139.975MHZ	TOADS/AFWL	1 MAR-31 JUN 87
MP8 "	141.750MHZ	TOADS/AFWL	AWAITING APPROVAL
MP9	142.175MHZ	TOADS/AFWL	AWAITING APPROVAL
MP10 (86-020)	225.1 MHZ	AFWL	1 MAR-31 JUN 87
MP11 (WS60099)	M2200.5	BRV/VIPER TELEMETRY	1 FEB-31 JUN 87
MP12 (WS60099)	M2212.5	BRV/VIPER TELEMETRY	"
MP13 (WS60099)	M2200.5	BRV/VIPER TELEMETRY	"

TABLE 6. FREQUENCY CONTROL AND ANALYSIS

PROGRAM DIRECTOR
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

ID #	FREQUENCY	PURPOSE	PERIOD OF USE
MP14 (WS60099)	M2234.5	BRV/VIPER TELEMETRY	"
MP15 "	M2246.5	BRV/VIPER TELEMETRY	"
MP16 "	M2262.5	BRV/VIPER TELEMETRY	"
MP17 "	M2276.5	BRV/VIPER TELEMETRY	"
MP18 "	M2209.5	BRV/VIPER TELEMETRY	"
MP19 "	151.625MHZ	GRACON	APPLIED FOR 2-20-87
MP20 "		EXPERIMENTER CONTROL	NEEDS APPLICATION
MP21		EXPERIMENTER CONTROL	NEEDS APPLICATION
MP22		EXPERIMENTER CONTROL	NEEDS APPLICATION
MP23 (WS70005	149.15	EXPERIMENTER CONTROL CANADA	2 FEB -1 JUN 87
MP24 "	149.25	EXPERIMENTER CONTROL CANADA	2 FEB -1 JUN 87
MP25 "	149.38	EXPERIMENTER CONTROL CANADA	2 FEB -1 JUN 87

TABLE 6. FREQUENCY CONTROL AND ANALYSIS.

b. A rawinsonde in the 403-404 MHZ range will be operating intermittently from D-30 through event day.

c. This section will be updated as additional frequency requirements are identified.

3500. MEDICAL REQUIREMENTS.

a. Medical support on site is required from 27 April through 30 June 1987. Ambulance support includes the following:

(1) 1 ambulance with 2 medics (1 EMT qualified) 27 April through event day (14 May 1987).

(2) 1 aeromedical evacuation helicopter with medic for event day only.

b. The following special operations requiring medical support will be taking place on site 27 April through 30 June 1987:

(1)	TRS Burns	27 April-14 May 1987
(2)	Explosive Loading	27 April-9 May 1987
(3)	Missile Firing	14 May 1987
(4)	Event Execution	14 May 1987

4. COORDINATE SYSTEMS/DATA PROCESSING AND DISPOSITION.

4100. DATA PROCESSING.

a. For the Talos and Viper rocket launches all radar data is to be formatted on magnetic tape (9 track, EBCDIC, 1600 BPI, 1 sensor/tape). A listing of data processing requirements is provided below:

(1) Noncoherent (metric) - Time, range, azimuth, and elevation from the radar sites in cycles per second. Acquisition to Loss of Signal (LOS) (approximately 60 sec). Refraction correction desired. Do not edit out bad points (user will perform). No quality assurance required.

(2) Coherent - Two components of comple-phase-angle (I, Q) 320 PPS (acquisition at LOS) are requested. No TMR processing required.

(3) Coordinates of radar sites (WSD-73 coordinate system).

(4) Index of refraction vs. altitude at the time nearest to launch (up to 5000 feet).

(5) Calibration required (order of preference):
Satellite
Balloon
Aircraft

b. Photographic Film Processing. Special film processing may be required for some of the blast diagnostics film. If needed, Mr. Prather will communicate these requirements on execution date.

c. Data Reduction. A data reduction report is required addressing cloud growth, fireball asymmetries, and shockwave propagation velocities. See Appendix 3 for more detail. Point of contact is Capt Lutton or Mr. Prather.

4200. DATA DELIVERY AND DISPOSITION.

a. A master of all diagnostic film will be printed with timing included and made available to NR-A (data reduction) for analysis after all appropriate reviews. Further details concerning the review process will be provided under separate cover.

b. Technical (experimenter effects) Film. Master film will be printed in original format size with timing included, and distributed according to the delivery and reproduction schedule. Work prints will be printed in 16mm format, with timing (for material whose original is 16mm), over the marked span (48 frames before T-0 until assigned data is out of the field of view). The schedule may be modified as circumstances require. Certain experimenters may require that WSMR provide data reduction. These requirements will be transmitted under separate cover.

c. Request WSMR provide a quick look, subjective report outlining major anomalies in jetting, asymmetry, and shockwave propagation. Data reduction reports will be delivered to FCDNA/FCTT according to Appendix 3.

d. A composite report on camera deviations from nominal for each operational characteristic will be delivered to FCDNA/FCTEI (Mr. Prather) NLT T+20 days for all WSMR (STEWS-NR-DO) cameras.

e. A composite lens tie survey report for all cameras that required a lens tie survey will be delivered to the responsible WSMR data reduction agency and to FCDNA/FCTEI (Mr. Prather) NLT T+7 days.

f. With respect to the Talos/Viper flights, data from telemetry ground stations is to be provided to the launch control trailer 5 days after firing.

5. BASE FACILITIES/LOGISTICS REQUIREMENTS.

5300. SUPPLY/STORAGE/SERVICES.

a. Security. Detailed requirements are addressed separately in the Security Plan.

(1) MISTY PICTURE testbed will be declared a restricted area in February 1987. A USAF Security Police unit will provide security for the testbed.

(2) Projected Guard Requirements. Event day external roadblocks will be needed.

b. Fire Protection.

(1) Normal fire protection services will be required during fielding operations. Potential fire hazards will be identified and discussed with range fire response and safety personnel.

(2) Standby fire equipment and personnel should be available on event day at a location mutually agreeable between WSMR and FCDNA.

c. POL. JP-4 is required at the SRC airfield on event day to refuel those aviation assets used for VIP transport from Hollomon AFB, Kirtland AFB, and WSMR.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

APPENDIX 1

ACRONYMS

AB-----Airblast

AC-----Aerospace Corporation

Admin--Administration

AFGL---Air Force Geophysics Laboratory

AFWL---Air Force Weapons Laboratory

AGL----Above Ground Level

AMP----Ampere

ANFO---Ammonium Nitrate Fuel Oil

AO-----Area of Operations

ARA----Applied Research Associates, Inc.

ARC----Aberdeen Research Center

ASL----Atmospheric Sciences Laboratory

ATTN---Attention

AV-----AUTOVON

BMO----Ballistic Missile Office

BRL----Ballistic Research Laboratory

COMM---Commercial

CONF---Conference

CONT---Continued

DPR----Dusty Precursed Radial

DRI----Denver Research Institute

EB-----East Bunker

EMT----Emergency Medical Technician

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

ENG----Engineer

EOD----Explosive Ordinance Disposal

EP-----East Park

ESMC---Eastern Space and Missile Center

EXP----Experimenters

EXT----External

FCDNA--Field Command, Defense Nuclear Agency

FEMA---Federal Emergency Management Agency

FTS----Federal Telephone Service

GM-----Ground Motion

GHZ----Gigahertz

GZ-----Ground Zero

HDL----Harry Diamond Laboratory

IE-----Instrumentation Engineer

ISI----Information Sciences Incorporated

KM-----Kilometer

KV-----Kilovolt

KHZ----Kilohertz

LANL---Los Alamos National Laboratory

LCC----Launch Control Complex

LOS----Loss of Signal

LOX----Liquid Oxygen

MA-----Milliampere

MBA----Main Booster Assembly

mCi----Millicurries

MG-----Milligrams

MHZ----Megahertz

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

MRC----Mission Research Corporation

MP-----MISTY PICTURE

MSL----Mean Sea Level

NASA---National Atmospheric and Space Administration

NLT----Not Later Than

NMERI--New Mexico Engineering Research Institute

NO-----Net Operator

NP-----North Park

NR-----National Range

NWEF---Naval Weapons Evaluation Facility

NSWC---Naval Surface Weapons Center

PD-----Program Director

PHETS--Permanent High Explosive Test Site

PK-----Park

PMS----Particle Measuring Systems

PO-----Project Officer

PS-----Program Sponsor

PSL----Physical Sciences Laboratory

PT-----Photo Technologist

RDF----Radio Direction Finder

RF-----Radio Frequency

RKT----Rocket

RM-----Room

RTE----Route

RV-----Re-entry Vehicle

SB-----South Bunker

SNLA---Sandia National Laboratory, Albuquerque

TC-----Test Control

TCP----Traffic Control Point

TD-----Technical Director

T&F----Timing and Firing

TGD----Test Group Director

TGE----Test Group Engineer

TGS----Test Group Staff

TGSS---Test Group Staff Safety

TGSO---Test Group Security Officer

TRLR---Trailer

TRS----Thermal Radiation Source

UK-----United Kingdom

USA----United States Army

USAF---United States Air Force

USMC---United States Marine Corps

USN----United States Navy

WB-----West Bunker

WES----Waterways Experiment Station

WP-----West Park

WSMR---White Sands Missile Range

WTH----Wind, Temperature, Humidity

WX-----Weather

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

APPENDIX 3

DATA REDUCTION REQUIREMENTS

1. The data reduction requirements of this OR supersedes all previous letters, etc.

2. Shockwave diagnostics (Experiment 9020). At intervals of 1.5 feet elevation, starting at zero elevation, obtain "X" coordinate position versus time for each 1.5 feet of "Z" elevation for each of several frames. Approximately 100 frames will be selected by Mr. Prather at the data reduction film review post shot. Data will continue to be taken up to and including the 50 foot elevation. Anomalous shockwave patterns shall be identified and tracked through the selected frames. From this data, velocity of shockwaves and anomalies at these intervals shall be computed. Four (4) graphs will be generated which plot time of arrival at selected distances. Additional four (4) graphs will be generated which plot velocity at the same distances.

3. Shockwave diagnostics (Experiment 9021). On selected frames, at 10 degree intervals, starting and ending at zero elevation, obtain the radial distance and angular position versus time of the general (non-anomalous) expanding hemisphere of fireball and shock frames. Anomalous jet and shock patterns will also be measured. All position data will be used to compute velocity data for all intervals.

4. Shockwave diagnostics (Experiment 9030). At intervals of 10 degrees the radial distance and angular position of the shock wave on the ground shall be measured on selected frames. Additional points shall be measured on lines parallel to the precursed dusty radial starting at a line 25 feet from the bag edge (outside edge with respect to bag width) and ending 25 feet from the bag edge (inside edge with respect to bag width) at 50 feet intervals.

5. Dynamics and morphological cloud diagnostics (Experiments 9021 and 9026). Points A thru M (conveyed under separate cover with illustration) shall be measured on the film to obtain apparent (image space) measurements and apparent (object space) displacement angles from surface ground zero. Additionally, point A shall be used by all cameras to achieve a triangulation position for the top of the cloud. That position shall be plotted over a range map for selected times using interpolation where necessary. The triangulated position of point A shall be used to obtain slant range for use in scaling the apparent (object space) positions of points A thru M for each selected frame on each camera. Frames will be selected by Mr. Prather at review. The selected frames will closely coincide with those outlined in the 15 April 1986 FCDNA letter, subject: Data Reduction Requirement for MISTY PICTURE. Paragraph 5e of subject letter is amended to read "T+20" minutes.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

6. Precursor Diagnostic:

a. Experiment No. 8710. Data shall consist of depression (in inches) versus time of five pieces of yarn. Approximately 15 positions on each piece of yarn on 50 data frames will be measured.

b. Experiment No. 8790. Data shall consist of the height of the triple point versus time, the height of the start of the transition wave, and the angle of the transition wave with respect to horizontal. There are usually several candidate transition waves which must be reduced in order to find the real wave. Selection of the real wave shall be made by Dr. Dudziak. Plots of the true triple point height, angle of the transition wave, and height of start of transition wave versus distance shall be made.

c. Experiment No. 8791. The overview cameras shall receive data reduction similar to experiment number 9020.

d. Experiment No. 8792. Data reduction is not required, barring unusual conditions.

e. Experiment No. 8793. Data shall consist of apparent rearward motion of the models as measured displacements on the film. Corrections due to orientation will be supplied by Dr. Dudziak.

f. Experiment No. 8230. Data shall consist of position versus time, velocity, and trajectory of 10 pyrotechnic targets for 50 frames of data.

7. Deviations from data reduction requirements and identification of rolls and frames to be reduced will be authorized by Mr. Prather by using the FCDNA call sheet or appropriate WSMR form after review at NR-A.

8. Free data sharing for report writing shall be authorized for Dr. Dudziak in support of the 8790 series experiments.

9. Reports.

a. Experiment series 8000 data report shall be furnished by NR-A to Dr. Dudziak and Mr. Prather. NR-A shall not assist further (except for information or clarification) in developing a report to FCDNA on this series of experiments. The responsibility for this belongs to Information Science Incorporated, Dr. Dudziak. The data reports shall consist of raw and processed data in tabular form for each camera and the radial as a whole as outlined in paragraph 6. Plots reference in paragraph 6 will be included in the data report.

b. Experiments 9020, 9021, 9030, and 9026 data reports section shall include:

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

(1) Data tables relating position versus time, velocity and PSI (computed) at the distances selected during the review. Graphs shall be reported as reference in pagraphs 2, 3, 4, and 5. Selected pictures shall be made to illustrate the report, if image quality permits. NR-A assigned personnel shall assist and collaborate as co-authors with Mr. Prather of the narrative report to FCDNA (in approved DNA format) which analyzes the significance of the data. Dr. Dudziak will assist in the analysis section of the report.

10. A cursory data and rough analysis report shall be prepared for initial overall data reduction efforts for experiment 9020, 9021, 9030, and 9026. This report shall be co-authored by assigned NR-A personnel and Mr. Prather. Suspense for this action is D+55 days. Final reports, co-authored by NR-A personnel and Mr. Prather shall be delivered, by D+150 days, to Capt Lutton, FCDNA/FCTT in camera ready form.

11. Raw and processed data for each frame/time on each roll of film shall be maintained and conveyed to Mr. Prather, FCDNA/FCTEI. The transmittal conveying this data shall also transmit:

a. Lens and other camera parameters measured and used.

b. Survey data used in the data reduction.

c. Formulas and mathematical procedures used to manipulate data.

PROGRAM TITLE: MISTY PICTURE
OR NUMBER: 96320
DATE: 4 FEBRUARY 1987

6. Deviations from data reduction requirements and identification of rolls and frames to be reduced will be authorized by Mr. Prather by using the FCDNA call sheet or appropriate WSMR form after review at NR-A.

7. Free data sharing for report writing shall be authorized for Dr. Dudziak in support of the 8790 series experiments.

8. Reports.

a. Raw data measurements for each frame on each roll shall be separately maintained and conveyed to Mr. Prather. A report, in approved DNA format, shall be generated on the shock diagnostics with separate sections for each radial, the aerial film, and the overview film cameras (experiments 9020, 9021 and 9030). Additionally, an integrated report section is required. The report will be amply illustrated with selected pictures of the frames reduced (where appropriate or possible). Additionally, the results segment(s) of the report shall have position versus time and velocity data for each point reduced for selected frames. The selection is to be made by Mr. Prather. Additionally, a narrative analysis section with appropriate illustrations will be made by assigned NR-A personnel and Mr. Prather, assisted by Dr. Dudziak.

b. Cloud dynamics report (Experiments 9021 and 9026). A separate report on cloud dynamics and morphology shall be generated in a manner consistent with paragraph 7 with the addition of angular data (azimuth and elevations). Processed data on all points will be delivered under separate cover to FCTT (Capt Lutton).

c. A Precursed Dust Radial report (series 8790, 8791, 8792) shall be generated and report the same kinds of data as that proposed in paragraph 8a. Addditional requirements should be delivered under separate cover.

Universal Documentation System

M C S E R I E S

(PROGRAM SHORT TITLE)

Operations Directive

No. 9 6 3 2 0 A

OD NO. 9 6 3 2 0 A

OR TEST DESIGNATOR(S)	TEST TITLE
None	4,800 Ton ANFO Event (Misty Picture)

The support plan in this OD is based on the capability of the Range to provide support indicated, subject to availability when scheduled.

James P. Kilmer
NR Project Engineer

678-4177
Telephone No.

FOR THE COMMANDER:

JAMES A. WISE
Technical Director, NR

7 Apr 87
DATE

THIS DOCUMENT IS CANCELLED WHEN NOT SCHEDULED WITHIN A TWO-YEAR PERIOD

WHITE SANDS MISSILE RANGE
NEW MEXICO

STEWS-NR-P Form 48-R
1 Mar 84

DISTRIBUTION IS LIMITED TO US GOVERNMENT AGENCIES AND THEIR CONTRACTORS FOR ADMINISTRATIVE & OPERATIONAL USE ONLY. FURTHER REQUESTS FOR THIS DOCUMENT WILL BE REFERRED TO NR-P. DISPOSE IN MANNER DESCRIBED IN AR 340-17.

OD NO: 96320A PARAGRAPH 1020	DISTRIBUTION	REVISION NO: OR TEST DESIGNATOR(S): None

AA.	1
AFC	0
HSHM-MHC-PR	1
ASNC-TWS.	9
SLCAS-OP	1
IS-G	2
IS-N	2
NR-AO	5
NR-CE	2
NR-CF	1
NR-CR	6
NR-D	6
NR-CS-S	1
NR-CS-R	1
NR-CS-DMA	1
NR-PD	8
NR-PR	1
PL-P	0
SF	1
SD	1

AIR FORCE

AD-RUC.	1
6585 TG/RUM Holloman Air Force Base.	1
6586 TS/DOS Holloman Air Force Base	0
DET 1, 475 WEG Holloman Air Force Base	0
NOMTS	0

OR/OD No. 96320A	SECURITY CLASSIFICATION	REVISION No.
UDS PARAGRAPH: 1052		DATE:

PROGRAM TITLE: MISTY PICTURE

USER SECURITY OFFICER: CPT Jim Sauer PHONE: 679-4185

CLASSIFICATION AUTH & DATE: Multiple Sources

This page will require revision upon any pertinent change to the projects Security Classification Guide. Any temporary change caused by an incident resulting from a specific test will be reported to the WSMR Range Control Office immediately. The pre-printed continuation form page will be used for additional entries or remarks.

ITEM	Classification	Declassification Date
A. RAW DATA		
1. Radar Tapes	U	
2. Telemetry Tapes	U	
3. Cinetheodolite Film	U	
4. Telescope Film	S	OADR
5. Fixed Camera Film	S	OADR
6.		
7.		
B. IN-TEST DATA (REAL TIME & ON-LINE)		
1. Trajectory Plots (Radar, RTDS, Etc.)	U	
2. Trajectory Tapes (Radar, RTDS, Etc.)	U	
3. Telemetry Plots (Oscillograms)	U	
4. Telemetry Tapes (Digital)	U	
5.		
6.		
C. POST-TEST DATA (QUICK-LOOK & VALIDATED)		
1. Trajectory (x, y, z; $\dot{x}$, $\dot{y}$, $\dot{z}$; $\ddot{x}$, $\ddot{y}$, $\ddot{z}$)	U	
2. Miss distance	U	
3. Telemetry (Listings, Plots or Tapes)	U	
4. Events or Time (Specify items)	U	
a.		
b.		
c.		
5. Geodetic Survey Computation (Specify items)		
a.		
b.		
c.		
D. FREQUENCIES		
1.		
2.		
E. DOCUMENTARY & AERIAL PHOTOGRAPHY		
1. Stills	S	OADR
2. Motion Picture	S	OADR
3.		
F. RECOVERY (List Classified items)		
1. RV	S	OADR
2. RV	CFRD	OADR
3.		
4.		
5.		
6.		

STEWS NR-P Form 16
1 May 84

Edition of 1 Mar 79 is obsolete

NATIONAL RANGE USERS HANDBOOK

OR/OD No. 96320A	SECURITY CLASSIFICATION	REVISION No.
UDS PARAGRAPH: 1052		DATE:

PROGRAM TITLE: MISTY PICTURE

ITEM	Classification	Declassification Date
G. RECOVERY AID (Information)		
1. Radar Look Angle at ground impact point	U	
2. Radar range to ground impact point	U	
3. Optical Instrument look angle at impact point	U	
4. Telemetry look angle to loss of signal	U	
H. OTHER ITEMS		
1.		
2.		
3.		

PAGE 2 of
STEWS NR-P Form 16
1 May 84

Edition of 1 Mar 79 is obsolete

NATIONAL RANGE USERS HANDBOOK

NO: 96320A	OPERATIONS DIRECTIVE	REVISION NO:
ODS PARA		OR TEST DESIGNATOR(S): None

1100 PROGRAM AND TEST INFORMATION

a. Program Information

(1) User: Defense Nuclear Agency.

(2) Sponsor: NR-P, telephone, 678-1622.

(3) Priority: 1.

b. Test Information

(1) User Test Conductor: MAJ Charles G. Walls, Field Command, DNA telephone 679-4183.

(2) User Control Point: Administration Park, Permanent High Explosive Test Site, telephone 679-4183.

(3) Range Control Point: Stallion, console 11, telephone 679-4430.

(4) OR Test Designator/OD Comparison:

TEST DESIGNATOR	OD	TEST TITLE
None	96320A	4,800 Ton ANFO Event
	96320B	Project Tests
	96320C	Ground Checks

(5) Test Description: Misty Picture will be a high explosive (HE) event designed to provide a blast, thermal and shock environment for Department of Defense (DOD), U.S. Government agencies and foreign government sponsored target response experiments. For selected experiments, seven Thermal Radiation Sources (TRS) placed at varying distances from ground zero (GZ) will augment the blast and shock environment providing thermal radiation. The TRS will operate just before the main detonation. Execution is currently scheduled for 14 May 1987. Misty Picture will detonate 4,800 tons of ammonium nitrate and fuel oil (ANFO) placed at ground level. Four Talos/Terrier missiles and twenty Viper rockets will be fired into the dust cloud produced by the explosion. Target response experiments will be included in this test. Test objectives are to:

(a) Record blast and shock environment.

(b) Record damage to weapons, shelters and systems.

(c) Record synergistic effects of blast and thermal environments.

(d) Increase weapons effects data base.

1700 TEST ENVELOPE INFORMATION

a. Airspace Operations. Airspace from ground level to 50K feet MSL must be scheduled to ensure an adequate safety area. Airspace will be contained within the box M-S, 36-68.

b. Test Limits

(1) Talos/Terrier:

(a) Launcher azimuth: 166°T.

(b) Elevation: <24°.

(2) Viper:

(a) Launcher azimuth: 166°T.

(b) Elevation: <30°.

1800 OPERATIONAL HAZARDS

The operational hazards associated with this test are specified in the STEWS-NR-P Form 1 (Operational Hazards Form) serial numbers MP-1 through MP-10 dated 4 February 1987.

2000 TEST OPERATIONAL CONCEPTS/SUMMARIES

a. Test Events

EVENT NO.	±TIME	EVENT
1	-8 CD	User submits schedule to Range Scheduler.
2	-1 WD	User briefs WSMR support elements.
3	-6 Hr 30M	WSMR starts master countdown (MCD). See MCD beginning on page A-1.
4	+ASAP	NR project engineer submits Post-Test Counterorder (PTC) to WSMR support elements, as necessary, for deviations to test support.

NO: 96320A	OPERATIONS DIRECTIVE	REVISION NO:
UDS PARA		OR TEST DESIGNATOR(S): None

b. Ground Safety Operational Concepts/Summaries

(1) The Misty Picture Safety Plan, dated January 1987, will cover operations for this test.

(2) Roadblocks above Mockingbird Gap for the high explosive event (see map on page 6).

(a) Block Road 13 at the Mine Site to southbound traffic.

(b) Block Road 13 approximately 1.3 miles northeast of Pond Site to northeast bound traffic.

(c) Block Road 20 approximately 0.7 miles west of the intersection of Road 7 and 20 to eastbound traffic.

(d) Block Road 7 at the intersection of Road 7 and the Observation Point Road to southbound traffic.

(3) Roadblocks below Mockingbird Gap for the high explosive event will be determined by Range Control, NR-CR (see Evacuation Map on page 7).

c. Flight Safety Operational Concepts/Summaries

(1) The evacuation area for the Talos/Terrier and Viper missile launches is shown on the Roadblock and Evacuation Map, page 7; roadblock locations will be determined by NR-CR.

(2) Essential personnel involved in this test are exempt from evacuation.

2100 MEASUREMENTS AND DATA

a. Fixed Cameras and Telescopes

(1) Sites/Assignments: See pages of this document beginning with page B-1.

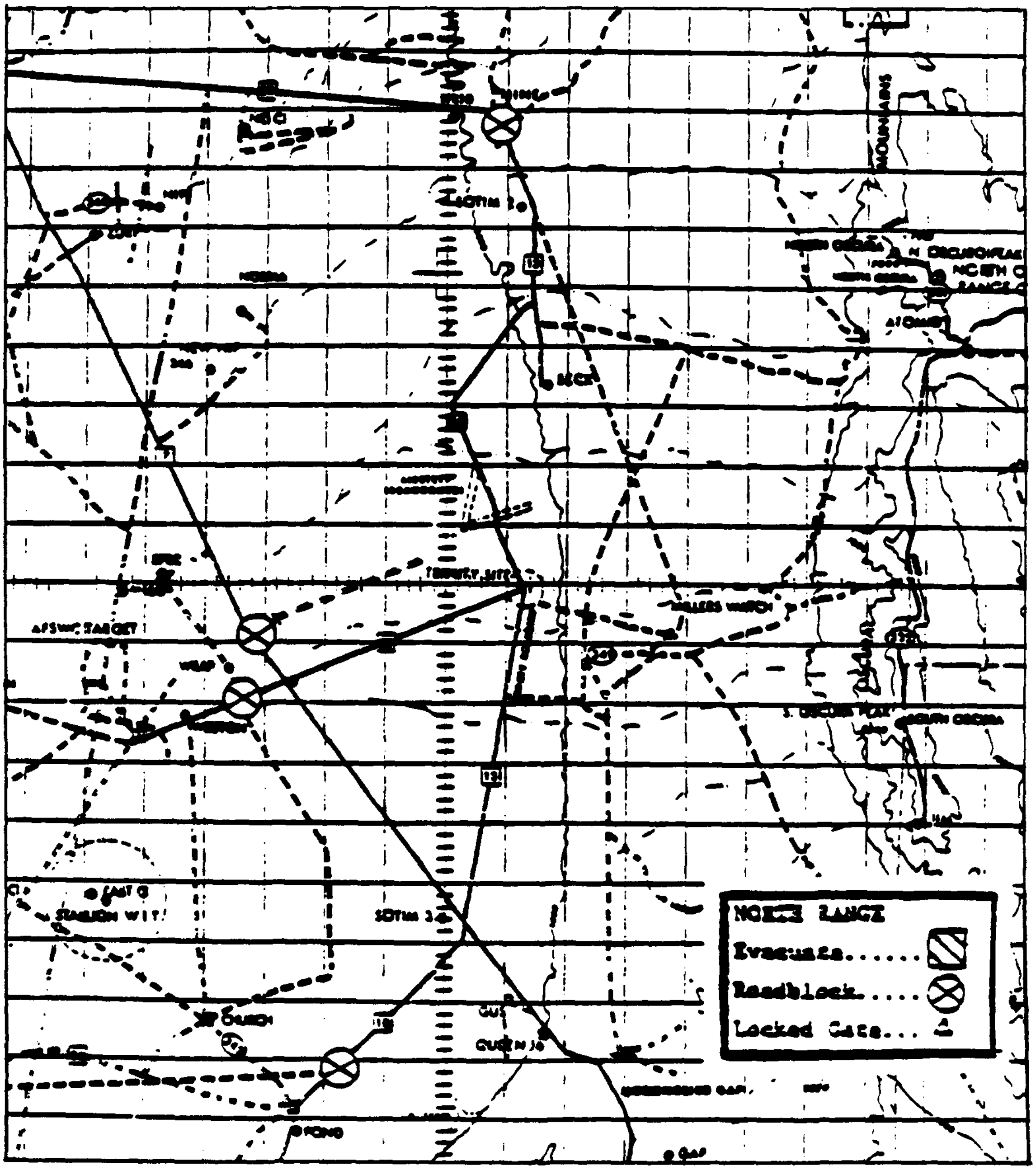
(2) Support:

(a) Provide coverage of equipment and structures under the influence of a high pressure shockwave.

(b) Provide coverage of the detonation fireball, shockwave expansion, cloud formation and rise.

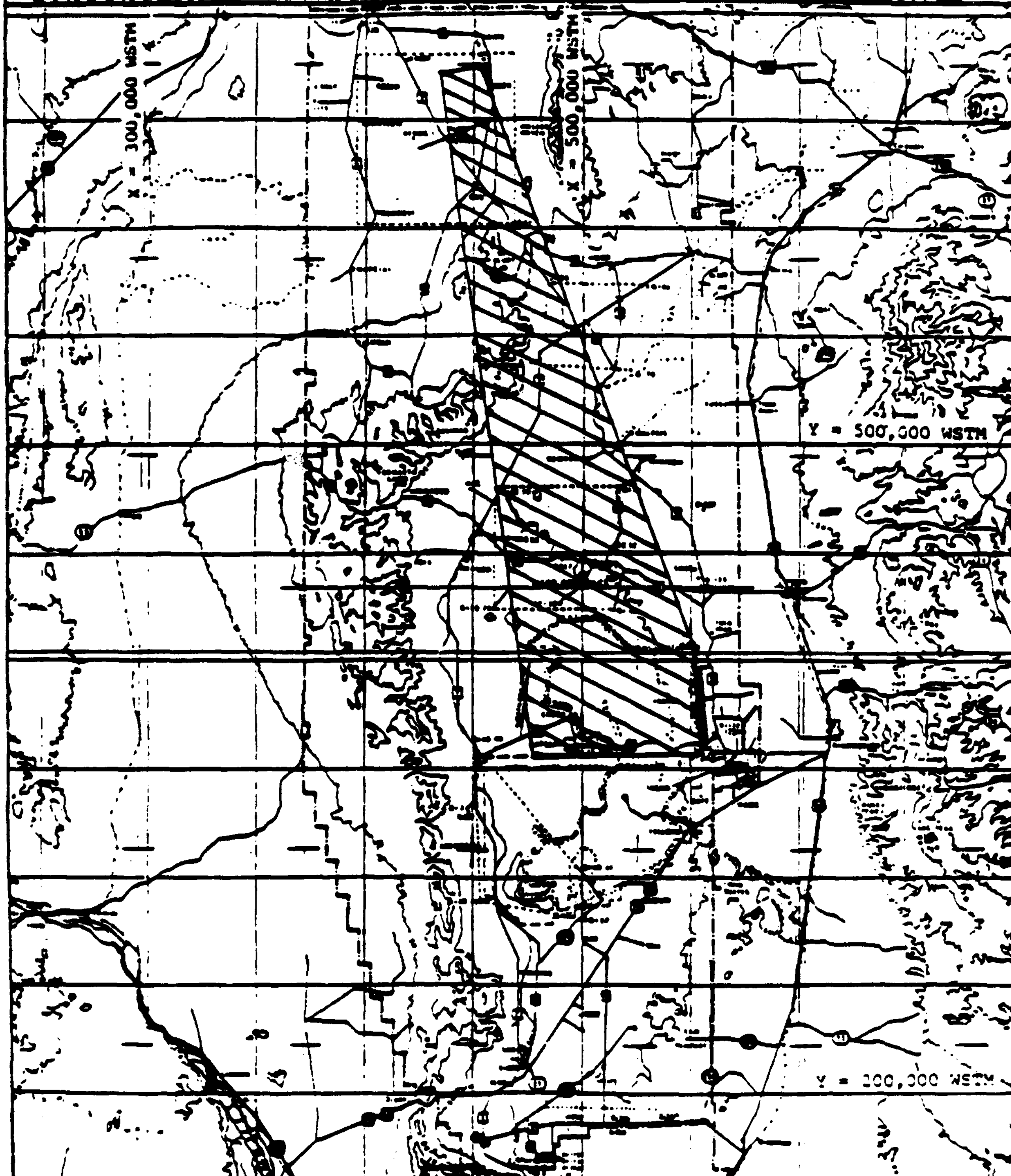
(c) Telescopes will provide event data from launch to LOS.

OD NO: 96320A	ROAD BLOCK	REV NO:
TITLE: M C Series	MAP	TEST DESIGNATOR: None



OD NO: 96320 A	**ROAD BLOCK AND EVACUATION MAP**	**REV NO:** **PAGE:**
TITLE: M C Series		**TEST DESIG:** NONE
		1 GRID: 50,000 FT WSTM

EVACUATE... **ROADBLOCK...** ⊗ **LOCKED GATE...** △



STEWS-NR-C Form 71-L-R
1 Apr 85

Replaces STEWS-NR-C Form 71-L-R, 1 Jan 84, which is obsolete.

NO: 96320A	OPERATIONS DIRECTIVE	REVISION NO:
UDS PARA		OR TEST DESIGNATOR(S): None

b. Radars

(1) Sites/Assignments:

(a) R-127, R-351/Missile #1.

(b) R-486, R-122/Missile #2.

(c) R-128, R-407/Missile #3.

(d) R-518, R-125/Missile #4.

(2) Support: Transponder track missiles; record DIGS and TMR; input XYZ to telescopes, Stallion plot and K-1 plot.

(3) Data Priority: 1B.

(4) Safety Priority: 1A.

2200 TELEMETRY

(1) Sites/Assignments: TTARS (1 each per missile)/BRV Missiles #1-4.

(2) Support: Record telemetry data.

(3) Data Priority: 1B.

2700 GROUND COMMUNICATIONS

a. A point to point voice net will be provided between trailer A (Test Control) and Playback facility in the Administration Park and the timing and firing trailer in the Timing and Firing Park.

b. A point to point voice net will be provided between trailer A (Test Control) in the Administration Park and the BRV launch control trailer.

c. The Stallion local command net will be provided to trailer A and the BRV launch control trailer.

d. An outdoor public address system will be provided at the observation point.

e. Telephones will be provided as requested.

f. Ready hold lights between Stallion plot, trailer A and BRV launch control trailer will be provided.

NO: 96320A	OPERATIONS DIRECTIVE	REVISION NO:
UDS PARA		OR TEST DESIGNATOR(S): None

2800 TELEVISION

(1) Sites/Assignments: V-750, V-741/Viper Launcher; V-736, V-737, V-738, V-739/Bag Surveillance; V-740/BRV Launcher.

(2) Support: Provide missile surveillance coverage and transmit to monitors in LCC trailer at BRV site; provide bag surveillance coverage and transmit to monitors in trailer at T & F Park.

3000 REAL-TIME DATA DISPLAY AND CONTROL

X vs Y and H vs Y plots on each missile (4 each) will be provided at both Stallion and King-1.

3100 PHOTOGRAPHY

Documentary support will be provided.

3200 METEOROLOGY

a. Forecasts

(1) Standard WSMR 24 hour forecasts will be available. An updating of all forecast data can be obtained from the duty forecaster at 678-1032/2605.

(2) Forecasts of high surface winds (in excess of 20 knots) and/or electrical storms in the test vicinity will be provided from D-5 days through event execution.

b. All meteorological support required for this event will be provided as outlined in the Interservice Support Agreement (ISSA), with enclosures between ASL and FCDNA, dated February 1987. Coordination for changes to the basic document or enclosures will be done directly with ASL representatives.

3300 RECOVERY

Support items requiring EOD personnel must be identified before T-3 day briefing; detailed assembly/disassembly of all hazardous operations must also be provided.

NO: 96320A	OPERATIONS DIRECTIVE	REVISION NO:
UDS PARA		OR TEST DESIGNATOR(S): None

3400 OTHER TECHNICAL SUPPORT

a. Frequency Control and Analysis

(1) Station Plan: Holloman; Sacramento Peak, Albuquerque.

(2) Frequency Protection Plan:

NOMENCLATURE OR FUNCTION	FREQ (MHz)	REPC (±MHz)	AEB (kHz)	RFA
Range Radar	As Sched	5	8000	WS-531
" "	" "	"	18000	WS-532
Transponder	" "	7.5	4000	WS-532
A/G Comm	" "	0.075	6	WS-185/ADTC 66-77
TM	2200.5	0.6	1000	WS 60099
"	2212.5	"	"	"
"	2220.5	"	"	"
"	2234.5	"	"	"
"	2246.5	"	"	"
"	2262.5	"	"	"
"	2276.5	"	"	"
"	2289.5	"	"	"

NOTES: (1) User must obtain proper authorization before frequencies can be scheduled for use at WSMR. (2) Voice frequencies need not be scheduled, but must have a valid radio frequency authority before use at WSMR.

b. Geodetic Survey. All camera and target surveys will be provided.

3500 MEDICAL

Medical support will be provided on event day.

NO: 96315A	OPERATIONS DIRECTIVE	REVISION NO:
UDS PARA		OR TEST DESIGNATOR(S): None

4100 DATA PROCESSING

Data reduction of shockwave, cloud, and precursor diagnostics will be provided. The user is requested to work closely with data analysis personnel during the data reduction period to assure the reports are complete and in an acceptable format.

4200 DATA DELIVERY AND DISPOSITION

a. A final shockwave and cloud diagnostics report will be sent to the following addressee:

Commander, Field Command
Defense Nuclear Agency
ATTN: FCTT (CPT Lutton)
Kirtland AFB, NM 87115-5000

b. A final report precursor diagnostics report will be sent to the following addressee:

Commander, Field Command
Defense Nuclear Agency
ATTN: FCTEI (Mr. Prather)
Kirtland AFB, NM 87115-5000

5300 SUPPLY/STORAGE/SERVICES

Security: The security associated with this test is specified in the Misty Picture Security Operations Plan dated February 1987.

OD NO: 96320 A	MASTER COUNTDOWN & OPERATION LOG	REVISION NO:	PRIORITY:	SERVICE:	PAGE 1 OF 6
UDS PARAGRAPH 2000		OR TEST DESIGNATOR(S): none	OPN TITLE: MISTY PICTURE		

OPN INDEX: TEST DATE: RANGE CONTROLLER:

EVENT NO	RESP ELEM	EVENT	T±TIME	ACTUAL TIME	STATUS C	STATUS R	REMARKS
1	NR-CR	Mans Range Control Complex	-6H30M				
2	NR-CR	Conducts communications check Provides time check	-6H00M				
3	MET	Launches met balloon	-6H00M				
4	USER	Makes Go-No Go decision based on weather	-5H00M				
5	USER	Establishes communications with Bunkers and trailers	-5H00M				
6	NR-CR-D	Provides SATRAN data update to user (on continuous basis)	-4H00M				
7	USER	Commences local countdown	-4H00M				
8	USER	Conducts helium fill	-4H00M				
9	MET	Launches met balloon	-3H30M				
10	NR-CR/ USER	Hold for helium fill (if required)	-2H30M				
11	USER	Makes Go-No Go decision based on weather	-2H30M				
12	USER	Conducts clearing of test bed FCDNA security police sets internal roadblocks	-2H30M				

STEWS-NR-P Form 25(Rev) 1 Aug 78 Replaces STEWS-NR-P Form 25, 1 Jul 73, which is obsolete. STEWS-NR-P SOP 70-10c

OD NO: 96320 A	MASTER COUNTDOWN & OPERATION LOG (Continuation)	REVISION NO:	PAGE 2 OF 6
UDS PARAGRAPH 2000		OR TEST DESIGNATOR(S): none	

EVENT NO	RESP ELEM	EVENT	T±TIME	ACTUAL TIME	STATUS G	STATUS R	REMARKS
13	USER	Announces Met Detonation in 5 minutes	-2H06M				
14	USER	Announces Met Detonation event	-2H01M				
15	USER	Advises aircraft of test status	-2H00M				
16	NR-CR	Directs SD-P to set external roadblocks and evacuate safety footprint	-2H00M				
17	USER	Verifies all parks evacuated of non-essential personnel	-1H15M				
18	USER	Confirms aircraft status	-1H10M				
19	USER	Announces Met Detonation in 5 minutes	-1H06M				
20	MET	Launches met balloon	-1H06M				
21	USER	Announces Met Detonation event	-1H01M				
22	NR-CR	Conducts command net, ready/hold, circuit checks with User and target coordinator. Provides standard count-down to event.	-1H00M				
23	USER	Announces PMS aircraft launch	-55M				
24	NR-CR	Verifies and announces radar avoidance of test bed	-55M				
25	USER	Arming party enters testbed	-50M				

STEWS-NR-P Form 25-1(Rev) 1 78 Replaces STEWS-NR-P Form 25-1, 1 Jul 73, which is obsolete. STEWS-NR-P SOP 70-10c

OD NO: 96320 A

UDS PARAGRAPH 2000

MASTER COUNTDOWN & OPERATION LOG
(Continuation)

REVISION NO:
OR TEST DESIGNATOR(S): none

EVENT NO	RESP ELEM	EVENT	T±TIME	ACTUAL TIME	STATUS G	STATUS R	REMARKS
26	USER	Evacuates all unnecessary personnel from testbed and directs FCDNA SP's to depart testbed	-45M				
27	USER	Announces WB57 aircraft launch	-35M				
28	NR-CR	Verifies testbed clear except for arming and safety personnel	-35M				
29	NR-CR	Obtains Range status for event and aircraft	-35M				
	NR-A	Display (Rada)					
	NR-D	Rdr/Tel/Opt/TV					
	TWS	Comm/Tim/Data Ckts					
	RUM	Airspace					
	NR-CF/E	Flt Saf/Saf Engr					
	ASL	Met Data					
	USER	Target (aircraft)					
	USER	Target (missile)					
	USER	Test Conductor					
31	NR-CR	Verifies external roadblocks set and footprint evacuated	-32M				
32	NR-CR	Announces Range status. HOLDS IF RED	-30M				
33	USER	Announces RF-4 aircraft launch	-30M				
34	USER	Arming party arms charge	-30M				
35	USER	Announces arming complete Arming personnel depart testbed	-25M				

OD NO: 96320 A	MASTER COUNTDOWN & OPERATION LOG (Continuation)	REVISION NO:	PAGE 6 OF 6
UDS PARAGRAPH 2000		OR TEST DESIGNATOR(S): none	

EVENT NO	RESP ELEM	EVENT	T+TIME	ACTUAL TIME	STATUS G	STATUS R	REMARKS
36	RUM	Advises Range Control PMS aircraft on Range and in orbit	-24M				
37	NR-CR	Lifts radar avoidance of testbed	-20M				
38	USER	Confirm A/C status at Kirtland	-19M				
39	USER	Confirm high altitude A/C status at Beale AFB	-18M				
40	RUM	Confirms RF-4 and WB57 aircraft on Range and in holding pattern	-15M				
41	NR-CR/ USER	Confirms testbed status	-12M				
42	USER	Confirms helium status	-10M				
43	USER	Annouaces Met Detonation in 5 minutes	-07M				
44	USER	Readies the firing panel	-06M				
45	USER	Confirms firing panel ready and arming complete	-05M				
46	USER	Turns data recorders on	-2M30Sec				
47	USER	Ignites TRS burners	-2M30Sec				
48	USER	Announces Met Detonation event	-02M				
49	USER	Detonates charge	-00M00Sec				This will be a simulated T on MFP's and dress rehearsals

STEWS-NR-P Form 25-1(Rev) 78 Replaces STEWS-NR-P Form 25-1, 1 Jul 73, which is obsolete. STEWS-NR-P SOP 70-10c

OD NO: 96320 A	MASTER COUNTDOWN & OPERATION LOG (Continuation)	REVISION NO:	PAGE 5 OF 6
UDS PARAGRAPH 2000		OR TEST DESIGNATOR(S): none	

EVENT NO	RESP ELEM	EVENT	T±TIME	ACTUAL TIME	STATUS G	STATUS R	REMARKS
50	NR-CR	Provides -60 second count for Met rocket launch and BRV and Viper launch window to open	-00M00Sec				
51	USER	Safes firing system	+30Sec				
52	MET	Launches Met rocket	+01M				
53	NR-CR	Announces launch window open for BRV and Viper missile launches	+01M				
54	NR-CR	Verifies firing system safed	+02M				
55	USER	Notifies A/C at Kirtland AFB of detonation	+03M				
56	USER	Notifies high altitude A/C of detonation	+04M				
57	NR-CR	Announces BRV and Viper firing window closed	+05M				
58	NR-CF	Releases A/C (WB57F, RF4B, Beech Barron)	+05M				
59	USER	Completes data recordings	+05M				
60	NR-CR/ USER	Conducts BRV recovery	+30M				
61	NR-CR/ USER	Lifts external roadblocks,FCDNA SP sets internal roadblocks	+30M				
62	NR-CR	Releases aircraft to Cherokee	+1H00M				

STEWS-NR-P Form 25-1(Rev) Replaces STEWS-NR-P Form 25-1, 1 Jul 73, which is obsolete. STEWS-NR-P SOP 70-10c
1 Aug 78

OD NO: 96320 A

UDS PARAGRAPH 2000

MASTER COUNTDOWN & OPERATION LOG
(Continuation)

REVISION NO:
OR TEST DESIGNATOR(S): none

EVENT NO	RESP ELEM	EVENT	T±TIME	ACTUAL TIME	STATUS G	STATUS R	REMARKS
63	NR-CR	Terminates operation Releases supporting elements.	+4H00M				

STEWS-NR-P Form 25-1(Rev) 1 : 78 Replaces STEWS-NR-P Form 25-1, 1 Jul 73, which is obsolete. STEWS-NR-P SOP 70-10c

EXPER. NO.	CAMERA STATION	CAMERA TYPE	LENS TYPE	EXPER. NO.	CAMERA STATION	CAMERA TYPE	LENS TYPE
1010	F-4129	LOCAM	13mm	2200	F-4198	108	20in
	F-4130	LOCAM	13mm		F-4199	108	20in
1014	F-4134	LOCAM	13mm		F-4200	108	10in
1015	F-4149	LOCAM	13mm		F-4201	108	10in
	F-4150	LOCAM	13mm		F-4202	108	10in
1300	F-4135	LOCAM	13mm		F-4203	108	6in
	F-4136	LOCAM	13mm		F-4204	108	6in
	F-4137	LOCAM	13mm		F-4205	108	6in
1305	F-4138	LOCAM	13mm		F-4206	NOVA-L	13mm
1310	F-4139	LOCAM	13mm		F-4207	NOVA-L	13mm
	F-4145	LOCAM	8.5mm		F-4208	NOVA-L	13mm
	F-4140	LOCAM	8.5mm		F-4209	LOCAM	13mm
1315	F-4141	LOCAM	13mm		F-4210	LOCAM	13mm
	F-4142	LOCAM	13mm	3310	F-4216	LOCAM	13mm
	F-4143	LOCAM	8.5mm		F-4217	LOCAM	13mm
1335	F-4147	LOCAM	13mm	3311	F-4218	LOCAM	13mm
	F-4148	LOCAM	13mm		F-4219	LOCAM	13mm
1340	F-4151	LOCAM	13mm	3312	F-4214	LOCAM	13mm
	F-4152	LOCAM	13mm		F-4215	LOCAM	13mm
	F-4155	LOCAM	8.5mm	3600	F-4258	LOCAM	13mm
	F-4153	LOCAM	8.5mm		F-4259	LOCAM	13mm
1345	F-4154	LOCAM	13mm		F-4260	LOCAM	13mm
	F-4165	LOCAM	8.5mm		F-4261	LOCAM	13mm
1365	F-4159	LOCAM	13mm		F-4262	LOCAM	13mm
	F-4160	LOCAM	13mm		F-4263	LOCAM	13mm
	F-4161	LOCAM	8.5mm		F-4264	LOCAM	13mm
	F-4171	LOCAM	8.5mm		F-4265	LOCAM	13mm
1375	F-4163	LOCAM	13mm		F-4266	LOCAM	13mm
	F-4164	LOCAM	8.5mm		F-4267	LOCAM	13mm
	F-4182	LOCAM	8.5mm		F-4268	LOCAM	13mm
1376	F-4156	LOCAM	13mm		F-4269	LOCAM	13mm
	F-4184	LOCAM	8.5mm		F-4270	LOCAM	13mm
1380	F-4162	LOCAM	8.5mm		F-4271	LOCAM	13mm
1403	F-4172	LOCAM	13mm		F-4272	LOCAM	13mm
1404	F-4173	LOCAM	13mm		F-4275	LOCAM	13mm
	F-4174	LOCAM	13mm	4015	F-4254	LOCAM	13mm
	F-4175	LOCAM	8.5mm		F-4255	LOCAM	75mm
1405	F-4176	LOCAM	13mm		F-4256	LOCAM	13mm
	F-4177	LOCAM	13mm	4100	F-4166	LOCAM	13mm
1406	F-4178	LOCAM	13mm		F-4169	4C	58mm
1407	F-4179	LOCAM	13mm	4110	F-4168	LOCAM	13mm
1408	F-4180	LOCAM	13mm		F-4167	4C	58mm
1410	F-4157	LOCAM	13mm		F-4170	4C	58mm
	F-4158	LOCAM	13mm	4200	F-4197	LOCAM	13mm
2126	F-4189	LOCAM	8.5mm	7060	F-4257	LOCAM	8.5mm
	F-4190	LOCAM	8.5mm	7062	F-4246	LOCAM	8.5mm
2129	F-4191	LOCAM	8.5mm	7090	F-4181	LOCAM	13mm
2130	F-4192	LOCAM	8.5mm	7454	F-4273	LOCAM	8.5mm
2136	F-4193	LOCAM	8.5mm		F-4274	LOCAM	8.5mm
2144	F-4188	LOCAM	8.5mm	7550	F-4211	LOCAM	13mm

OD NO. 96320A   OR TEST DESIGNATOR: NONE

EXPER. NO.	CAMERA STATION	CAMERA TYPE	LENS TYPE
8230	F-4321	10R	10in
	F-4322	10R	10in
	F-4323	10R	10in
	F-4324	10R	10in
	F-4325	10R	10in
	F-4326	10R	10in
8510	T-791	10R	100in
	T-791	10R	100in
	T-791	10R	100in
	T-791	10R	100in
	T-488	10R	180in
	T-488	10R	180in
	T-488	10R	180in
	T-488	10R	180in
	F-4280	LOCAM	13mm
	F-4281	LOCAM	13mm
	F-4282	LOCAM	13mm
	F-4283	LOCAM	13mm
	F-4286	LOCAM	13mm
	V-740	VIDEO	16-160mm
	F-4287	10R	24in
	F-4288	10R	24in
	F-4289	10R	24in
	F-4290	10R	24in
	F-4291	10R	24in
	F-4292	10R	24in
	F-4293	10R	24in
	F-4294	10R	24in
8520	F-4276	LOCAM	13mm
	F-4277	LOCAM	13mm
	F-4278	LOCAM	13mm
	F-4279	LOCAM	13mm
	V-750	VIDEO	16-160mm
	V-741	VIDEO	16-160mm
8710	F-4284	NOVA-H	35mm
	F-4285	NOVA-H	35mm
8790	F-4220	FAST II	250mm
	F-4221	FAST II	250mm
	F-4222	FAST II	250mm
	F-4223	FAST II	250mm
	F-4224	FAST II	250mm
	F-4225	FAST II	250mm
	F-4226	FAST II	250mm
	F-4227	FAST II	250mm
	F-4228	FAST II	250mm
	F-4229	FAST II	250mm
	F-4230	FAST II	250mm
	F-4231	FAST II	250mm
	F-4232	FAST II	250mm
	F-4233	NOVA-H	250mm
8790	F-4234	NOVA-H	250mm
	F-4235	NOVA-H	250mm
	F-4236	NOVA-H	250mm
	F-4237	NOVA-H	250mm
	F-4238	NOVA-H	250mm
	F-4239	NOVA-H	250mm
	F-4240	NOVA-H	250mm
8791	F-4241	4C	105mm
	F-4242	4C-HF	105mm
	F-4243	4C	105mm
	F-4244	10B	180mm
	F-4245	10B	180mm
8792	F-4296	FAST II	250mm
	F-4297	HYCAM	250mm
	F-4298	4C	58mm
	F-4299	10B	135mm
8793	F-4212	NOVA-L	75mm
	F-4213	NOVA-L	75mm
8795	V-736	VIDEO	10-1 ZM
	V-737	VIDEO	10-1 ZM
	V-738	VIDEO	10-1 ZM
	V-739	VIDEO	10-1 ZM
9010	F-4300	4C	6in
	F-4301	4C-HF	6in
	F-4302	4C	6in
	F-4303	4C	6in
	F-4304	4C	6in
	F-4305	4C	6in
	F-4306	4C-HF	6in
	F-4307	4C	6in
9020	F-4312	4C	6in
	F-4313	4C	6in
	F-4308	4C	6in
	F-4309	4C	6in
	F-4310	4C-HF	6in
	F-4311	4C	6in
	F-4314	4C	6in
	F-4315	4C	6in
	F-4316	4C	6in
	F-4317	4C	6in
9021	F-4318	10B	6in
	F-4319	10B	6in
	F-4320	10B	6in
9026	F-4194	10R	105mm
	F-4195	10R	105mm
	F-4196	10R	105mm
	F-4327	9.5 IN	?
	F-4328	9.5 IN	?
	F-4329	9.5 IN	?
	T-801•	10R	105mm

OD NO. 96320A OR TEST DESIGNATOR: NONE

EXPER. NO.	CAMERA STATION	CAMERA TYPE	LENS TYPE	EXPER. NO.	CAMERA STATION	CAMERA TYPE	LENS TYPE
9026	T-801	10R	105mm	9026	T-493	VIDEO	13mm
		VIDEO	13mm	9030	F-4330	LOCAM	75mm
	T-610	10R	105mm		F-4331	LOCAM	75mm
		10R	105mm		F-4332	LOCAM	75mm
		VIDEO	13mm		F-4333	LOCAM	75mm
	T-493	10R	105mm	9500	F-4340	LOCAM	13mm
		10R	105mm		F-4341	LOCAM	13mm

Universal Documentation System

MISTY PICTURE

(PROGRAM SHORT TITLE)

Operations Directive

No. 9 6 3 2 0 B

OD NO. 963208

OR TEST DESIGNATOR(S)	TEST TITLE
None	Project Tests

The support plan in this OD is based on the capability of the Range to provide support indicated, subject to availability when scheduled.

James P. Kilmore
NR Project Engineer — 678-4177 Telephone No.

FOR THE COMMANDER: JAMES A. WISE, Technical Director, NR — DATE: 25 Mar 87

THIS DOCUMENT IS CANCELLED WHEN NOT SCHEDULED WITHIN A TWO-YEAR PERIOD

WHITE SANDS MISSILE RANGE
NEW MEXICO

STEWS-NR-P Form 48-R
1 Mar 84

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OD NO: 96320B PARAGRAPH 1020	DISTRIBUTION	REVISION NO: OR TEST DESIGNATOR(S): None

AA	1
AFC	0
HSHM-MHC-PR	1
ASNC-TWS	9
SLCAS-DP	1
IS-G	1
IS-N	1
NR-AO	5
NR-CE	2
NR-CF	1
NR-CR	6
NR-D	6
NR-CS-S	1
NR-CS-R	1
NR-CS-DMA	1
NR-PD	8
NR-PR	1
PL-P	0
SF	1
SD	1

AIR FORCE

AD-RUC	1
6585 TG/RUM Holloman Air Force Base	1
6586 TS/DOS Holloman Air Force Base	0
DET 1, 475 WEG Holloman Air Force Base	0
TE	
NOMTS	0

NO: 96320B	OPERATIONS DIRECTIVE	REVISION NO:
UDS PARA		OR TEST DESIGNATOR(S): None

1100 PROGRAM AND TEST INFORMATION

a. Program Information

(1) User: Defense Nuclear Agency.

(2) Sponsor: NR-P, telephone, 678-1622.

(3) Priority: 3.

b. Test Information

(1) User Test Conductor: Major Charles G. Walls.

(2) User Control Point: Admin Park, PHETS, telephone 679-4183.

(3) Range Control Point: Stallion, console 11, telephone 679-4430.

(4) OR Test Designator/OD Comparison

TEST DESIGNATOR	OD	TEST TITLE
None	96320A	4,800 Ton ANFO Event
	96320B	Project Tests
	96320C	Ground Checks

(5) Test Description: A project test to check and/or construct and install systems that will be used on the event will be conducted at the Permanent High Explosive Test Site (PHETS), see map on page 3. No Range support is required other than the exclusive use of the PHETS area.

(6) There are no classified items associated with the test.

1700 TEST ENVELOPE INFORMATION

Airspace Operations: Airspace from ground level to 30K feet MSL, see map on page 3, must be scheduled to ensure aircraft do not penetrate a potentially hazardous area. Airspace will be contained within the box M-O, 62-66.

1800 OPERATIONAL HAZARDS

The operational hazards associated with these tests are specified in STEWS-NR-P Form 1 (Operational Hazards Form) serial numbers MP-1 thru MP-10 dated 4 Feb 87.

NO: 96320B	OPERATIONS DIRECTIVE	REVISION NO:
CDS PARA		OR TEST DESIGNATOR(S): None

2000 TEST OPERATIONAL CONCEPTS/SUMMARIES

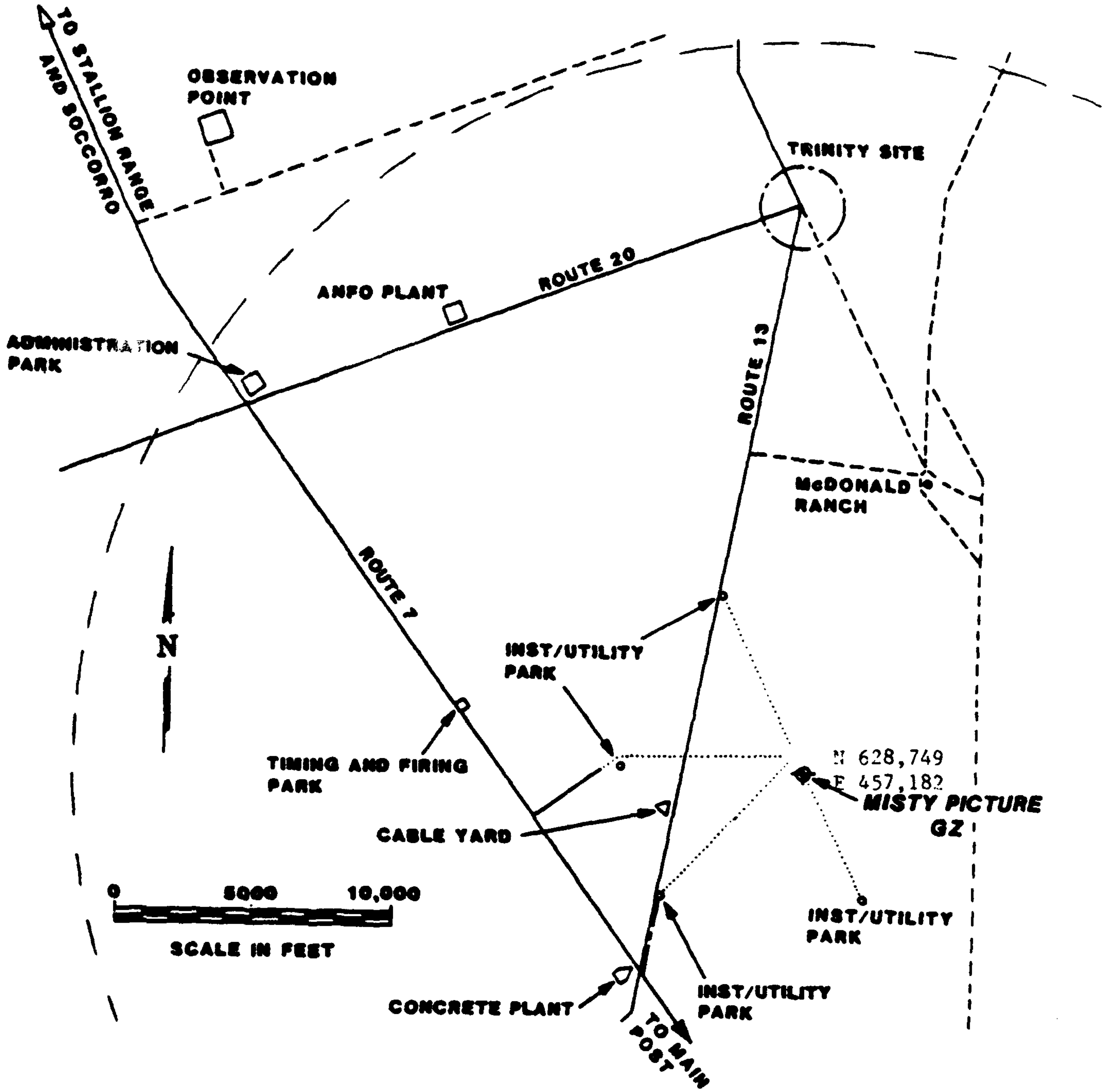
a. Test Events

EVENT NO.	±TIME	EVENT
1	-8CD	User submits schedule request.
2	-1WD	User briefs WSMR support elements.
3	-1Hr	WSMR starts master countdown (MCD). See MCD on page A-1.

b. Ground Safety Operational Concepts/Summaries

Safety SOP No. DNA 4-87 Annex F-1 thru F-14 will cover any operations for this test.

Program: Misty Picture
OD NO.: 96320B



NOTE: 5 mile radius in all directions covers area to be used for project tests.

PERMANENT HIGH EXPLOSIVE TEST SITE

OD NO: 963208	MASTER COUNTDOWN & OPERATION LOG	REVISION NO:	PRIORITY: 3	SERVICE: 0	PAGE 1 OF 1
UDS PARAGRAPH 2000		OR TEST DESIGNATOR(S): None	OPN TITLE: Project Tests		
OPN INDEX:	TEST DATE:	RANGE CONTROLLER:			

EVENT NO	RESP ELEM	EVENT	T±TIME	ACTUAL TIME	STATUS G	STATUS R	REMARKS
		STARTS TEST					
1	NR-CR	Mans Range Control Complex.	-01H 00M				
2	NR-CR	Begins Test.	-00M 00S				
3	NR-CR	Completes Test.	+ H M				
		TEST COMPLETED					

STEWS-NR-P Form 25(Rev) 1 Aug 78   Replaces STEWS-NR-P Form 25, 1 Jul 73, which is obsolete.   STEWS-NR-P SOP 70-10c

Universal Documentation System

MISTY PICTURE

(PROGRAM SHORT TITLE)

Operations Directive

No. 96320C

OD NO. 96320C

OR TEST DESIGNATOR(S)	TEST TITLE
NONE	Ground Checks

The support plan in this OD is based on the capability of the Range to provide support indicated, subject to availability when scheduled.

James P. Kilcrease

NR Project Engineer

678-1622

Telephone No.

FOR THE COMMANDER: James A. Wise

JAMES A. WISE
Technical Director, NR

25Mar87

DATE

THIS DOCUMENT IS CANCELLED WHEN NOT SCHEDULED WITHIN A TWO-YEAR PERIOD

WHITE SANDS MISSILE RANGE
NEW MEXICO

STEWS-NR-P Form 48-R
1 Mar 84

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OD NO: 96320C PARAGRAPH 1020	DISTRIBUTION	REVISION NO: OR TEST DESIGNATOR(S): None

AA	1
AFC	0
HSHM-MHC-PR	1
ASNC-TWS	9
SLCAS-DP	1
IS-G	1
IS-N	1
NR-AO	5
NR-CE	2
NR-CF	1
NR-CR	6
NR-D	6
NR-CS-S	1
NR-CS-R	1
NR-CS-DMA	1
NR-PD	8
NR-PR	1
PL-P	0
SF	1
SD	1

AIR FORCE

AD-RUC	1
6585 TG/RUM Holloman Air Force Base	1
6586 TS/DOS Holloman Air Force Base	0
DET 1, 475 WEG Holloman Air Force Base	0
TE	
NOMTS	0

NO: 96320C	OPERATIONS DIRECTIVE	REVISION NO:
ODS PARA		OR TEST DESIGNATOR(S): None

1100 PROGRAM AND TEST INFORMATION

a. Program Information

(1) User: Defense Nuclear Agency.

(2) Sponsor: NR-P, telephone, 678-1622.

(3) Priority: 3.

b. Test Information

(1) User Test Conductor: Major Charles G. Walls, Field Command.

(2) User Control Point: Admin Park, PHETS, telephone 679-4183.

(3) Range Control Point: Stallion, console 11, telephone 679-4430.

(4) OR Test Designator/OD Comparison

TEST DESIGNATOR	OD	TEST TITLE
None	96320A	4,800 Ton ANFO Event
	96320B	Project Tests
	96320C	Ground Checks

(5) Test Description: Radio timing support for checkout of the diagnostic camera complexes.

(6) There are no classified items associated with the test.

2000 TEST OPERATIONAL CONCEPTS/SUMMARIES

Test Events

EVENT NO.	±TIME	EVENT
1	-8CD	User submits schedule request.
2	-1WD	User briefs WSMR support elements.
3	-1Hr	WSMR starts master countdown (MCD). See MCD on page A-1.

2800 OTHER COMMUNICATIONS

IRIG A & B radio timing will be provided to the diagnostic camera complexes.

OD NO: 96320C	MASTER COUNTDOWN & OPERATION LOG	REVISION NO:	PRIORITY: 3	SERVICE: 0	PAGE 1 OF 1
UDS PARAGRAPH 2000		OR TEST DESIGNATOR(S): None	OPN TITLE: Ground Checks		
OPN INDEX:	TEST DATE:	RANGE CONTROLLER:			

EVENT NO	RESP ELEM	EVENT	T±TIME	ACTUAL TIME	STATUS G	STATUS R	REMARKS
		STARTS TEST					
1	NR-CR	Mans Range Control Complex.	-01H 00M				
2	NR-CR	Begins Test.	-00M 00S				
3	NR-CR	Completes Test.	+ H M				
		TEST COMPLETED					

STEWS-NR-P Form 25(Rev)
1 Aug 78
Replaces STEWS-NR-P Form 25, 1 Jul 73, which is obsolete.
STEWS-NR-P SOP 70-10c

APPENDIX C

FINDING OF NO SIGNIFICANT IMPACT

By

T. A. Almstedt, Jr., Rear Admiral, USN
HQDNA

and

Commander, US Army
White Sands Missile Range, NM

FINDING OF NO SIGNIFICANT IMPACT

1. NAME OF PROPOSED ACTION

MISTY PICTURE High-Explosive Test

2. DESCRIPTION OF PROPOSED ACTION

Field Command, Defense Nuclear Agency, proposes to conduct a high explosive test program 3.5 miles south of the Trinity Complex, White Sands Missile Range (WSMR), New Mexico to record blast and shock phenomena; record damage to weapons, shelters, and systems; record effects of combined blast and thermal phenomena; and increase the weapons effects data base. The proposed plan is to detonate a charge of 4880 tons of Ammonium Nitrate Fuel Oil (ANFO). It would roughly simulate the blast and shock from an 8 KT nuclear surface burst. The planned ground zero (GZ) is within a few hundred meters of several smaller scale detonations in 1981, 1982, 1983, 1984, and 1985.

Following the test the rubble will be removed, temporary structures and recoverable cabling will be salvaged and removed, and the crater filled. Alternate locations were considered, but, were discarded because of the availability of the required geologic characteristics at WSMR. Further, the proposed site is remote from population centers and is located on a national range dedicated to large scale testing.

3. ANTICIPATED ENVIRONMENTAL EFFECTS

The proposed construction of the experiments and the test bed will result in the temporary disturbance of about 480 acres of land. The effects of the explosion include airblast, thermal, noise, ground shock, crater formation, ejecta, missiles, and chemical by-products. Airblast dominates the other explosive phenomena. Damage or destruction of plants and animals (mostly rodents and lizards) can be expected within 1400 meters of GZ. Ground level dust and other air pollutants from the diffusion of the explosion cloud will be well within the most restrictive air quality standards. No endangered species will be affected by the program. Known archaeological sites will not be affected.

4. FINDING AND CONCLUSION

The proposed action will not significantly affect the quality of the human environment and is not controversial. Therefore, an Environmental Impact Statement will not be prepared for the proposed action.

FOR THE DIRECTOR:

T. A. ALMSTEDT, JR.
Rear Admiral, USN
Deputy Director
(Operations and Administration)

U.S. ARMY WHITE SANDS MISSILE RANGE
NOTICE OF A FINDING OF NO SIGNIFICANT IMPACT
OF THE
MISTY PICTURE HIGH EXPLOSIVE TEST
WHITE SANDS MISSILE RANGE, NEW MEXICO

TO ALL INTERESTED AGENCIES, GROUPS, AND PERSONS:

DESCRIPTION OF PROPOSED ACTION:

MISTY PICTURE is a large-scale, high-explosive field test proposed by the Defense Nuclear Agency (DNA). The basic purpose of MISTY PICTURE is to expose shelters, military systems, and equipment to blast, shock, and thermal phenomena. The data obtained will be used to evaluate the survivability of U.S. and other NATO equipment. Preparation of the test site will include installation of experiments, instrumentation bunkers and cabling, an administration area and a Timing and Firing park. A high explosive charge of 4880 tons of ammonium nitrate and fuel oil will be assembled at Ground Zero (GZ) and experiments emplaced at varying distances around it. Preparation of the test site is expected to begin in October 1986.

ALTERNATIVES CONSIDERED:

The proposed test site is in the northern portion of White Sands Missile Range (WSMR), a National Range in New Mexico. Use of WSMR is preferred because it has adequate space, it is near Field Command, DNA (FCDNA), it has the resources needed to support a large field test, and working relationship between FCDNA and WSMR have been established from several large high explosives tests that have been conducted since 1976 near the proposed site. The selected ground zero (GZ) location is desired because it is located on the DNA Permanent High Explosive Test Site (PHETS) where a substantial investment in test bed facilities and equipment has been made. There is no reason to believe that conducting the proposed test in another area, if feasible, would result in less environmental impact. Need for survivability information which can be obtained from this test overrides the no action alternate.

AFFECTED ENVIRONMENT:

The detonation of the charge, which is approximately equivalent to 4000 tons of TNT is planned for May 1987. It is estimated that not more than 500 acres will be disturbed by construction activities. Following test execution the area will be cleaned up and the excavations filled. Cleanup should be completed by October 1987.

The proposed test site is approximately 22 km from the nearest boundary of WSMR. This is primarily desert grassland and creosote bush with fair forage characteristics. For undisturbed grasslands up to 1000 small mammals (mostly rats and mice), 140 birds, and 4800-6000 reptiles (mostly whiptail lizards) would normally occupy approximately 500 acres. However, there have been three tests between November 1984 and June 1985 requiring almost continuous construction. It is probable that present wildlife numbers are somewhat less than those above.

The test area is within the boundaries of the Trinity National Landmark. Ground Zero is several miles from significant historic features, and about 2 miles from restored McDonald Ranch headquarters. Archeological sites in affected areas have been identified and collected or will be avoided.

ENVIRONMENTAL CONSEQUENCES:

The environmental effects of the construction activities are not significantly adverse. Less than 500 acres of soils and vegetation (cresote bush, mesquite and grassland) will be affected and effect should be temporary and reversible. No endangered species will be affected by the construction activities. Humans should not be disturbed in any manner because the nearest range boundary is 22 km from the site. The communities from Albuquerque to El Paso will benefit economically from the test associated activities.

The only possible significant adverse effects from the test execution would be from the explosion phenomena. Ground-level concentrations of dust and air pollutants from the explosion cloud will not exceed the most stringent air-quality standards. Animals and vegetation within 1158 meters of GZ might be injured by airblast, but many will have already been displaced by prior tests and construction activities. Window damage and excessive noise in civilian population centers is unlikely. Meteorological conditions will be monitored before detonating the charge so that conditions that amplify the blast toward population centers can be detected and avoided. Noise levels that might cause ear injury will be entirely within WSMR where exposed personnel will be protected.

One endangered species, the peregrine falcon, may nest along the west cliffs of the Oscura Mountains some 17 km distance. The U.S. Fish and Wildlife Service has indicated there should be minimal, if any, effects if falcons are nesting, if tests are conducted after May 13th.

A structural analysis of the McDonald Ranch House has been conducted for determining probability of structural damage from blast overpressures. Structures and portions of structures which exist today at McDonald Ranch survived the Trinity nuclear test and the MINOR SCALE HE test in 1985 that had peak incident overpressures of about 9 kPa and 4.8 kPa respectively. However, additional bracing of the south wall is planned on approval of National Park Service restoration specialists to further ensure no structural damage occurs. Cosmetic damage, if it occurs, will be repaired by methods approved by NPS.

There is no reason to expect that MISTY PICTURE test will be environmentally controversial.

CONCLUSION:

The proposed MISTY PICTURE test will not significantly impact the human environment. Construction activities will result in minor impact on soils and vegetation. Test operations will further disturb soil surfaces and wildlife in the immediate area around GZ. The blast will result in short-term localized degrading of air quality. No long-term affect should occur.

All interested agencies, groups, and persons are invited to submit written comments for consideration by the Commander, WSMR, within 15 days of this notice. A copy of the Environmental Assessment is available for public reading at Building 1740, White Sands Missile Range, New Mexico. Address all correspondence in reference to this notice to:

Commander
U.S. Army White Sands Missile Range
ATTN: STEWS-IS (Colonel Howell)
White Sands Missile Range, NM 88002-5076

APPENDIX D

PUBLIC AFFAIRS PLAN

PUBLIC AFFAIRS PLAN
for
MISTY PICTURE

1. SITUATION:

a. MISTY PICTURE is a Department of Defense (DoD) high explosive (HE) test sponsored by the Defense Nuclear Agency (DNA) and conducted by Field Command, DNA (FCDNA). The test objectives are to:

(1) Provide an airblast and ground shock environment for DoD weapon systems, communication equipment, aircraft, vehicles, and a variety of structures.

(2) Provide a thermal environment for selected experiments.

(3) Record airblast, ground shock, and dust phenomenologies.

(4) Record damage to DoD-sponsored experiments.

(5) Record combined thermal/blast effects.

(6) Increase weapons effects database.

b. MISTY PICTURE will consist of a testbed array surrounding an explosive charge. The charge will consist of a 4,880 ton mixture of ammonium nitrate and fuel oil (ANFO) placed in a hemispherical container at ground level. There will be approximately 200 experiments on the testbed, sponsored by ten US agencies and four foreign governments.

c. MISTY PICTURE will be conducted at the Permanent High Explosive Test Site (PHETS) which is in the northern portion of White Sands Missile Range (WSMR), NM, about 18 miles south of Stallion Range Center (SRC). The nearest communities are San Antonio, NM to the northwest, and Three Rivers, NM to the southeast. Each is about 30 miles distant with a very small population. Socorro, NM, with a population of about 9,000, is about 40 miles to the northwest and Carrizozo, NM, with a population of about 4,000, is 40 miles to the east.

2. SCOPE: This plan is applicable to all DoD agencies and activities participating in or supporting the MISTY PICTURE test program.

3. OBJECTIVES: To gain public understanding of the need for the test and to allay possible public alarm in connection with the MISTY PICTURE test.

4. PURPOSE: To announce policies, objectives, responsibilities, and provide guidance for the conduct of public affairs activities in connection with the MISTY PICTURE test program.

5. EXECUTION:

a. Concept of Operations:

(1) Since a number of government agencies and government-sponsored companies will be involved in MISTY PICTURE, close coordination and cooperation among the commands and agencies will be required to assure the success of the public affairs effort.

(2) The Commanding General of WSMR is responsible for public affairs and community relations activities that are designed to achieve public understanding and support for the MISTY PICTURE test program. Release of information on the scheduling, postponement, completion, success, or failure of any particular test or project phase will be coordinated with the Range Commander's representative (Public Affairs Officer, WSMR). The WSMR Public Affairs Office (PAO) will release information in coordination with Headquarters, DNA (HQDNA). Coordination will be effected through the Test Group Director (TGD), FCDNA, to HQDNA.

(3) The WSMR commander will be solely responsible for the release of information concerning matters involving mishaps or matter pertaining to ground safety on WSMR. DNA will provide information and assistance concerning any mishaps relating to MISTY PICTURE to the WSMR Commander. The above requirement stems from a DoD directive which states, in part, "The release of public information regarding the safety aspects of (testing) operations requires special attention. The possible hazards and margins of safety are matters of public concern. It is essential, therefore, that such information be released to the public by the single source that is most knowledgeable."

b. Plan of Operation:

(1) The WSMR commander will ensure, for public affairs purposes, there is a continuous liaison between WSMR and the MISTY PICTURE TGD so that maximum informational support, within the capabilities of the WSMR PAO, can be provided.

(2) The WSMR PAO will ensure the continuation of public information and community relations programs designed to allay public apprehension associated with hazards and margins of safety during all phases of MISTY PICTURE.

(3) Based on past experience with similar projects, the public affairs effort will consist of a series of news releases and announcements describing various phases of the test program, monitoring public attitudes, and answering press queries. If requested, WSMR PAO personnel, with FCDNA representation, will conduct

face-to-face discussions with community leaders and media representatives prior to the event.

(4) It is essential that timely announcements be made to the press prior to and following the test in order to avoid public speculation and apprehension. Pre-test announcements (See Paragraph 7) will be made, as required, to meet news media deadlines. The WSMR PAO will coordinate all releases of information as specified in Paragraph 5.a.(2).

(5) Press announcements detailing mishaps or serious injuries to project personnel will be made by the WSMR PAO as soon as possible following the incident and in accordance with current directives. A sample news release describing such an oocurrence is not provided because of the many variables which could occur.

(6) News media may attend the event but will not be allowed to photograph it. Videotape and still photography support will be provided to the new media. Specifically, WSMR PAO will provide a videotape and still photographs of the preparation for MISTY PICTURE, the detonation, and post-shot dust cloud activities. WSMR PAO will coordinate with HQDNA PAO as to the content of the videotape and the black and white still photographs. Videotape and still photographs will be available for release to the media within two hours after detonation. HQDNA PAO and WSMR PAO will approve any material released to the media. (A Press Conference will be held at the Stallion Range Center after the event.) Project officials from HQDNA will be available to answer media questions. One copy of the material released to the media will be sent to OASD(PA) by express mail or other overnight deliver service.

(7) Personal cameras and binoculars will not be allowed on the range to view the event for reasons of security.

(8) The test will not be open for public viewing. Attendance at the observation point on shot day will be by invitation only. Invitations will be coordinated by FCDNA.

(9) Color photography of the shot and at least one testbed experiment (both pre- and post-shot) will be available for the press within 48 hours.

6. COORDINATION: Direct communication is authorized between WSMR PAO and the MISTY PICTURE TGD on matters concerning technical information, the success or failure of the test, or scheduling. Release approval, content of releases and coordination among WSMR, FCDNA, and HQDNA will be handled as described in Paragraphy 5.a.(2).

7. ENCLOSURES: The following enclosures are intended as models for the release of information under the circumstances indicated:

Enclosure 1 -- Initial test announcement, to be released as soon as the PA plan is approved.

Enclosure 2 -- Additional pre-test announcement, to be released about one week before the explosion with an approved photograph showing test preparations.

Enclosure 3 -- Announcement of successful test, to be released within two hours of the event with an approved photograph and videotape of the explosion.

Enclosure 4 -- Announcement of unsuccessful test.

INITIAL PRE-TEST ANNOUNCEMENT

(To be released as soon as Public Affairs Plan is approved)

WHITE SANDS MISSILE RANGE, NM (DATE) -- Preparations for a large high explosive test are underway in the northern portion of White Sands Missile Range.

The test, known as MISTY PICTURE, is scheduled for May 1987. It involves the detonation of 4,880 tons of ammonium nitrate and fuel oil (ANFO). The ANFO will be placed in a 88-foot diameter hemispherical container at ground level.

The purpose of MISTY PICTURE is to expose military hardware, vehicles, and structures to an airblast and ground shock environment. Test officials said there should be approximately 200 experiments, sponsored by ten US agencies and four foreign governments, on the testbed.

The program is sponsored by the Defense Nuclear Agency (DNA) with Field Command, DNA conducting the test.

The test site is about 40 miles west of Carrizozo, NM, and 40 miles southeast of Socorro, NM. An environmental assessment has determined there will be no significant environmental effects from the test.

Army Major Charles G. Walls of Field Command, DNA, is the Test Group Director. The WSMR project sponsor for MISTY PICTURE is Lee Meadows of the National Range Operations Directorate.

Encl 1

SECOND PRE-TEST ANNOUNCEMENT

(To be released about seven days before the explosion with cleared/approved photograph of testbed preparations.)

(WSMR PAO will need 40 each black and white 8 x 10 photographs)

WHITE SANDS MISSILE RANGE, NM (DATE) -- Crews are completing the loading of 4,880 tons of a mixture of ammonium nitrate and fuel oil (ANFO) into an 88-foot diameter hemispherical container in preparation for next week's MISTY PICTURE test.

The purpose of MISTY PICTURE is to expose military hardware, vehicles, and structures to an airblast and ground shock environment. There will be approximately 200 experiments, sponsored by ten US agencies and four foreign governments, on the testbed.

The test site is in the northern portion of the missile range, about 40 miles west of Carrizozo, NM, and 40 miles southeast of Socorro, NM. An environmental assessment has determined there will be no significant environmental effects from the test.

MISTY PICTURE is sponsored by the Defense Nuclear Agency (DNA) with Field Command, DNA conducting the test. Army Major Charles G. Walls is the Test Group Director. The WSMR project sponsor for MISTY PICTURE is Lee Meadows of the National Range Operations Directorate.

SUCCESSFUL TEST

(To be released with approved videotape with sound and black and white still photographs of the explosion)

(WSMR PAO needs seven each 60- to 90-second videotapes and 40 each 8 x 10 black and white still photographs to accompany the release.)

WHITE SANDS MISSILE RANGE, NM (DATE) -- The Defense Nuclear Agency (DNA) successfully detonated a 4,880 ton high explosive charge in the northern portion of White Sands Missile Range today at (TIME).

The test, called MISTY PICTURE, was one of the largest high explosive tests ever conducted in the free world. The purpose of the test was to expose military hardware, vehicles, and structures to an airblast and ground shock environment. Approximately 200 experiments, sponsored by ten US agencies and four foreign governments, were on the testbed.

Army Major Charles G. Walls, Test Group Director for Field Command, DNA, said the event was a success. However, the effect of the explosion on the test objects will not be known until sponsoring officials can examine their experiments.

ANNOUNCEMENT OF UNSUCCESSFUL TEST

WHITE SANDS MISSILE RANGE, NM (DATE) -- A Defense Nuclear Agency (DNA) high explosive detonation, designed to provide an airblast and ground shock environment for experiments on the testbed, was termed unsuccessful today by officials of the MISTY PICTURE program at WSMR.

WSMR officials said there were no personal injuries or property damage associated with today's test failure.

Army Major Charles G. Walls, DNA Test Group Director, said the test was determined unsuccessful because (brief outline of reason).

Officials have begun a detailed, on-site investigation to determine the reasons for the failure.

QUESTIONS AND ANSWERS

1. Q: Why is photography not allowed?

A: Individual or press photography is not allowed in the testbed area because of the numerous classified experiments being fielded on the event.

2. Q: How much will the MISTY PICTURE program cost? How much of that is for Ammonium Nitrate Fuel Oil (ANFO)?

A: The cost to prepare the testbed and provide diagnostics, instrumentation, and logistical support will be approximately $14 million. The cost to test and evaluate the approximately 200 experiments is estimated at $7 million. ANFO will cost $0.9 million.

3. Q: What type of experiments will be on the testbed?

A: Experiments on MISTY PICTURE range from the measurement of air and ground shock waves caused by the blast to recording and documenting the blast and thermal effects on different types of shelters, buildings, antenna systems, military equipment, protective clothing, and equipment placed on anthropomorphic mannequins. Pictures of experiments will be displayed at the Observation Post.

4. Q: Is this test aligned with any particular tactical or strategic scenario?

A: No. The test is merely designed to closely approximate the expected battlefield environment for the test objects.

5. Q: Which foreign nations are involved with the test?

A: The United Kingdom, Canada, Norway, and Sweden will have experiments on the test.

6. Q: How much TNT is 4,880 tons of ANFO comparable to?

A: 4,880 tons of ANFO is equivalent to 4,000 tons of TNT.

7. Q: What size nuclear explosion is MISTY PICTURE comparable to?

A: MISTY PICTURE is designed to simulate the air blast effect from an eight kiloton nuclear detonation.

8. Q: Why do you use ANFO?

A: ANFO is used because it is currently the most cost effective explosive available and it is also very safe to handle. Research programs are underway to determine if a more suitable and cost effective explosive can be developed.

9. Q: Is ANFO harmful to the environment? How do you return to pre-test conditions?

A: No. Upon detonation, all ANFO is consumed, leaving no residue. After salvagable test articles and other materials are removed from the testbed, all debris is picked up and put in a sanitary landfill.

10. Q: What is being done to safeguard the wildlife in the test area?

A: The general level of testbed activity and small weather characterization detonations leading up to the event day tend to keep wildlife out of the immediate area. Consideration is also being given to using a low-flying helicopter to run any remaining wildlife out of the area on event day.

QUESTIONS AND ANSWERS (Continued).

11. Q: How do you get 4,880 tons of ANFO to explode all at once? Can it happen accidentally?

A: A 320 pound octal booster is centered at the bottom of the ANFO to uniformly ignite it. The chance of an accidental detonation of the ANFO is extremely remote.

12. Q: How many simulated nuclear explosions have been conducted at White Sands Missile Range (WSMR), NM?

A: The Defense Nuclear Agency (DNA) has conducted four previous nuclear simulation tests at WSMR: DICE THROW in 1976, MILL RACE in 1981, DIRECT COURSE in 1983, and MINOR SCALE in 1985.

13. Q: Have you scheduled more tests like this for WSMR?

A: Yes, more tests are currently scheduled to be conducted at WSMR.

14. Q: Why did you establish the Permanent High Explosive Test Site (PHETS) at WSMR?

A: The PHETS was established at WSMR to provide a cost effective, reusable high explosive test facility.

15. Q: Can we go down to see the testbed either before or after the explosion?

A: No, the testbed will be closed the day before execution because of final test preparations. Post-test observations will not be allowed due to safety and security considerations.

Encl 5

QUESTIONS AND ANSWERS (Continued).

16. Q: What will the size of the crater be?

A: The crater is predicted to be 300 to 350 feet in diameter and 66 to 84 feet deep.

17. Q: How far away will the blast be heard?

A: Atmospheric conditions greatly affect how far and where the blast will be heard. On MILL RACE, for example, the blast was heard several hundred miles away. Towns adjacent to WSMR will likely hear the blast.

18. Q: How is a test like this related to nuclear weapons?

A: A high explosive test simulates the air blast while the Thermal Radiation Source (TRS) simulates the thermal radiation generated by a nuclear weapon.

19. Q: How long before we hear the blast and feel the shockwave at the Observation Point?

A: 25 seconds. The Observation Post will be approximately 5 miles from ground zero and sound travels 1,060 feet per second.

20. Q: What is ANFO?

A: ANFO is an acronym which stands for Ammonium Nitrate Fuel Oil. It is an explosive composed of Ammonium Nitrate (Fertilizer) containing 6 percent fuel oil.

21. Q: Why is MISTY PICTURE scheduled for the Spring and not the Fall?

A: A test has been scheduled for May 1987 to minimize the chance of lightning affecting testbed equipment such as recording gauges. Lightning storms occur more frequently in the July - October time frame.

QUESTIONS AND ANSWERS (Continued).

22. Q: Why is the test called MISTY PICTURE?

A: The test name MISTY PICTURE has no special significance.

23. Q: Why is MISTY PICTURE the same size as MINOR SCALE? Will future tests continue to be the same size?

A: Future tests are not projected to get bigger than MISTY PICTURE. MISTY PICTURE was planned to provide a realistic battlefield environment for test objects on the event.

24. Q: How many jobs will this test generate for the local community?

A: This test will generate in excess of 100 temporary jobs.

25. Q: How does MISTY PICTURE compare to the initial test performed at Trinity Site?

A: The airblast environment created on MISTY PICTURE will be approximately equal in magnitude to half that of the Trinity Site test.

26. Q: In the event of property damage, what procedures must be followed in submitting a claim? Who pays for the repairs?

A: The Environmental Assessment prepared for this test indicates that there is a low probability of any off range property damage. Individuals who believe that MISTY PICTURE may have caused property damage should contact the WSMR Public Affairs Office (PAO).

QUESTIONS AND ANSWERS (Concluded).

27. Q: Could the MISTY PICTURE explosion have any effect on the Rio Grande Valley fault line?

A: No.

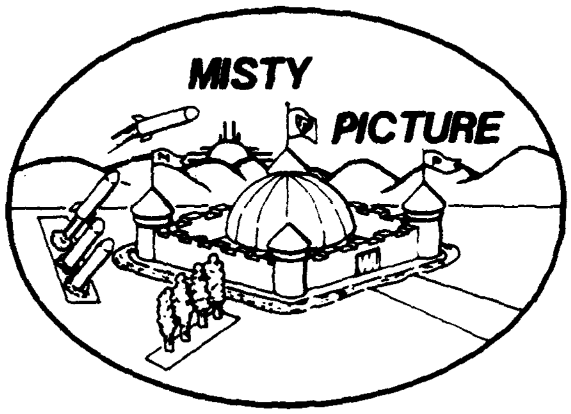
28. Q: What is being done to protect McDonald Ranch House?

A: Several independent structural analyses have been performed on the Ranch House and procedures to protect the National Landmark from blast effects have been proposed. These procedures include structural reinforcement.

APPENDIX E

INFORMATION BROCHURE

Information Brochure



Test Directorate
Field Command
Defense Nuclear Agency
Kirtland AFB, NM

INTRODUCTION

MISTY PICTURE is the fourth test in the MISTY CASTLE series of large-scale High Explosive (HE) tests sponsored by the Defense Nuclear Agency (DNA). Event execution is currently scheduled for 14 May 1987. The explosive charge will consist of 4,880 tons of an Ammonium Nitrate and Fuel Oil (ANFO) mixture loaded in bulk into a 44-foot radius fiberglass hemisphere. Detonation of this charge will provide an airblast and ground motion environment which will be used by numerous agencies to collect basic explosive environmental data and to test a variety of systems and equipment in a simulated nuclear environment. The resulting overpressure from the detonation will simulate the approximate equivalent airblast of an 8 kiloton nuclear device.

OBJECTIVES

MISTY PICTURE is sponsored by the Defense Nuclear Agency (DNA), with Field Command, DNA (FCDNA) being tasked with executing the event. The primary objective of the test is to provide an airblast and ground shock environment for DoD-sponsored experiments. These experiments are designed to determine the response of tactical and strategic weapon systems, communications equipment, vehicles and a variety of structures to a simulated nuclear environment. A secondary objective is to provide a thermal environment (in conjunction with the airblast) for specific experiments. A third objective is to provide a simulated nuclear precursor environment in support of the Air Force Hardened Mobile Launcher (HML) program.

EVENT DESCRIPTION

The test will be conducted at the Permanent High Explosive Test Site (PHETS) on White Sands Missile Range (WSMR), approximately 20 miles (30 KM) south of the Northern Range boundary (see Figures 1 and 2). Ground Zero (GZ) is approximately 500 feet south-southeast from the GZ used for the June 1985 MINOR SCALE event, as shown in Figure 2. This location allows for the reuse of nearby roads and instrumentation parks/radials.

The Timing and Firing (T & F) Park, where the T & F trailer and several other manned instrumentation vans are located, is about 11,000 feet west of GZ.

The Administrative Park for MISTY PICTURE is located on the northeast corner of the intersection of Route 7 and Route 20, approximately 24,000 feet from GZ.

The Observation Point for MISTY PICTURE is approximately 1.6 miles north of the Administrative Park. The ANFO mixing plant is approximately 2 miles east of the Administrative Park.

The MISTY PICTURE testbed consists of four instrumented radials, one instrumentation park, 11 instrumentation bunkers, a T & F park, and an administrative park. Approximately 170 experiments will be located on the testbed (See Figure 3 for testbed layout). MISTY PICTURE requires the services of over 400 personnel: skilled construction workers, technicians, program managers and scientific personnel with a wide range of expertise. Instrumentation on the testbed will consist of:

Active and passive gauges	2,040
Recording channels	2,040
Recording cable (miles)	558
External experiment response cameras	193
Internal experiment response cameras	23
Aircraft mounted cameras	37

Participation was open to all Department of Defense (DoD) and government agencies, plus several foreign countries. Experiment selection screening was conducted by a DNA Technical Review Committee in March 1985. Agencies with approved experiments have gone through an experiment definition and planning process with FCDNA in order to locate experiments where they will experience the desired test environment.

In addition to the experiments associated with the airblast environment, a series of experiments will be conducted to measure the effects of a simulated nuclear precursor environment. The thermal flash from a nuclear device heats the ground and the surface air near tha detonation, thus creating a less dense thermal air layer near the ground. The blast wave travels faster through the heated surface air and creates a precursor to the shock wave near the surface. This thermal precursor layer, which is characteristic only to nuclear detonations, can be simulated by providing a thin surface layer of helium gas close to the ground at the time of detonation. Since pressure waves advance faster in helium than in air, the shockwave will move faster and create a simulated nuclear precursor.

Another series of experiments will be placed near units known as Thermal Radiation Sources (TRS). This is done to test selected equipment to a combined airblast and thermal environment. A TRS unit consists of a linear array of four upward-directed nozzles, each of which produces a flame approximately two meters in diameter and six meters high. The radiant heat is produced by a chemical reaction between liquid oxygen and aluminum powder. Each nozzle directs 5 liters per second of liquid oxygen and 5 kilograms per second of aluminum powder into the air. When ignited, the resulting chemical reaction releases about 50 megawatts of radiant heat (this equals approximately 2727 degrees Centigrade). Seven TRS units will be placed at various overpressures on the MISTY PICTURE testbed. The four nozzles will be spaced to provide specific heat environments for the individual experiments, ranging from about 10 to 40 calories/sec/cm. TRS units were used on the three previous MISTY CASTLE series events—MILL RACE, DIRECT COURSE and MINOR SCALE.

PERSONNEL

FIELD COMMAND, DEFENSE NUCLEAR AGENCY

BG P.F. Kavanaugh, USA, Commanding
Col B.E. Holder, USAF, Deputy Commander
Col J.W. Boyce Jr., USAF, Director, Test Directorate

MAJ Greg Walls, USA	Test Group Director
Capt Tom Lutton, USAF	Technical Director
CPT Gregg Brumburgh, USA	Technical Director (TRS)
LCDR Roger Smith, USN	Safety Officer
LT Daniel Lehr, CEC, USN	Program Director (Precursor/TRS)
LT Kenneth Fladager, USN	Program Director
CPT Jim Sauer, USA	Program Director
CPT Michael Patterson, USA	Asst. Test Group Engineer
1Lt Steve Crawford, USAF	Test Group Engineer
SFC Donald Cook, USA	Construction Coordinator
Mr. Dwight Simpson, DoD Civ	Program Analyst
Mr. Charlie Montoya, DoD Civ	Asst. Program Analyst
Mr. George Lu, DoD Civ	Instrumentation Engineer
Mr. Jim Mathews, Civ	Cable Coordinator
Mr. Emery Prather, DoD Civ	Photo Technologist
MSgt Michael Yoas, USAF	TRS NCO
SSgt Danny Burns, USAF	Administration NCO
SSgt Ernesto Tagle, USAF	Administration NCOIC

HEADQUARTERS, DEFENSE NUCLEAR AGENCY

LTC Donald Anderson, USA	Project Officer
MAJ Jim Taylor, USA	Project Officer

ABERDEEN RESEARCH CENTER, APG

Mr. John Keefer, Civ	Technical Advisor

WHITE SANDS MISSILE RANGE

Mr. Lee Meadows, DAC	Program Sponsor
Mr. Jim Kilcrease, DAC	Project Engineer

FIELDING SUPPORT AGENCIES

Air Force Weapons Laboratory	Charge Diagnostics Airblast Predictions
Atmospheric Sciences Laboratory	Meteorology
Ballistic Research Laboratory	Free Field Airblast Data Recording Airblast Predictions
Bendix Field Engineering Corp.	Timing and Firing Cable Coordination Data Recording Thermal Radiation Source
Gracon, Inc.	Helium Flow/Control System
Molded Fiberglass	Charge Container
Naval Surface Weapons Center	Main Booster Assembly ANFO Quality Control
New Mexico Engineering Research Institute	ANFO Loading Container Design
Sandia National Laboratories	Booster Initiation System Far Field Blast Monitoring Meteorology
Science Applications International Corp.	Thermal Radiation Source
Sheldahl, Inc.	Mylar Envelope
Technical Reports, Inc.	Technical Documentation Engineering Services
Waterways Experiment Station	Free Field Ground Motion
White Sands Missile Range	Photography Security Construction Ground/Flight Safety Logistics Support Public Affairs
Woodard Explosives	Ammonium Nitrate/Fuel Oil
US Marine Corps 3rd Air Wing	Aerial Photography

EXPERIMENTERS AND CONTRACTOR SUPPORT

Aberdeen Research Center (ARC)

Aerospace Corporation (AC)

Applied Research Associates (ARA)

Autometric, Inc

Bendix Field Engineering Corp (BFEC)

Boeing Aerospace Company

Bureau of Mines

California Research & Technology, Inc (CRT)

Carpenter Research Corporation (CRC)

Denver Research Institute (DRI)

Federal Emergency Management Agency (FEMA)

Headquarters, Defense Nuclear Agency (HQDNA)

H-Tech Laboratories (H-TECH)

Information Science, Inc. (ISI)

Kaman Tempo

Los Alamos National Laboratory (LANL)

Los Alamos Technical Associates (LATA)

Martin Marietta Corp (MMC)

Mission Research Corp. (MRC)

Mitre Corp

National Aeronautical and Space Administration (NASA)

Particle Measuring Systems (PMS)

Patel Engineering, Inc.

PDA Engineering

Physical Research, Inc. (PRI)

Purdue University

Research & Development Associates (RDA)

Science Applications International Corp. (SAIC)

S-Cubed

Tera, New Mexico Institute of Mining and Technology (NMINT)

Tech Reps, Inc. (TRI)

Texas Tech University (TTU)

TRW Space & Technology Group (TRW)

U S Air Force Ballistic Missile Office (BMO)

U S Air Force Eastern Space and Missile Center (ESMC)

U S Air Force Geophysics Laboratory (AFGL)

U S Air Force Strategic Air Command (SAC)

U S Air Force Tactical Applications Center (TAC)

U S Air Force Weapons Laboratory (AFWL)

U S Army Ballistic Research Laboratory (BRL)

U.S. Army Engineer Waterways Experiment Station (WES)

U S Army Harry Diamond Laboratory (HDL)

U.S. Army Natick Research and Development Center (Natick)

U.S. Army Nuclear and Chemical Agency (USANCA)

U.S Army White Sands Missile Range (WSMR)

U.S. Naval Research Laboratory (NRL)

U.S. Navy Naval Surface Weapons Center (NSWC)

U.S. Navy Naval Weapons Evaluation Facility (NWEF)

U.S Geological Survey

University of New Mexico Engineering and Research Institute (NMERI)

Washington Research Center (WRC)

FOREIGN GOVERNMENT PARTICIPATION

Canada

Norway

Sweden

United Kingdom

MILESTONES

Experiment Proposal Review	4-6 Mar 1985
First Project Officer Meeting	22-26 Jul 1985
Second Project Officer Meeting	16-20 Sep 1985
Test Bed Construction Begins	Jun 1986
Third Project Officer Meeting	16-24 Jun 1986
Fourth Project Officer Meeting	14-17 Oct 1986
Experiment Installation	Jul 86-Apr 1987
BETS III Installation	Feb-Mar 1987
TRS Installation	Jan-Mar 1987
BETS III	24-27 Mar 1987
Mandatory Full Participation #1	29 Apr 1987
Mandatory Full Participation #2	7 May 1987
Dress Rehearsal	11 May 1987
MISTY PICTURE Readiness	14 May 1987
D + 60 Meeting	Jul 1987
Results Symposium	Dec 1987

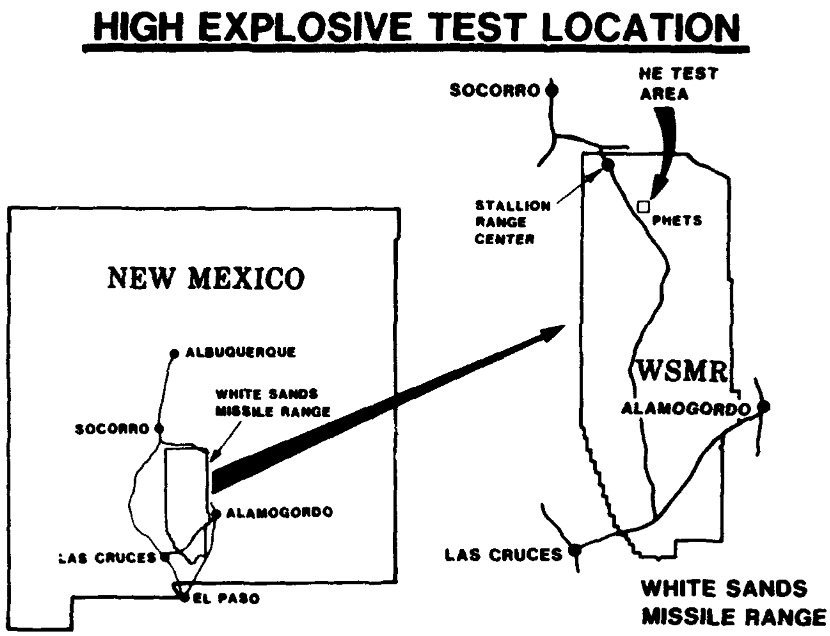


FIGURE 1. PHETS LOCATION

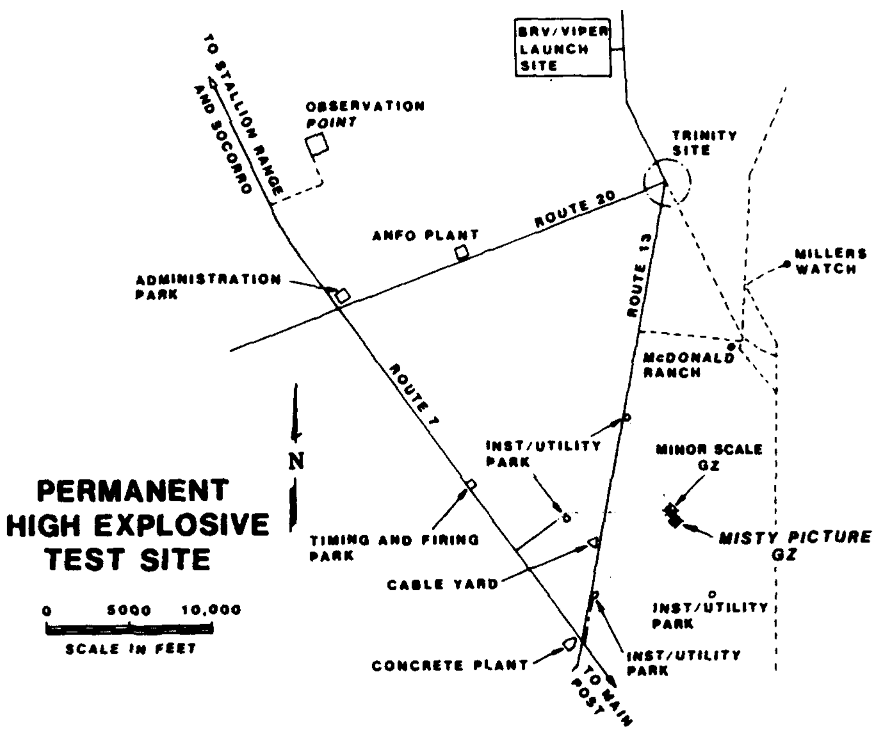


FIGURE 2. PHETS AREA WITH GZ SHOWN

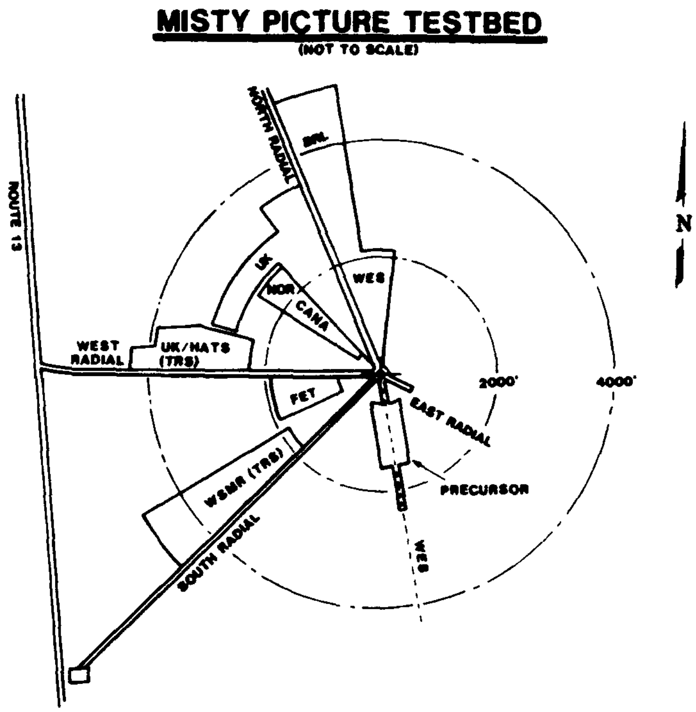


FIGURE 3. TESTBED LAYOUT

APPENDIX F

MISTY PICTURE ENGINEERING DRAWING LIST

DRAWING REVISION LIST DATE: 22 APR 87

DRAWING NUMBER	SHEET NUMBER	REVISION	DATE	TITLE	C C	T R I	G Z	E N G	A D M	S U R
0503	1-1	0	02/10/87	DPR EXP/CABLE LAYOUT	X	X	X	X	X	X
0505	1-1	0	04/16/87	DNA EXP AIRBLAST GAGES LAYOUT	X	X	X	X	X	X
1010	1-1	0	04/22/87	ARMY EXP 1010/14/15 CAN 7550	X	X	X	X	X	X
1300	1-1	0	02/23/87	WSMR, NSWC, SITE PLAN	X	X	X	X	X	X
1600	1-1	0	02/18/87	WES ENTRY SHAFT SITE/EXCAV	X	X	X	X	X	X
1635	1-1	0	02/18/87	WES STL BLAST SHELTER PLAN	X	X	X	X	X	X
2200	6-6	0	04/14/87	BRL EXP ANCHOR & GUY DETAILS	X	X	X	X	X	X
2126	1-1	0	03/18/87	BRL EXP 29/30/36/44/55/70 SITE	X	X	X	X	X	X
3400	2-3	0	04/15/87	BMO BOEING RESPONSE MODELS PLAN	X	X	X	X	X	X
3600	1-1	0	03/10/87	ESMC GLASS BREAKAGE EXP SITE	X	X		X	X	X
4015	1-1	0	03/17/87	NSWC EXP FOUNDATION PLAN	X	X	X	X	X	X
4100	1-1	0	03/02/87	NWEF SITE EXP SITE PLAN	X	X	X	X	X	X
4110	4-4	0	04/01/87	NWEF SUPPORT BEAM DETAIL	X	X	X	X	X	X
4200	1-1	0	03/17/87	NRL SINGLE & DOUBLE SUPPORT	X	X	X	X	X	X
5500	1-1	0	04/15 87	ORNL EXP LAYOUT & EXCAVATION	X	X	X	X	X	X
6030	1-1	0	04/06/87	DOE EXP SITE PLAN EXCAVATION	X	X	X	X	X	X
7000	1-8	0	02/24/87	REINFORCED CONCRETE BOX FLOOR	X	X	X	X	X	X
7006	1-2	0	02/04/87	WK,HDL, SITE PLAN	X	X	X	X	X	X
7052	1-1	0	02/23/87	AIRBLAST DYNAMIC EFTS LAYOUT	X	X	X	X	X	X
7060	1-1	0	02/23/87	SITE PLAN & LAYOUT EXCAVATION	X	X	X	X	X	X
7090	1-1	0	04/02/87	UK EXF SITE PLAN	X	X	X	X	X	X

7452	1-1	0	10/15/86	HORN ANTENNA REINF	:X:X:X:X:X:X:
7454	1-1	0	12/16/86	NOR EXP EXCAVATION PLAN	:X:X:X:X:X:X:
7458	1-1	0	04/07/87	NOR EXP 7458/7480 SITE PLAN &	:X:X:X:X:X:X:
7520	1-1	0	02/02/87	CAN EXP LAYOUT & DETAILS	:X:X:X:X:X:X:
7522	1-4	0	02/11/87	CAN EXP A&B LAYOUT/EXCAVATION	:X:X:X:X:X:
7530	2-2	0	03/19/87	CAN EXP LAYOUT	:X:X:X:X:X:X:
8510	1-1	0	02/12/87	DNA SITE PLAN & LAYOUT	:X:X:X:X:X:X:
8520	1-1	0	04/22/87	DNA EXP SITE	:X:X:X:X:X:X:
8524	1-1	0	04/06/87	DNA EXP SITE PLAN & LAYOUT	:X:X:X:X:X:X:
8700	1-3	0	03/18/87	DNA EXP DPR EDGE ANCHOR LAYOUT	:X:X:X:X:X:X:
8704	1-1	0	04/15/87	DNA EXP SITE PLAN & LAYOUT	:X:X:X:X:X:X:
8719	1-1	0	03/27/87	DNA SITE PLAN & EXCAVATION	:X:X:X:X:X:X:
8735	1-1	0	02/18/87	DNA LAYOUT & DETAILS	:X:X:X:X:X:X:
8770	11-12	0	04/02/87	DNA EXP CONCRETE BASE CONDUIT	:X:X:X:X:X:X:
8790	1-3	0	03/03/87	DNA EXP/LAYOUT	:X:X:X:X:X:X:
8792	1-1	0	03/18/87	DNA EXP 100' TOWER MOUND SITE	:X:X:X:X:X:X:
8799	1-1	0	03/09/87	DNA DETS TEST, TEST BED ANCHOR	:X:X:X:X:X:X:
9010	1-2	0	12/09/86	DNA EXP CAMERA ENCLOSURE	:X:X:X:X:X:X:
9335	1-1	0	03/10/87	DNA CHARGE CONTAINER LIGHTING	:X:X:X:X:X:X:
70007	1-1	0	12/16/86	FACILITIES EXP LEFT IN PL	:X:X:X:X:X:
70016	1-4	0	11/13/86	SINGLE INSTR BNK INSTL PL	:X:X:X:X:X:X:
70024	1-1	0	03/30/87	OBSERVATION POINT LAYOUT	:X:X:X:X: :X:
70029	1	0	12/04/86	TRS UNIT EXCAVATION INSTRL	:X:X:X:X:X:X:
70030	1-6	0	12/06/86	15 PSI CAMERA TOWER PLAN &	:X:X:X:X:X:X:
70031	4-5	0	03/18/87	100' CAMERA TWR HOIST HEAD FRAME	:X:X:X:X:X:X:
70032	1-3	0	02/24/87	GENERATOR SHELTER EXCAV INSTL	:X:X:X:X: :X:

70033	1-2	0	03/03/87	ANFO PLANT SITE & GRADING PLAN	:X:X:X:X:X:X:
70039	1-2	0	12/15/86	50 PSI VLT COVER & Z FRAME	:X:X:X:X:X:X:
70040	1-2	0	01/23/87	TYP TOWE INST 16',20'& 24	:X:X:X:X:X:X:
70041	1-3	0	02/02/87	SPECIAL DIST (CORTEZ)	:X:X: :X:
70043	1-2	0	02/10/87	20 PSI VAULT LAYOUT/EXCAV	:X:X:X:X:X:
70044	1-4	0	04/10/87	MC DONALD'S RANCH BRACING SYS	:X:X:X:X: :X:

APPENDIX G

MISTY PICTURE 45-DAY COUNTDOWN

MISTY PICTURE 45 DAY COUNTDOWN

DATE: 18 MAR 87

DATE SCHEDULED	DATE ACCOMPLISHED	EVENT	ACTIVITY
D-45		2 COLD/3 HOT BURNS ON TRS UNIT E.	TRS TGD
D-45		START SIGNAL DRY RUNS ON REQUEST BY EXPERIMENTER.	IE
D-44		2 COLD/3 HOT BURNS ON TRS UNIT A.	TRS TGD
D-42		VERIFY ANFO PLANT OPERATIONAL (100 TON TEST).	PD
D-42		PROJECT OFFICERS MEETING (POM) AT 1330 HRS.	TGD/PROJECT OFFICERS
D-38		START OBSERVATION POINT (OP) CONSTRUCTION.	TGE
D-38		START MCDONALD RANCH PROTECTIVE MEASURES.	TGE
D-38		2 COLD/3 HOT BURNS ON TRS UNIT F.	TRS TGD
D-35		SAMS SYSTEM OPERATIONAL.	ASL
D-34		BETS III RESULTS MEETING (0900 HRS).	PD
D-34		2 COLD/3 HOT BURNS ON TRS UNIT G.	TRS TGD
D-30		MISTY PICTURE TEST PLACED ON WSMR 30 DAY SCHEDULE.	WSMR (NR-PD)
D-28		TRS COLLECTIVE COLD FLOW.	TRS TGD
D-28		COMMENCE SCHEDULED DAILY SIGNAL DRY RUNS.	IE
D-21		TRS COLLECTIVE COLD FLOW.	TRS TGD
D-21		COUNTDOWN MEETING WITH RANGE CONTROL.	TGD
D-21		PROJECT OFFICER MEETING (POM) AT 1330 HRS (REPORT EXPERIMENT STATUS FOR UPCOMING MANDATORY FULL PARTICIPATION (MFP) NO. 1).	TGD/PROJECT OFFICERS
D-20		COMPLETE DIAGNOSTIC/TECHNICAL CAMERA INSTALLATION.	WSMR/DRI
D-20		FINALIZE SECURITY ARRANGEMENTS FOR GZ.	TGSO

DATE SCHEDULED	DATE ACCOMPLISHED	EVENT	ACTIVITY
D-19		CONDUCT TREE DRAG TESTS.	PD
D-18		GROUND ZERO SECURITY BEGINS.	USAF SP
D-18		DELIVER MAIN BOOSTER ASSEMBLY (MBA).	PD
D-17		REPORT STATUS OF EXPERIMENTS FOR UPCOMING MFP (MANDATORY FULL PARTICIPATION) NO. 1 TO TGD.	TD/IE
D-17		ANFO LOADING BEGINS.	PD
D-16		PROJECT OFFICERS MEETING (POM) AT 1330 HRS (MFP PROCEDURES REVIEW).	TGD/TD/IE/ PROJECT OFFICERS
D-15		FET AREA SECURITY IS ESTABLISHED.	TGSO
D-15		CONDUCT MFP NO. 1 AT 1000 HOURS (TRS HOT TEST, AIRCRAFT PARTICIPATION, PULL FILM IN ALL CAMERAS).	TGD
D-14		MFP DE-BRIEF AT 1330 HOURS.	TGD/TD/IE/ PROJECT OFFICERS
D-14		FINISH OP CONSTRUCTION.	TGE
D-14		SUBMIT STATUS REPORT ON ANFO LOADING TO TGD.	PD
D-13		REVIEW MFP TECHNICAL FILM WITH EXPERIMENTERS.	TD/PT/NR-DO/ PROJECT OFFICERS
D-13		START DAILY REPORTS ON DUST DEVIL CENSUS.	TD
D-11		SUBMIT STATUS REPORT ON ANFO LOADING TO TGD.	PD
D-10		BRV/VIPER SITES ESTABLISHED AS RESTRICTED AREA.	TGSO
D-9		REPORT STATUS OF EXPERIMENTS FOR UPCOMING MFP (MANDATORY FULL PARTICIPATION) NO. 2 TO TGD.	TD/IE
D-8		COMPLETE ANFO LOADING. REPORT READINESS TO TGD.	PD

DATE SCHEDULED	DATE ACCOMPLISHED	EVENT	ACTIVITY
D-7		MISTY PICTURE TEST PLACED ON WSMR 7 DAY SCHEDULE.	WSMR (NR-PD)
D-7		CONDUCT MFP NO. 2 AT 1000 HOURS IF REQUIRED (TRS HOT TEST, AIRCRAFT PARTICIPATION, PULL FILM, IF NECESSARY).	TGD
D-7		COMPLETE OP PREPARATIONS.	PD
D-7		ADJUST CAMERAS AND REPORT READINESS TO TGD.	PT/DRI
D-6		PROJECT OFFICERS MEETING AT 1330 HRS. (MFP DEBRIEF, DISCUSS DRESS REHEARSAL).	TGD/TD/IE/PO
D-5		MISTY PICTURE TEST CODED IN WSMR SCHEDULING SYSTEM.	WSMR
D-3		WEATHER FORECAST MEETING.	TGD/TD/SNLA/ ASL
D-3		METEOROLOGY BLAST FOCUSING TESTS (0958 AND 1500)/MET ROCKET LAUNCH (1200).	SNLA/ASL
D-3		DRESS REHEARSAL (TRS HOT TEST, AIRCRAFT PARTICIPATION).	TGD
D-2		PROJECT OFFICERS MEETING AT 1330 HRS. (EXPERIMENT STATUS REVIEW, DRESS REHEARSAL CRITIQUE).	TGD/TD/PO
D-2		COUNTDOWN BRIEFING TO RANGE CONTROL.	TGD
D-2		METEOROLOGY BLAST FOCUSING DETONATION TESTS (0900 AND 1500)/ MET ROCKET LAUNCH (1200).	SNLA/ASL
D-2		WEATHER FORECAST MEETING.	TGD/TD/SNLA/ ASL
D-1		AERIAL PHOTOS (HELICOPTER).	PD/WSMR
D-1		METEOROLOGY BLAST FOCUSING DETONATION TESTS (0900 AND 1500)/ MET ROCKET LAUNCH (1200).	SNLA/ASL
D-1		WEATHER FORECAST MEETING.	TGD/TD/SNLA ASL
D-1		FINAL DECISION ON EVENT STATUS.	TGD/TD

DATE SCHEDULED	DATE ACCOMPLISHED	EVENT	ACTIVITY
D-1		FINAL EXPERIMENT/INSTRUMENTATION STATUS TO TGD BY 1000 HOURS.	TD/IE
D-1		FINAL DECISION ON EVENT STATUS.	TGD/TD
D-1		TRS ALUMINUM FILL (9 HRS). TRS NITROGEN FILL (6 HRS).	TRS TGD
D-1		LOAD CAMERAS.	WSMR/DRI
D-1		BEGIN BAG DEPLOYMENT (2100 HRS).	PD
D+0		EVENT (SEE EVENT COUNTDOWN).	
D+1		QUICK LOOK MEETING AT 1230 HRS.	TGD/TD/PO
D+1		H+24 REPORT TO HQDNA.	TGD/TD
D+1		TRS REMOVAL STARTS.	TRS TGD
D+3		H+72 REPORT TO HQDNA.	TGD/TD
D+6		BEGIN FILM REVIEW.	TD/PT/PD
D+14		TRS REMOVAL COMPLETE.	TRS TGD
D+15		EOD GAUGE MOUNT REMOVAL.	TGE
D+60		PRELIMINARY RESULTS MEETING. (14-15 JULY AT FCDNA.)	TD

ACRONYMS:

ASL - Atmospheric Sciences Laboratory
DRI - Denver Research Institute
IE - Instrumentation Engineer
PD - Program Director
PO - Project Officer
PT - Photo Technologist
SNLA - Sandia National Laboratory, Albuquerque
SP - Security Police
TD - Technical Director
TGD - Test Group Director
TGE - Test Group Engineer
TGSO - Test Group Security Officer
TRS - Thermal Radiation Source

APPENDIX H

DELAY/HOLD PROCEDURES

MISTY PICTURE DELAY/HOLD PROCEDURES
17 April 1987

POINT IN COUNTDOWN	EXPECTED PROBLEM DURATION	ACTIONS TO BE TAKEN
T-12 hrs: Begin bag deployment.		
T-12 hrs to T-6 hrs	<6 hrs	1. Continue countdown to T-6 hrs. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-6 hrs until problem solved.
	<10 hrs	1. Continue countdown to T-6 hrs. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-6 hrs until problem solved.
	>10 hrs	1. Reschedule shot. 2. Complete bag deployment and secure bags. 3. Use "Agency Call Sheet" to inform world. 4. Start count at T-6 hrs. 5. Prevent LOX topoff.
T-6 hrs: 1. Begin TRS LOX topoff. 2. First balloon launch.		
T-6 hrs ~~to~~ T-4 hrs	<2 hrs	1. Continue countdown to T-4 hrs. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-4 hrs until problem solved (prevent helium fill).
	<6 hrs	1. Continue countdown to T-4 hrs. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-4 hrs until problem solved (prevent helium fill).
	>6 hrs	1. Reschedule shot day. 2. Use "Agency Call Sheet" to inform world. 3. Start count at T-6 hrs (TRS LOX topoff, "T-6 first balloon launch").
T-4 hrs: Begin helium fill.		
T-4 hrs to T-3 hrs	<1 hrs	1. Continue countdown to T-2.5 hrs. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-2.5 hrs until problem solved (delay testbed evacuaiton and the weather check).
	<5 hrs	1. Continue countdown to T-2.5 hrs. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-2.5 hrs until problem solved (delay testbed evacuaiton and the weather check).
	>5 hrs	1. Reschedule shot day. 2. Use "Agency Call Sheet" to inform world. 3. Stop helium fill, deflate when conditions permit. 4. Hold aircraft launch (B-105 helicopter) from Alamagordo. 5. Start count at T-6 hrs (TRS LOX topoff, "T-6 first balloon launch").

MISTY PICTURE DELAY/HOLD PROCEDURES

POINT IN COUNTDOWN	EXPECTED PROBLEM DURATION	ACTIONS TO BE TAKEN
T-3 hrs: 1. Begin testbed evacuation. 2. Begin Arming TRS units.		
T-3 hrs to T-65 min	<90 min	1. Continue countdown to T-65 min. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-62 min until problem solved (delay meteorology detonation).
	90 min to 4 hr	1. Continue countdown to T-65 min. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Evaluate status of experiments: a. Adjust precursor cameras, if necessary. b. Refuel generators (6hr life). c. Replace AFWL battery (8hr life). 4. Hold at T-65 until problems solved (delay meteorology detonation).
	>4 hrs	1. Reschedule shot day. 2. Use "Agency Call Sheat" to inform world. 3. Stop helium fill, deflate when conditions permit. 4. Safe TRS. 5. Start count at T-6 hrs (TRS LOX topoff, "T-6 first balloon launch").
T-65 min: 1. Meteorology detonation . 2. Begin uncovering classified.		
T-65 min to T-45 min	<90 min	1. Continue countdown to T-45 min. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-45 min until problem solved (delay helium reserve switch).
	90 to 4 hrs	1. Evaluate status of experiments: a. Adjust precursor cameras, if necessary. b. Refuel generators (6hr life). c. Replace AFWL battery (8hr life). d. Shutdown & refuel FET vehicles. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Safe TRS, if necessary. 4. Cover classified experiments & secure testbed, if necessary. 5. Send aircraft to refuel, if required. 6. Secure helium reserve system. Resume helium flow from tube trailers. 7. Start count at T-65 min (meteorology detonation). 8. Start count at T-3 hrs if TRS is safed. (TRS arming required)
	>4 hrs	1. Reschedule shot day. 2. Use "Agency Call Sheet" to inform world. 3. Stop helium fill, deflate when conditions permit. 4. Safe TRS. 5. Cover classified experiments and secure testbed. 6. Start count at T-6 hrs (TRS LOX topoff, "T-6 hrs first balloon launch").

MISTY PICTURE DELAY/HOLD PROCEDURES

POINT IN COUNTDOWN	EXPECTED PROBLEM DURATION	ACTIONS TO BE TAKEN
T-45 min: 1. Go to helium reserve. 2. Begin Final Testbed Evacuation.		
T-45 min to T-30 min	<90 min	1. Continue countdown to T-30 min. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-30 min until problem solved (delay arming charge).
	90 to 4 hrs	1. Evaluate status of experiments: a. Adjust precursor cameras, if necessary. b. Refuel generators (6hr life). c. Replace AFWL battery (8hr life). d. Shutdown & refuel FET vehicles. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Safe TRS, if necessary. 4. Cover classified experiments & secure testbed, if necessary. 5. Send aircraft to refuel, if required. 6. Secure helium reserve system. Resume helium flow from tube trailers. 7. Start count at T-65 min (meteorology detonation). 8. Start count at T-3 hrs if TRS is safed. (TRS arming required)
	>4 hrs	1. Reschedule shot day. 2. Use "Agency Call Sheet" to inform world. 3. Stop helium fill, deflate when conditions permit. 4. Safe TRS. 5. Cover classified experiments and secure testbed. 6. Send aircraft home (Hold 9030 at Holloman AFB). 7. Start count at T-6 hrs (TRS LOX topoff, "T-6 hrs first balloon launch").
T-30 min: Begin Arming charge.		
T-30 min to T-15 min	<90 min	1. Continue countdown to T-15 min. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-15 min until problem solved (delay manning check).
	90 to 4 hrs	1. Evaluate status of experiments: a. Adjust precursor cameras, if necessary. b. Refuel generators (6hr life). c. Replace AFWL battery (8hr life). d. Shutdown & refuel FET vehicles. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Safe TRS, if necessary. 4. Cover classified experiments & secure testbed, if necessary. 5. Send aircraft to refuel, if required. 6. Secure helium reserve system. Resume helium flow from tube trailers. 7. Disarm charge. 8. Start count at T-65 min (meteorology detonation). 9. Start count at T-3 hrs, if TRS is safed. (TRS arming required)
	>4 hrs	1. Reschedule shot day. 2. Use "Agency Call Sheet" to inform world. 3. Stop helium fill, deflate when conditions permit. 4. Safe TRS. 5. Cover classified experiments and secure testbed. 6. Send aircraft home. 7. Disarm charge. 8. Start count at T-6 hrs (TRS LOX topoff, "T-6 hrs first balloon launch").

MISTY PICTURE DELAY/HOLD PROCEDURES

POINT IN COUNTDOWN	EXPECTED PROBLEM DURATION	ACTIONS TO BE TAKEN
T-15 min: Begin Final manning check.		
T-15 min to T-8 min	<90 min	1. Continue countdown to T-8 min. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Hold at T-8 min until problem solved (delay manning check).
	90 to 4 hrs (if conditions permit long recycle time)	1. Evaluate status of experiments: a. Adjust precursor cameras, if necessary. b. Refuel generators (6hr life). c. Replace AFWL battery (8hr life). d. Shutdown & refuel FET vehicles. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Safe TRS, if necessary. 4. Cover classified experiments & secure testbed, if necessary. 5. Send aircraft to refuel, if required. 6. Secure helium reserve system. Resume helium flow from tube trailers. 7. Disarm charge. 8. Safe firing panel, if necessary. 9. Start count at T-65 min (meteorology detonation). 10. Start count at T-3 hrs, if TRS is safed. (TRS arming required)
	90 to 4 hrs (if conditions require a quick recycle time)	1. Continue countdown to T-8 min. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Send aircraft to refuel. (shot may occur without their return). 4. Hold at T-8 min until problem solved (ready firing panel).
	>4 hrs	1. Reschedule shot day. 2. Use "Agency Call Sheet" to inform world. 3. Stop helium fill, deflate when conditions permit. 4. Safe TRS. 5. Cover classified experiments and secure testbed. 6. Send aircraft home. 7. Disarm charge. 8. Safe firing panel, if necessary. 9. Start count at T-6 hrs (TRS LOX topoff, "T-6 hrs first balloon launch").

MISTY PICTURE DELAY/HOLD PROCEDURES

T-8 min: Begin TRS cooldown.
T-6 min: T&F sequencer begins running.

POINT IN COUNTDOWN	EXPECTED PROBLEM DURATION	ACTIONS TO BE TAKEN
T-8 min to T-3 min	<90 min	1. Hold and Safe firing panel. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Start at T-8 min (ready firing panel). 4. Stop TRS Cooldown.
	90 to 4 hrs (if conditions permit long recycle time)	1. Evaluate status of experiments: a. Adjust precursor cameras, if necessary. b. Refuel generators (6hr life). c. Replace AFWL battery (8hr life). d. Shutdown & refuel FET vehicles. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Safe TRS, if necessary. 4. Cover classified experiments & secure testbed, if necessary. 5. Send aircraft to refuel, if required. 6. Secure helium reserve system. Resume helium flow from tube trailers. 7. Disarm charge. 8. Safe firing panel, if necessary. 9. Start count at T-65 min (meteorology detonation). 10. Start count at T-3 hrs (TRS arming).
	90 to 4 hrs (if conditions require a quick recycle time)	1. Hold and Safe firing panel. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Send aircraft to refuel, if required. (shot may occur without their return) 4. Start count at T-8 min (ready firing panel).
	>4 hrs	1. Reschedule shot day. 2. Use "Agency Call Sheet" to inform world. 3. Stop helium fill, deflate when conditions permit. 4. Safe TRS. 5. Cover classified experiments and secure testbed. 6. Send aircraft home. 7. Disarm charge. 8. Safe firing panel. 9. Start count at T-6 hrs (TRS LOX topoff, "T-6 hrs first balloon launch").

MISTY PICTURE DELAY/HOLD PROCEDURES

POINT IN COUNTDOWN	EXPECTED PROBLEM DURATION	ACTIONS TO BE TAKEN
T-3.0 min: Recorders start. **T-2.5 min: Signal to start TRS.**		
T-3 min to T-0	<90 min	1. Hold and Stop recorders. 2. Safe firing panel. 3. Use "Non-testbed Experimenter Call Sheet" to pass word. 4. Reset TRS if possible. 5. Reset Canadian recorders. 6. Refuel helicopter B-105, if required. 7. Start at T-8 min (ready firing panel).
	90 to 4 hrs (if conditions permit long recycle time)	1. Evaluate status of experiments: a. Adjust precursor cameras, if necessary. b. Refuel generators (6hr life). c. Replace AFWL battery (8hr life). d. Shutdown & refuel FET vehicles. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Reset TRS (safe if necessary). 4. Cover classified experiments and secure testbed. 5. Send aircraft to refuel, if required. 6. Secure helium reserve system. Resume helium flow from tube trailers. 7. Disarm charge. 8. Safe firing panel. 9. Rewind all recorders. 10. Start count at T-65 min (meteorology detonation). 11. Start count at T-3 hrs, if TRS is safed. (TRS arming required)
	90 to 4 hrs (if conditions require a quick recycle time)	1. Hold and Safe firing panel. 2. Use "Non-testbed Experimenter Call Sheet" to pass word. 3. Send aircraft to refuel. (shot may occur without their return). 4. Stop recorders. 5. Reset TRS, if possible. a. T-2.0 min to T-1.0 min requires 2.5 hours to reset TRS. b. T-1.0 min to T-0.5 min requires 3 hours to reset TRS. c. TRS lost if unable to hold these additional times. 6. Reset Canadian recorders. 7. Start count at T-8 min (ready firing panel).
	>4 hrs	1. Reschedule shot day. 2. Use "Agency Call Sheet" to inform world. 3. Stop helium fill, deflate when conditions permit. 4. Safe TRS. 5. Cover classified experiments and secure testbed. 6. Send aircraft home. 7. Disarm charge. 8. Safe firing panel. 9. Rewind recorders. 10. Start count at T-6 hrs (TRS LOX topoff, (T-6 hrs first balloon launch).

MISTY PICTURE DELAY/HOLD PROCEDURES

POINT IN COUNTDOWN   EXPECTED PROBLEM DURATION   ACTIONS TO BE TAKEN

ASSUMPTIONS

1. Shot time is 1000.
2. A hold past 1000 assumes increased risk to precursor, past 1200 probable loss of precursor.
3. Test will be rescheduled if hold is past 1400. (due to lighting and recovery requirements)
4. The BRV has no critical Time limits on holds.

5. These delay/hold procedures are setup to comply with the delay/hold criteria letter dated 23 Feb 1987 and approved by ADDST on 10 March 1987. The expected problem will be for any of the delay/hold criteria being met. These include:

A. <90% of experiments ready.

B. Precursor not ready.

C. Ballistic Reentry Vehicle (BRV) not ready.

D. <5 of 7(6) Thermal Radiation Source (TRS) units ready.

E. Timing & Firing (T&F) not ready.

F. Instrumentation not ready.

G. Weather. (Rain, Wind >10mph, Lightning, Inversions, Dust Devils)

H. Foreign Satellite Coverage.

I. Data return:
   i. <90% of all data.
   ii. <90% of Precursor environment data.
   iii. <90% of HML model data.

The FINAL decision will be made on site by HQDNA Assistant Director (ADDST) with concurrence from the WSMR commanding General and based on the best information available at the time.

TOM LUTTON, Capt, USAF
Techical Director, MISTY PICTURE

APPENDIX I

MISTY PICTURE T-27 HOUR COUNTDOWN

MISTY PICTURE COUNTDOWN 2 MAY 1987

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-27:00	COMMENCE TRS FUELING.	TRS/SAIC
T-24:00	BRV READINESS STATUS GIVEN TO TEST CONTROL.	BRV LCC
T-20:00	WEATHER AND OPSEC EVALUATION.	TGD/TD/PD
T-12:30	WEATHER EVALUATION. (BAG DEPLOYMENT DECISION MADE.)	TGD/TD
T-12:00	HOLD POINT (IF REQUIRED).	TGD/TD
T-12:00	BEGIN BAG DEPLOYMENT.	PD/NMERI
T-11:00	REPORT STATUS OF BAG DEPLOYMENT.	PD
T-09:00	COMMENCE TRS CHECKOUT.	TRS/SAIC
T-09:00	REPORT STATUS OF BAG DEPLOYMENT.	PD
T-08:30	START SIGNAL DRY RUNS FOR CAMERAS.	IE
T-07:00	REPORT STATUS OF BAG DEPLOYMENT.	PD
T-06:00	HOLD POINT (IF REQUIRED).	TGD/TD
T-06:00	ANNOUNCE "T-SIX HOURS."	TC
T-06:00	BEGIN TRS LOX TOP OFF.	TRS/SAIC
T-06:00	NOTIFY TC NOSETIP INSTALLATION IS COMPLETE.	BRV LCC
T-06:00	RADIOSONDE LAUNCH (SRC).	ASL
T-05:00	ANNOUNCE "T-FIVE HOURS."	TC
T-05:00	ESTABLISH COMMUNICATIONS WITH RANGE CONTROL.	TEST CONTROL (TC)
T-05:00	ESTABLISH COMMUNICATIONS WITH BUNKERS AND TRAILERS:	TC

EB 1	( )	NB 1	( )	WB 2	( )	HFC	( )
EB 2	( )	SB-1	( )	WT 1	( )	TTU	( )
EB 3	( )	SB-2	( )	MRT 1	( )	SNLA	( )
EB 4	( )	SB-3	( )	T&F	( )	BRV LCC	( )
EB 5	( )	WB-1	( )	TRS	( )	VALHALL	( )

T-04:50	BRV/VIPER STATUS GIVEN TO TC.	TC

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-04:45	WEATHER REPORT GIVEN TO TC (WIND, INVERSION, DUST DEVIL).	SNLA/PURDUE
T-04:30	START SIGNAL DRY RUNS FOR EXPERIMENTERS. (DRY RUNS FOR CAMERAS ON AN AS NEEDED BASIS.)	IE
T-04:15	CAMERA STATUS REPORT GIVEN TO TC.	PT
T-04:00	HOLD POINT (IF REQUIRED).	TGD/TD
T-04:00	ANNOUNCE "T-4 HOURS." ANNOUNCE WIND SPEED.	TC
T-04:00	COMMENCE HELIUM FILL.	PD
T-03:30	ANNOUNCE "T-THREE HOURS THIRTY MINUTES."	TC
T-03:30	COMMENCE RADAR AVOIDANCE FOR BRV LAUNCH SITE.	WSMR (NR)
T-03:30	CONFIRM COMMUNICATIONS WITH ALL SITES AND TRAILERS (USE CHECKLIST). SITES TO RESPOND IN SEQUENCE AND RESPOND WITH "_______ IS ON THE AIR."	TC

MILLERS WATCH	( )	TRUMPET	( )
RISINGER SITE	( )		
SAIL HOIST CREW	( )		
ADMIN SITE	( )		

EB 1	( )	NB 1	( )	WB 2	( )	HFC	( )
EB 2	( )	SB-1	( )	WT 1	( )	TTU	( )
EB 3	( )	SB-2	( )	MRT 1	( )	SNLA	( )
EB 4	( )	SB-3	( )	T&F	( )	BRV LCC	( )
EB 5	( )	WB-1	( )	TRS	( )	VALHALL	( )

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-03:25	HELIUM FILL STATUS REPORT GIVEN TO TC.	PD
T-03:00	HOLD POINT (IF REQUIRED).	TGD/TD
T-03:00	OPEN RANGE NET. ANNOUNCE "T-3 HOURS." ANNOUNCE WIND SPEED.	TC
T-03:00	COMMENCE TRS FINAL CHECKOUT AND ARM THE UNITS. (NOTIFY TC.)	TRS/SAIC
T-03:00	NON-ESSENTIAL PERSONNEL COMMENCE CLEARING TESTBED.	TGSO/PO
T-03:00	CHARGE CONTAINER MONITOR VAN LEAVES TESTBED.	CERL

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-03:00	RADIOSONDE LAUNCH (SRC).	ASL
T-02:59	REPORT TEST STATUS TO RANGE CONTROL.	TGD
T-02:58	REPORT READINESS OF TECHNICAL CAMERAS TO TEST CONTROL.	PT
T-02:57	NOTIFY RANGE CONTROL THAT NON-ESSENTIAL PERSONNEL ARE STARTING TO CLEAR THE TESTBED.	TC
T-02:55	HELIUM FILL STATUS REPORT GIVEN TO TEST CONTROL.	PD
T-02:30	ANNOUNCE "T-TWO HOURS THIRTY MINUTES."	TC
T-02:30	LIFT RADAR AVOIDANCE OF BRV LAUNCH SITE.	WSMR (NR)
T-02:29	ANNOUNCE "30 MINUTE WARNING FOR COMPLETION OF SIGNAL DRY RUNS."	IE
T-02:28	HELIUM FILL STATUS REPORT GIVEN TO TC.	PD
T-02:20	INFORM TC THAT ONLY AUTHORIZED PERSONNEL REMAIN ON THE TESTBED.	TGSO
T-02:06	ANNOUNCE "METEOROLOGY DETONATION IN 5 MINUTES."	TC
T-02:02	ANNOUNCE "METEOROLOGY DETONATION IN 1 MINUTE."	TC
T-02:01	METEOROLOGY DETONATION (10 SEC COUNT).	TC
T-02:00	ANNOUNCE "T-TWO HOURS." ANNOUNCE WIND SPEED AND DIRECTION.	TC
T-02:00	NOTIFY RANGE CONTROL OF METEOROLOGY DETONATION.	TC
T-02:00	COMMENCE RADAR AVOIDANCE OF THE BRV LAUNCH SITE.	WSMR (NR)
T-02:00	BOEING 105 HELO DEPARTS ALAMOGORDO FOR SRC (FUELING).	CHEROKEE

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-02:00	PHONE TEST STATUS TO AIRCRAFT STAGING LOCATIONS: SRC 679-4242 SOCORRO (505) 835-9973 KIRTLAND AFB AV 244-9070 HOLLOMON AFB (505) 677-5401 BEALE AFB AV 368-4114/2186 EL PASO AIRPORT (915) 524-7327	AUTOMETRIC
T-02:00	ESTABLISH EXTERNAL ROADBLOCKS.	WSMR(NR)
T-01:59	ANNOUNCE "SIGNAL DRY RUNS ARE NOW COMPLETE. COMMENCE BUNKER BUTTON-UP PROCEDURES."	IE
T-01:58	HELIUM FILL STATUS REPORT GIVEN TO TEST CONTROL (TC).	PD
T-01:55	INSTRUMENTATION STATUS GIVEN TO TC.	TD
T-01:50	WEATHER REPORT GIVEN TO TC (WIND, INVERSION, DUST DEVIL).	SNLA/PURDUE
T-01:45	SAIL HOIST DECISION MADE BASED ON WIND CONDITIONS.	TGD/TD
T-01:30	ANNOUNCE "T-ONE HOUR THIRTY MINUTES."	TC
T-01:30	RADIOSONDE LAUNCH FOR BRV.	ASL
T-01:30	ESTABLISH COMMUNICATIONS WITH THE FOLLOWING SITES (NR-DO MUST RESPOND FOR ALL). SPEC ( ) HARRIET ( ) POND ( ) BRV OPT ( ) VICK ( ) VAN ( ) T-791 ( ) FRAN ( ) MILLERS WATCH (DO) ( )	TC
T-01:28	HELIUM FILL STATUS REPORT GIVEN TO TC.	PD
T-01:25	FINAL READINESS CHECK OF VALHALL INSTRUMENTATION.	IE
T-01:20	INSTRUMENTATION STATUS GIVEN TO TC.	TD
T-01:15	CONFIRM HIGH ALTITUDE AIRCRAFT STATUS AT BEALE AFB (AV 368-4114/2186).	AUTOMETRIC
T-01:15	ALL PARKS CLEARED OF UNAUTHORIZED PERSONNEL AND FET PROJECT PERSONNEL DEPART TESTBED.	TGSO

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-01:15	NOTIFY RANGE CONTROL THAT NON-ESSENTIAL PERSONNEL HAVE DEPARTED THE TESTBED.	TC
T-01:14	DUST DEVIL REPORT MADE TO TC.	PURDUE
T-01:12	BLAST FOCUSING REPORT MADE TO TC.	SNLA
T-01:10	CONFIRM AIRCRAFT STATUS AT SOCORRO, EL PASO, BEALE, AND HOLLOMAN AIR BASES/AIRPORTS (PASS CURRENT TESTBED WEATHER). SRC 679-4242 SOCORRO (505) 835-9973 KIRTLAND AFB AV 244-9070 HOLLOMON AFB (505) 677-5401 BEALE AFB AV 368-4114/2186 EL PASO AIRPORT (915) 524-7327	AUTOMETRIC
T-01:10	DEPART CAMERA LOCATIONS.	PT/WSMR (NR-DO)/ ISI/DRI
T-01:08	REPORT CAMERA STATUS TO TC.	PT
T-01:06	NOTIFY TC THAT INSTRUMENTATION BUTTON-UP CHECKS ARE COMPLETE.	IE
T-01:05	HOLD POINT (IF REQUIRED).	TGD/TD
T-01:05	FINAL READINESS CHECK FOR BUNKERS/TRAILERS: EB 1 ( ) NB 1 ( ) WB 2 ( ) HFC ( ) EB 2 ( ) SB-1 ( ) WT 1 ( ) TTU ( ) EB 3 ( ) SB-2 ( ) MRT 1 ( ) SNLA ( ) EB 4 ( ) SB-3 ( ) T&F ( ) BRV LCC ( ) EB 5 ( ) WB-1 ( ) TRS ( )	TC
T-01:05	UNCOVER WSMR CLASSIFIED EXPERIMENTS.	WSMR (TE-N)
T-01:04	ANNOUNCE "METEOROLOGY DETONATION IN 3 MINUTES."	TC
T-01:03	INSTRUMENTATION STATUS GIVEN TO TC.	TD
T-01:02	ANNOUNCE "METEOROLOGY DETONATION IN 1 MINUTE."	TC
T-01:01	METEOROLOGY DETONATION (10 SECOND COUNTDOWN).	TC

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-01:00	ANNOUNCE "T-ONE HOUR." ANNOUNCE WIND SPEED AND DIRECTION.	TC
T-01:00	LIFT RADAR AVOIDANCE OF BRV LAUNCH SITE.	WSMR (NR)
T-59 MIN	FINAL READINESS CHECK. RESPOND WITH "________ IS READY FOR THE EVENT."	TC

MILLERS WATCH	( )	ADMIN SITE	( )	*HARRIET	( )	*VAN	( )
RISINGER SITE	( )	*SPEC	( )	*VICK	( )	*MILLERS WATCH (DO)	( )
ADMIN EXTERNAL	( )	*BRV OPT	( )	*FRAN	( )	TRUMPET	( )
SAIL HOIST CREW	( )	*T-791	( )	*POND	( )		

*RESPONSE FROM NR-DO.

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-57 MIN	NOTIFY RANGE CONTROL OF METEOROLOGY DETONATION.	TC
T-55 MIN	PMS AIRCRAFT (BEECH BARON) LAUNCH FROM SOCORRO.	PMS
T-55 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD
T-55 MIN	PREPARE FOR SWITCH TO HELIUM RESERVE TANKS.	GRACON
T-55 MIN	COMMENCE RADAR AVOIDANCE AROUND TESTBED UNTIL T-20 MINUTES.	WSMR(NR)
T-51 MIN	BLAST FOCUSING REPORT MADE TO TC.	SNLA
T-50 MIN	ANNOUNCE "T-FIFTY MINUTES." ANNOUNCE WIND SPEED AND DIRECTION.	TC
T-50 MIN	ARMING PARTY ENTERS TESTBED.	SNLA/NSWC/TGSS
T-50 MIN	NOTIFY TC THAT TRS UNITS ARE ARMED.	TRS TD
T-49 MIN	DUST DEVIL REPORT MADE TO TC.	PURDUE
T-48 MIN	INSTRUMENTATION STATUS GIVEN TO TC.	TD
T-45 MIN	HOLD POINT (IF REQUIRED).	TGD/TD
T-45 MIN	REQUEST PERMISSION FROM RANGE CONTROL TO ARM CHARGE.	TGD
T-45 MIN	COMPLETE SWITCH TO HELIUM RESERVE TANKS.	GRACON

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-45 MIN	TRS/WSMR/GRACON/TRAILER/BUNKER AND SAIL HOIST CREWS DEPART TESTBED (PAST ACCESS POINTS).	TGSO
T-45 MIN	NOTIFY SP (EXCEPT AT ACCESS POINTS) TO LEAVE TESTBED.	TGSO
T-45 MIN	CESSNA 180 LAUNCH FROM SOCORRO AIRPORT.	AUTOMETRIC
T-42 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD
T-40 MIN	ANNOUNCE "T-FORTY MINUTES."	TC
T-40 MIN	TRS STATUS REPORT GIVEN TO TC.	TRS TD
T-40 MIN	NOTIFY ACCESS POINT SP TO DEPART TESTBED.	TGSO
T-40 MIN	RAMSTAT BASE TRANSMISSION.	AFWL
T-37 MIN	NOTIFY TC THAT RAMSTAT TRANSMISSION IS COMPLETE.	AFWL
T-35 MIN	LAUNCH WB57 AIRCRAFT FROM EL PASO.	AUTOMETRIC
T-35 MIN	REPORT "TESTBED IS CLEAR EXCEPT FOR ARMING/SAFETY PARTY."	TGSO
T-34 MIN	NOTIFY RANGE CONTROL THAT TESTBED IS CLEAR EXCEPT FOR ARMING/SAFETY PARTY.	TC
T-33 MIN	INSTRUMENTATION STATUS GIVEN TO TC.	TD
T-30 MIN	HOLD POINT (IF REQUIRED).	TGD/TD
T-30 MIN	ANNOUNCE "T-THIRTY MINUTES."	TC
T-30 MIN	ARMING PARTY REQUESTS PERMISSION FROM TGD TO ARM CHARGE.	SNLA/NSWC
T-30 MIN	AUTHORIZE ARMING OF CHARGE.	TGD
T-30 MIN	BOEING 105 LAUNCH FROM SRC.	CHEROKEE
T-30 MIN	OV-1D LAUNCH FROM KAFB.	AUTOMETRIC
T-30 MIN	RF-4B (EXP 8500) LAUNCH FROM KAFB.	AUTOMETRIC
T-30 MIN	CONFIRM CESSNA 180 IS HOLDING.	CHEROKEE

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-29 MIN	REPORT TO TC THAT BRV LAUNCHERS ARE IN FIRING POSITION.	BRV LCC
T-27 MIN	TRS STATUS REPORT GIVEN TO TC.	TRS TD
T-26 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD
T-25 MIN	REPORT ARMING COMPLETE. ARMING PARTY DEPARTS GZ. NOTIFY RANGE CONTROL.	SNLA/NSWC/NO
T-24 MIN	CONFIRM PMS (BEECH BARON) AIRCRAFT IS IN ORBIT AND HOLDING.	CHEROKEE
T-20 MIN	ANNOUNCE "T-TWENTY MINUTES."	TC
T-20 MIN	LIFT RADAR AVOIDANCE AROUND TESTBED.	WSMR(NR)
T-20 MIN	REPORT RE-ENTRY LINE-UP STATUS.	PD
T-20 MIN	RF-4B AIRCRAFT LAUNCH FROM HAFB (9030 AND 8500).	USMC
T-19 MIN	CONFIRM RF-4C AIRCRAFT STATUS AT KIRTLAND AFB (AV 244-9070).	AUTOMETRIC
T-19 MIN	INSTRUMENTATION STATUS GIVEN TO TC.	TD
T-18 MIN	CONFIRM HIGH ALTITUDE AIRCRAFT STATUS AT BEALE AFB (AV 368-4114/2186).	AUTOMETRIC
T-18 MIN	TRS STATUS REPORT GIVEN TO TC.	TRS TD
T-17 MIN	CONFIRM RANGE IS "GREEN."	TC
T-16 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD
T-15 MIN	HOLD POINT (IF REQUIRED).	TGD/TD
T-15 MIN	CONFIRM RF-4B (9030) AND WB57 AIRCRAFT ARE IN HOLDING ORBIT.	CHEROKEE

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-15 MIN	MANNED STATION PERSONNEL ACCOUNTABILITY CHECK. RESPOND WITH "ALL PERSONNEL AT _____ ARE IN POSITION AND ACCOUNTED FOR."	TC

MRT 1	( )	HFC	( )	BRV LCC	( )		
T&F	( )	TTU	( )				
TRS	( )	SNLA	( )				
MILLERS WATCH	( )	ADMIN SITE	( )	*HARRIET	( )	*VAN	( )
RISINGER SITE	( )	*SPEC	( )	*VICK	( )	*MILLERS WATCH (DO)	( )
ADMIN EXT	( )	*BRV OPT	( )	*FRAN	( )	TRUMPET	( )
SAIL HOIST CREW	( )	*T-791	( )	*POND	( )	PMS AC	( )

*RESPONSE FROM NR-DO.

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-12 MIN	REPORT TESTBED STATUS TO RANGE CONTROL. CONFIRM RANGE IS "GREEN."	TC
T-11 MIN	TRS STATUS REPORT GIVEN TO TC.	TRS TD
T-10 MIN	ANNOUNCE "T-TEN MINUTES."	TC
T-10 MIN	CONFIRM BOEING-105 IS HOLDING.	CHEROKEE
T-10 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD
T-10 MIN	CONFIRM OV-1D (8500) IS HOLDING.	CHEROKEE
T-10 MIN	CONFIRM RF-4B (SLAR) (8500) ARE HOLDING.	CHEROKEE
T-9 MIN	ANNOUNCE "T-NINE MINUTES."	TC
T-9 MIN	REQUEST PERMISSION TO ARM TRS SAFETY RELAYS.	TRS TD
T-8 MIN	HOLD POINT (IF REQUIRED).	TGD/TD
T-8 MIN	ANNOUNCE "T-EIGHT MINUTES."	TC
T-8 MIN	COMMENCE TRS COOLDOWN.	TRS TD
T-7 MIN	ANNOUNCE "T-SEVEN MINUTES."	TC
T-7 MIN	ANNOUNCE "METEOROLOGY DETONATION IN 5 MINUTES."	TC
T-7 MIN	HELIUM STATUS REPORT GIVEN TO TC.	PD

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-6 MIN	ANNOUNCE "T-SIX MINUTES."	TC
T-6 MIN	REQUEST PERMISSION FROM TC TO READY FIRING PANEL.	SNLA
T-6 MIN	DIRECT "READY THE FIRING PANEL."	TC
T-6 MIN	NOTIFY TC THAT FINAL T&F SEQUENCING HAS STARTED AND GIVE INSTRUMENTATION STATUS REPORT.	TD
T-6 MIN	CONFIRM THE RANGE IS "GREEN." (LIGHT ACTIVATED)	TC
T-5 MIN	ANNOUNCE "T-FIVE MINUTES."	TC
T-5 MIN	CONFIRM FIRING PANEL READY/ARMING COMPLETE.	TD
T-5 MIN	REQUEST PERMISSION TO ARM TRS UNITS FOR START SIGNAL FROM T&F.	TRS TD
T-5 MIN	ESTABLISH READY-HOLD COMMUNICATIONS WITH RANGE CONTROL.	TD
T-5 MIN	RF-4B'S (9030) OVERFLIGHT COMMENCES.	CHEROKEE
T-5 MIN	BRV STATUS REPORT GIVEN TO TC.	BRV LCC
T-4 MIN	ANNOUNCE "T-FOUR MINUTES."	TC
T-4 MIN	NOTIFY RANGE CONTROL OF BRV STATUS.	TC
T-4 MIN	SURFACE WIND REPORT GIVEN TO T&F AND TRS.	TC
T-3 MIN	HOLD POINT (IF REQUIRED).	TGD/TD
T-3 MIN	ANNOUNCE "T-THREE MINUTES. METEOROLOGICAL DETONATION IN 1 MINUTE."	TC
T-3 MIN	TURN OFF TETHERSONDE TRANSMISSIONS.	SNLA
T-3 MIN	START RECORDERS.	T&F
T-2:10	TRS PRESSURIZATION.	TRS TD
T-2 MIN	ANNOUNCE "T-TWO MINUTES."	TC
T-2 MIN	METEOROLOGY DETONATION (NO COUNTDOWN).	SNLA

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T-1:50	NOTIFY RANGE CONTROL OF METEOROLOGY DETONATION.	TC
T-1:30	ANNOUNCE "T-ONE MINUTE THIRTY SECONDS."	TC
T-1:15	IGNITE TRS BURNERS.	TRS TD
T-1:15	ANNOUNCE "TURN OFF POWER TO HELIUM SYSTEM."	TC
T-1:05	CONFIRM HELIUM SYSTEM DE-ENERGIZED.	PD
T-1:00	ANNOUNCE "T-ONE MINUTE."	TC
T-50 SEC	ANNOUNCE "T-FIFTY SECONDS."	TC
T-45 SEC	CONFIRM HIGH VOLTAGE.	TD
T-40 SEC	ANNOUNCE "T-FORTY SECONDS."	TC
T-30 SEC	ANNOUNCE "T-THIRTY SECONDS."	TC
T-20 SEC	ANNOUNCE "T-TWENTY SECONDS."	TC
T-15 SEC	ANNOUNCE "T-FIFTEEN SECONDS."	TC
T-10 SEC	ANNOUNCE "T-TEN."	TC
T-9 SEC	ANNOUNCE "NINE."	TC
T-8 SEC	ANNOUNCE "EIGHT."	TC
T-7 SEC	ANNOUNCE "SEVEN."	TC
T-6 SEC	ANNOUNCE "SIX."	TC
T-5 SEC	ANNOUNCE "FIVE."	TC
T-4 SEC	ANNOUNCE "FOUR."	TC
T-3 SEC	ANNOUNCE "THREE."	TC
T-2 SEC	ANNOUNCE "TWO."	TC
T-1 SEC	ANNOUNCE "ONE."	TC
T-0	DETONATE CHARGE.	T&F

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T+15 SEC	REPORT TRS UNITS ARE TIMED OUT AND SAFETY RELAYS SAFED.	TRS TD
T+30 SEC	ANNOUNCE "T+30 SECONDS."	TC
T+30 SEC	SAFE FIRING SYSTEM.	SNLA
T+30 SEC	RF-4B (9030) OVERFLIGHTS TERMINATE.	CHEROKEE
T+40 SEC	ANNOUNCE "T+40 SECONDS."	TC
T+47 SEC	BRV/VIPER LAUNCH WINDOW OPEN.	BRV LCC
T+50 SEC	ANNOUNCE "T+50 SECONDS."	TC
T+1 MIN	ANNOUNCE "T+1 MINUTE."	TC
T+1 MIN	RADIOSONDE LAUNCH (SRC AND JALLEN SITES.) TURN ON TETHERSONDE.	ASL/SNLA
T+1 MIN	REPORT SAFING OF FIRING SYSTEM TO TC.	SNLA
T+1:30	BRV/VIPER FIRING WINDOW CLOSED. REPORT SAFING OF ARMING/FIRING PANEL TO TC.	BRV LCC
T+2 MIN	ANNOUNCE "T+2 MINUTES."	TC
T+2 MIN	REPORT TEST EXECUTION AND FIRING SYSTEM SAFE TO RANGE CONTROL.	TGD
T+2 MIN	LAUNCH METEOROLOGY RKT FROM SMALL MISSILE RANGE.	ASL
T+2 MIN	PERSONNEL ACCOUNTABILITY CHECK:	TC

MRT 1	( )	HFC	( )	BRV LCC	( )
T&F	( )	TTU	( )		
TRS	( )	SNLA	( )		

MILLERS WATCH	( )	ADMIN SITE	( )	*HARRIET	( )	*VAN	( )
RISINGER SITE	( )	*SPEC	( )	*VICK	( )	*MILLERS WATCH (DO)	( )
ADMIN EXT	( )	*BRV OPT	( )	*FRAN	( )	TRUMPET	( )
SAIL HOIST CREW	( )	*T-791	( )	*POND	( )	PMS AC	( )

*RESPONSE FROM NR-DO.

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T+3 MIN	ANNOUNCE "T+3 MINUTES."	TC
T+3 MIN	RANGE CONTROL NOTIFIES TC OF BRV LAUNCH STATUS.	WSMR (NR)
T+3 MIN	NOTIFY RF-4C AIRCRAFT AT KIRTLAND AFB OF EVENT EXECUTION (AV 244-9070).	AUTOMETRIC
T+3 MIN	PMS (BEECH BARON) PASSES COMMENCE.	CHEROKEE
T+4 MIN	ANNOUNCE "T+4 MINUTES."	TC
T+4 MIN	COMMENCE PHASE 1 REENTRY.	TGSO
T+4 MIN	NOTIFY HIGH ALTITUDE AIRCRAFT OF EVENT DETONATION (AV 368-4114/2186).	AUTOMETRIC
T+5 MIN	ANNOUNCE "T+5 MINUTES."	TC
T+5 MIN	CESSNA 180 MISSION TERMINATES.	CHEROKEE
T+5 MIN	RF-4B (SLAR) (EXP. 8500) PASSES COMMENCE.	CHEROKEE
T+6 MIN	ANNOUNCE "T+6 MINUTES." TERMINATE RANGE COUNT.	TC
T+10 MIN	ANNOUNCE "T+10 MINUTES."	TC
T+10 MIN	RF-4B (SLAR) (8500) MISSION TERMINATES. MEETS TANKER FOR REFUELING.	CHEROKEE
T+10 MIN	WB57F PASSES COMMENCE.	CHEROKEE
T+10 MIN	OV-1D SLAR MISSION TERMINATES.	CHEROKEE
T+15 MIN	COMMENCE PHASE 2 RE-ENTRY.	TGSO
T+15 MIN	COMMENCE VIP TOUR (LOAD BUSES).	VIP OIC
T+15 MIN	REPORT STATUS OF TRS UNIT SAFING.	TRS TD
T+18 MIN	SAFETY PARTY REPORTS PROGRESS TO TC.	TGSS
T+20 MIN	ANNOUNCE "T+20 MINUTES."	TC
T+20 MIN	REPORT TO WSMR RANGE CONTROL "TESTBED SAFE AND SECURITY CONTROLS ARE BEING ESTABLISHED."	TC

MISTY PICTURE COUNTDOWN

- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T+30 MIN	ANNOUNCE "T+30 MINUTES."	TC
T+30 MIN	COMMENCE EVACUATION OF OP.	OP OIC
T+30 MIN	ACTIVATE INTERNAL ROADBLOCKS/LIFT EXTERNAL ROADBLOCKS NORTH OF MOCKINGBIRD GAP.	TGSO/WSMR (NR)
T-30 MIN	UH-1 RETURNS TO BRV SITE.	CHEROKEE
T+30 MIN	BRV RECOVERY OPERATIONS COMMENCE (UH-1 LAUNCH).	SPAS/PDA/ CHEROKEE
T+31 MIN	REPORT STATUS OF TRS UNIT SAFING TO TC.	TRS TD
T+40 MIN	ANNOUNCE "T+40 MINUTES."	TC
T+40 MIN	TRANSPORT PRESS TO STALLION RANGE CENTER.	PAO
T+45 MIN	REPORT STATUS OF TRS UNIT SAFING TO TC.	TRS TD
T+45 MIN	RF-4B (EXP. 8500) PHOTO PASSES COMMENCE.	CHEROKEE
T+50 MIN	ANNOUNCE "T+50 MINUTES."	TC
T+55 MIN	REPORT STATUS OF SECURITY EFFORT TO TC.	TGSO
T+01:00	ANNOUNCE "T+ONE HOUR."	TC
T+01:00	U-2 OVERFLIGHT COMMENCES.	CHEROKEE
T+01:00	RAMSTAT TRANSMISSION.	AFWL
T+01:01	REPORT STATUS OF TRS UNIT SAFING TO TC.	TRS TD
T+01:03	NOTIFY TC RAMSTAT TRANSMISSION IS COMPLETE.	AFWL
T+01:05	COMMENCE PHASE 3 RE-ENTRY.	TGSO
T+01:10	PRESS INTERVIEW AT SRC THEATER.	PAO
T+01:10	WB57F PASSES TERMINATE.	CHEROKEE
T+01:15	REPORT TO TC THAT TESTBED IS SECURE.	TGSO
T+01:15	U-2 OVERFLIGHT TERMINATES.	CHEROKEE

MISTY PICTURE COUNTDOWN

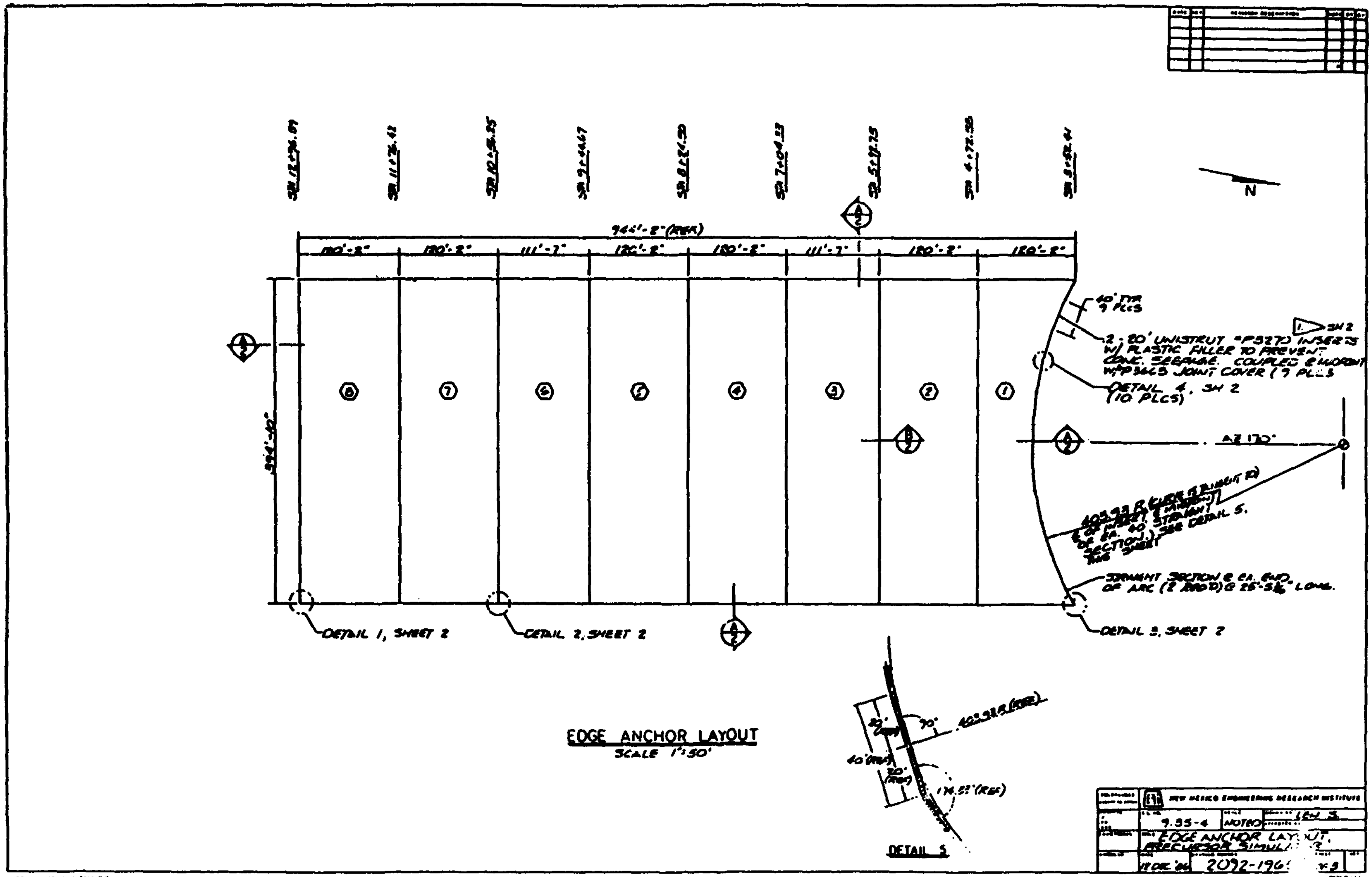
- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T+01:25	RF-4B (EXP. 8500) SLAR/PHOTO PASSES TERMINATE.	CHEROKEE
T+01:25	VIP TOUR ENTERS TESTBED.	VIP OIC
T+01:30	ANNOUNCE "T+ONE HOUR THIRTY MINUTES."	TC
T+01:30	BOEING 105(H) MISSION TERMINATES.	CHEROKEE
T+01:30	SR-71 FLY-BY COMMENCES.	CHEROKEE
T+01:30	OV-1D PHOTO MISSION COMMENCES.	CHEROKEE
T+01:45	SR-71 FLY-BY COMPLETED.	CHEROKEE
T+01:55	OV-1D PHOTO MISSION TERMINATES.	CHEROKEE
T+02:00	ANNOUNCE "T+TWO HOURS".	TC
T+02:00	B-52 OVERFLIGHTS COMMENCE.	CHEROKEE
T+02:05	VIP TOUR OF TESTBED COMPLETED.	VIP OIC
T+02:12	PMS (BEECH BARON) PASSES TERMINATE.	CHEROKEE
T+02:30	ANNOUNCE "T+TWO HOURS THIRTY MINUTES."	TC
T+03:00	ANNOUNCE "T+3 HOURS."	TC
T+03:00	RADIOSONDE LAUNCH (SRC AND JALLEN SITES).	ASL
T+03:00	RF-4C LAUNCH FROM KAFB.	AUTOMETRIC
T+03:00	CESSNA 180 LAUNCH FROM SOCORRO AIRPORT.	AUTOMETRIC
T+03:06	B-52 OVERFLIGHTS TERMINATE.	CHEROKEE
T+03:15	RF-4C PASSES COMMENCE.	CHEROKEE
T+03:30	ANNOUNCE "T+THREE HOURS THIRTY MINUTES."	TC
T+03:30	CESSNA 180 PASSES COMMENCE.	CHEROKEE
T+03:45	RF-4C PASSES TERMINATE.	CHEROKEE
T+04:00	ANNOUNCE "T+4 HOURS."	TC
T+04:00	PMS (BEECH BARON) PASSES COMMENCE.	CHEROKEE

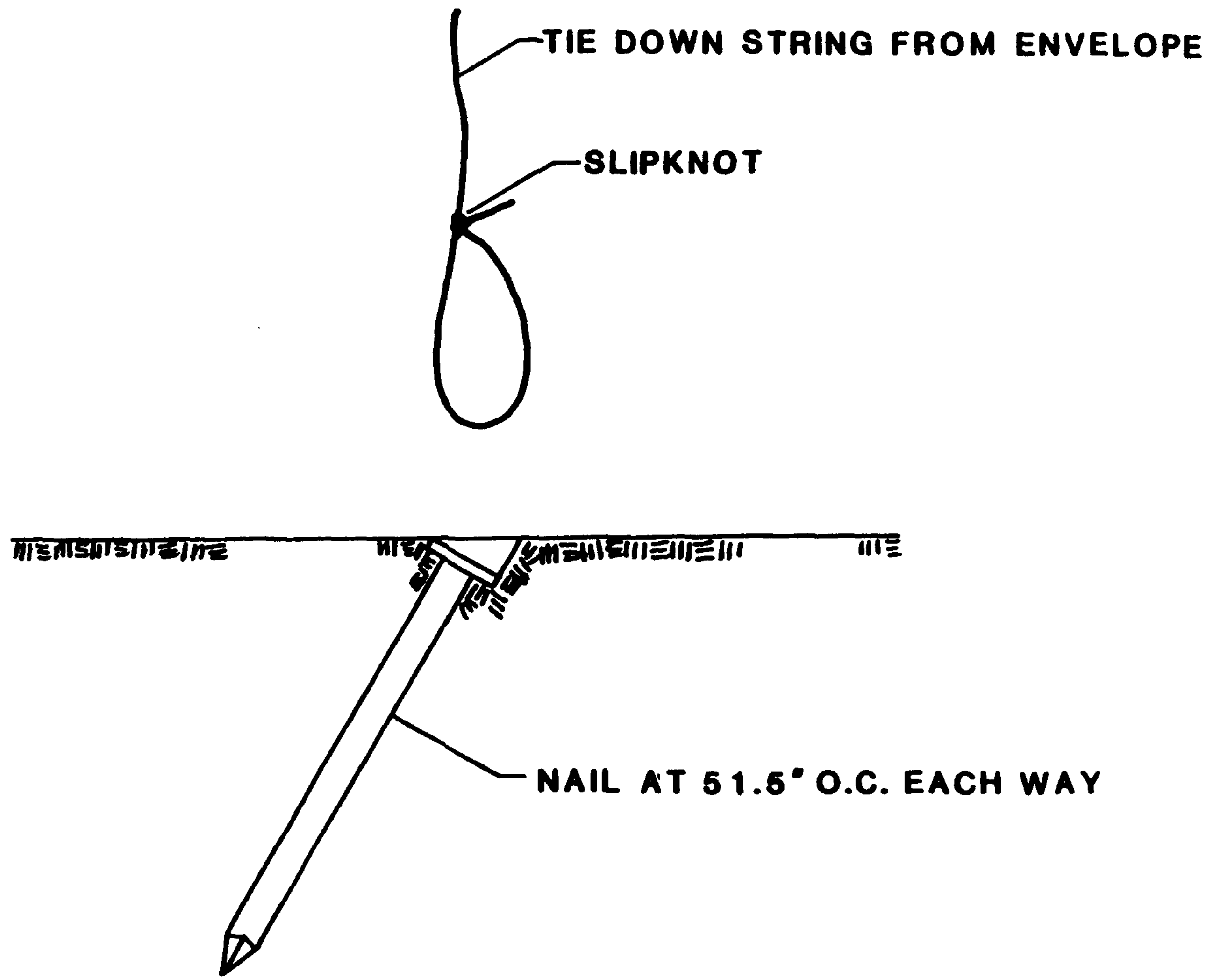
MISTY PICTURE COUNTDOWN

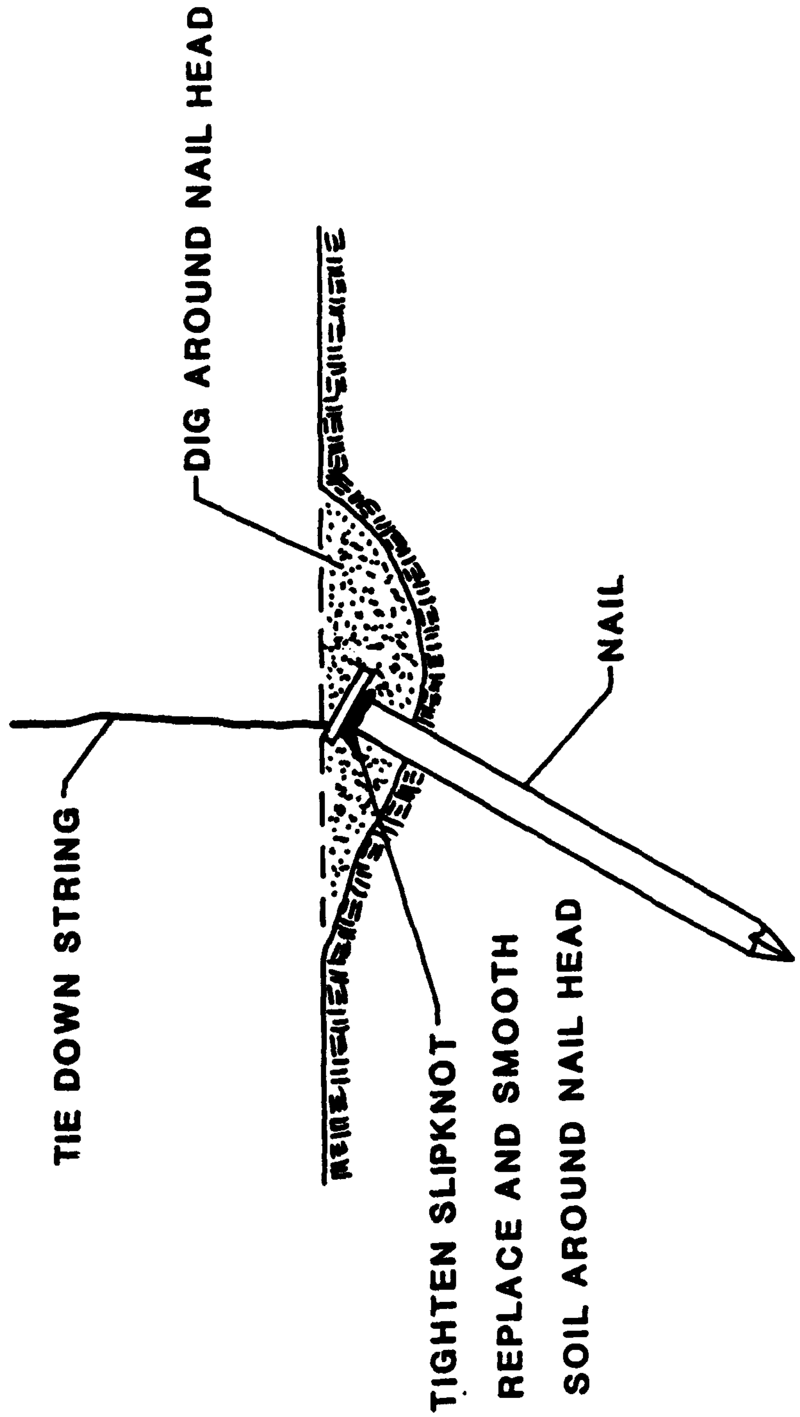
- / + TIME	ACTIVITY	ACTION OFFICER/AGENCY
T+04:00	COMMENCE PHASE 4 RE-ENTRY.	TGSO
T+04:00	CLOSE RANGE NET.	TC
T+04:15	WB57F PASSES COMMENCE.	CHEROKEE
T+05:00	WB57F PASSES TERMINATE.	CHEROKEE
T+05:[illegible]0	CESSNA 180 PASSES TERMINATE.	CHEROKEE
T+06:00	QUICK LOOK REPORTS SUBMITTED TO TGD/TD.	PO
T+06:00	B-1B OVERFLIGHTS COMMENCE.	CHEROKEE
T+07:11	B-1B OVERFLIGHTS TERMINATE.	CHEROKEE
T+08:00	PMS (BEECH BARON) PASSES TERMINATE.	CHEROKEE
T+10:45	RF-4B LAUNCH FROM HAFB.	CHEROKEE
T+11:00	RF-4B MISSION COMMENCES.	CHEROKEE
T+11:30	RF-4B MISSION TERMINATES.	CHEROKEE
T+1 DAY	24 HOUR REPORT SUBMITTED.	TGD
T+1 DAY	CESSNA 180 PASSES.	CHEROKEE
T+1 DAY	UH-1H LAUNCHES FOR BRV SEARCH.	CHEROKEE
T+1 DAY	SHOT PARTY.	TGD
T+2 DAYS	CESSNA 180 PASSES.	CHEROKEE

APPENDIX J

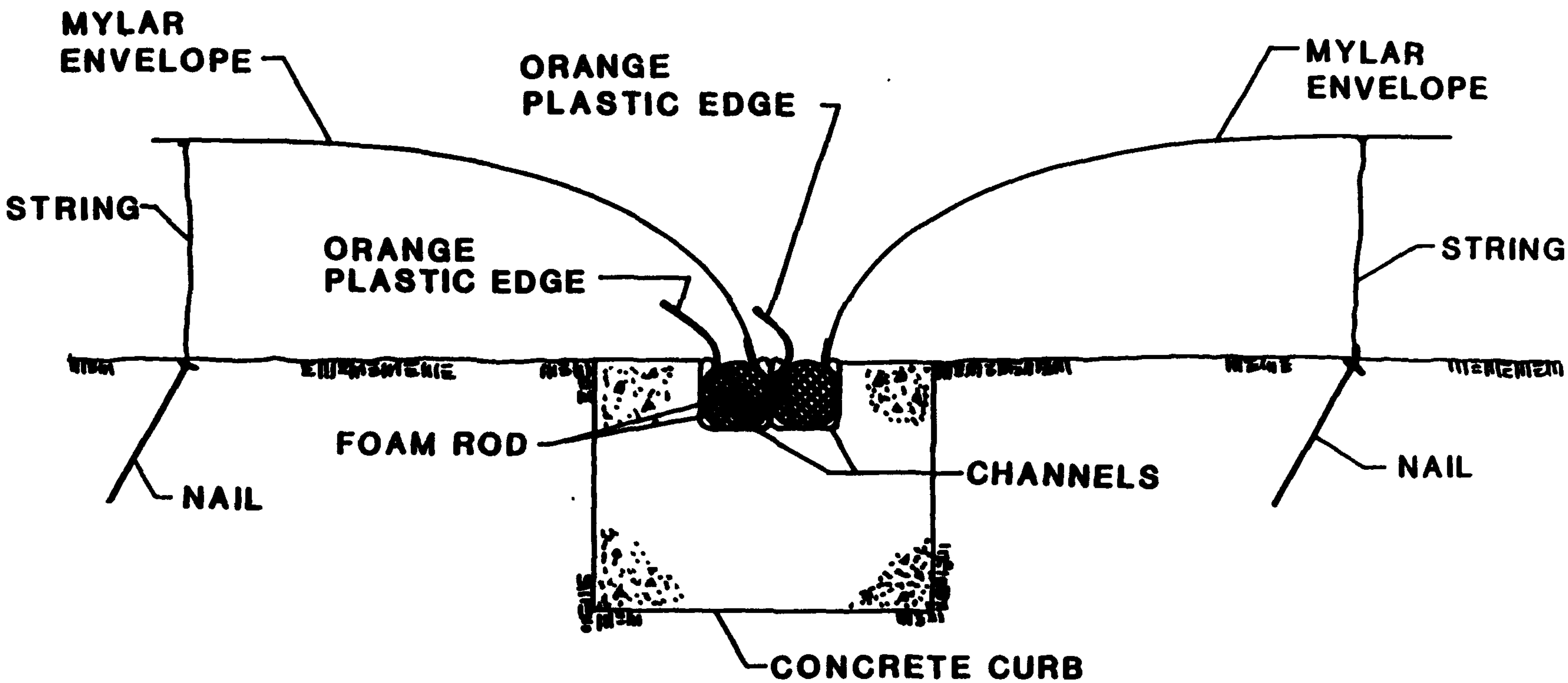
ENVELOPE DEPLOYMENT AND HELIUM FILL OPERATION


EDGE ANCHOR LAYOUT
SCALE 1":50'
944'-2" (REF.)
120'-2"
111'-7"
394'-10"
AZ 170°
2 - 20' UNISTRUT #P5270 INSERTS W/ PLASTIC FILLER TO PREVENT CONC. SEEPAGE. COUPLED & WORKED W/ P3663 JOINT COVER (7 PLCS)
DETAIL 4, SH 2 (10 PLCS)
40' TYP 9 PLCS
STRAIGHT SECTION @ EA. END OF ARC (2 REQ'D) @ 25'-5 3/16" LONG.
DETAIL 1, SHEET 2
DETAIL 2, SHEET 2
DETAIL 3, SHEET 2
DETAIL 5
403.93 R (REF.)
174.32' (REF.)
NEW MEXICO ENGINEERING RESEARCH INSTITUTE
9.55-4
EDGE ANCHOR LAYOUT, PRECURSOR SIMULATOR
2092-1965
N

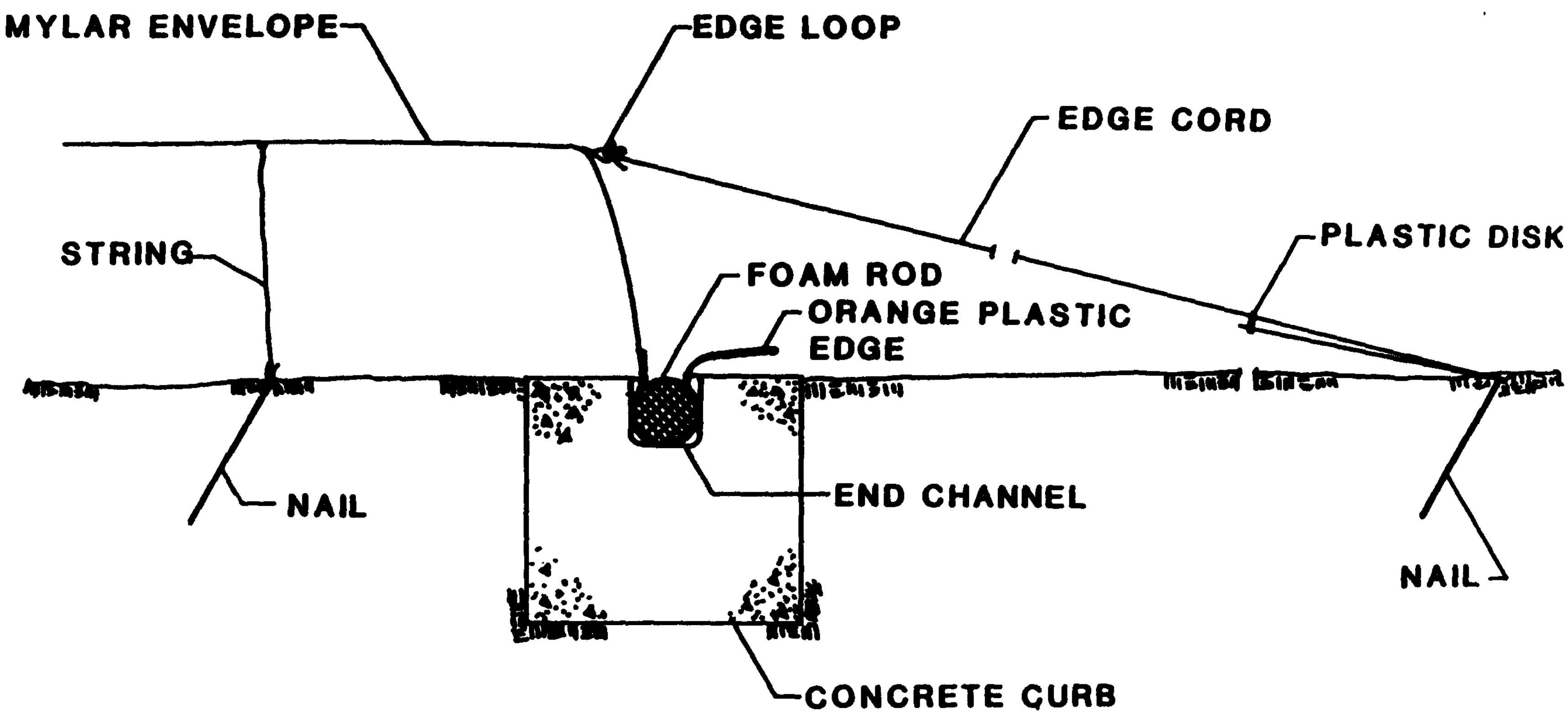

TIE DOWN STRING FROM ENVELOPE
SLIPKNOT
NAIL AT 51.5" O.C. EACH WAY


DIG AROUND NAIL HEAD
NAIL
TIE DOWN STRING
TIGHTEN SLIPKNOT
REPLACE AND SMOOTH
SOIL AROUND NAIL HEAD

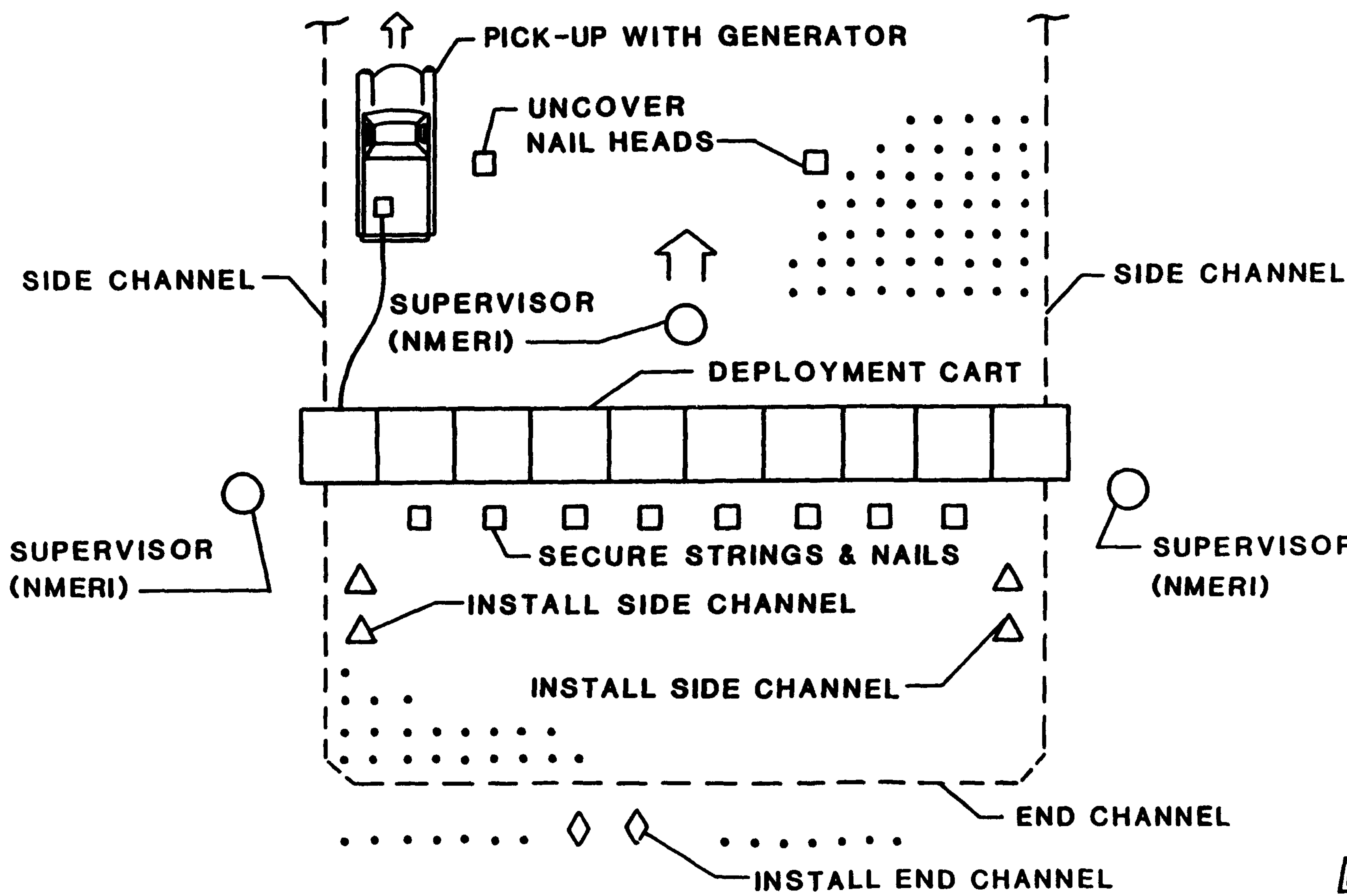
EDGE ANCHOR SYSTEM - SIDES

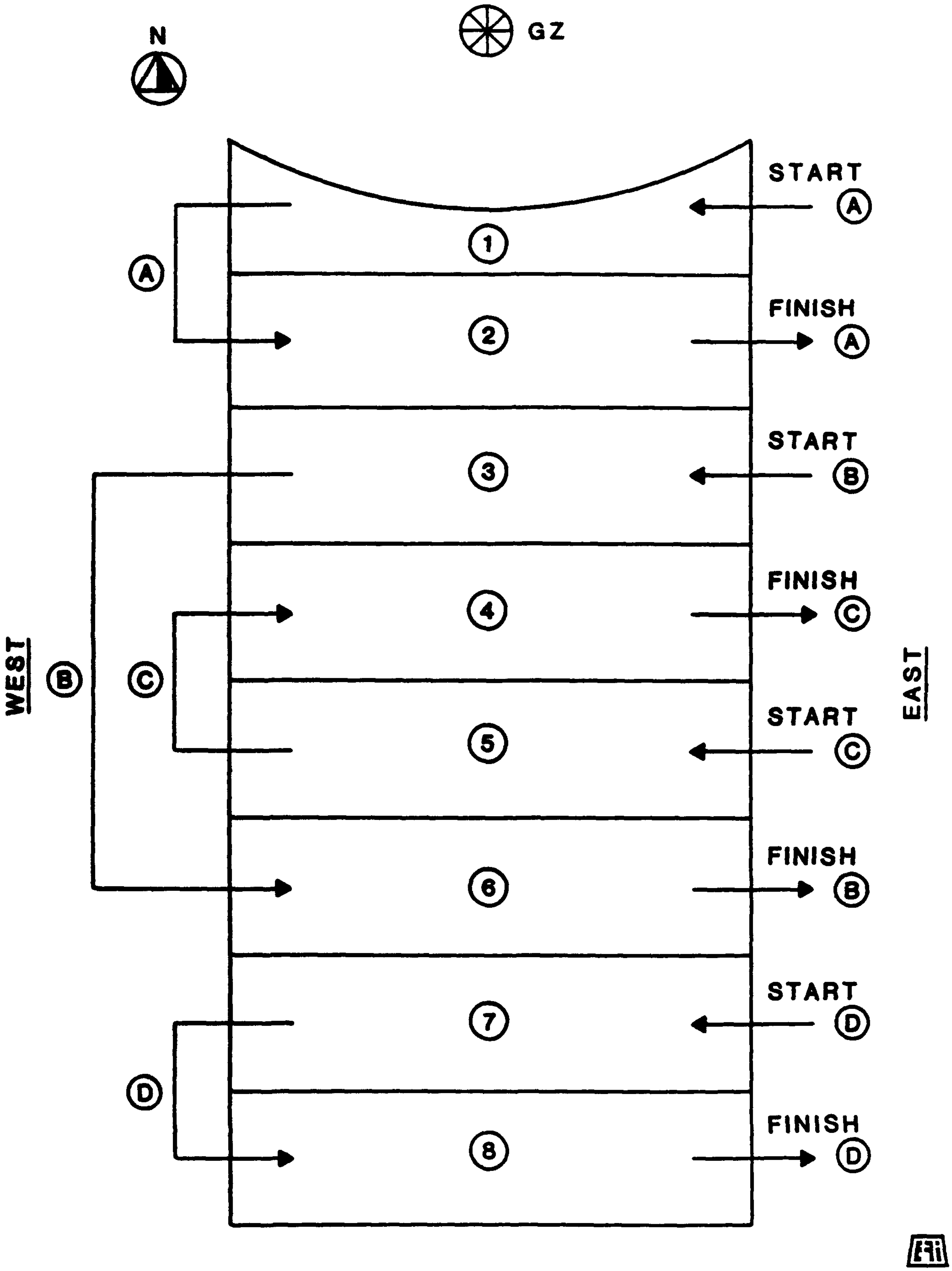


EDGE ANCHOR SYSTEM - ENDS



DEPLOYMENT CART LAYOUT




N
GZ
START A
FINISH A
START B
FINISH C
START C
FINISH B
START D
FINISH D
WEST
EAST
A
B
C
D
1
2
3
4
5
6
7
8

MISTY PICTURE
ENVELOPE DEPLOYMENT

SUMMARY

1. THE ENVELOPE ANCHORAGE SYSTEM USED IS ADEQUATE.
2. NUMBER OF CARTS AND DEPLOYMENT PROCEDURE USED IS ADEQUATE.
3. NUMBER OF PERSONNEL PROVIDED WAS ADEQUATE.
4. IN CALM WEATHER, SIX HOURS ARE REQUIRED TO DEPLOY THE EIGHT ENVELOPES.
5. TOUGHER ENVELOPE MATERIAL USED ON MISTY PICTURE IS MUCH EASIER TO DEPLOY THAN THAT USED FOR MINOR SCALE.
6. BETTER COORDINATION IS NEEDED BETWEEN LOCATING THE EXPERIMENTS AND GAGES AND THE ENVELOPE DEPLOYMENT PROCEDURE TO BE USED.

MISTY PICTURE
ENVELOPE DEPLOYMENT
RECOMMENDATIONS

1. EITHER: LAYOUT GAGES AND EXPERIMENTS TO MISS PRE-ESTABLISHED CART WHEEL PATHS.

   OR: MODIFY CART DESIGN WITH FULLY ADJUSTABLE WHEEL LOCATIONS

2. LAY OUT TEST BED SO THAT ALL THE ENVELOPES ARE THE SAME WIDTH.

MISTY PICTURE PROJECT

May 14, 1987

HELIUM FLOW AND CONTROL

QUICK LOOK REPORT

General Contractor:	Gracon Corporation 7221 East U.S. Highway 34 P. O. Box 869 Loveland, Colorado 80539
Instrumentation Contractor:	Utility Control and Equipment Corporation 15000 W. 64th Avenue Golden, Colorado 80403

Published July 10, 1987

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

SUMMARY

The Precursor Radial portion of the Misty Picture project included eight mylar bags installed adjacent to each other which covered an area of approximately 356,583 square feet. These mylar bags were filled with helium to increase the speed of sound above that of ambient atmospheric conditions. The target speed of sound was 2650 FPS in each bag. Helium fill of the eight mylar bags began at 4:18 A.M. on May 14, 1987. All eight mylar bags were full by 6:20 A.M. At this time a sequence of recirculation of the helium air mixture, purging (venting) the helium and air mixture, re-filling with pure helium, and recirculating again, began and was continued to T-0. This sequence of operations resulted in overall speed of sound and helium concentration conditions shown in Table No. 1 below.

	Mean	Std Dev	Maximum	Minimum
He Concentration (%)	91.4	1.1	96	90
Speed of Sound (fps)	2863.7	73.3	2910	2567
Relative Humidity (%)	48.2	3.3	52	41
Temperature (°F)	82.9	4.2	86	67

Table No.1. T-0 8 Bag Combined Average Data

MONITORING INSTRUMENTATION

SPEED OF SOUND MEASUREMENTS

Speed of sound in the helium and air mixtures within the mylar bags was measured directly using ultrasonic distance measuring instrumentation. The ultrasonic transducer was mounted in a 10-foot section of steel tube. The tube was perforated to allow free passage of the helium and air mixture between the ultrasonic transducer and the distance target. The end of the tube was sealed, providing a vertical target at a known distance. The 10-foot tube with transducer mounted in one end provided a fixed target distance of 117.0-inches. Refer to Figure No. 1.

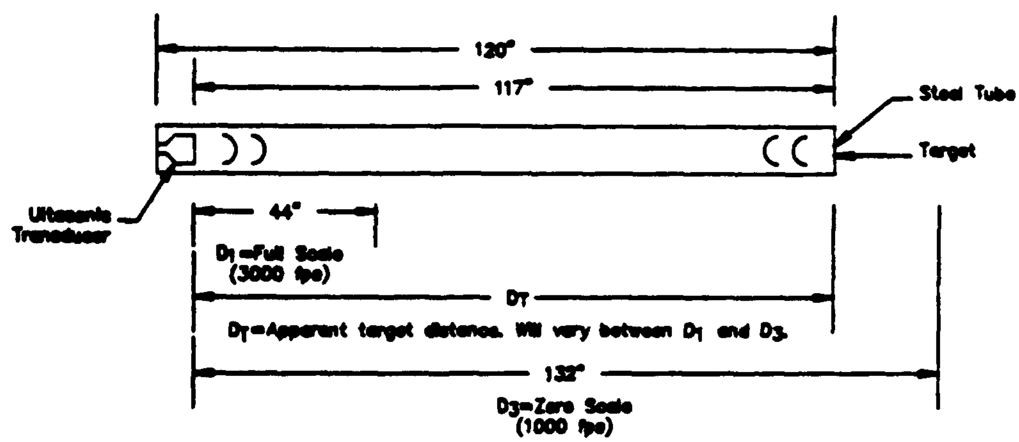


Figure No.1. Speed of Sound Sensing Tube

The measurement range was selected to be 1000 FPS to 3000 FPS to allow an upscale reading while the mylar bag was being deployed. This would have given an immediate indication of sensor failure if a unit had been damaged during bag deployment. Using the speed of sound in air at 70°F as the baseline (1128 FPS), the span of the measurement system can be calculated as follows:

$$\text{Full Scale} = D_1 = 117.0'' \times \frac{1128\ \text{FPS}}{3000\ \text{FPS}} = 43.992''\ (44'')$$

$$\text{Zero} = D_3 = 117.0'' \times \frac{1128\ \text{FPS}}{1000\ \text{FPS}} = 131.976''\ (132'')$$

$$\text{Span} = D_3 - D_1 = 88''$$

The ultrasonic measurement device measures distance only. It is normally used only in air and is temperature compensated to eliminate errors introduced by the change in the speed of sound due to temperature. The temperature compensation was not utilized because we wanted the effects of temperature to be reflected in the measurements. The distance that the fixed target appears to the sensor is dependent on the velocity of sound in the gas between the sensor and the target. The target will appear closer as the velocity increases. That is, the apparent distance is inversely proportioned to speed of sound in the gas mixture. The relationship between the apparent distance and the speed of sound is nonlinear. The apparent distance measurement is input into the computer system and the corresponding speed of sound calculated before being displayed or used in subsequent calculations.

Bench tests of this technique for speed of sound measurements were conducted, using a sealed tube, filled with known mixtures of helium and air.

The concentrations of helium are calculated from the measured speed of sound taking into account the effects of temperature, relative humidity and atmospheric pressure as follows:

$$H = \text{Relative humidity } (\%) / 100$$

$$A = \text{Atmospheric pressure (PSI)}$$

$$PPH_2O = \text{partial pressure of } H_2O$$

$$K1 = (\text{speed of sound})^2 / (49735 * (\text{deg F} + 459.67))$$

$$K3 = 28{,}966 - ((10.95 * PPH_2O * H) / A)$$

$$K6 = (K1 * 49.92 * K3) - 33.89$$

$$K7 = (K1 * K3^2) - (40.59 - ((18.97 * PPH_2O * H) / A))$$

$$He\ \% = \left(\frac{K6 - \sqrt{K6^2 - (2492 * K1 * K7)}}{1246 * K1} \right) \times 100$$

Accuracy of the measurements must include possibilities for errors in measurement and signal conversion. Figure No. 2 represents a typical analog channel.

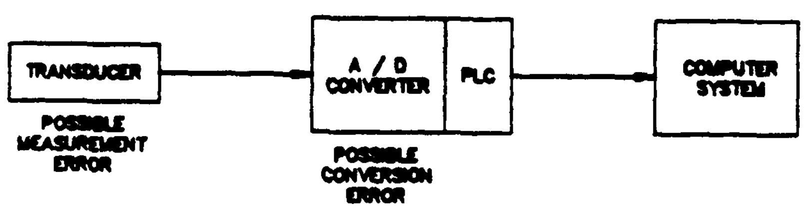


Figure No.2. Block Diagram of Analog Recording Channel

The predominant factor, causing inaccuracies in the ultrasonic method of speed of sound measurement, is the wavelength of the ultrasonic pulse. The wavelength represents a unit distance in which the measurement can be in error. The percentage error in the speed measurement that this distance represents is dependent on the target distance.

The sound frequency for the units used is 36KH_Z. The sound pulse wavelength is maximum at the highest velocity measured or speed of sound equal to 3000 FPS.

$$\text{Wavelength} = \frac{3000*12}{36000} = 1.00''$$

The distance span is 88" and the potential error is therefore $\pm$ 1/88 or $\pm$ 1.14%. This must be combined with the possible conversion error of the A/D converter on the input section of the programmable logic controller (PLC). The A/D converter is 12 bit (0-4095). The best resolution is 1 bit out of 4096, which is $\pm$ .024%. Combining the two possible errors result in a $\pm$ 1.164% error. This is $\pm$ 23.3 FPS out of the 2000 FPS span. Bench testing of the speed of sound measurement technique verified this maximum expected error.

TEMPERATURE AND RELATIVE HUMIDITY MEASUREMENTS

Temperature and relative humidity were measured with a combination unit.

The temperature sensing portion of the instrument utilizes a thermistor for temperature monitoring. Specifications for the temperature measurement are as follows:

Measurement Range:	0-100 ^{o}C
Accuracy:	$\pm$ 1 ^{o}C
Response Time:	18 Seconds

Adding the A/D conversion error to the specified accuracy results in a loop accuracy of $\pm$ 1.024%. The range of measurement is converted to 0-212 ^{o}F in the computer. Therefore, the accuracy of the temperature measurements is $\pm$ 2.2 ^{o}F.

The relative humidity sensing portion of the instrument consists of a parallel plate capacitor. One plate of the capacitor is etched on a metallized glass substrate which is coated with an active polymer. The second plate consists of a moisture permeable metallic film which is deposited over the polymer. Changes in relative humidity affect the insulating capability of the polymer and thus change the valve of the capacitor. Specification for the relative humidity measurement are as follows:

Measurement Range:	0 - 100% RH
Accuracy:	$\pm$ 2% RH in the range of 3 - 90% RH
Response Time:	Less than 6 seconds for 90% response.

Adding the A/D conversion error to the specified accuracy results in a loop accuracy of $\pm$ 2.024% RH.

The relative humidity sensor will saturate if exposed to relative humidities above 90% for more than one-half hour. This will not damage the unit. However, it would take 24 hours of relative humidities less than 50% for the sensor to recover. It was estimated that relative humidities greater than 90% could exist after bag deployment and prior to filling with helium. To prevent the sensors from saturating, a purge system, using dry helium gas, was installed. The purge system blew approximately 10CFM of dry helium on the capacitor sensor. This system was very effective. None of the relative humidity sensors saturated. The purge system was shut off when bag filling commenced to avoid effecting the actual relative humidity measurements.

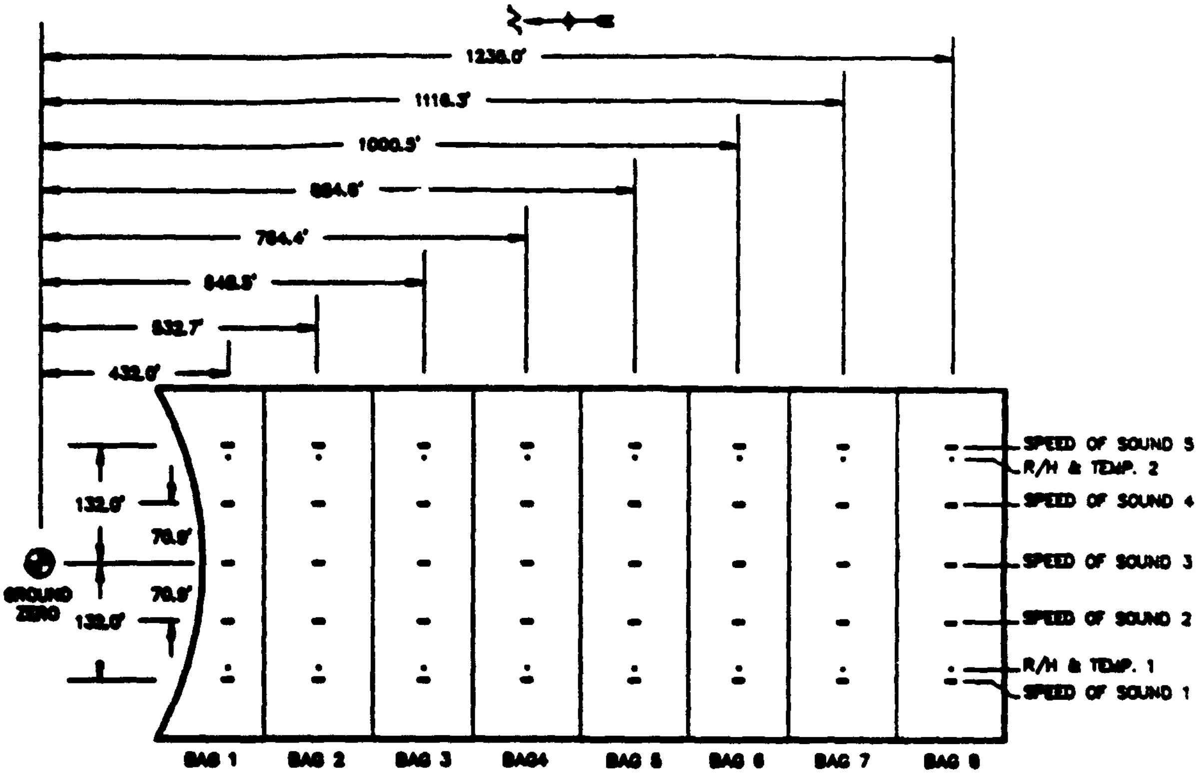
FIELDING

Each of the eight mylar bags contained the following environmental monitoring instrumentation:

- 5 - Speed of sound sensors
- 2 - Temperature sensors
- 2 - Relative Humidity sensors
- 2 - Bag Pressure sensors.

The approximate sensor mounting locations and a tabulation of fielded and recorded instrument channels is shown in Figure No.3.

Three speed of sound sensors and two bag pressure sensors were not recorded. The exact reasons for the failures of this equipment could not be determined as it was destroyed. The signals from these sensors were removed from all calculations and displays. The erroneous data was not used.



Misty Picture Sensor Layout

Misty Picture Helium Monitoring Instrumentation Fielded

BAG NO.	SPEED OF SOUND		RELATIVE HUMIDITY		TEMPERATURE		PRESSURE	
	FD	REC	FD	REC	FD	REC	FD	REC
1	5	3	2	2	2	2	2	1
2	5	5	2	2	2	2	2	2
3	5	4	2	2	2	2	2	2
4	5	5	2	2	2	2	2	2
5	5	5	2	2	2	2	2	1
6	5	5	2	2	2	2	2	2
7	5	5	2	2	2	2	2	2
8	5	5	2	2	2	2	2	2
TOTAL	40	37	16	16	16	16	16	14

FD = Fielded
REC = Recorded

Speed of Sound Sensors 1-2, 1-4, and 3-5 not recorded.
Bag Pressure Transmitters 1-1 and 5-2 not recorded.

Figure No.3. Helium Flow and Control Instrument Fielding

GRACON CORPORATION
General Contractors
LOVELAND, COLORADO

UCEC
ARVADA, COLORADO
UTILITY CONTROL & EQUIPMENT CORPORATION

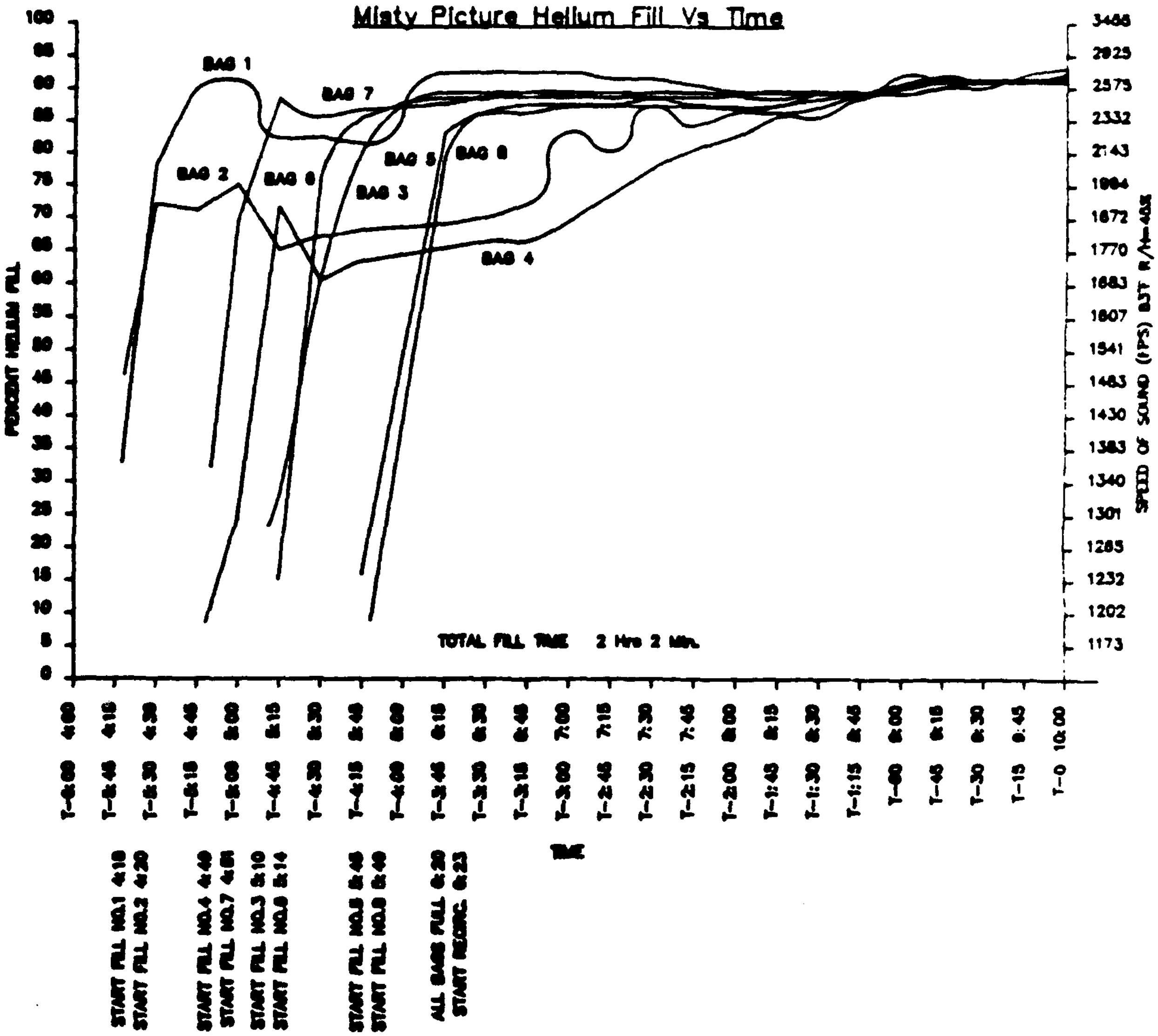
HELIUM FILLING PROCESS

Helium filling of the eight mylar bags began at 4:18 A.M. May 14, 1987. An object of the fill process was to fill each mylar bag as quickly as possible to minimize the time which the bags were subject to the highest probability of damage. This being the time of only partial inflation. To achieve the quickest fill times possible and to provide the optimum use of helium, the mylar bags were filled in pairs. The pairs were selected to maintain the highest possible pressures at the valve control vaults as the pressure in the supply manifold dropped with off loading of helium from the trucks. The mylar bags were paired and filled in the sequence indicated below:

BAG FILLING SEQUENCE AND TIMES

	Start Fill	Fill Complete
Bag No. 1	4:18 A.M.	4:31 A.M.
Bag No. 2	4:20 A.M.	4:34 A.M.
Bag No. 4	4:49 A.M.	5:05 A.M.
Bag No. 7	4:51 A.M.	5:06 A.M.
Bag No. 3	5:10 A.M.	5:38 A.M.
Bag No. 6	5:14 A.M.	5:40 A.M.
Bag No. 5	5:45 A.M.	6:20 A.M. (22 minute hold)
Bag No. 8	5:49 A.M.	6:17 A.M. (9 minute hold)

The total fill time was 2 hours and 2 minutes. This time included approximately 31 minutes of HOLD time where the filling process was stopped to allow untangling of the mylar bag's hold down strings. As can be seen from Figure No. 4, all the bags, except for No. 2 and No. 4, had a concentration of helium greater than 85% immediately after filling.



Misty Picture T–0 Helium Fill Conditions

BAG	S/S avg	TEMP avg	RH avg	He CONC. avg .
No.1	2788 fps	76 °F	45 %	93 %
No.2	2653 fps	84 °F	44 %	91 %
No.3	2634 fps	83 °F	48 %	91 %
No.4	2641 fps	84 °F	42 %	91 %
No.5	2618 fps	83 °F	45 %	91 %
No.6	2690 fps	85 °F	44 %	92 %
No.7	2692 fps	84 °F	46 %	92 %
No.8	2639 fps	84 °F	47 %	91 %

Figure No.4. Eight Bag Helium Fill Vs Time

GRACON General CORPORATION Contractors
LOVELAND, COLORADO

UCEC
ARVADA, COLORADO
UTILITY CONTROL & EQUIPMENT CORPORATION

At 6:23 A.M., the operation of the helium flow and control system changed from the "Fill" mode to the "Recirculation" mode. From this time to T-0, a series of control operations described below was repeated, in order to achieve the highest possible helium concentration and a homogeneous gas mixture.

1. **Recirculation Mode ....** Helium gas inflow of between 200-300 CFM. Supply Fan and Exhaust Fan running to recirculate from the west end to the east end.

2. **Purge Mode ....** With the fans running, opening the Exhaust Damper to vent the low concentration of helium and air to the atmosphere.

3. **Fill Mode ....** Increase the flow of helium gas into the bag to a flow rate of 1000 - 2000 CFM. High helium gas flow rates were decreased as the bag pressure increased.

4. **Recirculation Mode ....** Repeat the recirculation mode.

This sequence of operations was very effective in increasing the helium concentrations in the bags. Figure No. 4 shows the average values of speed of sound and helium concentrations which were obtained by T-0. The average speed of sound ranged from a low of 2618 FPS in Bag No. 3, to a high of 2786 FPS in Bag No. 1.

The lowest speed of sound measurements recorded following initial fill, were in Bag No. 4. These were an average speed of sound of 1644 FPS with corresponding helium concentration of 60%. The recirculating - purging - recirculating operations increased the average speed of sound to 2641 FPS and helium concentration to 91% by T-0.

HELIUM DISTRIBUTION AND ANALYSIS

Figure No. 5 shows a graphical representation of T-0 data recorded at sensor locations No. 1, No.3, and No. 5, in each of the eight bags. Table No. 2 shows complete T-0 data for all sensors recorded. From this data several conclusions can be reached.

1. Mean Speed of Sound for the 37 sensors recorded = 2663.7 FPS with a standard deviation of 73.3 FPS.
2. Mean Helium Concentration = 91.4% with a standard deviation of 1.1%.
3. Maximum Speed of Sound recorded was at Sensor No. 1 in Bag No. 1 = 2910 FPS.
4. Minimum Speed of Sound recorded was at Sensor No. 3 in Bag No. 8 = 2557 FPS.
5. Mean relative humidity of the 16 sensors recorded = 45.2%.
6. Mean temperature of the 16 sensors recorded = 82.9°F.
7. The Speed of Sound recorded at sensor location No. 1 (west side) was slightly higher than the data recorded at sensor location No. 3 (center) or sensor location No. 5 (east side) in bags No. 1, No. 2, and No. 7.
8. Bag No. 1 had the highest average speed of sound at 2785.7 FPS.
9. Bag No. 5 had the lowest average speed of sound at 2618.4 FPS.

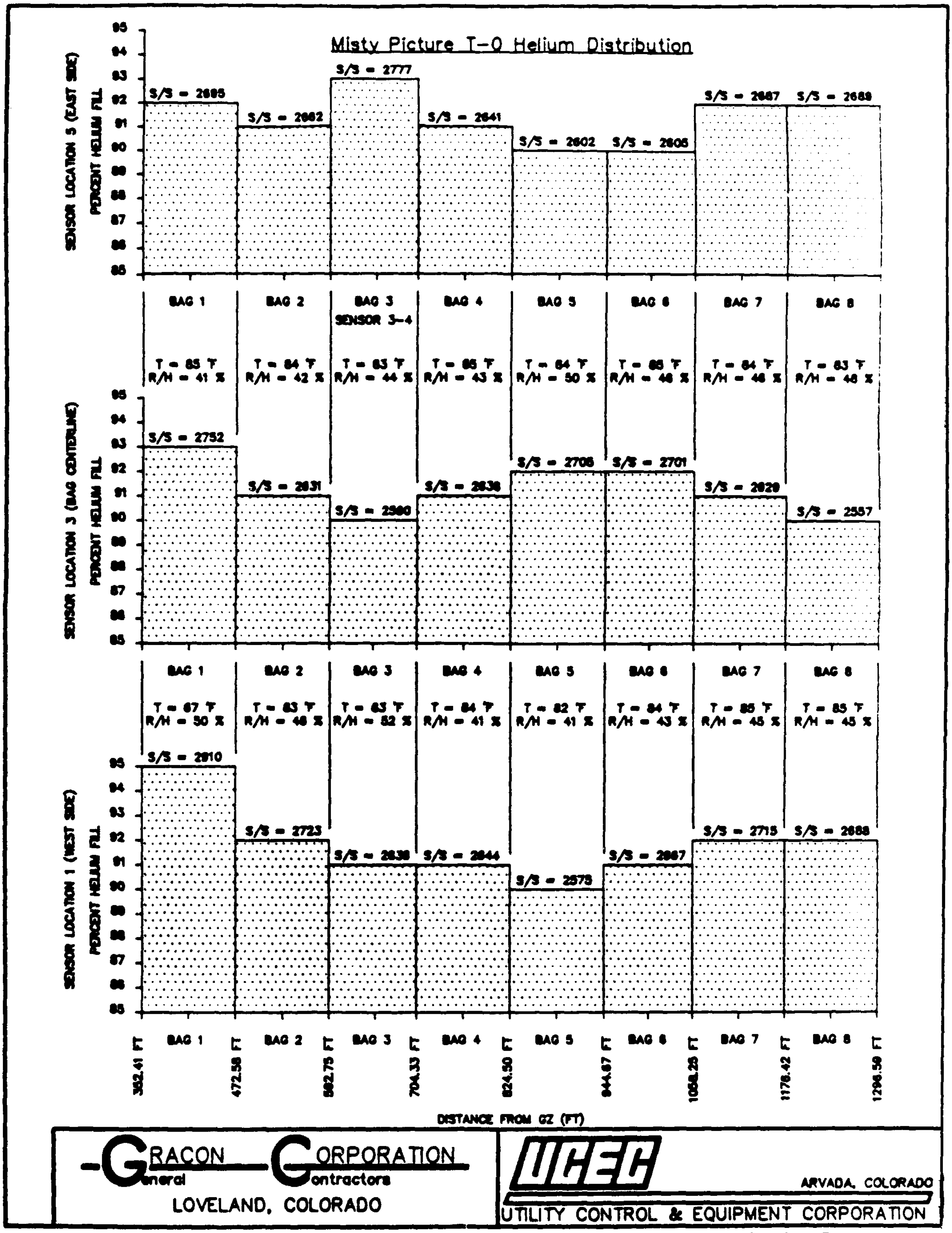


Figure No. 5 Helium Distribution Data

Misty Picture T-0 Statistical Data

Sensor Location		Bag #1	Bag #2	Bag #3	Bag #4	Bag #5	Bag #6	Bag #7	Bag #8	Mean	Std Dev
S/S #1	S/S	2910	2723	2636	2644	2575	2667	2715	2688	2695	92.7
	He Conc	95	92	91	91	90	91	92	92	92	1.4
S/S #2	S/S	N/R	2629	2563	2637	2623	2660	2640	2648	2629	29.0
	He Conc	N/R	91	90	91	91	91	91	91	91	0.3
S/S #3	S/S	2752	2631	2560	2636	2705	2701	2629	2557	2646	64.9
	He Conc	93	91	90	91	92	92	91	90	91	1.0
S/S #4	S/S	N/R	2619	2777	2648	2587	2816	2787	2614	2693	89.4
	He Conc	N/R	91	93	91	90	94	93	91	92	1.4
S/S #5	S/S	2695	2662	N/R	2641	2602	2605	2687	2689	2654	36.5
	He Conc	92	91	N/R	91	90	90	92	92	91	0.8
Mean	S/S	2785.7	2652.8	2634.0	2641.2	2618.4	2689.8	2691.6	2639.2		
	He Conc	93.3	91.2	91.0	91.0	90.6	91.6	91.8	91.2		
Std dev	S/S	90.9	37.9	88.0	4.4	46.2	70.2	57.0	49.7		
	He Conc	1.2	0.4	1.2	0.0	0.8	1.4	0.7	0.7		
R/H #1		50	46	52	41	41	43	45	45	45.4	3.7
R/H #2		41	42	44	43	50	46	46	48	45.0	2.9
Mean		45.5	44.0	48.0	42.0	45.5	44.5	45.5	46.5		
Temp. #1		67	83	83	84	82	84	85	85	81.6	5.6
Temp. #2		85	84	83	85	84	85	84	83	84.1	0.8
Mean		76.0	83.5	83.0	84.5	83.0	84.5	84.5	84.0		

Atmospheric Conditions

Atm. Pressure 12.67 psia

Partial Pressure H_2O 0.596

Misty Picture T-0 8 Bag Combined Data

	Mean	Std Dev	Maximum	Minimum
He Concentration (%)	91.4	1.1	95	90
Speed of Sound (fps)	2663.7	73.3	2910	2557
Relative Humidity (%)	45.2	3.3	52	41
Temperature (°F)	82.9	4.2	85	67

Table No.2. T-0 Statistical Data

GRACON CORPORATION General Contractors
LOVELAND, COLORADO

UCEC
ARVADA, COLORADO
UTILITY CONTROL & EQUIPMENT CORPORATION

Data obtained at the BETS III test showed the helium distribution system provided uniform concentrations from side to side of the bag. From this it is reasonable to assume that the helium concentration near the sides of the bags was very close to the data recorded at the sensor locations. The BETS III test also showed that some vertical stratification could exist. At BETS III, this vertical stratification was less than 5% on the average, and this was without the use of a recirculation system. The recirculation system was very effective at the Misty Picture project, and it is reasonable to assume that the helium concentrations at ground level were very close to those at the top of the bag.

APPENDIX K

MISTY PICTURE OPERATIONS PLAN

GENERAL.

a. Unless otherwise authorized by STEWS-SD-S, MISTY PICTURE badges issued to US citizens will be honored for range access at SRC, Tularosa, and Oscura Range Center gates only. Individuals issued only MISTY PICTURE badges must proceed directly to the test site via RR 7, RR 6 to RR 7, RR 12 to RR 7, or RR 6 to RR 9 to RR 12 to RR 7. For operational purposes, access to range areas north of Mockingbird Gap and west of the Oscura Mountains are authorized. Exceptions must be coordinated with SD-S, Ms. L. Perriguey, 678-3233/4282, or Mr. R. Stith, 679-4357.

b. Individuals discovered in unauthorized areas will be detained and turned over to the appropriate guard force. Such instances will be fully investigated and could result in denial of further access to WSMR.

c. Unless previously cleared with SD-S (Ms. L. Perriguey) and escorted by an authorized US citizen, foreign nationals must enter and exit the range via SRC gate.

d. Only MISTY PICTURE badges will be honored within the controlled areas and the rocket launch complex. MISTY PICTURE badges are not required outside of the 7300 foot controlled area and outside the rocket launch complex.

PROCEDURES.

a. Issuance and return of MISTY PICTURE badges will be recorded on the MISTY PICTURE Badge Control Log. SRC Badge Office will submit a badge issue roster on a weekly basis to the TGSO. Various colored MISTY PICTURE photo badges were issued according to need for access as shown below. "Badge type" block will indicate the type issued as follows:

TYPES OF PHOTO BADGES		DESCRIPTION
(1) Blue (General)	-	General Testbed
(2) White (All)	-	All areas
(3) Red Badge	-	Foreign National (by country)
(4) Green (ARMTE)	-	WSMR (ARMTE)
(5) Yellow (SPAS)	-	HQDNA (BRV's)
(6) Grey (FET)	-	BRL (FET)
(7) Tan (HML)	-	BMO (HML)
(8) Pink (Navy)	-	Navy (NSWC)

b. General testbed MISTY PICTURE badges, as well as the normal WSMR badges, will be issued from rosters submitted to the Uprange Contractor Security Office by STEWS-SD-I. Special (limited area) badges will also be issued by the Security Office, but in accordance with the special rosters submitted to SRC by the TGSO.

MISTY PICTURE BADGES

The MISTY PICTURE badges provide for access to WSMR and the DNA PHETS. The badges use color codes to determine access to the testbed and its internal security areas. All badges will have a photo of its user.

Blue (General)	General access to testbed.
White (All)	General access to testbed and all internal security areas (limited areas)
White All (E)	General access to testbed and all internal security areas (limited areas). Areas authorized under camouflage nets of the ARMTE area. Authorized to escort in all limited areas.
Red Photo	General access to testbed and appropriate foreign nation experiment area (each nation's name will be printed on the badge).
Green (ARMTE)	General access to testbed and WSMR ARMTE limited area, no under camo nets.
Green (ARMTE) (C)	General access to testbed and WSMR ARMTE limited area, and escort authority under came nets.
Yellow (SPAS)	General access to testbed and the HQDNA (SPAS) BRV site.
Grey (FET)	General access to testbed and BRL (FET) area.
Tan (HML)	General access to testbed and BMO (HML) area.
Pink (Navy)	General access to testbed and Navy (NSWC) area.

DISTINGUISHED VISITORS

GENERAL. Invitations to observe the MISTY PICTURE event and attend the general testbed tour post shot will be mailed to the respective agencies during the month of April 1987. A copy of the invitation letter is at Enclosure 1. Responses (RSVP) for inclusion to the tour should be received at FCDNA by 1 May 1987.

SECURITY:

a. Visit Requests. All tour members must submit a visit request to Commander, White Sands Missile Range, ATTN: STEWS-SD-I (Mrs. Gloria Hernandez), White Sands Missile Range, NM 88002-5047, no later than 1 May 1987. Due to the presence of classified infomration on the testbed, all individuals planning to attend the VIP tour must have a current classification level of at least secret.

b. Badging.

(1) Blue general testbed badges, without photos, will be issued by SRC badging office to CPT Sauer. These will be provided to the tour Officer-in-Charge (OIC) the day prior to the MISTY PICTURE event. An alphabetical roster of those individuals authorized tour attendance will also be provided to the tour OIC. Prior to the tour attendee receiving a MISTY PICTURE badge, the tour OIC will photo ID each individual, validating personnel identification and ensuring the dignitary is authorized tour attendance by cross referencing the individual's name to the tour attendance roster. USAF Security Police (SP) support will be provided to assist in this process. After this has been accomplished, a blue general testbed badge (see Figure 1) will be issued to the participant as the attendee boards the tour bus.

The following guard posts will be activated for the MISTY PICTURE event:

PROJECT	POSTS	ARRIVAL	DEPARTURE
ARMTE	3D/2N	23 Mar 87	24 May 87
FET	1	1 May 87	5 Jun 87
Navy	1	14 May 87	28 May 87
BMO	1	14 May 87	29 May 87
ANFO	2	26 Apr 87	14 May 87
BRV LCC	1	7 May 87	21 May 87
VIPER	1	12 May 87	14 May 87
Inst Bnkrs	3	14 May 87	29 May 87
Vehicle Patrol	1 (3 SP, 1 Veh)	2 Feb 87	5 Jun 87
Rte 13/ Security Avenue	1	23 Mar 87	5 Jun 87
South Park	1D/1N	2 Feb 87	5 Jun 87
North Park	1D/1N	2 Feb 87	5 Jun 87
West Park	1D/1N	2 Feb 87	5 Jun 87
ARC	1	14 May 87	14 Jun 87
BMO/MM	1	14 May 87	29 May 87
Shot Day	12	14 May 8 7	14 May 87

4 - SRC - Handle Observer parking/buses--OP Patrol
2 - OP - Traffic control/contraband--VIP DGTail
4 - Admin Park - Clear area/secure test control
2 - Re-entry control on RR 7

All dates are tentative and will be updated as required.

EVENT DAY

1. On event day, the SP's will provide supplementary support in a two phased operation. Phase I will begin at 0700 and consist of traffic and personnel control points. Phase II will consist of a shift of SP personnel for guard duty on the testbed after the blast.

POST	PERSONNEL	COMPLETION OF SHIFT TIME	TESTBED LOCATION
SRC/OP	6	T+2 Hrs	WSMR/BRL
Admin Park	4	T+4 Hrs	Admin Trailer/Park area
RR 7/Re-entry	2	T+4 Hrs	WSMR

a. SP Command Post will be located in the security trailer in the Admin Park

b. The SRC post will assist in parking visitor vehicles, checking for unauthorized cameras or binoculars, and preventing observation point visitors from proceeding downrange except on the buses. Personnel badged for MISTY PICTURE may proceed in POVs or official vehicles.

c. The RR 7/re-entry control post will allow personnel badged for MISTY PICTURE to proceed downrange until clearing of the testbed and the Admin Park has begun. At that point, MISTY PICTURE badged personnel will not be authorized to proceed south of the re-entry control point unless permission is given by the TGD.

d. The Admin Park posts will clear the area of unauthorized personnel as directed by FCDNA. One SP will rove and one will remain at the RR 7/RR 20 intersection. One will remain east of the Admin Park on RR 20. One will control access to the FCDNA Test Control trailer (Admin Trailer). FCDNA will provide a roster of personnel authorized to be in the Admin Park and who may enter the Test Control Trailer.

e. SP will be notified when to report to the security trailer in the Admin Park for further instructions prior to reporting to their testbed positions.

f. SP occupying testbed positions will assist the TGSO in clearing unauthorized personnel from the testbed, the timing and firing park, and all the instrumentation parks. Once these areas are cleared of unauthorized personnel, the SP will position themselves, with vehicles, in the re-entry convoy on RR 7 near the Admin Park.

2. OBSERVERS:

a. FCDNA is anticipating approximately 600 observers on event day. Each observer will be granted access at SRC gate. All observers will park their vehicles at SRC. No cameras or binoculars are authorized. Cameras or binoculars at the OP will be confiscated and note of the instance will be logged as appropriate.

b. A small number of observers from WSMR may attend the event and will have uprange WSMR badges. These observers will access the OP from the south. Observers will not be granted access to the testbed.

3. PRESS:

a. A large number of representatives from the press will attend the event. Some members of the press will meet at WSMR Public Affairs Office, Main Post, and be bussed up to the OP via RR 7. Other members of the press will access the range via the SRC gate and will be met by a WSMR PAO representative and be bussed to the OP via RR 7. News media photography will not be allowed en route to or from the OP.

b. After the event, the press will adjourn to the theater at SRC for a press briefing conducted by the DNA Public Affairs Office. Photography of the event will be provided to the press. There will be no press photography allowed outside the theater directed towards the testbed.

c. All press will exit the range via SRC by bus. Those going back to WSMR Main Post will return via I-25. Representatives of WSMR and/or DNA Public Affairs will escort the press at all times while in the uprange area.

4. ROADBLOCKS:

a. External roadblocks as determines by WSMR and FCDNA are to be provided by the uprange security contractor. Nine external roadblocks are anticipated

(1) Just north of the BRV launch site on RR 13.

(2) RR 7/OP road intersection.

(3) RR 20, 1 mile west of RR 7/RR 20 intersection

(4) RR 13, 1 mile southwest of RR 7/RR 13 intersection.

(5)-(9) Other points dependent on flight safety/BRV safety footprints.

APPENDIX L

MISTY PICTURE REENTRY AND MANNING PLAN

OPLAN HE-3 - MISTY PICTURE
14 APRIL 1987
ANNEX I

REENTRY & MANNING PLAN

PURPOSE: The purpose of this annex is to describe reentry and manning procedures for MISTY PICTURE. The reentry plan is in Appendix 1 and the manning plan is in Appendix 2.

REENTRY PLAN

1. PURPOSE: To outline reentry procedures and the composition of those parties involved in reentering the MISTY PICTURE testbed post shot.

2. GENERAL: The MISTY PICTURE reentry plan is composed of four phases. These include:

a. Phase I (Safety Reentry Program): This phase involves personnel entering the MISTY PICTURE testbed at T+7 minutes to conduct the following:

(1) Check and report that the testbed is clear of unspent explosives.

(2) Check and report that the testbed is clear of radioactive residue.

(3) Safe and report that the TRS units have been secured.

(4) Safe and report that the high pressure helium supply has been secured.

(5) Re-establish security at the three (3) testbed access points (North, West and South Parks). USAF SP required to secure the remainder of the MISTY PICTURE testbed will stage at the access points.

b. Phase II (Security Reentry Program): This phase involves personnel reentering the MISTY PICTURE testbed after the safety sweep has been completed. The following duties are to be conducted:

(1) Re-establish the guard points and patrols at Security Avenue and the WSMR (ARMTE), FET, and NSWC areas.

(2) Establish security at East Bunkers (EB) 1-5.

(3) Establish security for the DPR/HML area.

(4) Camouflage and cover the WSMR (ARMTE), FET, and NSWC experiments.

c. Phase III (Priority Activities): This phase consists of numerous parties reentering the MISTY PICTURE testbed after security has been reestablished and all classified experiments have been covered/camouflaged. This phase involves the fielding of all remaining US experimenters to the testbed and includes the VIP/distinguished guest tour.

d. Phase IV (General Activities): This phase involves opening the testbed to all properly badged personnel, in particular foreign experimenters.

5. DISCUSSION:

a. Phase I (Reentry Program):

(1) Safety Sweep (unspent explosive/RADSAFE).

(a) Start Point: T&F Park.

(b) Route: S--South on Range Road 7 to Range Road 13. Then north on South Perimeter Drive to dismount point.

(c) Reentry Organization:

Vehicle ID	Organization	Personnel	Function
S-1	FCDNA Safety WSMR Safety	LCDR Smith D. Enger	Coordinate and report on explosive safety.
S-3	RADSAFE	D. Marx J. Collins	Sweep area for radio-activity in the area of streak x-ray (8704) and Beta gauges (7501-5) along North and West Radials.
W-5	RADSAFE FCDNA Safety	E. Blevins C. Edwards	
S-8	Dyna WSMR-NR-DK	T. Gilmore T. Thum Dr. Ullrich Dr. Gallaway	Photography.

(2) TRS Safety Sweep.

(a) Start Point: T&F Park.

(b) Route: W--South on Range Road 7 to West Park Drive. East on West Park Drive to dismount point. Units in the security area to be safed first.

Vehicle ID	Organization	Personnel	Function
W-1	FCDNA	CPT Brumburgh J. Dishon D. Willoughby	Check and report safety of TRS units.
W-2	FCDNA	MSgt Yoas P. Kilpatrick D. Harrell	Check and report safety TRS units.
W-3	SAIC	E. Welsh R. Delfrate K. Brown	Check and report safety TRS units.
W-4	FCDNA	CPT Sauer Capt Lutton	Proceed to West Park and hold.

Vehicle ID	Organization	Personnel	Function
W-6	NSWC	R. Jump D. Adams M. Jump B. Persch	Cover experiment 4015.

(3) High Pressure Helium Sources.

(a) Start Point: T&F Park.

(b) S--South on Range 7 to Range Road 13. North on Range Road 13 to South Perimeter Drive then NE to the DPR.

Vehicle ID	Organization	Personnel	Function
S-4	FCDNA	LT Lehr	Check and report safety of helium flow and control system.

(4) Security Staging.

(a) Start Point: Range Road 7 reentry point (USAF SP team 1 & 2). T&F Park (CPT Sauer and USAF SP team 3).

(b) Routes: W--South on Range Road 7 to West Park Drive. East to dismount point at West Park and hold until Phase II reentry.

S--South on Range Road 7 to Range Road 13. North to dismount point at South Park and hold until Phase II reentry.

N--West on Range Road 20 to Range Road 13. South to dismount point at North Park and hold until Phase II reentry.

(c) All vehicles and personnel of the Phase II reentry program (para b) will forward stage to North, West, and South Instrumentation Parks.

b. Phase II Reentry Program.

(1) Reestablishment of security.

(a) Start Points: North Park Security Access Point.
West Park Security Access Point.
South Park Security Access Point.

1. S--South on Range Road 13 to dismount points.

W--East on West Park Drive to dismount points.

N--Northeast on South Perimeter Drive to dismount points.

(b) Reentry Organization:

Vehicle ID	Organization	Personnel	Function
N-1	USAF SP 1	SSgt Kurtz SSgt Fullhart Sgt Peterson Sgt Carman TSgt Flamm Sgt Vandergriff A1C Duebler	North Access Security, post HMI (6030) and post FEI area guards. Recover vehicle from South Park.
W-5	USAF SP 2	Lt Gill Sgt Beck SrA Picard SrA Arnswald A1C Austin A1C Smith SrA S. Anderson	Emplace West Park and security avenue access points, NSWC and ARMTE guards.
S-9	USAF SP 3	Sgt W. Brown Sgt Baldwin A1C Dally A1C G. Brown A1C Pratt	Secure south access EB 1 thru 5 and emplace HML/DPR guard.
S-10	ARMTE	J. O'Kuma R. Raley	Evaluate 1376A and B.
S-11	ARMTE LANL	J. Briones E. Dunlap J. Ylverton	Evaluate and cover 1365 and 1375.
S-12	ARMTE	R. Gomez O. Melton H. Behrens	Evaluate 1315, 1325 and secure SB 1.
S-13	ARMTE LANL WSMR-DK	MSGT Jojola R. Williams M. H. Fritz	Evaluate 1335 and 1345.
S-14	ARMTE	M. C. Fritz J. Decker G. Ivey J. Kowell R. Lee	Cover 1335, 1315, 1340, 1345, 1375, 1365, and 1376 A & B.
	US Army	R. Sotomayor D. Marquez J. Montes D. Ricker M. Wesley C. Lewis	

Vehicle ID	Organization	Personnel	Function
	US Army	J. Lacombe D. Johnston M. Henderson C. Gray R. McCaslin C. McMordie R. Morss W. Ray T. Rolf W. Sawyers J. Smith	
S-15	LANL	B. Hicks	Cover 1315.
S-16	ARMTE US Army	CW3 Christian D. Abbott M. Alcantar M. Cassidy C. Cole R. Conkey R. Egan R. Gagoon C. Wey R. Craw H. Chambers J. Hopkins R. Thomas K. Yancy E. Zylich	Cover 1300, 1305 and and 1310.
S-17	ARMTE	SSG Morgan	Secure SB 3.
S-18	ARMTE	SFC Sears	Evaluate 1300, 1305.
S-19	BMO BMO TRW Boeing	Lt Cooper Lt Lochrie N. Guiles M. House	Cover experiment 3400.
S-20	BMO Boeing Boeing TRW	Col Gogosha L. Lewin R. Meyer O. Lev	Cover experiments 3410-3416.
S-21	WSMR-DK	G. Baird Saenz	Photograph experiments 3401-3416.
S-23	Boeing Boeing TRW	B. Fabells D. Stock B. Robe	Cover experiments 6030 and 3410-3416.

Vehicle ID	Organization	Personnel	Function
S-24	WSMR-DK	SP4 Hammer P. Graziose SP4 Fissel	Photograph 1300 series experiments.
S-25	WSMR-DK	SP5 Highman PFC Sutton	Photograph 1300 series experiments.
S-26	WSMR-DK	J. Salazar SP4 Hamer	Photograph experiment 3400.
S-27	WSMR-DK	A. Clark	Photograph experiment 3400.
W-7	WSMR-DK	R. Vance	Photograph experiment 4015.
W-8	BRL	P. Jones J. Sullivan B. Prosser G. Long T. Feligie M. Bindel R. Lackey	Cover FET experiments.
W-9	BRL	A. Shaw C. Ward L. Belliveau E. Fioravante E. Deel K. Daisey C. Lucas	Cover FET experiments.
W-10	BRL	J. Salazar M. Holland D. Schneider B. Schallhorn N. Clifford B. Grossner B. Downing D. May	Cover FET experiments.
W-11	WSMR-DK	R. Dorwin D. Brown	Photograph 2100 series experiments.
W-12	ADCOR WSMR-DK	R. Lehtonen H. Hobson E. Samaniego	Evaluate and photograph FET experiments.
W-13	WSMR-DK	J. Sutherlin J. Medina	Photograph 2100 series experiments.

Vehicle ID	Organization	Personnel	Function
W-14	WSMR-DK	C. Abston SP4 Christman	Photograph 2100 series experiments.
W-15	WSMR-DK	E. Rugg Dr. Richmond	Photograph 2100 series experiments.

c. Phase III Reentry Program:

(1) Release Point: Range Road 7 reentry point.

(2) Reentry Routes: N--East on Range Road 20 to Range Road 13. South on Range Road 13 to North Perimeter Drive. Proceed south to the applicable area via North Perimeter Drive.

W--South on Range Road 7 to West Park Drive. East to applicable area.

S--South on Range Road 7 to Range Road 13. North on Range 13 to South Perimeter Drive. Proceed to applicable area via South Perimeter Drive.

(3) Reentry Organization:

Vehicle ID	Organization	Personnel	Function
S-1	Bendix	S. Crawford [illegible] Papic	Download EB-1
S-2	Bendix	S. Bighl J. Martinez	Download EB-2.
S-3	Bendix	A. Murner F. Calvert	Download EB-3.
S-4	Bendix	W. Denton C. Applegate	Download EB-4.
S-5	Bendix	F. Street M. Carroll G. Teel	Download EB-5.
S-6	Dyna	G. Hanson D. Holland	Retrieve film 2129, 2130, 2136.
S-7	Dnya	R. Hicks J. Pocengal	Retrieve film 8710, 8793.
S-8	Dyna	B. Perkins E. Gonzales	Pull film 8791, 9020, and 9021.
S-9	Dyna	Herrera Baca	Pull film 8792.

Vehicle ID	Organization	Personnel	Function
S-10	Dyna	W. Harper V. Achuleta A. Tafoya	Pull film 8230.
S-11	Dyna	L. Harbron L. Anaya	Download 8790 cameras.
S-12	Dyna	J. Armijo G. Padilla	Download 8790 cameras.
		VIC DIXON OUTLYING AREAS	
S-13	WES	B. Phillips P. Floyd	Retrieve data (3400 & 6030).
S-14	ARC	N. Ethridge W. Jackson V. King	Recover experiment 8770.
S-15	ARC	B. Armstrong J. Brogan R. Dinan	Recover experiment 8770.
S-16	ARC	J. Ingram F. Leake H. Parks D. Rickman	Recover experiment 8770.
S-17	ARC	R. Bensch L. Dixon T. Watson B. Flory	Recover experiment 8735.
S-18	[illegible]	A. Lang M. Wickham	Recover film 8719.
S-19	TRW	H. Rungaldier J. Stonch	Recover film 8704.
S-20	ISI	W. Dudziak J. Herring	Photograph experiment 8710.
S-21	WSMR-DK	F. Trevino B. Nowell K. Piche	Photograph experiment 8710.
W-1	Bendix	J. Murner P. Dernier	Recover WB-1.
W-2	Bendix	M. Cook M. Mazza	Recover WB-2.

Vehicle ID	Organization	Personnel	Function
W-3	Bendix	H. Hassell E. Welsh	Recover SB-2.
	BRL	D. Shults	
W-4	Bendix	J. Shutt G. Stewart R. Thane	Recover WT-1
W-5	Dyna	G. Baker J. Jiminez	Download 3310 and 3311.
W-6	Dyna	A. Arenas J. Pierce	Download 4200 and 1300 cameras.
W-7	Dyna	B. Black S. Aragon	Retrieve film 1010, 3312, 1014, 1015, 7550, 7090, 7454.
W-8	Dyna	H. Wood J. Flores	Retrieve film 4100, 4110, 8210.
W-9	Dyna	G. Hanson D. Holland	Retrieve film 2129, 2130, 2136.
W-10	NWEF	A. Alderete P. Cahill M. Gomez S. Salem D. Smith S. Stickney R. Tillery	Recover experiments 4100/4110.
W-11	Canada	G.A. Grant B. Harrison L. Main	Recover 7550.
W-12	NMERI	K. Benson D. Chavez S. Babcock D. Roddy	Prepare for aerial photography 8500.
W-13	NMERI	P. Roupas R. Polisar J. Peterson	Prepare for aerial photograph 8500.
W-14	Dyna	C. Gallegos	Lead man.
W-15	AFWL	Capt Buncher SSgt Kyle Sgt Chavez A1C Hoard Amn Kipfer	Recover TOADS data.

Vehicle ID	Organization	Personnel	Function
N-16	NRL	C. Simpson J. Peak	Recover 4200.
	WSMR NR-DK	SFC Moore J. Peak	Photograph 4200.
N-1	Bendix	L. Barnes D. Garcia	Recover NB-1.
	BRL	R. Peterson	
N-2	Dyna	R. Valles	Download 8510A.
N-3	Dyna	J. Cardwell P. Lopez	Pull film 2200.
N-4	BRL	Dr. Polk	Recover experiment 2200 (Forest).
N-5	ARA	R. Frank L. Twisdale B. Guice	Recover experiment 2200 (Forest).
N-6	ARA	J. Walker C. Murhy	Recover experiment 2200 (Forest).
N-7	WSMR-DK	T. Moore	Photograph experiment 2200 (Forest).
N-8	LANL	R. Raymond G. Ranson S. Leone	Ejecta sampling.
N-9	LANL	D. Munninghoff T. Mazzola R. Adams	Ejecta sampling.
N-10	LANL	R. Ross S. Scott J. Sullivan L. Hunkapilar	Ejecta sampling.
N-11	DRI	L. Brown J. Wisotski V. Brown	Retrieve film/recover bowling balls.
N-12	DRI	T. Samaras R. Lynch W. Snyer	Retrieve film/recover bowling balls.
N-13	Dyna	O. Griego	Download 8510B.

W-17	LTV	C. Dyer B. Lavis J. Barnes	Evaluate 1300 series.
W-18	MICOM	D. Pendergrass L. Ortiz F. Cassatt S. Pritchard K. Pierce J. Parker	Evaluate 1300 series.
W-19	MICOM	G. Morrison S. Walls	Evaluate 1300 series.

d. Phase IV General Reentry Program:

(1) Release Point: Anywhere.

(2) Testbed is open to personnel properly badged for MISTY PICTURE.

4. COMMAND AND CONTROL:

a. Members belonging to a particular reentry team are identified in paragraph 3 of this annex. Positive identification of all team members is made by the USAF SP's and the reentry teams at the reentry control officer during evacuation of the testbed and formation of the reentry teams at the reentry park on Range Road 7. After a badge and photo ID check of all passengers of a particular vehicle has been conducted a vehicle identification placard will be placed on the dashboard. This placard consists of an alphabetical letter (N, S, or W) followed by a number. The alphabetical letter delineates the security access point (instrumentation park) to be entered, while the number delineates the vehicle order of travel. Those individuals found entering the wrong access point will be turned around. A map delineating the reentry route to be followed will be on the back side of the placard.

b. Reentry programs are controlled by coordination between the TGD, the TGSO, Security Control, and the USAF SP's located at each of the security access points. After the TGD has determined the testbed is clear for reentry to proceed, the TGSO is directed to implement the reentry program. The TGSO contacts the reentry control officer who, in turn, releases the applicable reentry team. At the time of departure, the reentry control officer will log the time of release for the applicable vehicles(s). See release form at enclosure 1.

c. After leaving the release point, the reentry team will follow the applicable reentry route to their respective security access point (West, North, or South Instrumentation Park). The posted USAF SP will stop the vehicles at the entry point and log the time of arrival of each individual vehicle (see Enclosure 1). After completing a MISTY PICTURE badge check, the USAF SP will report to security control that vehicle numbers ______ thru ______ have reached the applicable security access point. Security control will then report arrival of the reentry party to the TGSO. Vehicles will only be released from the applicable security access point on order of the TGSO or Test Control.

MANNING PLAN

Purpose: This roster identifies personnel authorized to position themselves in areas other than the reentry assembly point on Range Road 7 or the MISTY PICTURE Observation Point. Individuals not identified on the manning plan provided below will assemble at the Range Road 7 assembly point of the MISTY PICTURE Observation Point.

SITE	TRAILER	AGENCY	FUNCTION	NAME
Admin Park	Test Control	DNA	Test Control	MAJ Walls CPT(P) Sauer SSgt Tagle SSgt Burns CDR Lund
			Support	C. Montoya MAJ Taylor L. Meadows
		WSMR	Security	L. Perriguey J. Gamache
		Autometric	A/C Control	P. Richard
		WSMR-DK	Photography	J. Lindsey D. Schurtz
		DNA (Authorized until 0645 hrs)		Capt Lutton LT Fladager CPT Muscarella CPT Brumburgh Mr. Lu LTC Schmidt LTC Schenker
Admin Grounds		SAC	A/C Coordination	Capt Hanson
		USAF	Security Control	MSgt Booker TSgt Atkinson SSgt Wyatt SSgt Adams
		BRL		Mr. Teel
		FCDNA	Security	E. Keith J. Young M. Larson B. Barry M. Wilson
		DNA	Security Review	E. Prather
		WSMR-DK	TV Engineer	K. Mauldin (OP)

Attachment 1 to Appendix 2 (Annex I)

SITE	TRAILER	AGENCY	FUNCTION	NAME
Admin Grounds		WSMR-DK	Tape Editing	J. Hisey
		WSMR-DK	Tape Editing	W. Merryman
		WSMR-DK	Tape Editing	A. Sakoda
		WSMR-DK	Video Tech	R. Smorynski
		Bendix	Data Reduction (Playback)	F. Styck K. Shaw R. Peterson J. Wilson
		Purdue	Dust Devil Anaylst	Dr. Snow T. McClelland
		ASL	Weather Support	T. Huck J. Wilkes
		ASL	Weather Support	R. Deroy J. Storey P. Maanum J. Ramey C. Jackson
		AFWL		Dr. Davenport J. Hudson R. Wood
		WSMR	PAO	D. Montoya
		WSMR	Fire Truck	E. Smith T. Padilla
		WSMR	Ambulance	C. Darling D. Crimmons
		DNA	Construction Engineer	CPT(P) Patterson CPT Muscarella
		WSMR	Maintenance Super.	Fred Hollis
		WSMR	Commo Repair	W. Cowan C. West P. Villegos J. Lopez J. Lozano
		WSMR	Fuel Truck	M. Jojola D. Grooms F. Villa
		WSMR	Elec. Maintenance.	J. Elwood M. Cline

SITE	TRAILER	AGENCY	FUNCTION	NAME
Admin Grounds		WSMR	AC Maintenance	R. Castillo M. Dennison
		WSMR	Generator Mech.	B.J. Smith A. Bernal M. Bonilla M. Brisena J. Herrera L. Ridgway
		WSMR		L. Flores C. McCan C. Reynolds
		WSMR		D. Cardwell W. Cardwell T. Cox D. Roady
		WSMR	Crane	J. Zamora J. Baca A. Aguillar
		WSMR	Radio Repair	M. Meyers
		WSMR	Traffic Routes	L. Williams V. Sexton A. Murphy
		WSMR		D. Gonzales D. Duke J. Smith
		WSMR		J. Saavedra F. Padilla J. Vallejos D. Cassady
		DNA WSMR	Sail Hoist Crew	SFC Cook I. Loera R. Otero
		WSMR		A. Acevedo M. Cleveland S. Still
		WSMR		D. Hanson A. Gonzales B. Masterson

SITE	TRAILER	AGENCY	FUNCTION	NAME
Admin Grounds		WSMR		M. Powell J. Torres R. Ortega
		WSMR		F. Masterson A. Fernandez I. Armijo
		WSMR		J. Wallner G. Pargas F. Fernandez
		WSMR		P. Vigil J. Ruiz F. Naranjo M. Gonzales D. Montano P. Mundt D. Foster E. Baldinado K. Salsbury C. Ames
		WSMR-DK	Photography (Doc) (Trumpet)	A. Calloway K. Hunter T. Parsley F. Ontiveros T. Vasquez J. Worley PFC Springs
		TTU	Experiment 3600	W. Vann F. Lo H. Norville C. Wright J. Seale J. Minor J. McDonald A. Fernandez K. Bounds K. Hill K. Overbeck R. Westlake
		WSMR-DO	Experiment 3600	H. Thomas R. Thibodeau
		SNLA	Microbarograph	C. Olguin P. Armijo M. Romo T. Leighley

SITE	TRAILER	AGENCY	FUNCTION	NAME
Admin Grounds		SAIC	TRS Support	L. Scott
				Nelson
				J. Lattery
		USAF SP	Admin Park	Sgt Gridley
			Security	A1C Rainwater
			Patrol	A1C Clements
				SrA Lust
		SNLA	Tethersonde	H. Church
				G. Brown
		Bendix	Elec. Maintenance	D. Garcia
		PSL	Weather Support	J. Pratt
				J. Pridgen
				D. Whitmore
				G. Mitchler
		WSMR-DK		S. Alred
				R. Baca
			35mm B/W	T. Chavez
			Supervisor	C. Conners
			Supervisor	J. Hain
			Log Book	P. Hobeck
			Arriflex & Locam	J. Lindsey
			35mm B/W	G. Black
				B. Newton
				J. Miller
				A. Romero
		BMO	Pick up vehicles	Lt Cooper
				Lt Lochrie
		Boeing		M. House
				L. Lewin
				B. Fabello
				D. Stock
				R. Meier
				F. Calvert
				E. Papac
		TRW		N. Guiles
				B. Robe
				O. Lev
		BRL		M. Bindel
				E. Deel
				P. Jones
				A. Shaw
				D. Richmond
				M. Holland

SITE	TRAILER	AGENCY	FUNCTION	NAME
Admin Grounds		WSMR-DK		Gilmore R. Thum Graziose Fissel Hammer Sutton Salazar Hamer Brown Dorwin Medina Sutherlin Abston Christman Rugg Baird Saenz Clark Piche Trevino Nowell SFC Moore Samaniego
		WSMR-DK	35mm Photo	H. Rose
		WSMR-DK	Hulcher	J. Herring
		WSMR-DK	RB-67/645	C. Cowan D. Risinger E. Maldonado T. Moore
		WSMR-DK	Video	D. Schurtz
		WSMR-DK	Arriflex	D. Baca R. Halferty C. Mendoza
		LANL	Seismic Coordination (Exp 5250)	K. Olsen
RR7		DNA	Reentry Control	LT Fladager
		USAF SP	Reentry Control NCOIC	SSgt Clark
		USAF SP	Reentry Control Phase I	SrA Jones

SITE	TRAILER	AGENCY	FUNCTION	NAME
RR7		USAF SP	Reentry Control Phase II	SrA Brogli
		USAF SP	Reentry Control Phase III	A1C Kuhn
RR 7&20		J.B. Kelley	Helium Supply	G. Beets
		J.B. Kelley	Helium Supply	L. Bostick
		J.B. Kelley	Helium Supply	F. Campbell
		J.B. Kelley	Helium Supply	A. Jones
		J.B. Kelley	Helium Supply	H. Kiser
		J.B. Kelley	Helium Supply	T. Martinez
		J.B. Kelley	Helium Supply	F. Miller
		J.B. Kelley	Helium Supply	J. Moore
		J.B. Kelley	Helium Supply	S. Pettis
		J.B. Kelley	Helium Supply	J. Rice
		J.B. Kelley	Helium Supply	L. Roberts
		J.B. Kelley	Helium Supply	J. Romero
		J.B. Kelley	Helium Supply	R. Romero
		J.B. Kelley	Helium Supply	B. Schaffer
		J.B. Kelley	Helium Supply	C. Schauf
		J.B. Kelley	Helium Supply	W. Walters
		J.B. Kelley	Helium Supply	L. Warren
		J.B. Kelley	Helium Supply	F. White
		J.B. Kelley	Helium Supply	J. Willmon
		J.B. Kelley	(Van)	R. Platz B. George
		J.B. Kelley	(Van)	C. Brown
		Gracon	HFC	M. Smith

SITE	TRAILER	AGENCY	FUNCTION	NAME
RR7		Gracon	HFC	J. Scott T. Scott
		DNA	Admin External	Sgt Hughes
T&F Park	T&F	DNA	Tech Director	Capt Lutton
		DNA	Inst. Engineer	G. Lu
		DNA	Security	CPT(P) Sauer
		HQDNA	TDTD DFTD	Dr. Kennedy Dr. Linger
		SNLA	T&F	L. Skenandore L. Shapnek J. Dunkin
		Bendix	T&F	C. Denton D. Carey
		NSWC	Explosive Ops	M. Swisdak
		USAF SP	Security	Sgt W. Brown
		WSMR-DK	Photography	R. Thum
	TRS	DNA	TRS TD	CPT Brumburgh
		SAIC	Tech Advisor	J. Guest
		SAIC	Tech Adivsor	D. Willoughby
		SAIC	Tech Advisor	J. Dishon
		SAIC	Tech Advisor	P. Kilpatrick
		SAIC	Tech Advisor	D. Harrell
		SAIC	Tech Advisor	E. Welch
		SAIC	Tech Advisor	R. Delfrate
		SAIC	Tech Advisor	K. Brown
		USAF SP	Security	A1C G. Brown
		DNA	TRS NCOIC	MSgt Yoas
	HFC	DNA	Precursor PD	LT Lehr

SITE	TRAILER	AGENCY	FUNCTION	NAME
T&F	HFC	Gracon	Supervisor/Oper	G. Engen
			Operator	K. Evezich
			Operator	M. Hammer
			Operator	W. Larson
			Environ Monitor/ Supervisor	T. Majors
			Supervisor	W. Schroeder
			Operator	J. Amos
			Operator	D. Wiseman
		Dyna	Photography	C. Young
				D. Gonzales
		USAF SP	Security	A1C Daley
		HQDNA	Precursor PO	Dr. Gallaway
				Dr. Ullrich
	SNLA	DNA	Safety	LCDR Smith
				C. Edwards
		NSWC		R. Jump
				D. Adams
				M. Jump
				B. Persch
		SNLA	T&F	L. Shapnek
				J. Dunkin
		AFWL	TOADS	R. Chavez
				Capt Buncher
		RADSAFE	Safety	D. Marx
				J. Collins
				E. Blevins
		USAF SP	Security	Sgt Baldwin
				A1C Pratt
		WSMR	Safety	D. Enger
		WSMR-DK	Photography for TD	T. Gilmore
				R. Thum
Millers Watch		CI	Security	J. Carr
				D. Solich
				J. Sharon
		Dyna	Experiment 9026	R. Aerts
				A. Otero

SITE	TRAILER	AGENCY	FUNCTION	NAME
Millers Watch		LANL	Experiment 8530	G. Bayhurst B. Crowe D. Finnegan E. Mroz
Hold Point		SAIC	Exp. 8524/8522	J. Cockayne P. Young R. deHaas D. McCall R. Freeman W. Grove J. Bruno MSgt J. Frebrink
		NMERI	Observation	B. Moore B. Schneider
OP Road		USAF SP	Security	A1C Black
McDonald's Ranch	MRT I	Bendix	Instrumentation	A. Trujillo L. Wolf
		FCDNA	Effects Observation	Capt Trull
SRC Bldg 34306		SNLA	Weather Support	J. Reed
		ASL	Weather Support	T. Hocks
		TRI	Technical Advisor	J. Keefer
SRC Range Control		HQDNA	AC Coordination (Exp 8500)	LTC Ullrich MAJ Schrock
		LANL	AC Coordination (Exp 8534)	
		PMS	AC Coordination (Exp 8511)	R. Knollenberg
SRC		LANL	VLA Coordination (Exp 5200)	A. Jacobsen
		USAF SP	Security/Traffic Control	TSgt Tydings SSgt Cooper A1C Dillahunty A1C Brooke

SITE	TRAILER	AGENCY	FUNCTION	NAME
T-791		WSMR-DO	Photography	R. Norwell
			Photography	G. Neudorf
			Photography	S. Branch
			Photography	J. Oliver
			Photography	V. Dixon
			Photography	D. Gallegos
			Photography	J. Cox
			Photography	C. Cook
			Photography	R. Black
		ISI	Exp. 8790	W. Dudziak
Harriet		Dyna	Exp 9020/9021	J. Pineda
			Exp 9020/9021/	J. Torres
			9026	R. Starr
BRV Site	LCC	HQDNA	Launch Control OIC	Lt Col Cameron
			Launch Control AOIC	Lt Col Adams
		PDA	FCS Operator	J. Dunn
		SDC	Viper Monitor	R. Park
			TM Monitor	K. Shawi
			Viper Monitor	J. Holtrey
		WSMR/NOMTS	B/U FCS Operator	T. Gonzales
			Inter. Countdown	W. Bedy
		WSMR	Ground Safety	M. Moody
			Flight Safety	L. Henderson
		WSMR	Commo Repair	M. Rios
				P. Villegos
				J. Lopez
				J. Lozano
		WSMR	Timing Van Operator	L. Valle
		WSMR-DO	Photography	B. Montoya
				J. Bridges
		SDC	Viper Monitor	D. Kush
				J. Custer
				S. Widde
BRV Site		PDA	Computer Operator	D. Bremmer
				T. Turnbull
				J. Washer
		WSMR/NOMTS	Trailer OIC	A. Rolfe
			Observer	Capt Shroder
				CDR Armstrong

SITE	TRAILER	AGENCY	FUNCTION	NAME
BRV Site		TRI Tech	Launcher Monitor	J. Crouch
				F. Ruspoli
				T. Powell
				J. Crouch
	Assy Bldg	SDC	STBY Crew	T. Messer
				H. Lewers
				W. Monk
		WSMR/NOMTS	Security	M. McCurdy
		WSMR/NOMTS	STBY Crew	W. Livingston
				R. Oliva
				G. Wessell
				C. Smith
				T. Lowe
	PSL	PSL	MET Operator	T. Chavez
				G. Mitchler
	MET	ASL	MET	P. Mellik
				J. Swanson
				H. Horner
				C. Perez
				J. Chavedo
				G. Dunaway
BRV Grounds	Helipad	WSMR	Fuel Truck	T. Smith
				J. Moore
		WSMR	Aircrew	
		WSMR	Fire Truck	M. Barnett
				E. Offutt
		WSMR	Generator Mech.	F. Contreras
				N. Valdez
		WSMR	Radio Repair	I. Bernal
		USAF SP	Security	SrA Tingle
Van Site		WSMR	Timing & Firing	L. Whitefield
Trumpet		WSMR-DK	Photography	J. Brady
		WSMR-DK	Photography	T. Parsley
		WSMR-DK	Photography	J. Worley
		WSMR-DK	Photography	A. Calloway
		WSMR-DK	Photography	T. Vasquez
		WSMR-DK	Photography	K. Hunter
		WSMR-DK	Photography	PFC Springs
		WSMR-DK	Photography	T. Cano
		WSMR-DK	Photography	F. Ontiveros

SITE	TRAILER	AGENCY	FUNCTION	NAME
T-801 (Vick)		Dyna	Exp 9026B	M. Pino C. Vega
T-601 (Fran)		Dyna	Exp 9026B	S. Argabright F. Talamante
T-488 (Pond)		WSMR-DO	Exp 8510	L. Byrd J. Tindal R. Castillo E. Orona D. Roberts M. Bencomo L. Cordero P. Hockman J. Covington J. Correiveau T. Newson
T-493 (Spec)		Dyna	Photography	J. Villabisecio

APPENDIX M

DISTINGUISHED VISITORS

ANNEX K
DISTINGUISHED VISITORS

1. GENERAL. Invitations to observe the MISTY PICTURE event and attend the general testbed tour post shot will be mailed to the respective agencies during the month of April 1987. A copy of the invitation letter is at Enclosure 1. Responses (RSVP) for inclusion to the tour should be received at FCDNA by 1 May 1987.

2. SECURITY:

a. Visit Requests. All tour members must submit a visit request to Commander, White Sands Missile Range, ATTN: STEWS-SD-I (Mrs. Gloria Hernandez), White Sands Missile Range, NM 88002-5047, no later than 1 May 1987. Due to the presence of classified infomration on the testbed, all individuals planning to attend the VIP tour must have a current classification level of at least secret.

b. Badging.

(1) Blue general testbed badges, without photos, will be issued by SRC badging office to CPT Sauer. These will be provided to the tour Officer-in-Charge (OIC) the day prior to the MISTY PICTURE event. An alphabetical roster of those individuals authorized tour attendance will also be provided to the tour OIC. Prior to the tour attendee receiving a MISTY PICTURE badge, the tour OIC will photo ID each individual, validating personnel identification and ensuring the dignitary is authorized tour attendance by cross referencing the individual's name to the tour attendance roster. USAF Security Police (SP) support will be provided to assist in this process. After this has been accomplished, a blue general testbed badge (see Figure 1) will be issued to the participant as the attendee boards the tour bus.

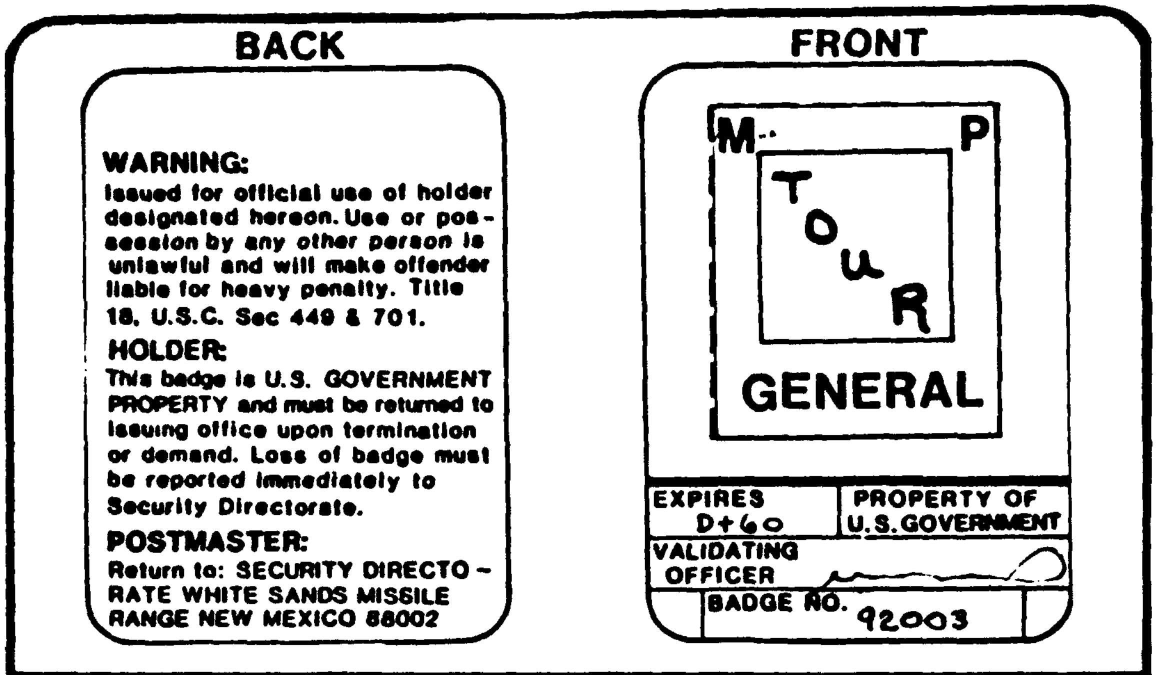


FIGURE 1. MISTY PICTURE TOUR BADGE

(2) Checks.

(a) The tour bus will depart the observation post at T+20 minutes and proceed through the OP roadblock without being stopped. A report of passage will be made to CPT Sauer.

(b) Tour agenda includes short presentations at both the Trinity National Monument and McDonald's Ranch house.

(c) The tour bus will be stopped at the North Park Access Point of the MISTY PICTURE restricted area. The guard will report the tour vehicle's arrival at North Park to Security Control and request security status. After receiving the status report from security control, the guard will board the bus and ask the tour OIC, or USAF SP escort, if all individuals on the vehicle have been photo identified. After receiving the appropriate answer, the guard will verify that every individual on the bus is badged and then depart.

(d) The tour bus will be stopped after the tour is completed and it departs the North Park Access Point of the MISTY PICTURE restricted area. The guard will board the bus and ask the tour OIC, or USAF SP, if all individuals on the vehicle have turned in their tour badges. After receiving the appropriate answer, the guard will ask if all is in order. After receiving the appropriate answer to this question, the guard will depart the bus and report the tour's departure to CPT Sauer and Security Control.

(3) Badge Accountability.

(a) Before reboarding the tour bus at the conclusion of the testbed tour (for transport back to their respective vehicles), tour attendees will return their badge to the tour OIC (boarding pass concept). Should reboarding not take place at the currently programmed point due to alternate routing requirements, the testbed tour badges will be retained until exit from the testbed.

(b) The tour OIC, or USAF SP, will return the general testbed tour badges to CPT Sauer for resolution of accountability prior to release from duty on D-0.

3. TRANSPORTATION:

a. VIP's land distinguished guest will arrive at the MISTY PICTURE OP by helicopter.

b. Mode of transportation to and from the MISTY PICTURE testbed will be a 44 passenger bus provided by White Sands Missile Range.

4. SCHEDULE AND TOUR ROUTES: See Appendix 1 to Annex K.

5. MANNING PLAN: Personnel requirements and briefings are in Appendix 2 to Annex K.

6. LOGISTICS: See Appendix 3 to Annex K.

DEFENSE NUCLEAR AGENCY
FIELD COMMAND
KIRTLAND AIR FORCE BASE, NEW MEXICO 87115-5000

FC

(addressee)

Dear ____________________:

You are cordially invited to attend the MISTY PICTURE high explosive nuclear weapon effects simulation test. The test is scheduled to be conducted at 1000 hours, 14 May 1987, at the northern end of White Sands Missile Range, New Mexico.

The enclosed brochure provides specific information about this test. This event will simulate an eight kiloton nuclear surface detonation. Detonation of this charge will provide an airblast and ground motion environment which will be used by numerous agencies to collect basic explosive environmental data and test a variety of systems and equipment in a simulated nuclear environment. Please understand that test execution is considerably dependent upon favorable weather conditions at the test site on event day. In any case, a tour of Trinity Site, McDonald Ranch House, and the unclassified portion of the MISTY PICTURE testbed will be conducted. Also, a complimentary box lunch will be provided at the test site.

Major Jo[illegible] Herbert is our visitor coordinator for this event. If you would like to attend, please contact him at 844-0050 prior to 5 May 1987 for additional information concerning arrangements for badging and transportation. Proper security badging must occur; otherwise, you will not be allowed to observe the event.

1 Encl
Information Brochure

PAUL S. KAVANAUGH
Brigadier General, USA
Commander

SCHEDULE AND TOUR ROUTES

1. The purpose of this appendix is to familiarize the reader with the MISTY PICTURE VIP tour itinerary (see Enclosure 1) and tour route. Should unforseen circumstances cause the MISTY PICTURE event to be rescheduled, a tour of Trinity Site, McDonald's Ranch, and the MISTY PICTURE testbed will still be conducted.

2. TOUR ROUTE.

a. Trinity Historical Monument Tour. After viewing the MISTY PICTURE event, the tour attendees will board a tour bus and proceed to Trinity Site (see Figure 2). Here they will receive a short historical presentation and tour given by the WSMR Public Affairs Office (PAO).

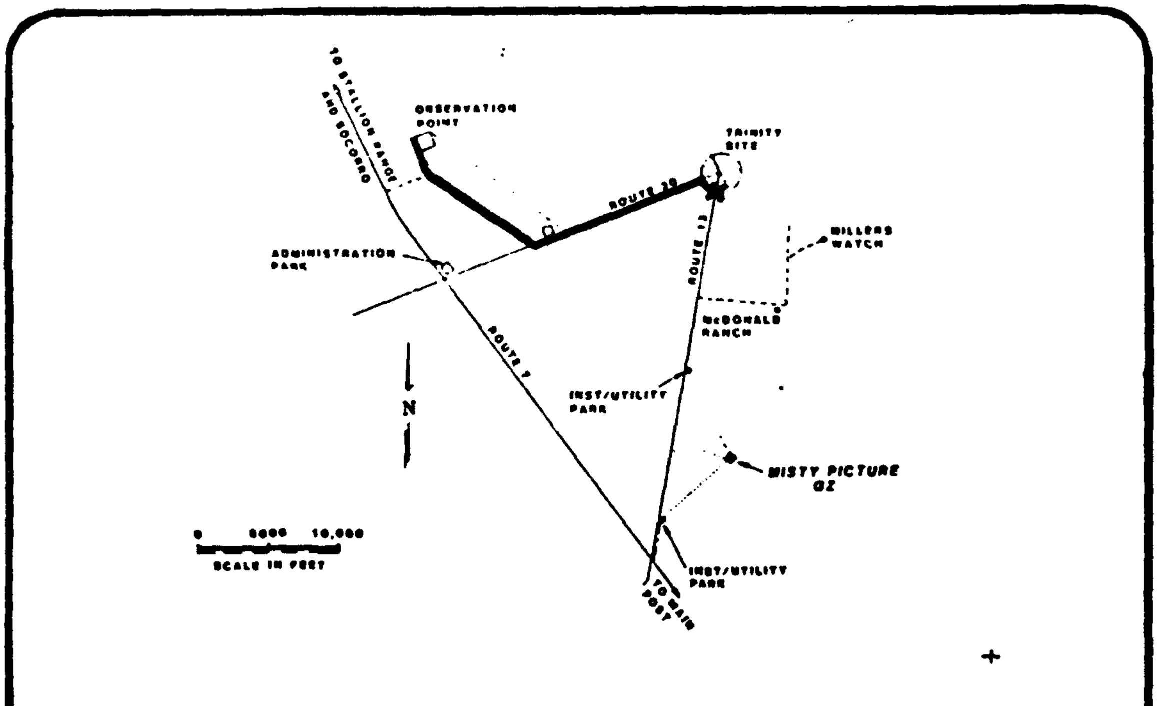


Figure 2. Vehicle route from the MISTY PICTURE Observation Post to the Trinity National Monument.

b. McDonald's Ranch Tour. After visiting the Trinity National Monument, the bus will be reloaded (OIC checks that all personnel are badged) and then depart for McDonald's Ranch (see Figure 3). Once there, passengers will deboard and receive a short historical presentation and tour given by the WSMR PAO.

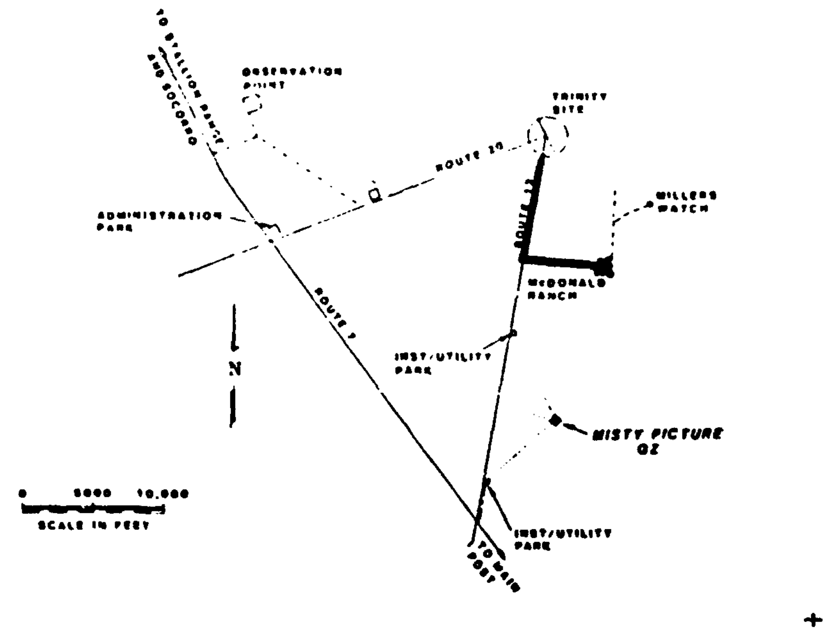


Figure 3. Vehicle route from the Trinity National Monument to McDonald's Ranch.

c. <u>Route to MISTY PICTURE Testbed</u>.

(1) <u>Primary Tour Plan</u>. Upon completing the McDonald's Ranch tour, the tour vehicle will be reloaded (OIC checks that all personnel are badged) and depart for the MISTY PICTURE testbed (see Figure 4). The bus will deboard in the vicinity of Experiment 1600 and then proceed to the tour pick-up point.

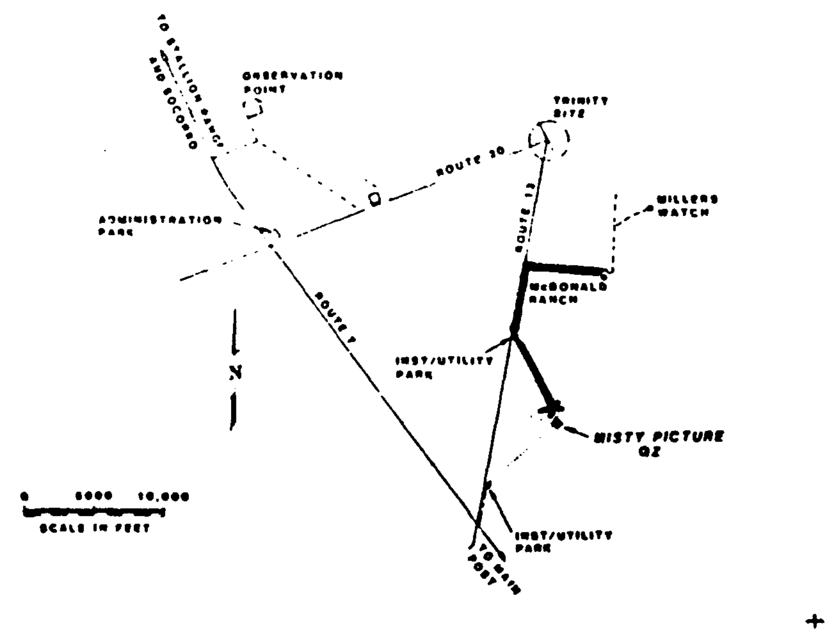


Figure 4. Vehicular route from McDonald's Ranch to ground tour Dismount Point.

(2) Secondary Tour Plan. Should the route in figure 4 be impassible due to debris, the route illustrated in figure 5 will be used. If this contingency is activated, the bus will not have to reposition and will await the return of the VIP/Distinguished guests.

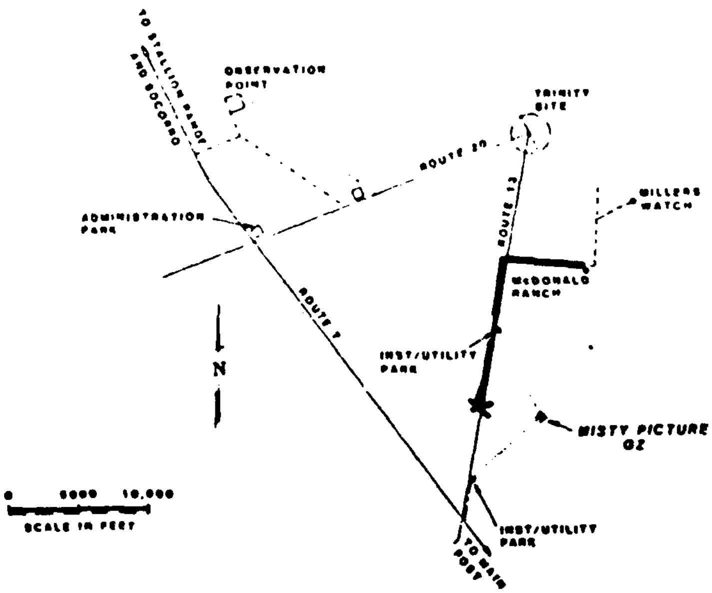


Figure 5. Alternate tour route from McDonald's Ranch to ground zero tour dismount point.

d. VIP/Distinguished Guest Testbed Tour.

(1) Primary Tour Plan. After deboarding the tour bus in the vicinity of experiment 1600, the tour OIC will lead the tour group along the route in Figure 6. More detailed information on the ground tour can be found in Enclosure 1 of Appendix 2. Tour members must not be allowed to wander freely and must remain within the confines of the tour route. They must not pickup or tamper with articles or debris from the testbed. The tour group will reboard the tour bus (turning in tour badges as they do so) to be transported back to Stallion Range Center or the Observation Point, whichever applies. The tour vehicle will exit the testbed along the route portrayed in Figure 7.

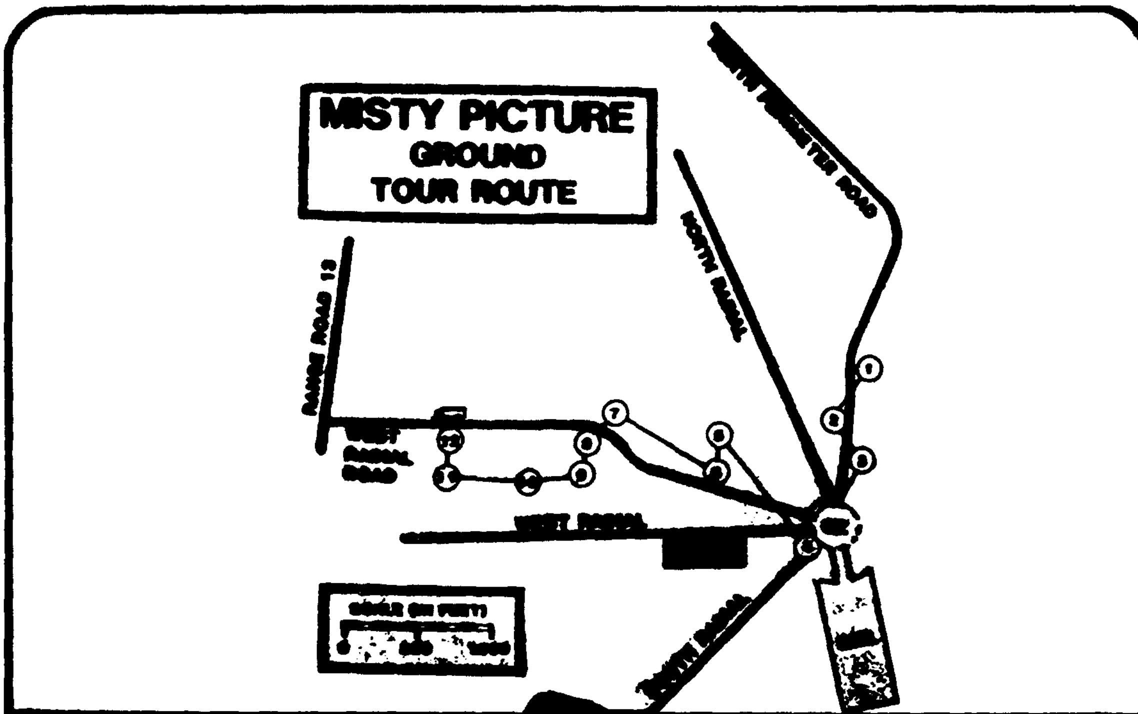


Figure 6. Ground tour route.

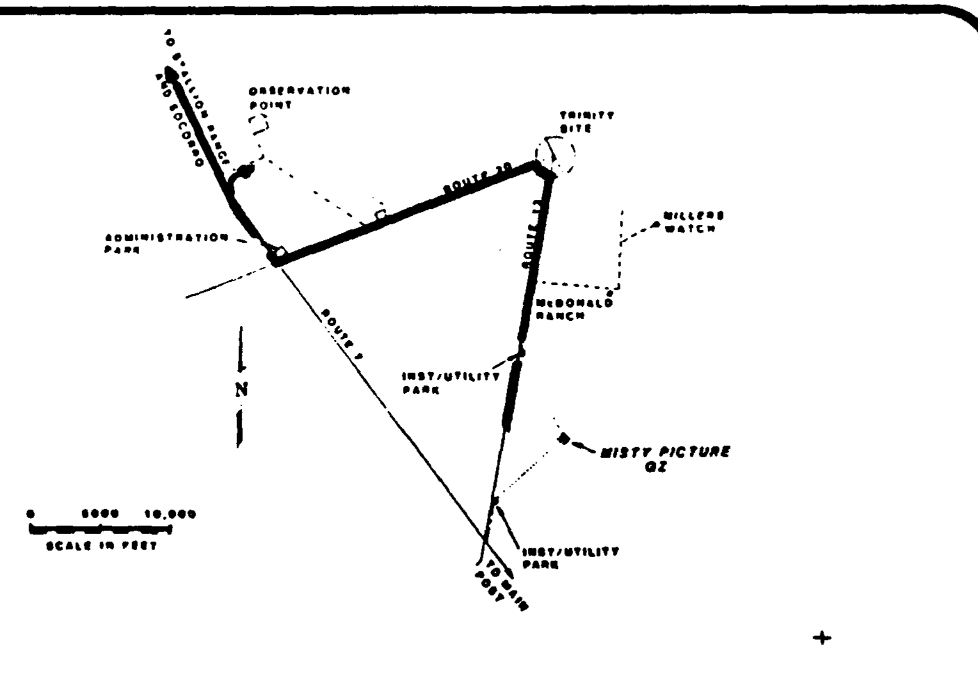


Figure 7 - Tour departure route.

(2) Secondary Tour Plan. After deboarding, the tour OIC will lead the tour group down the north side of West Radial Road. Turn around point will be the MISTY PICTURE crater. From here, experiments on the opposite side of West Radial Road will be visited. Tour members must not be allowed to wander freely and must remain within the confines of the tour route. They must not pickup or tamper with articles or debris from the event. The tour group will board the tour bus (turning in tour badges as they do so) to be transported back to to Stallion Range Center or the Observation Point, whichever applies (see Figure 7).

MISTY PICTURE
TOUR AGENDA

TIME	ITINERARY
0850	VIP parties arrive on site.
0900	Tour OIC conducts VIP briefing.
0920	OP OIC conducts visitor briefing.
0930-0935	Remarks by Brigadier General Kavanaugh.
0935-0940	Remarks by Major General Owens.
1000	Observe MISTY PICTURE event.
1006	Begin tour attendance inprocessing.
1020	Tour bus departs for Trinity National Monument.
1030-1050	Conduct Trinity tour.
1050	Tour departs for McDonalds Ranch.
1055-1115	Conduct McDonalds Ranch tour.
1115	Tour departs for MISTY PICTURE testbed.
1125-1205	Conduct ground tour.
1205-1225	Transport dignitaries to vehicles.

Enclosure 1 to Appendix 1

OPLAN HE-3 - MISTY PICTURE
13 APRIL 1987
APPENDIX 2 TO ANNEX K

MANNING PLAN

1. PURPOSE: The purpose of this appendix is to delineate those personnel requirements necessary to conduct the post shot tour of the MISTY PICTURE testbed. Enclosure 1 to Appendix 2 outlines the tour route and contains a narrative to assist in experiment description during the ground tour. Enclosure 2 contains general questions and answers pertaining to the MISTY PICTURE event.

2. MANNING REQUIREMENTS.

a. The personnel assets identified below are required to support the MISTY PICTURE distinguished visitor tour. Duties to be conducted include:

- Distinguished Visitor OIC (FCDNA).
- Distinguished Visitor AOIC (FCDNA).
- Tour Escort (USAF SP).
- Trinity Tour Escort (WSMR PAO).
- McDonald Ranch Escort (WSMR PAO).
- Bus Driver (Minimum of Secret clearance is required)

b. Should the number of visitors exceed more than 40 personnel, the support required to conduct the tour will increase as listed below:

- Distinguished Visitor AOIC (FCDNA).
- Tour Escort (USAF SP) (FCDNA).
- Bus Driver (Minimum of Secret clearance is required).

c. Responsibilities:

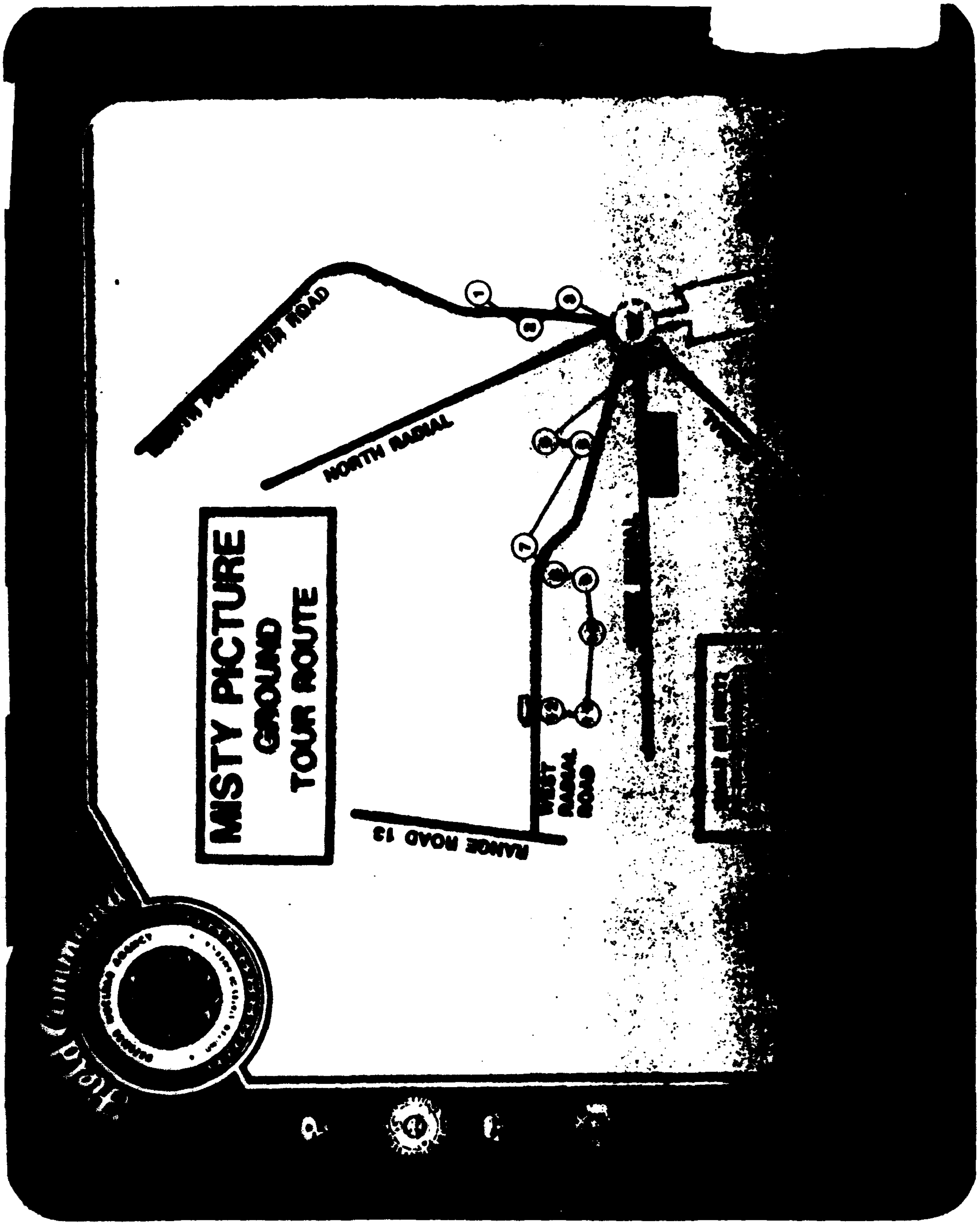
(1) OIC/AOIC: On site at OP NLT 0700 shot day. Conduct VIP briefing. Conduct testbed tour and maintain integrity of party throughout tour. Act as Field Command point of contact for notifying VIPs of any scheduling changes.

(2) Tour Escort: One to two USAF SP(s) will be in position at the OP for assumption of duties as the distinguished guest security contingent. Personnel are to assist the tour OIC in photo identifying, validating tour attendance authorization, and badging tour attendees.

(3) WSMR PAO: Conduct a tour of Trinity Site and McDonald's Ranch. Personnel required to support this effort and handling of the tour itself is to be determined by the WSMR PAO.

(4) Tour Vehicle Operator: Transport attending dignitaries to the tour points of interest utilizing those routes furnished in Appendix 1 of Annex K.

*NOTE: Tour personnel will be briefed on site (PHETS Admin Park Conference Trailer) at 0500, 14 May 1987.



Enclosure 1 to Appendix 2

MISTY PICTURE Overpressure vs. Range Predictions
18 NOV 86

Overpressure (psi)	Ground Range (feet)	Overpressure (psi)	Ground range (feet)
10000 Container Radius	44*	25	1230
5000	50*	23.2	1270
4000	63*	20	1360
3000	80*	19	1395
2000**	112*	18	1436
1500**	140*	16.5	1489
1400 Crater Radius	150*	16	1510
1000**	189*	15.0**	1550
850	210	14.7	1565
809 Shock Separation	216	14.5	1575
800	220*	14.0	1600
750	230	13.0	1650
600	265	12.5	1687
500**	300*	12.0	1720
400	340	11.5	1750
300	397	11.0	1790
299	400	10.0	1900
200 Shock Clean-up	490	9.3	1965
190	500	9.0	2000
150	560	8.5	2065
129	600	8.0	2125
125	608	7.7	2165
120	621	7.5	2190
115	633	7.4	2210
100**	670	7.3	2220
91	700	7.2	2240
90	705	7.0	2270
86	720	6.5	2360
80	745	6.3	2400
75	765	6.0	2485
74	770	5.0**	2800
73.5	775	4.5	2965
70	790	4.4	3000
67	800	4.0	3150
65	815	3.9	3200
60	843	3.5	3420
58	855	3.4	3500
55	875	3.0	3700
53	892	2.8	4000
52	900	2.5	4450
50**	912	2.2	4750
45	953	2.0	5200
44	962	1.75	5750
40	1000	1.50	6300
38	1022	0.75	10500
36	1047	0.50	14700
35	1060	0.40	16900
31	1115	0.30	21100
30**	1135	0.20	31000
29	1150		
27	1200		
26	1210		

This prediction will be used to site experiments on the MISTY PICTURE testbed and assumes a 4800 ton ANFO charge. It is the same prediction used to field the MINOR SCALE Event and is derived using data from OPERATION SNOWBALL, a 500 ton TNT hemisphere detonated in 1964 and a 100 ton TNT hemisphere detonated in 1961. Comparison to the MINOR SCALE data shows the percent difference varied between 85% and 99% of this prediction for surface measurements on a given radial. These differences are primarily related to the two charge spills on MINOR SCALE. For pressures less than 500 psi, consider these predictions to be within plus or minus 10% of the actual pressure data for MISTY PICTURE. For pressures greater than 500 psi, consider the predictions to be conservative and the actual data to be perhaps as much as 50% lower than these predictions.

* CLOSE-IN STATIC GAGES   ** GROUND MOTION STATIONS

EXPERIMENT DESCRIPTIONS FOR THE
MISTY PICTURE
DISTINGUISHED GUEST TOUR

TOUR POINT	EXPER #	TITLE	DESCRIPTION
1	1600 (WES)	Retest of the Entry Shaft for the Frame/Fabric Shelter	This is a retest of the entryway shaft of the frame/fabric shelter which experienced a failure during MINOR SCALE. The shaft was modified and two partial sections were buried to a depth of four feet at the 30 psi overpressure level. The purpose of the test is to determine if the modifications made to the entry shaft are satisfactory.
2	2200 (BRL)	Forest Blow Down	The objective of this experiment series is to establish a tree breakage and transport data base for validating a recently developed computer methodology which predicts nuclear weapon effects on the forest environment. Ultimately, this data will be used to predict vulnerability of military equipment positioned in forests. To accomplish this, 86 coniferous trees were placed at various pressure levels (2.8 psi to 299 psi) from Ground Zero. Characterization of the blast wave was recorded electronically and photographically. In addition, destruction and debris patterns will be surveyed.
3	1635 (WES)	Corrugated Steel Key Worker Blast Shelter	This experiment involves the evaluation of an 18-man shelter. It is constructed of corrugated culvert sections 9 ft diameter by 30 ft in length. The structure was emplaced at the 200 psi peak over-pressure level and buried to a depth of four feet.
4		MISTY PICTURE Charge and Crater	The explosive charge container was a fiberglass hemisphere forty-four feet in radius and was designed to contain 4880 tons of an ammonium nitrate and fuel oil mixture. This mixture was detonated by a 310 pound OCTAL booster and gave the equivalent blast of an 8 kiloton nuclear explosion (or device). The crater is expected to be about 75 feet deep and approximately 320 feet in diameter.

4	8200 (DNA)	Ejecta/debris	The objective of this measurement program is the coordinated acquisition of ejecta/debris data for use in basic phenomenology studies. The data should yield a unique insight into both the cratering process and the behavior of ejecta and debris. This increased interest in cratering comes at a time when significant changes are evolving in our understanding of the cratering process. Most importantly is the dry and porous soils which are of interest for silo basing. It is due to such issues that an accurate ejecta and debris scaling relationship be developed as soon as possible.
4	3400 (BMO)	Hardened Mobile Launcher (HML)	This group of experiments is designed to support vehicle design and definition of operational concepts for the USAF HML program which entered full scale development in late 1986. This program is a key element of the current Strategic Systems Modernization Program. HML basing, if successful, will assure adequate pre-launch survivability for the Small Intercontinental Ballistic Missile. This test was designed to determine the aerodynamic loads on a 1/6 scale HML model in a dusty precursed environment at varying pressure levels. The primary objectives of this experiment were to: a. Obtain experimental airblast pressure loading data on scale models of HML vehicles. b. Obtain experimental rigid body response motion data on scale models of HML vehicles exposed to simulated nuclear airblast environments.
4	1300 (WSMR)	US Equipment Overview	To your south you will see the ARMTE area. This is where US military equipment was placed to determine if contract specifications were met.
4	2100 (BRL)	Foreign Equipment Test	To the area directly west of our location is the test site of foreign equipment. The objectives of these tests are to determine vulnerabilities of currently fielded threat equipment.

5	7450 (Norway)	VALHALL II	We are now entering the area containing Norwegian experimentation. Norway fielded a considerable number of experiments including communications bunkers, spider hole shelters, antennas, shelters, and radars. Of particular interest is the VALHALL II structure. It is a concrete structure 60 feet long by 47 feet wide with a burial depth of 12 feet. The primary objective of the experiment was to validate operational survivability data on a fortified defensive position. A secondary objective was to carry out proof of principle testing on a shock isolation system and communication equipment mounted inside the structure.
6	7520 (Canada)	Stiffened Ship Panel and Re-entrant Corner	A similar stiffened ship panel was tested during the MINOR SCALE event. The panel, embedded in a reinforced concrete foundation flush with the ground, experienced only minimal permanent deformation (about 1 inch). On MISTY PICTURE, the panel, with foundation, was moved forward next to VALHALL. A concrete re-entrant corner structure at 45 degrees to the shockwave was added to cause amplification of the pressure loading over the panel and is typical of what could occur on the superstructure of a naval ship. The primary objectives of the experiment were: a. To observe the response and plastic behavior of the panel to an air blast simulating a nuclear explosion. b. To measure the pressure loading function and determine the load-structure interaction amplification.

7	1015 (NATICK)	Safe Shelter	In its current configuration, a specific Command Communications and Intelligence system is housed in an S-280C shelter carried on a 5-ton truck. This particular system is configured to be installed in a fully nuclear hardened S-280 shelter. This test was designed to verify that the combined shelter, racks, and equipment response will provide useful systems survivability to nuclear blast loading and thermal radiation simulations. An anthropomorphic instrumented dummy was seated in the operator's chair.
8	3312 (AFWL)	RAMSTAT	The Remote Airfield Monitoring and Status (RAMSTAT) is an automatic sensor/communication station designed to operate in and report on the nuclear environment after an attack to an airfield. RAMSTAT will record the blast overpressure, background nuclear radiation, interval temperatures, battery voltages, and shock/vibration data. It operates on its own solar charged battery power. An UHF AM 10 watt transceiver for transmitting the data to a base station will only transmit when RAMSTAT is queried by the base station. This experiment, located at 10 psi, is one of three stations being tested on MISTY PICTURE. The objective is to verify its survivability in a simulated nuclear environment against both airblast and thermal radiation.
9		TRS Unit DNA	This unit is a Thermal Radiation Source which consists of a liner array of four upward-directed nozzles. Each of these produce a flame approximately two meters in diameter and six meters high. The radiant heat is produced by a chemical reaction between liquid oxygen and aluminum powder. Each nozzle directs 5 liters per second of liquid oxygen and 5 kilograms per second of aluminum powder into the air. When ignited, the resulting chemical reaction releases about 50 megawatts of radiant heat which equals approximately 2727 degrees Centigrade. Seven TRS units were placed at various overpressures on the

			MISTY PICTURE testbed. The four nozzles were spaced to provide specific heat environments for individual experiments, ranging from about 10 to 40 calories/sec/cm. TRS units were used on the three previous MISTY CASTLE series events-MILL RACE, DIRECT COURSE, and MINOR SCALE.
10	7013 (UK)	R/C box	We are now entering a portion of the United Kingdom's experimental area. These are prefabricated reinforced concrete boxes with a brick veneer skin on the front wall and one side wall. These cubes are designed to model a room of a semi-detached house. This particular experiment examines the blast response to the structure and the performance of window and door closures to a 7.5 psi environment.
11&12	4100/4110 (NWEF)	Correlation of aircraft response to blast for inflight and parked configurations	This experiment was fielded at the 5 psi level and involved two A-7 aircraft: one in a "parked" configuration and the other simulating an "in-flight" configuration. The whiffle-tree arrangement, supported by a set of columns and cross-beams with a special near friction-free system, allows all rigid body motions to be effected during the blast intercept. Although excessive motions were limited by appropriate restraining systems, all significant aircraft responses to blast intercept were free to proceed.

ESCORT'S GUIDE TO QUESTIONS AND ANSWERS

1. Q: WHY IS PHOTOGRAPHY NOT ALLOWED? WHY CAN'T WE USE BINOCULARS?

   A: INDIVIDUAL OR PRESS PHOTOGRAPHY IS NOT ALLOWED BECAUSE OF THE NUMEROUS CLASSIFIED EXPERIMENTS ON THE TEST.

2. Q: HOW MUCH DID THE MISTY PICTURE PROGRAM COST? HOW MUCH OF THAT WAS FOR AMMONIUM NITRATE & FUEL OIL (ANFO)?

   A: THE COST TO PREPARE THE TESTBED AND PROVIDE DIAGNOSTICS, INSTRUMENTATION, AND LOGISTICAL SUPPORT IS APPROXIMATELY $18 MILLION. COST TO TEST AND EVALUATE THE APPROXIMATE 190 EXPERIMENTS IS ESTIMATED TO BE 60 MILLION. THE ANFO COST WAS APPROXIMATELY $950K.

3. Q: HOW MUCH TNT IS 4,880 TONS OF ANFO COMPARABLE TO?

   A: 4,880 TONS OF ANFO IS EQUIVALENT TO APPROXIMATELY 4,000 TONS OF TNT.

4. Q: WHAT SIZE NUCLEAR EXPLOSION IS MISTY PICTURE COMPARABLE TO?

   A: MISTY PICTURE WAS DESIGNED TO SIMULATE THE AIR BLAST EFFECT FROM AN EIGHT KILOTON NUCLEAR DETONATION.

5. Q: WHY DO YOU USE ANFO?

   A: ANFO IS BEING USED BECAUSE IT IS CURRENTLY THE MOST COST EFFECTIVE EXPLOSIVE AVAILABLE. IT IS ALSO VERY SAFE TO HANDLE. RESEARCH PROGRAMS ARE ONGOING TO DETERMINE IF MORE SUITABLE AND COST EFFECTIVE EXPLOSIVES CAN BE DEVELOPED.

6. Q: IS ANFO HARMFUL TO THE ENVIRONMENT? HOW DO YOU RETURN TO PRE-TEST CONDITIONS?

   A: NO. UPON DETONATION, ALL ANFO IS CONSUMED LEAVING NO RESIDUE. AFTER SALVAGEABLE TEST ARTICLES AND OTHER MATERIALS ARE REMOVED FROM THE TESTBED, ALL DEBRIS IS PICKED UP AND PUT IN A SANITARY LANDFILL.

7. Q: HOW DO YOU GET 4,880 TONS OF ANFO TO EXPLODE ALL AT ONCE? CAN IT HAPPEN ACCIDENTALLY?

   A: A 310 POUND OCTAL BOOSTER IS CENTERED IN THE BOTTOM OF THE HEMISPHERE TO UNIFORMLY IGNITE THE ANFO. THE TIME BETWEEN BOOSTER IGNITION AND BLAST BREAK OUT FROM THE CHARGE CONTAINER IS ABOUT 4.3 MILLISECONDS. ACCIDENTAL DETONATION OF ANFO IS EXTREMELY REMOTE, BUT APPROPRIATE SAFETY PRECAUTIONS ARE TAKEN.

8. Q: HOW DID YOU GET ANFO IN THE HEMISPHERE?

   A: ANFO LADEN TRUCKS PNEUMATICALLY PUMPED THE ANFO INTO THE CONTAINER THROUGH 4 INCH DIAMETER HOSES PLACED IN CONTAINER FILLING PORTS.

Enclosure 2 to Appendix 2

9. Q: HOW MANY SIMULATED LARGE SCALE NUCLEAR EXPLOSIONS HAVE BEEN CONDUCTED AT WHITE SANDS MISSILE RANGE, NM?

A: THE DEFENSE NUCLEAR AGENCY (DNA) HAS CONDUCTED FOUR PREVIOUS NUCLEAR SIMULATION TESTS AT WSMR: DICE THROW (1KT) IN 1976, MILL RACE (1KT) IN 1981, DIRECT COURSE (1KT) IN 1983, AND MINOR SCALE (8KT) IN 1985.

10. Q: HAVE YOU SCHEDULED MORE TESTS LIKE THIS FOR WSMR?

A: YES, MORE TESTS ARE CURRENTLY SCHEDULED TO BE CONDUCTED AT WSMR STARTING IN 1989.

11. Q: WHY DID YOU ESTABLISH THE PERMANENT HIGH EXPLOSIVE TEST SITE (PHETS) AT WSMR?

A: THE PHETS WAS ESTABLISHED AT WSMR TO PROVIDE A COST EFFECTIVE, REUSABLE HIGH EXPLOSIVE TEST FACILITY.

12. Q: HOW FAR AWAY CAN THE BLAST BE HEARD?

A: ATMOSPHERIC CONDITIONS GREATLY AFFECT HOW FAR AND WHERE THE BLAST CAN BE HEARD. ON MILL RACE, THE BLAST WAS HEARD SEVERAL HUNDRED MILES AWAY. TOWNS ADJACENT TO WSMR WILL LIKELY HEAR THE BLAST.

13. Q: HOW IS A TEST LIKE THIS RELATED TO NUCLEAR WEAPONS?

A: THERE ARE FOUR AREAS OF MILITARY CONCERN WITH RESPECT TO NUCLEAR TESTING. THESE ARE BLAST, THERMAL, ELECTROMAGNETIC PULSE, AND RADIATION. THE HIGH EXPLOSIVE TEST SIMULATES THE BLAST WHILE THERMAL RADIATION SOURCE UNITS SIMULATE THE TEMPERATURES, CHARACTERISTIC TO A NUCLEAR WEAPON. THE RESPONSE OF THE EXPERIMENTS TO THE PROVIDED ENVIRONMENT IS RECORDED TO PROVIDE A BASIS FOR DESIGN MODIFICATIONS REQUIRED TO SUPPORT NUCLEAR SURVIVABILITY.

14: Q: WHAT WAS THE CHARGE CONTAINER HEMISPHERE MADE OF?

A: IT WAS A FIBERGLASS AND CARDBOARD HONEYCOMB CONTAINER.

15. Q: WHAT ARE THE EXPECTED CRATER DIMENSIONS?

A: APPROXIMATELY 75 PLUS OR MINUS 9 FEET DEEP AND 320 PLUS OR MINUS 30 FEET ACROSS.

APPENDIX 3
LOGISTICS

1. The below listed supply assets are required to support the MISTY PICTURE VIP tour. These assets assume that no more than 40 VIP/dignitaries are to attend the tour post shot.

a. Bull horn, battery operated.

b. Bus, 44 passenger, with driver (driver requires a minimum of secret clearance).

c. General testbed tour badges (number to be provided to SRC badging office by 2 May 1987).

d. Box lunches for 44 individuals.

e. Five gallon water jug with cups.

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