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Operation

ROLLER COASTER

PROJECT OFFICERS REPORT—PROJECT 2.2

AIR SAMPLING MEASUREMENTS

Joseph C. Maloney, Project Officer

U.S. Army Nuclear Defense Laboratory
Edgewood Arsenal, Maryland

Roy L. Henry, Assistant Project Officer
Reuben E. Fields
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ABSTRACT

The Nuclear Defense Laboratory (NDL) conducted large-scale air-sampling operations in support of the experimental objectives of Operation Roller Coaster, a joint US/UK non-nuclear research program devoted to studying and better defining the environmental hazards associated with the scattering of plutonium. Operation Roller Coaster, carried out in the western sector of the Las Vegas Bombing and Gunnery Range during the spring of 1963, consisted of four full-scale tests designed to investigate the biological hazards of plutonium scattered by non-nuclear explosions of weapons as stored and to evaluate the effectiveness of earth-covered structures in reducing the radiological hazards.

Specific objectives of the air-sampling project were to provide services and related research required for the collection of air samples to be used in determining the size, activity, and physical nature of plutonium-bearing particles and their spatial distribution in the cloud.

Approximately 1,400 air-sampling devices, positioned on both ground arrays and balloon-supported vertical arrays, were used in collecting air samples of the cloud during each of the four Roller Coaster events. This report describes the air-sampling instrumentation, the methods employed in its installation, testing and calibration, summaries of test operations, and tabulations of data taken.

PREFACE

Project 2.2 required the cooperation of several organizations under the leadership of the U. S. Army Nuclear Defense Laboratory. General Dynamics/Fort Worth provided much of the instrumentation plus technical personnel. The U. S. Army Lexington Depot provided technical personnel, and the 83rd Chemical Battalion, Fort Bragg, N. C., provided the necessary supporting manpower. All personnel sent to the field from these diverse locations were of the highest caliber and performed their assignments, under very trying conditions, in a cheerful, cooperative, and efficient manner.

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CHAPTER I

INTRODUCTION

1.1 OBJECTIVES

The primary technical objective[1] of Project 2.2 was to collect samples that would be used to determine (1) the size and activity of plutonium-bearing particles and their spatial distribution in the cloud (balloon-borne instruments) and near the surface and (2) the variability of these measurements with time.

1.2 SUMMARY

This project conducted large-scale air-sampling operations during all field events of Operation Roller Coaster. Near-surface air sampling was done with extensive fixed and movable arrays of cascade impactors, low-volume total air samplers, and sequential air samplers. Vertical sampling was accomplished with balloon-supported arrays of cascade impactors, low-volume total air samplers, sticky cylinders, and sticky plates. In addition, cascade impactors and total air samplers were installed at each biological array station during the Double Tracks and Clean Slate II events, and

[1]Modified Project 2.2 Objectives authorized by DASA in message to Project 2.2 dated 28 April 1964.

solubility samples were collected during all Clean Slate events by means of trays containing distilled water.

This report includes descriptions of the sampling instrumentation and the methods employed in testing and calibrating equipment, summaries of field operations, data tabulations, and plots of the data taken.

CHAPTER 2

PROCEDURE

2.1 INSTRUMENTATION

Approximately 1,400 air samplers capable of collecting 3,000 samples were employed in collecting air samples during each of the Roller Coaster field events. These instruments included two types of cascade impactors, three types of low-volume total air samplers, two types of sequential air samplers, sticky cylinders, sticky plates, and solubility sample trays. The air-sampling instruments, the adhesives and filter media employed, and the ancillary equipment such as vacuum pumps and electrical power sources required are described in the following sections.

2.1.1 Casella Mark II Cascade Impactor. The principal Cascade impactor for these tests was the Casella Mark II (Figure 2.1). These instruments were compact, fairly rugged, and moderately lightweight. They had good particle-size separation characteristics for both solids and liquids in the range from 0.5μ up to 50μ, with an efficiency of collection approaching 100 per cent. A total of 268 of these instruments were used on the ground and airborne networks. Installation on the ground network included direct attachment to

fence posts $4\frac{1}{2}$ feet above ground, as shown in Figure 2.2. Casella impactors used on the balloon arrays were attached to Gelman Bantam pumps as shown in Figure 2.3. Casellas were used also on mobile stations (Figure 2.4) and Ground Zero towers, during the Clean Slate II and Clean Slate III events (Figure 2.5).

2.1.2 Andersen Cascade Impactor. Approximately 100 Andersen Cascade impactors were used in each Roller Coaster event (Figure 2.6). This instrument was originally developed for sampling viable biological aerosols but has subsequently been used extensively for sampling inorganic aerosols. The instruments used in this program were modified to change sizing characteristics, to decrease wall losses due to plate-out, and to improve overall performance of the instrument.

The modification of the Andersen sampler consisted of removing Stage 5 from the assembly and making arrangements on the remaining stages (1, 2, 3, 4, and 6) so that only flat disks of glass would be utilized, rather than glass petri dishes.

Metal spacers and rubber cubes were attached to various stages of the sampler so that the glass plates were positioned next to the underside of the sampling stages at a distance of three times the diameter of the jet holes for that specific stage. Three small metal spacers

were glued to the bottom of each stage, approximately 120 degrees apart. To hold the glass plates against these metal spacers, half-inch cubes of sponge rubber were glued to the top of each succeeding stage in three places, approximately 120 degrees apart. Figure 2.7 is a photograph of the disassembled first stage of the Andersen, showing the modifications that were made to each stage. Spacer dimensions are shown in Figure 2.8.

The Andersen impactor, modified as described and equipped with a 2-inch Gelman in-line filter as a terminal stage (Figures 2.6 and 2.7), was used on the movable and fixed ground array stations and on each mobile station (Figure 2.4).

2.1.3 Total Air Samplers. Three types of low-volume total-air sampling heads, each loaded with a Microsorban filter backed by a molecular membrane filter, were used during all field events. Two types which were furnished by the British were equipped with isokinetic orifices. The third type used was a 2-inch-diameter Gelman disposable plastic head with open face. Throughout this report, the isokinetic-type total-air samplers are referred to as TAS I and TAS II. The Gelman plastic head is referred to as TAS D or TAS Disp. The TAS I (Figure 2.9) total-air sampler was used primarily on the balloon arrays and was mounted on the

Gelman Bantam pump as shown in Figure 2.3. The TAS II (Figure 2.10) type was used primarily on the movable ground arrays and was mounted as shown in Figure 2.11. The TAS Disp (Figure 2.12) sampling head was used on all ground arrays and was mounted with the filter in the horizontal position to minimize losses due to anisolinesis and to assure large-particle collection.

2.1.4 Sticky Cylinders and Sticky Plates. Sticky cylinders (wires) coated with a solution of benzol and vaseline were used to sample relative activity concentrations in the cloud (Figure 2.13). These devices consisted of 22-inch lengths of brass-alloy wire, approximately 1/16-inch in diameter, which were fastened to the vertical lines of the balloon arrays by means of alligator-type clips. The transporting, handling, and storage of the large quantities of these samplers used on the balloon arrays during all events was made relatively simple by the use of special containers constructed of plywood.

The sticky plates (disks), which were used also on the balloon arrays to measure gravity fallout from the cloud, consisted of 7-inch-diameter plates cut from 1/4-inch plexiglas and equipped with a slotted center-mounted bolt and wing-nut to permit attachment to the vertical cables of a balloon curtain. These devices were coated with a variety of adhesives and were equipped with

modified 16-mm-film containers for convenient transporting, handling, and storage (Figure 2.14).

2.1.5 Sequential Samplers. Ten Gelman paper-tape sequential samplers (Figure 2.15) and two types of British-designed and-furnished rotary disk-type sequential samplers (Figure 2.16) were operated during all events.

The Gelman-tape sequential (Catalogue Number 23000) was modified to provide a 7-second sampling period, with a 4-second changeover time. In addition, the intake orifice was equipped with an elbow fitting to orient the intake normal to the wind direction. Power for the Gelman sequentials was provided by portable, gasoline-driven, 110-volt generators.

The rotary-disk type sequentials, Guzunders Mark I and Mark II, were designed to operate from a central timing unit and vacuum supply. During all four Roller Coaster events, these samplers were mounted on the Mobile Stations (Figure 2.4) and employed Austen pumps as a vacuum source.

2.1.6 Adhesives and Filter Media. The adhesives, films, and filters used in Project 2.2 air-sampling equipment are listed in Table 2.1.

2.1.7 Vacuum Pumps. Interchangeable vacuum pumps were used to furnish an individual vacuum source for all

air-flow samplers except the Gelman paper-tape sequential samplers, which had built-in vacuum pumps. Four different types of vacuum pumps were used during the field events. They were: (1) the Vitro (Eglin) pump (17 to 18 liters/minute), (2) the Bantam Gelman pump (flow rate approximately 18 liters/minute), (3) the British (Charles) Austen pump (flow rate 20-to-30 liters/minute), and (4) the British SC-6 Vacandair (flow rate approximately 17-to-18 liters/minute).

Vitro Eglin Pump (Figure 2.17). The Vitro Eglin pump was a rotary, positive-displacement pump, powered by a 12-volt dc motor and contained in an aluminum cabinet. The pumps had a spring-loaded valve on the input to prevent overloading of the motor should the air intake become blocked. The units for this test series were modified in two ways: (1) A limiting orifice was installed on the intake line, inside the cabinet, to limit the flow to approximately 17.5 liters per minute, and (2) Connections to the motor-control solenoid were brought outside the cabinet so that remote control of the pumping unit could be more readily achieved. The pumps were powered from 12-volt, lead-acid storage batteries.

Bantam Gelman Pump (Figure 2.18). Weighing but 8 pounds, the Bantam-Gelman had less than half

the weight of any other pump used. It alone was used with all air samplers on the balloon curtains.

The built-in flow meter with flow control valve (variable from 10 to 35 liters/minute) was by-passed; flow control to 18 liters/minute was achieved by addition of a critical orifice. By this type of flow regulation, more stable operation with changing or different loads and with voltage fluctuations resulted.

British Charles Austen Pump (Figure 2.19). The Austen pump was a small, fairly lightweight instrument operating on a 12-volt dc source.

The pump was not equipped with a limiting orifice; consequently, it had a flow rate range from 20 to 30 liters per minute, depending upon the load to the pump.

British SC-6 Vacandair Pump (Figure 2.20). The SC-6 pump was compact and designed to operate on 12 volts dc, with a low amperage drain. The pump was not equipped with a critical orifice.

2.1.8 Electrical Power Sources. Electrical power for operating air-sampling equipment was provided by 12-volt batteries and 110-to-130 volt ac gasoline-driven generators.

Electrical System for Ground Arrays. Sampling stations (Figure 2.11) located on the outer arcs of the ground array (Arc N through Arc R) were

equipped with 12-volt batteries, and power to a sampler was applied manually at the station. This was also true for instrumentation above the basic plan that was added to Clean Slate III. Power for inner arc stations was also supplied by 12-volt batteries; an entire arc could be switched simultaneously from a remote position.

The remote control system for the ground array consisted of a separate circuit for Arcs B, D, F, H, J, and L, with actuation capability from either end of the arc. Two additional circuits were required to remotely operate the instruments on the GZ array and Arc A. These two circuits were actuated by switches located outside the timing and firing trailer. A plug connected to the remote system was located at each instrument station on the arc. When more than one instrument was located at a station, a three-outlet adapter was used.

Each remote circuit consisted basically of a primary system of a battery power supply, which, upon switch closure, furnished voltage to energize six DN-11 relays spaced equally around the arc. These relays connected a battery in a secondary system which supplied voltage to outlets at each station of a ten-station segment of the arc. The voltage of these outlets energized Magnacraft relays which completed the power supply circuit for each pump. Each pump was supplied with a Magnacraft relay, which in the case of the movable

array pumps, went with the pump to each new location.

To insure that all stations on the remote control system were operational at the time of an event, each pump was checked at approximately H-17 to -11 hours. All pumps were then attached to the remote system and one pump on each segment was checked for operation. The operational check of each segment was again repeated at approximately H-4 hours, after which the arcs were not disturbed.

Electrical System for Balloon Array. The Arc B balloon curtain was instrumented with total-air samplers and Casella impactors and required a total of 90 pumps operated from a 110-volt ac power supply. The pumps were attached at six horizontal levels of the curtain. Each horizontal cable supported the electrical wiring which supplied power to the pumps. As the curtain was raised, the upward motion was halted at each horizontal line, and the pumps and samplers were attached. At this time, power was applied to the horizontal and adjusted to give 130 volts at the center of the array. The voltage applied to the instruments at the ends of the horizontal was approximately 110 volts, due to line loss. Each pump was checked for operation and a low-wattage lamp was placed at each end of the horizontal. The power was then turned off and the curtain raised until the next horizontal line lifted off the ground, at which time the above procedure was repeated.

After the curtain was completely suspended and located at the recommended position on Arc B, the power was then applied to all horizontals simultaneously. The electric lamps furnished a visual indication that power was indeed applied. The bulbs burned throughout the cloud passage and indicated that no power failures occurred.

2.2 CALIBRATION AND TESTING OF INSTRUMENTATION

Due to the stringent time schedules established for conducting the Operation Roller Coaster events, combined with the logistics problems associated with moving and installing the large quantities of complex and diverse air sampling instrumentation, it was impossible to measure air flow at the individual sampling stations on the sampling networks. Therefore, a program of laboratory tests and measurements was conducted in the field in order to establish accurate average flow rates for the various vacuum-pump air-sampler configurations used during each event.

Basically, the measurements were concentrated on three main areas: the power supply systems. the vacuum pumps, and the air samplers. In general, the following tasks were performed:

1. Performance of power system, vacuum pumps, and samplers was evaluated.
2. All vacuum-pump flow rates were measured.

3. Jet widths and separation dimensions affecting flow rates of cascade impactors were measured.

4. Loading effects on vacuum pumps by various types of air samplers were measured.

The average flow rates derived from these measurements are presented in Table 2.2. Comparisons of these average flow rates with measurements made at sampling stations prior to the Double Tracks event are shown in Table 2.3. The extent to which the average flow rates deviate from field measurements listed in Table 2.3 is summarized in Table 2.4. Based on the data in Table 2.4, a 20-percent accuracy would seem most reasonable for the SC-6 average flow rate.

2.2.1 Casella Cascade Impactors. The flow rates were measured through 78 Casella cascade impactors attached to common Eglin, Midget Gelman, Austen, and SC-6 type pumps. Measurements were made with the British flow meter and the Brooks Rotameter. The British flow meter had an in-series vacuum gauge which gave the readings (Figure 2.21) in inches of mercury. The British flow-meter readings were calibrated at sea level with a read-off accuracy of ± 0.5 liter /minute. The Brooks Rotameter was calibrated in the General Dynamics altitude chamber at sea level, 5,000 feet, and 10,000 feet, and was found to be accurate to within ± 2 percent over the range of readings when corrected for temperature and pressure.

The many simultaneous readings by both the British flow meter and the Brooks Rotameter (Appendix B) provide a calibration of the British flow meter in terms of Brooks Rotameter readings. Preliminary analysis indicated that multiplying the British flow-rate values by about 1.18 would correct the readings to the Brooks Rotameter readings at 5,000-foot altitude. In this report, the Brooks Rotameter readings are reported in terms of the General Dynamics calibration for 5,000 feet above sea level. The considerations necessary to correct for temperature and pressure parameters are presented in the next paragraph.

2.2.2 Pressure and Temperature Corrections for Rotameter Flow Measurements. If the sea-level curve is used to convert scale readings to volume flow rate, it is necessary to multiply by a correction factor to account for the fact that air pressure at the rotameter is not the same as at sea level (14.7 psia, 760 mm/Hg, 1015 mb). The mean yearly pressure at the test site is 840 mb, and there is a further correction because of the drop through the sampler or any other device which precedes the rotameter in the air-flow circuit. There is also a small correction because the mean temperature during the pump calibration and usage at the test site was about 40°F (500°R), whereas the sea-level calibration corresponded to 70°F (530°R). The combined correction factor is

$$f = \sqrt{\frac{1015}{P}} \times \sqrt{\frac{500}{530}} \qquad f = \sqrt{\frac{957}{P}}$$

where:

P = pressure in mb at intake of rotameter;

P = 840-d where d is drop through the sampler in mb.

Table 2.5 gives the values of f that have been tabulated in terms of the pressure drop through the sampler load. Figures 2.22 and 2.23 are calibration curves that were prepared for sea level, 5,000 feet, and 10,000 feet at the General Dynamics testing laboratory.

Jet width and spacing between jets and impaction disks varied between samplers (see Appendix A and Figure 2.24); therefore, great care was taken to avoid mixing stages between samplers. However, a graphical representation of measured flow rates and jet dimensions shown in Figures 2.25, 2.26, and 2.27 plotted from the data in Table 2.6 show that no correlation is suggested between flow rates and jet widths or nonuniformity of back-up filter media. Flow rates were measured through Gelman AM-4 filters to test for uniformity of filter media (Table 2.7). Results show that filter media are very uniform from filter to filter. Table 2.6 shows that some geometry factor in the Casella is the critical factor. However, a possible trend toward flow rate increasing with increased jet-to-collection-plate spacing on the final Casella stage is indicated in

Figure 2.23.

Table 2.8 gives manufacturer's specifications for Casella cascade impactor jet dimensions.

2.2.3 Andersen Sampler. Table 2.9 shows data taken to evaluate the uniformity of flow through samplers with back-up filters. The results show that flow rates through 10 randomly selected were the same from sampler to sampler.

Andersen sampler jet and clearance dimensions (Appendix A) further demonstrate the uniformity of the stages in Andersen samplers.

2.2.4 Total Air Sampling. Before the Double Tracks event, 21 samplers were calibrated for flow rates at biological stations loaded for field operation. Table 2.10 presents the results in liters/minute as measured by the British flow meter. The flow-rate meter was calibrated at sea level and was recalibrated in an environmental chamber for the altitude of the test site (which was ~6,000 feet above sea level for Double Tracks and ~5,400 feet above sea level for Clean Slate I, II, and III.

The samplers chosen for the biological measurements were selected on the basis of close conformity to manufacturers tolerances. The Casellas were selected from a group of 58 of the most homogeneous Casellas out of

the 268 used in the test series.

2.2.5 Sequential Samplers. The Mark I and II Guzunders were checked for proper time sequencing before each event. The instruments were both powered by a common Austen vacuum pump operating on a 12-volt battery.

Measurements made of the flow rates of paper-tape sequential samplers are shown in Table 2.11.

2.2.6 Vacuum Pumps. Figure 2.28 shows the results of a study (see Table 2.12) to determine how vacuum pumps maintained their flow rates during the test series. Eighty vacuum pumps were chosen at random and recalibrated at the end of the final field event, and the flow rates obtained were compared with flow rates that were recorded before the first field event. Results indicate:

1. Eglin pump flow rates remained about constant.
2. Gelman Bantam pump flow rates remained about constant.
3. British Austen pump flow rates were about 12 percent higher at the last reading.
4. British SC-6 pump flow rates were about 6 percent lower at the last reading.

When the British Austen and SC-6 flow rates changed cannot be determined from available data. The fact that flow-rate changes did occur affected the accuracy

limits of the station flow rates (see Appendix B for detailed tabulated pump flow data).

2.2.7 Electrical Power Supply. Approximately 20 percent of the batteries throughout the array were checked for specific-gravity readings of not less than 1.230. To preclude any battery failure due to deterioration from sitting unused in the field for periods of from one to two weeks, each battery was recharged after each event.

The results of a battery durability test (Table 2.12) are presented graphically in Figure 2.29. The salient feature was the small change in sampler flow rate during the 300 minutes. Batteries were never operated for more than three hours during an actual field event.

TABLE 2.1 ADHESIVES, FILMS, AND FILTERS USED WITH AIR-SAMPLING INSTRUMENTS

Sampling Devise	Adhesives and Films[a]	Sample Format	Type Filter
Casella Mark II	(1) (2)	1 in. dia. glass disk.	47 mm AM-4
Casella (Ground Zero only)	(1) (3)	1 in. dia. glass disk	47 mm Type "E"
Andersen Sampler	(1) (2) (5) (6)	3 in. Acetate disk	2 in. AM-4
T.A.S. Mark I T.A.S. Mark II	-- --	-- --	47 mm Microsorban and AM-4
Gelman Disp. Filter	--	--	2 in. Microsorban and AM-4
Gelman Sequential Sampler	--	Filter Tape	Gelman Type W-41
Sequential Samplers Guzunders Mark I and II	(2)		--
Cylindrical Collector	(4)	2 mm dia. wire	--
Balloon Deposition Collector	(2) (5) (6)	7 in. dia. Plexiglas Disk	--
Mobile Unit Deposition Collector	(6) (5)	12" x 14" aluminum plates	--

[a]Adhesives and Films:

(1) Stripping Film: Cellulose Acetate in Acetone, 7% solution.

(2) Normal Impactor Adhesive:

Resin American W. W.	1 gm
Acetone	5.5 cc
Dibutyl Pthalate	1.0 cc

(3) Dow Corning 4

(4) Water soluble adhesive:

Gelatine	1 gm
Glycerine	2 cc
Water	30 cc

(6) Mylar Film.

TABLE 2.2 AIR-SAMPLER FLOW RATES

Pump Type	Casella Impactor		Andersen Impactor		Total Air Sampler	
	Measured Flow Rates	Average Value	Measured Flow Rates	Average Value	Measured Flow Rates	Average Value
	liters/minute		liters/minute		liters/minute	
Eglin	17.8 (17.3 to 18.3)	17.8±5%	18.4	18.4±5%	18.3	18.3±5%
Gelman	18.0 (17.2 to 18.2)	18.0±5%	18.0	18.0±5%	18.0	18.0±5%
Austen	22.5 (18.7 to 24.1)	22.5±10%	26.5 (26.2 to 26.6)	26.5±10%	25.7 (25.3 to 26.4)	25.7±10%
SC-6	17.5 (13.0 to 18.9)	17.5±10%	17.8	17.8±10%	17.8	17.8±10%

TABLE 2.3 PRE-RELEASE CALIBRATION DATA, DOUBLE TRACKS

Pump Type	Sampler Type	Average Flow Rate	Field Measurement	Deviation from Average Value	Remarks
		liters/minute		per cent	
Eglin	TAS-D	18.3 ± 5%	19.7	+ 7	high by 2%
Eglin	Andersen	18.4 ± 5%	19.5	+ 5	
Eglin	TAS-D	18.3 ± 5%	18.0	- 1	
Eglin	Andersen	18.4 ± 5%	18.0	- 2	
Eglin	Andersen	18.4 ± 5%	18.3	- 1	
SC-6	TAS-D	17.8 ± 10%	20.6	+14	high by 4%
Austen	Casella	22.5 ± 10%	>23	>2	
Eglin	Andersen	18.4 ± 5%	18.3	- 1	
Eglin	TAS-D	18.3 ± 5%	18.3	0	
Eglin	Casella	17.8 ± 5%	18.1	+ 2	
Eglin	Andersen	18.4 ± 5%	18.7	+ 2	
Eglin	Andersen	18.4 ± 5%	17.7	- 4	
SC-6	Casella	17.5 ± 10%	18.9	+ 8	
SC-6	Casella	17.5 ± 10%	18.9	+ 8	
SC-6	Casella	17.5 ± 10%	18.9	+ 8	
Austen	TAS-D	25.7 ± 10%	>23	?	
SC-6	Casella	17.5 ± 10%	18.9	+ 8	
SC-6	TAS-D	17.8 ± 10%	18.9	+ 6	
SC-6	TAS-I	17.8 ± 10%	18.9	+ 6	
SC-6	Casella	17.5 ± 10%	20.5	+15	high by 5%
SC-6	Casella	17.5 ± 10%	20.1	+13	high by 3%
SC-6	TAS-I	17.8 ± 10%	20.7	+14	high by 4%
Austen	Casella	22.5 ± 10%	23.6	+ 5	
SC-6	Casella	17.5 ± 10%	21.2	+18	high by 8%
SC-6	Casella	17.5 ± 10%	21.6	+19	high by 9%
Eglin	Andersen	18.4 ± 10%	17.7	- 4	
Eglin	Casella	17.8 ± 5%	18.3	+ 3	
SC-6	TAS-II	17.8 ± 10%	18.3	+ 3	
Eglin	Andersen	18.4 ± 5%	18.2	- 1	
SC-6	TAS-II	17.8 ± 10%	23.0	+22	high by 12%
Austen	Casella	22.5 ± 10%	>23	+ 2	
Eglin	Andersen	18.4 ± 5%	18.4	0	

TABLE 2.4 SUMMARY OF TABLE 2.3 RESULTS

Pump Type	Measurements Within Average Limits	Measurements Beyond Average Limits	Remarks
Eglin	13	1	+ 7%
Gelman			
Austen	3		
SC-6	7		15%--4 20%--2 20%--1

TABLE 2.5 ROTAMETER CORRECTION FACTORS

Pressure Drop Through Sampler		840 mb Minus		
Inches, Hg	Millibars	mb Pressure Drop	f	Remarks
0.0	0	840	1.07	Multiply flow rate as read from sea level curve by f to get correct volume flow rate.
0.5	16.6	823	1.08	
1.0	33.3	807	1.09	
1.5	49.9	790	1.10	
2.0	66.6	773	1.12	Inasmuch as the curve shown in Figure 2.22 is nearly straight in the range of interest one can multiply scale reading by f and then read the volume flow rate from the curve if he prefers. The volume flow rate so obtained will be the corrected value.
2.5	83.3	757	1.13	
3.0	100.0	740	1.14	
3.5	116.6	723	1.15	
4.0	133.3	707	1.16	
4.5	149.9	690	1.18	
5.0	166.6	673	1.19	
5.5	183.3	657	1.21	
6.0	200.0	640	1.22	

TABLE 2.6 CASELLA IMPACTOR DIMENSIONS AND AIR-FLOW DATA

All measurements made with Brooks Rotameter and presented in direct scale readings.

Sampler Number	Dimensions			Flow Rates		
	Stage 3 Jet Width	Stage 4 Jet Width	Stage 4 Gap	Eglin Pump	Gelman Pump	Austen Pump
	10^{-3} inches	10^{-3} inches	10^{-3} inches			
100	31	16	3	84	85	111
101	34	14	4	85	85	117
108	34	13	6	85	86	113
123	31	12	6	84	85	111
124	33	11	5	83	83	110
128	30	11	6	85	86	113
131	35	16	8	86	86	118
134	32	12	5	86	82	100
135	33	16	6	84	87	116
137	33	19	9	85	85	119
154	31	11	7	83	83	107
158	31	12	7	83	86	114
166	31	11	4	83	84	106
177	31	15	6	85	83	107
182	31	11	4	82	81	101
193	32	17	8	87	86	117
196	28	11	6	85	86	107
197	30	12	5	85	85	111
200	32	19	5	82	84	113
201	28	16	7	85	86	114
205	32	11	7	84	85	114
207	30	12	7	83	84	108
209	28	20	7	87	87	120
210	19	11	5	85	85	104
229	35	21	7	86	87	120
231	34	11	6	82	84	111
233	30	14	6	84	85	111
240	28	12	5	84	84	107
246	32	12	5	84	85	111
250	30	12	6	84	85	112
251	35	11	8	83	85	113
252	28	16	6	84	86	116
259	35	12	6	83	84	106
263	31	12	6	85	86	120
268	32	14	5	85	86	113
272	33	15	5	86	85	110
280	29	18	6	83	84	110
282	28	12		84	85	108
284	31	12	6	86	85	111
285	32	19	7	85	85	113
292	35	12	5	84	85	108
300	29	11	7	82	84	112
302	35	15	6	85	86	117
306	31	13	5	82	83	105
308	28	14	6	85	86	115
309	37	14	6	84	85	111
312	31	16	5	85	85	111
314	36	12	5	85	84	104

TABLE 2.6 CONTINUED

All measurements made with Brooks Rotameter and presented in direct scale readings.

Sampler Number	Dimensions			Flow Rates		
	Stage 3 Jet Width	Stage 4 Jet Width	Stage 4 Gap	Eglin Pump	Gelman Pump	Austen Pump
	10^{-3} inches	10^{-3} inches	10^{-3} inches			
316	31	11	6	84	85	109
321	32	14	4	82	81	99
329	30	12	7	82	83	107
331	31	16	6	83	84	110
334	30	11	6	84	85	108
335	34	14	6	83	83	108
342	30	10	4	84	84	110
350	31	12	5	82	83	109
352	32	20	6	85	86	116
802	30	15	6	85	85	113
804	36	15	6	85	86	112
808	35	13	6	86	86	115
813	37	15	5	85	85	110
817	37	17	6	83	85	105
820	35	15	5	85	85	108
821	36	15	5	85	86	121
827	33	13	5	85	86	116
831	35	15	8	86	87	116
832	32	17	8	86	87	118
833	38	14	7	83	83	107
836	40	17	6	84	86	116
837	35	15	6	84	84	110
839	33	13	6	85	87	120
846	35	17	6	86	85	112
849	31	12	5	84	85	112
858	33	12		84	85	112
862	31	12		84	85	112
869				84	85	113
873				85	86	115
898	28	12	6	82	83	105
899				82	82	104

TABLE 2.7 AIR-FLOW THROUGH GELMAN AM-4 FILTER

Air-flow measurements made with Brooks Rotameter. Vacuum measurements made with British Vacuum-Flow Meter.

Pump Type	Filter Number	Air-Flow with Pump Unloaded	Pump Loaded with AM-4 Filter	
			Vacuum	Air-Flow
		liters/min	inches, Hg	liters/min
Eglin	1	18.8	1.5	18.3
Eglin	2	18.8	2.0	18.3
Eglin	3	18.8	2.0	18.3
Eglin	4	19.0	2.0	18.3
Eglin	5	19.0	1.5	18.3
Eglin	6	18.7	2.0	18.3
Eglin	7	18.8	2.0	18.3
Eglin	8	18.8	1.5	18.3
Eglin	9	18.8	1.5	18.3
Eglin	10	18.8	2.0	18.3
Austen	1	28.6	2.0	26
Austen	2	28.8	2.0	25.3
Austen	3	28.2	2.5	25.3
Austen	4	28.2	2.0	25.7
Austen	5	28.4	2.0	26
Austen	6	28.6	2.5	25.3
Austen	7	28.4	2.0	25.7
Austen	8	28.6	2.0	26.2
Austen	9	28.8	2.0	26.4
Austen	10	28.7	2.0	25.7

TABLE 2.8 MANUFACTURER'S SPECIFICATIONS FOR CASELLA MARK II CASCADE IMPACTOR STAGE DIMENSIONS

Dimensions quoted from Instruction Leaflet 3018/RI for the Cascade Impactor, C. F. Casella & Co., Ltd., Regent House, Britannia Walk, London N. 1.

Stage Number	Jet Length	Jet Width	Separation Dimension
1	1.000	0.750	0.028
2	0.550	0.057	0.039
3	0.550	0.029	0.014
4	0.550	0.011	0.0055

TABLE 2.9 AIR FLOW DATA FOR THE ANDERSEN IMPACTOR

Air-flow with Eglin and Austen pumps measured with Brooks Rotameter; British Vacuum-Flow Meter used with SC-6 Pump; Vacuum measured with British Vacuum-Flow Meter.

Pump Type	Sampler Number	Vacuum	Air-Flow
		inches, Hg	liters/min
EGLIN	A-27	1.5	18.5
EGLIN	A-24	1.5	18.5
EGLIN	A-57	1.5	18.4
EGLIN	A-119	1.5	18.4
EGLIN	A-59	1.5	18.5
EGLIN	A-67	1.5	18.5
EGLIN	A-40	1.5	18.4
EGLIN	A-1	1.5	18.4
EGLIN	A-76	1.5	18.4
EGLIN	A-13	1.5	18.4
AUSTEN	A-27	2.0	26.4
AUSTEN	A-24	1.5	26.6
AUSTEN	A-57	2.0	26.6
AUSTEN	A-119	2.0	26.6
AUSTEN	A-59	2.0	26.6
AUSTEN	A-67	2.0	26.0
AUSTEN	A-40	2.0	26.0
AUSTEN	A-1	2.0	26.0
AUSTEN	A-76	2.0	26.4
AUSTEN	A-13	2.0	26.2
SC-6	A-27	2.0	17.3
SC-6	A-24	1.0	17.3
SC-6	A-57	2.0	17.3
SC-6	A-119	2.0	17.3
SC-6	A-59	2.0	17.3
SC-6	A-67	2.0	17.3
SC-6	A-40	2.0	17.3
SC-6	A-1	2.0	17.3
SC-6	A-76	2.0	17.3
SC-6	A-13	2.0	17.3

TABLE 2.10 AIR-FLOW MEASUREMENTS MADE AT AIR-SAMPLING STATIONS LOCATED ON DOUBLE TRACKS BIOLOGICAL ARRAY.

All measurements made with British Vacuum-Flow Meter.

Arc	Station	Sampler Type	Sampler Number	Pump Type	Pump Number	Air Flow	Air Flow[a]
						liters/min	liters/min
G	052	Casella	202	SC-6	4546	18.9	
I	061	TAS I	545	SC-6	4474	18.9	
I	061	Casella	281	SC-6	4329	15.3	19.5
E	060	TAS I	510	SC-6	4353	21.2	
E	060	Casella	349	Austen	B493SE	23.6+	21.2
G	054	TAS D	76	Austen	B176SE	23.6+	
G	054	Casella	253	SC-6	4430	18.9	15.9
G	062	Casella	183	SC-6	4549	21.2	20.1
G	056	Casella	197	SC-6	4428	18.9	
G	056	TAS D	77	SC-6	4506	18.9	
I	057	TAS I	579	SC-6	4486	18.9	
I	057	Casella	139	SC-6	4426	20.1	18.3
G	060	Casella	144	SC-6	4367	20.1	16.5
G	060	TAS I	534	SC-6	4479	20.7	
G	060	Casella-F	284	Austen	B225SE	23.6+	20.7
E	056	Casella	156	SC-6	4376	20.1	19.5
E	056	TAS I	576	SC-6	4439	18.9	
G	050	Casella	167	SC-6	4345	18.9	18.9
G	058	Casella	263	SC-6	4312	20.1	
G	058	TAS I	519	SC-6	4460	18.9	19.5
G	064	Casella	206	SC-6	4512	21.2	

[a]Laboratory measurement.

TABLE 2.11 AIR-FLOW DATA FOR THE GELMAN PAPER-TAPE SEQUENTIAL SAMPLER

Air-Flow measurements made with Brooks Rotameter. Flow measurements made with British Vacuum Flow Meter.

Serial Number	Flow Meter	Air Flow
	liters/min	liters/min
305B006A10XPD3	11.5	10.9
305B006A10XPI2	12.5	10.9
305B006A10XPB3	12.0	10.9
305B006A10XPD3	11.0	10.6
305B006A10XPD3	11.5	12.1

TABLE 2.12 BATTERY-DURABILITY TEST DATA

All measurements made with battery connected to Vitro (Eglin) Pump Serial No. 159-85681-3 and Casella Impactor No. 227. **This pump required largest amperage.**

Date	Elapsed Time	Load Current	Battery Charge	Vacuum	Air Flow
	minutes	amperes	volts	mm, Hg	liters/min
4/15/63	Start	21.5	12.5	100	18
4/15/63	10	18.2	11.8	100	17.8
4/15/63	20	17	11.8	100	17.8
4/15/63	30	16.5	11.8	100	17.7
4/15/63	40	16	11.8	100	17.7
4/15/63	50	15.9	11.8	98	17.7
4/15/63	60	15.5	11.9	98	17.7
4/15/63	70	15.5	11.9	98	17.7
4/15/63	80	15.2	11.9	98	17.7
4/15/63	90	15.2	11.9	98	17.6
4/15/63	100	15.2	11.9	98	17.5
4/15/63	110	15.1	11.9	98	17.5
4/15/63	120	15.1	11.9	98	17.5
4/15/63	130	15.1	11.9	98	17.5
4/15/63	140	15.1	11.9	98	17.2
4/15/63	150	15	11.9	98	17.2
4/15/63	160	15	11.9	98	17
4/15/63	170	15	11.9	98	17
4/15/63	180	15	11.9	98	17
4/15/63	190	15	11.9	98	17
4/15/63	200	15	11.9	98	17
4/15/63	210	15	11.8	98	17
4/15/63	220	15.1	11.8	98	17
4/15/63	230	15.2	11.8	98	16.8
4/15/63	240	15.8	11.8	98	16.8
4/15/63	260	17.5	11.75	96	17
4/15/63	280	20	11.7	98	17
4/15/63	300	25.5	11.6	98	17
4/15/63	320	24.5	11.5	90	16
4/15/63	340	23	11.5	98	16.5
4/15/63	360	22.5	11.5	98	16.8
4/16/63	Start	22	11.6	100	20
4/16/63	10	21	11.4	110	19.8
4/16/63	20	19.5	11.4	110	19.8
4/16/63	30	18.2	11.4	110	19.6

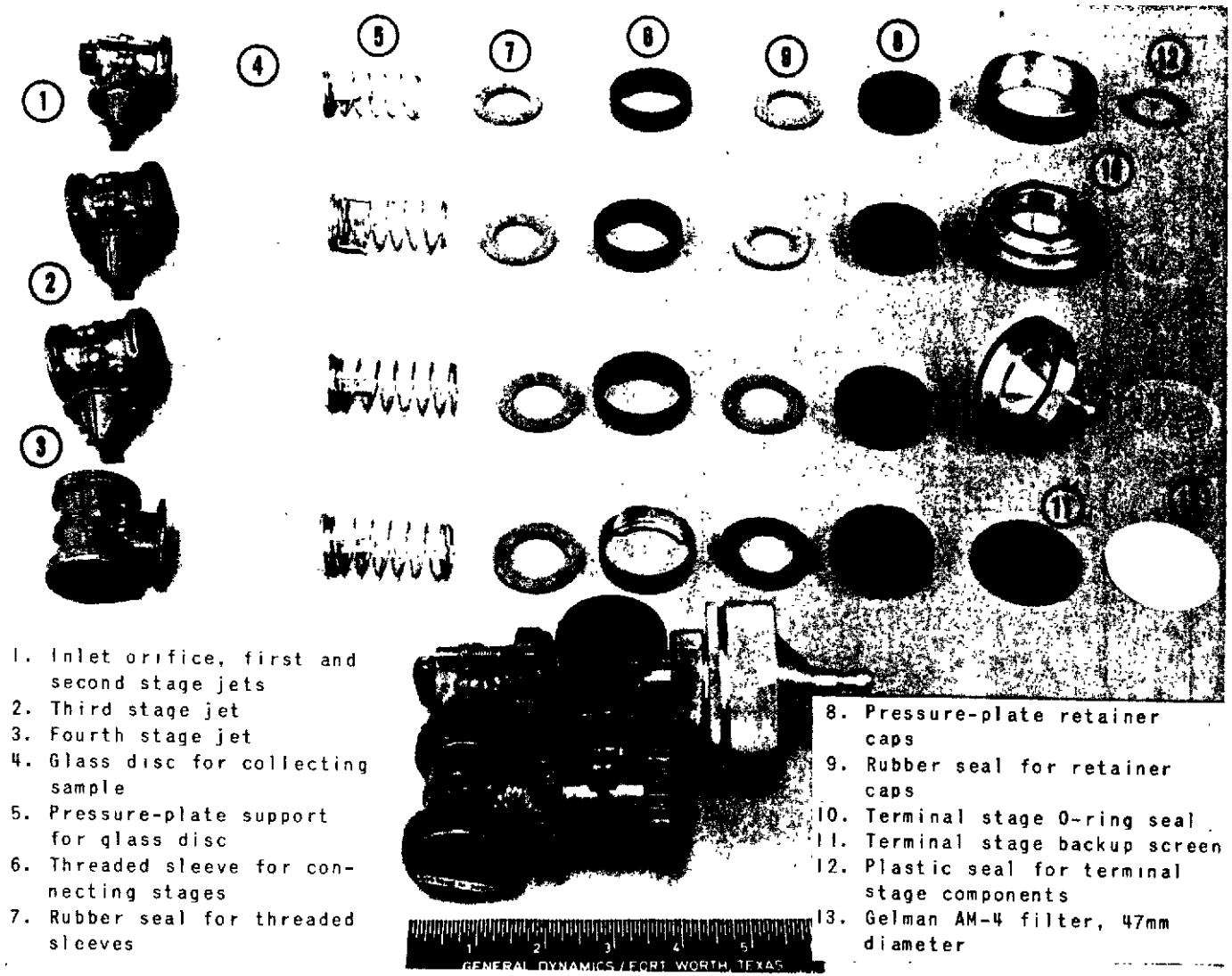


Figure 2.1 Casella Mark II Cascade impactor, assembled and disassembled. (General Dynamics photo)

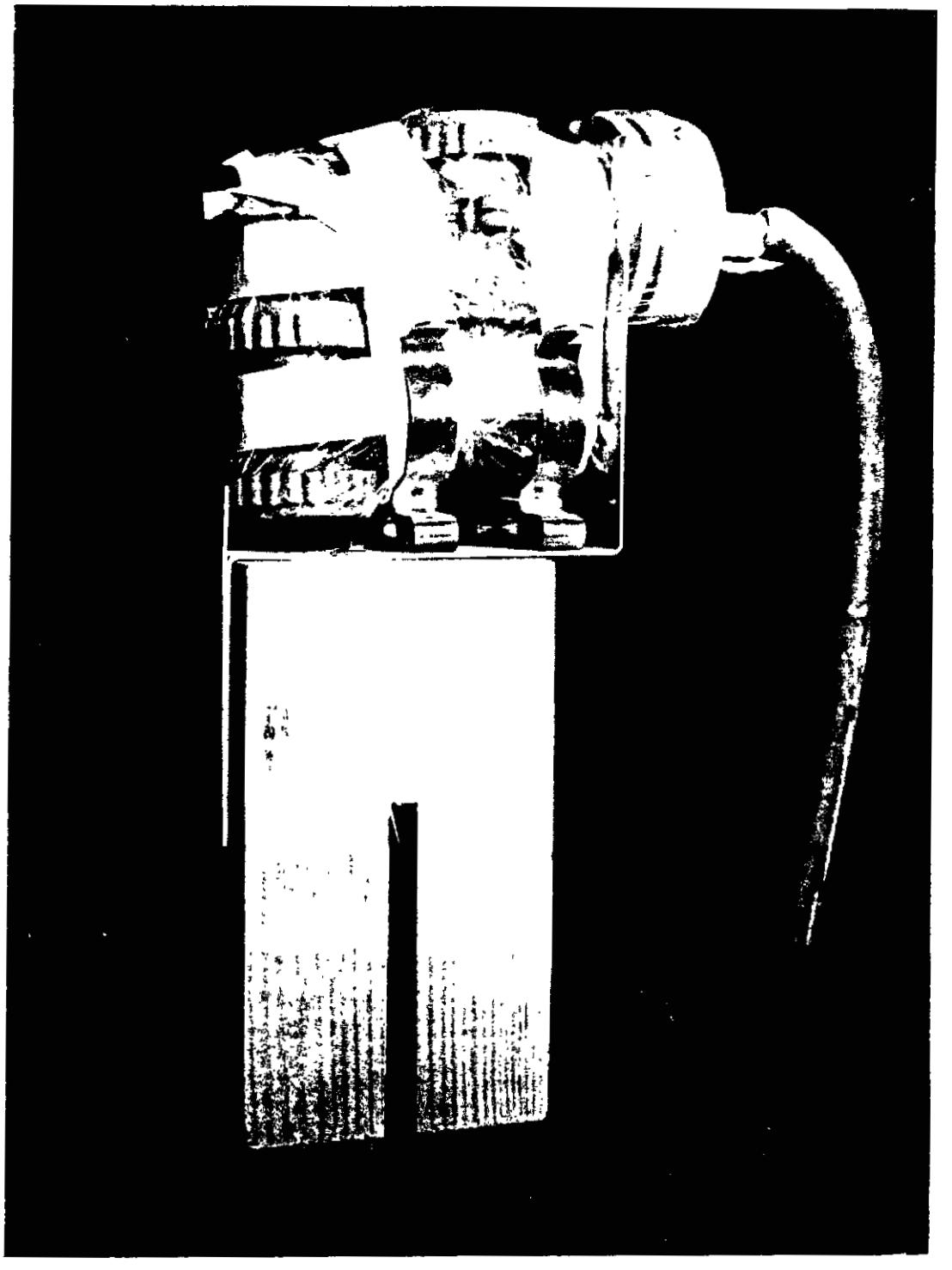
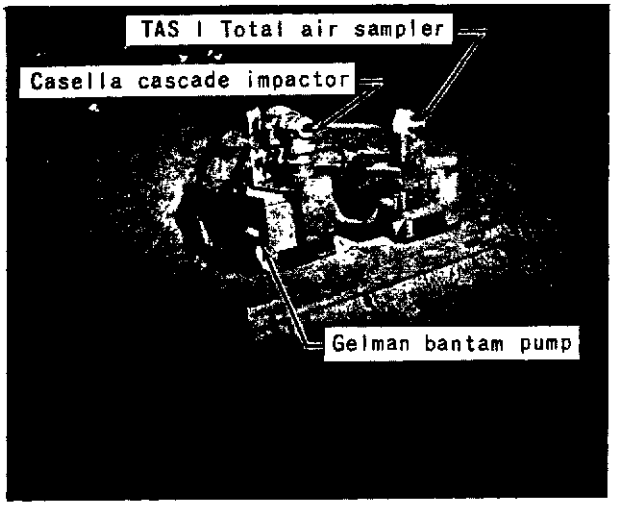
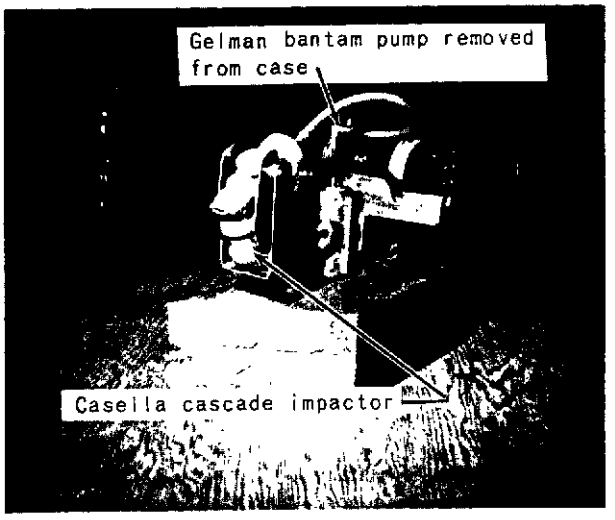


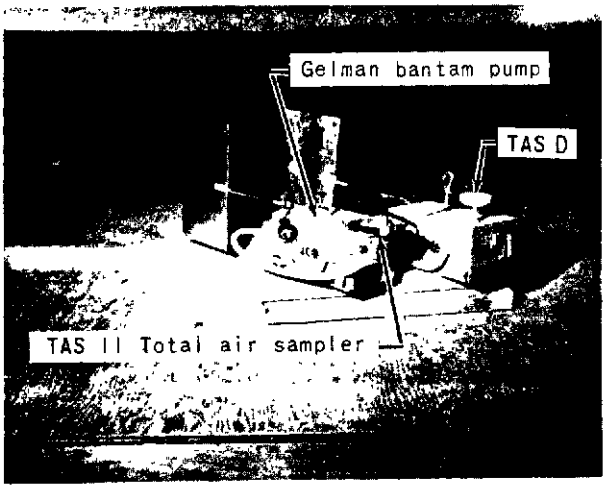
Figure 2.2 Casella Cascade impactor, typical ground network installation. (General Dynamics photo)



Air sampling configurations used on main balloon curtain

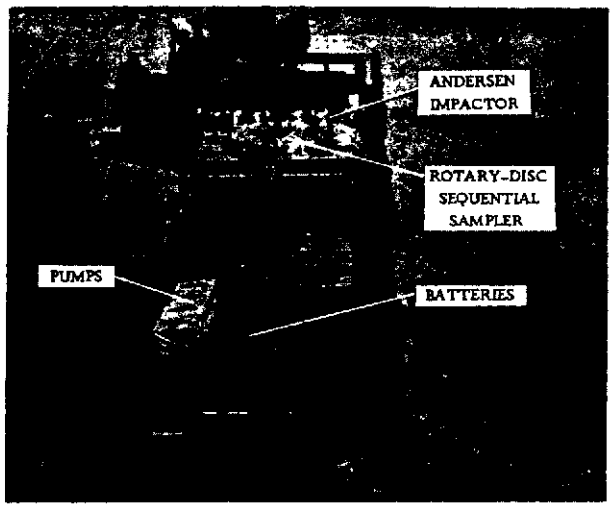
Swivel mount for use on British balloons





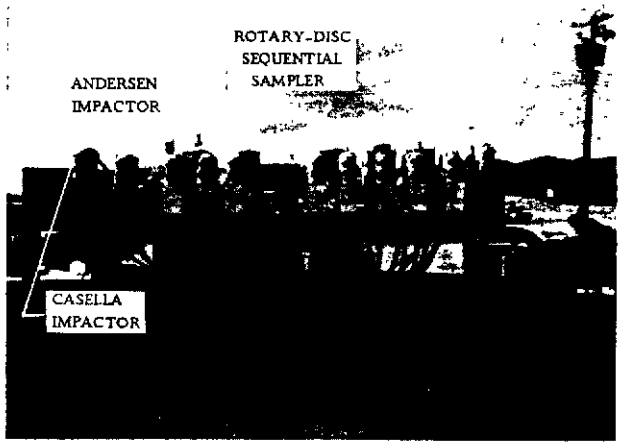
Gelman pumps equipped with windvanes

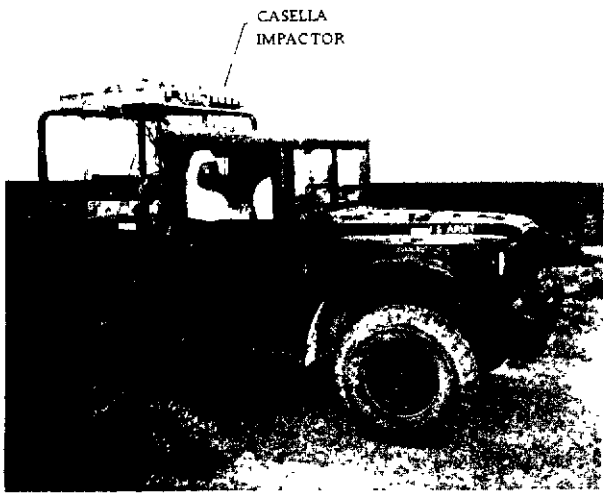
Figure 2.3 Air-sampler configurations used on balloon curtains. (DASA 110-01-TTR-63, DASA 110-02-TTR-63, DASA 110-03-TTR-63)



GENERAL REAR VIEW

CLOSE-UP FRONT VIEW

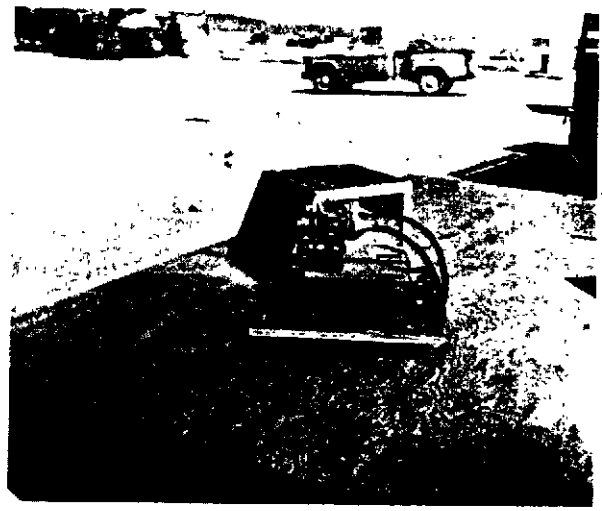




GENERAL SIDE VIEW

Figure 2.4 Mobile sampling station. (DASA 124-06-TTR-63, DASA 124-10-TTR-63, DASA 124-12-TTR-63)

Impactor with protection cover removed



Installation operations

Configuration installed on tower

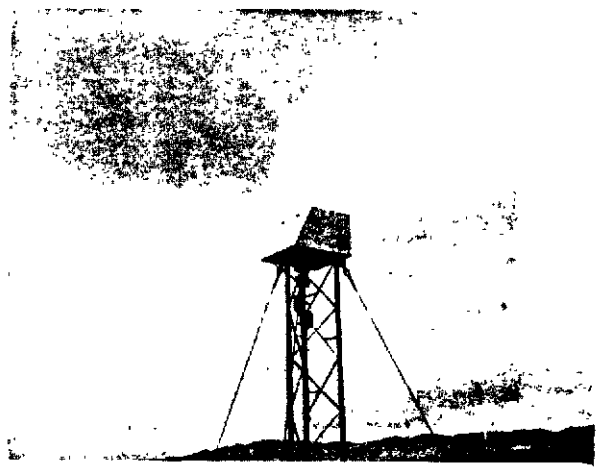


Figure 2.5 Casella impactor configuration for ground zero towers. (General Dynamics photos)

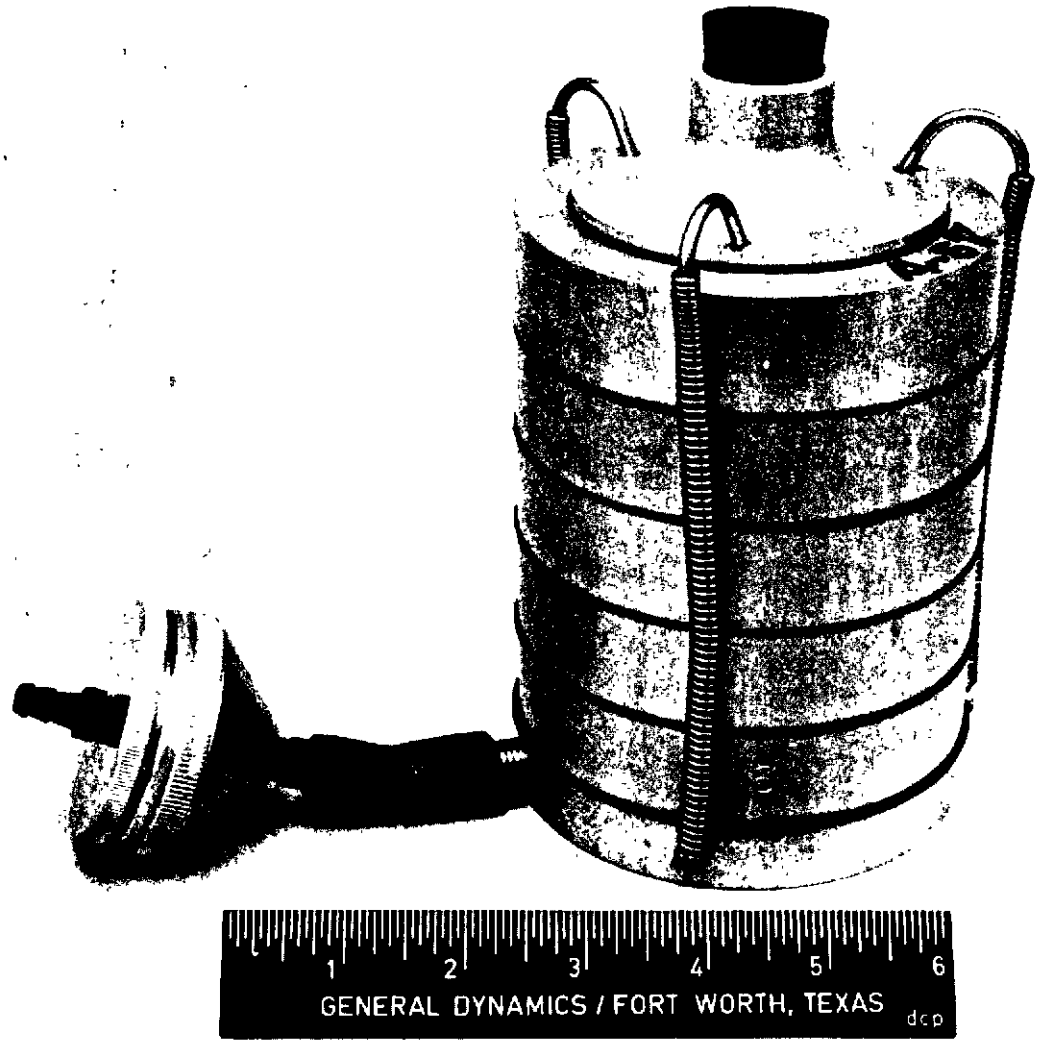


Figure 2.6 Modified Andersen sampler with Gelman terminal stage. (General Dynamics photo)

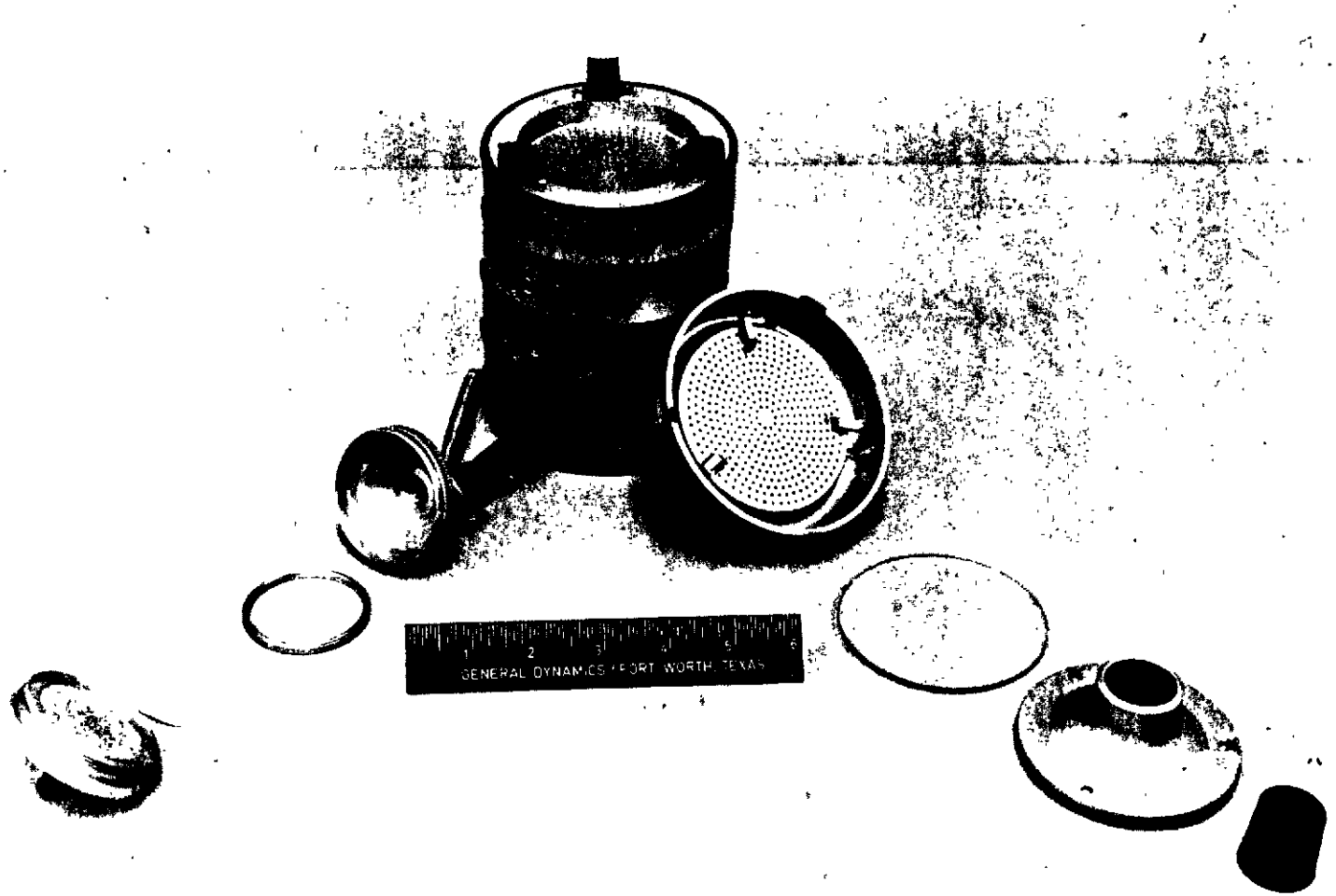


Figure 2.7 Modified Andersen sampler, disassembled. (General Dynamics photo)

Stage	Dimension "A" in mm	Dimension "A" in inches
1	3.96	0.156
2	2.97	0.117
3	2.34	0.092
4	1.83	0.072
6	0.762	0.030

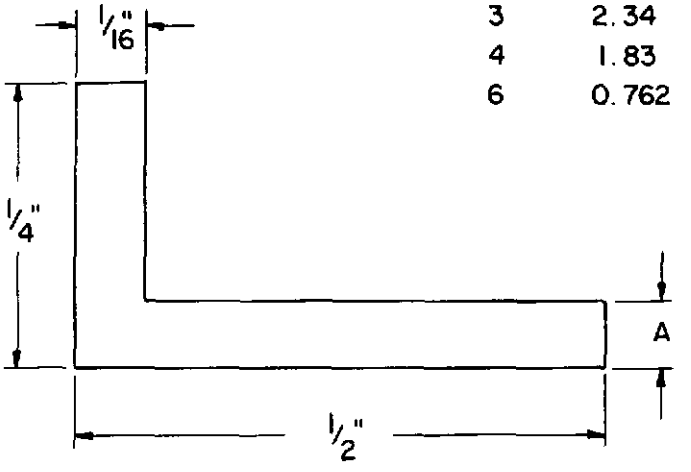


Figure 2.8 Dimensions of spacers added to Andersen stages to support glass plates and to provide jet clearances indicated for Dimension A.

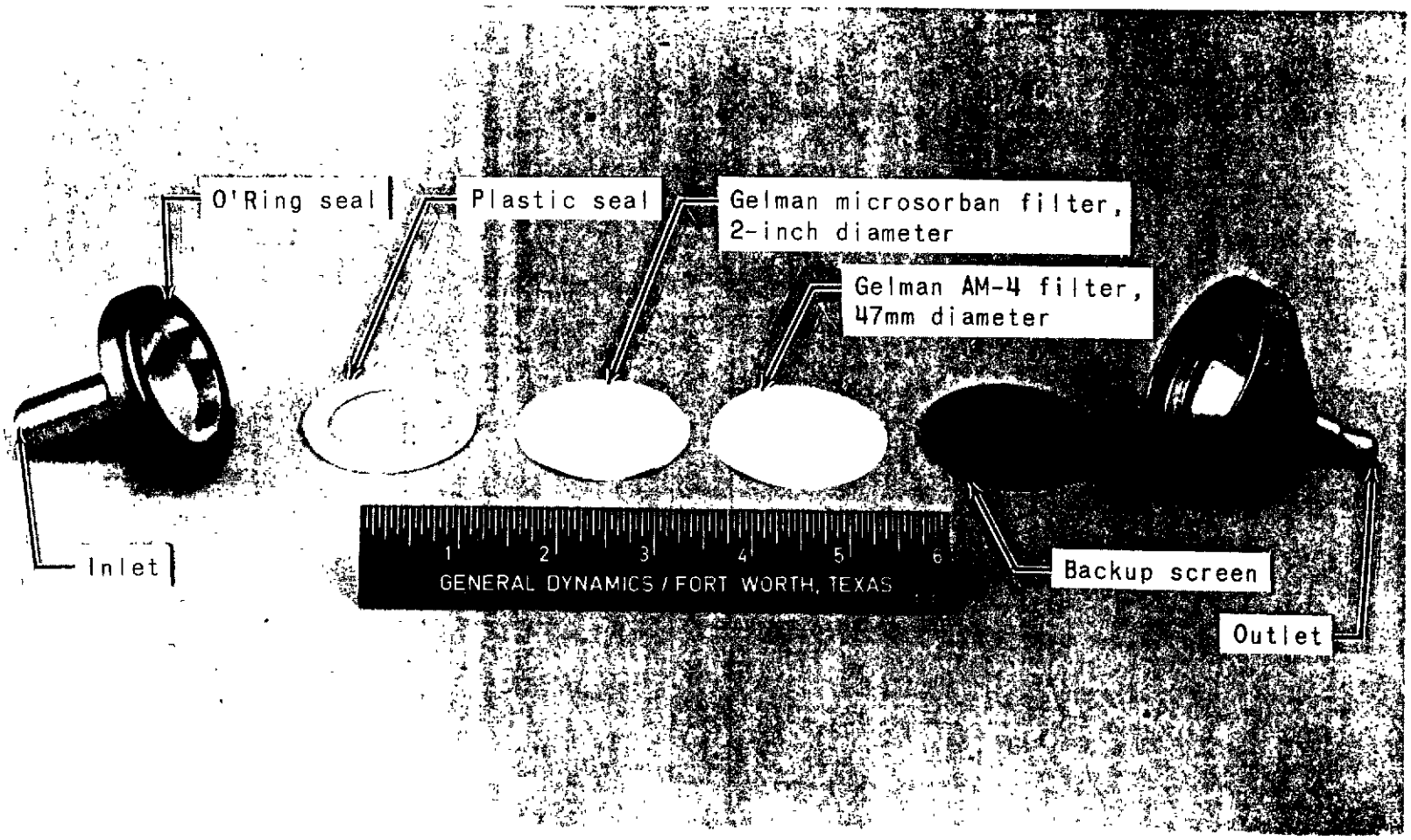


Figure 2.9 Low-volume total air sampler, Type I, disassembled. (General Dynamics photo)

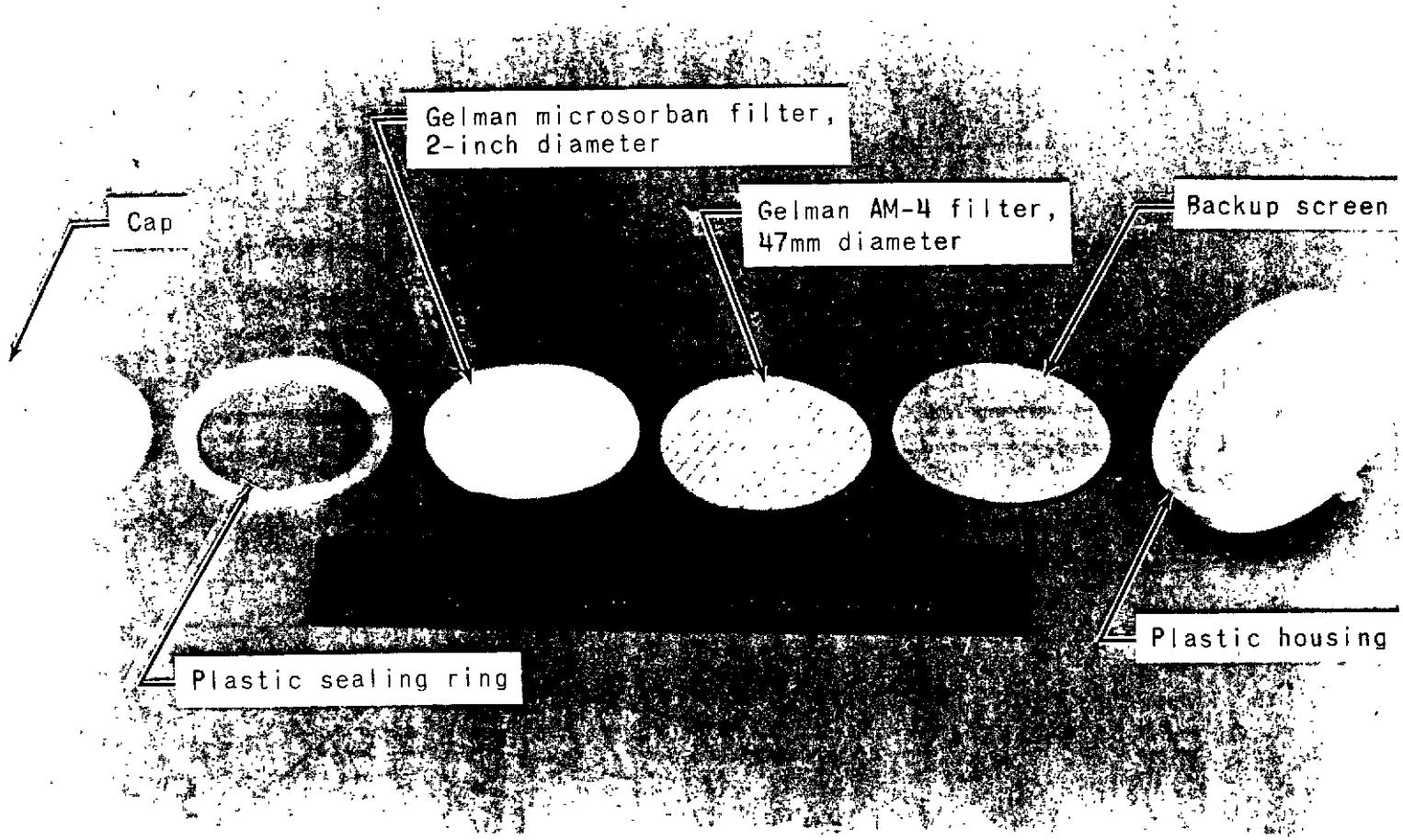


Figure 2.10 Low-volume total air sampler, Gelman disposable type, disassembled. (General Dynamics photo)

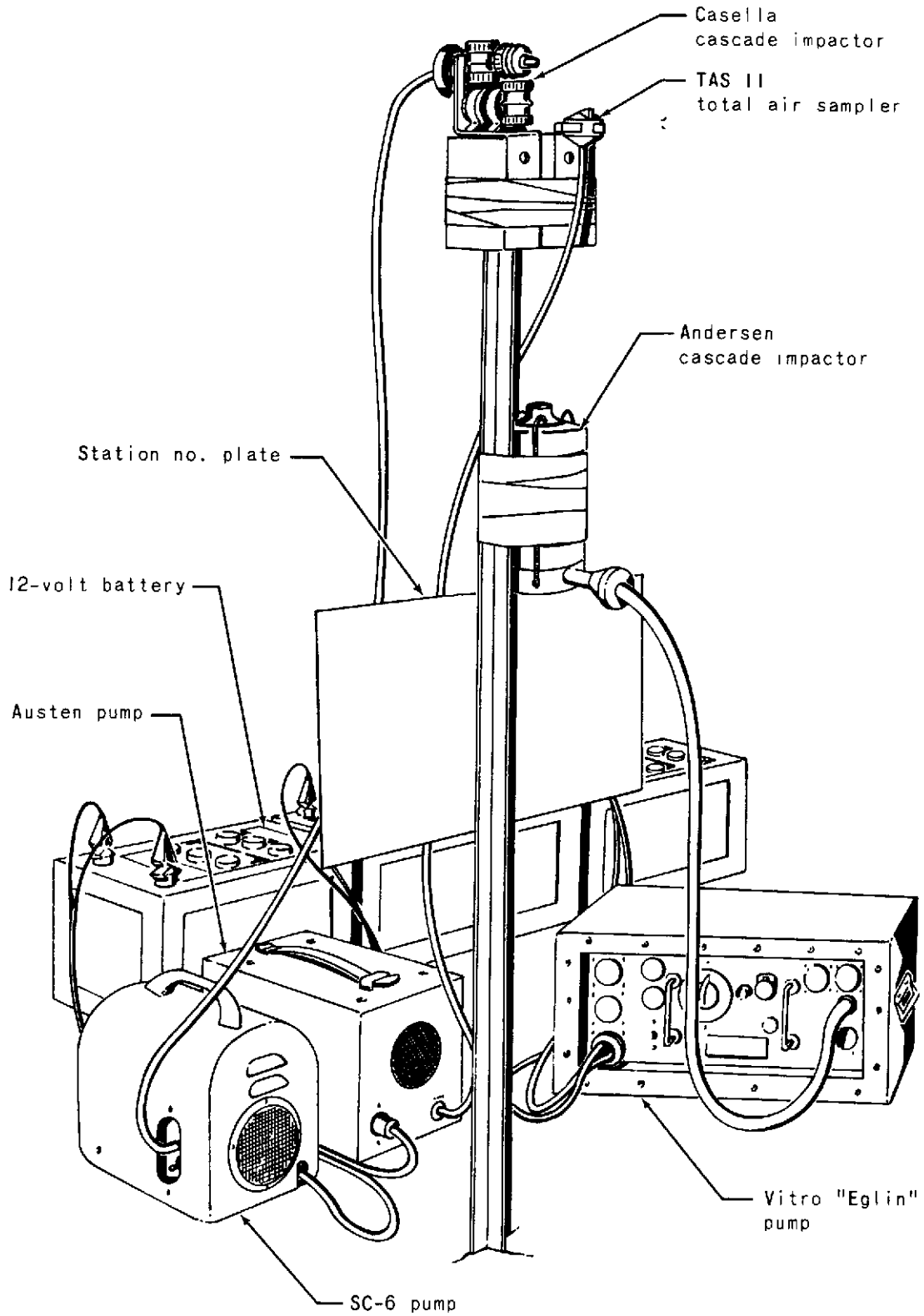


Figure 2.11 Ground network air-sampling station.

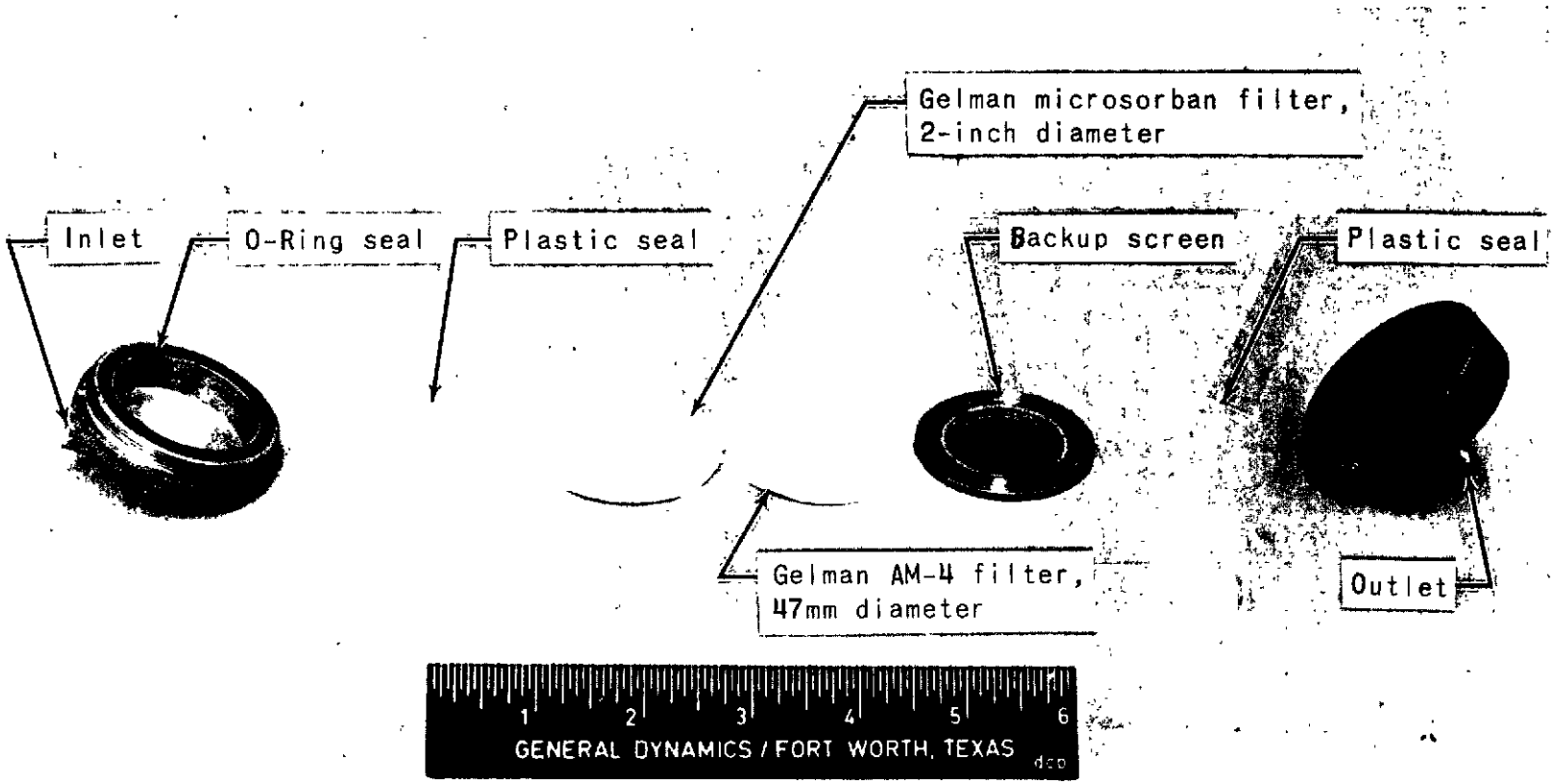


Figure 2.12 Low-volume total air sampler, Type II, disassembled. (General Dynamics photo)

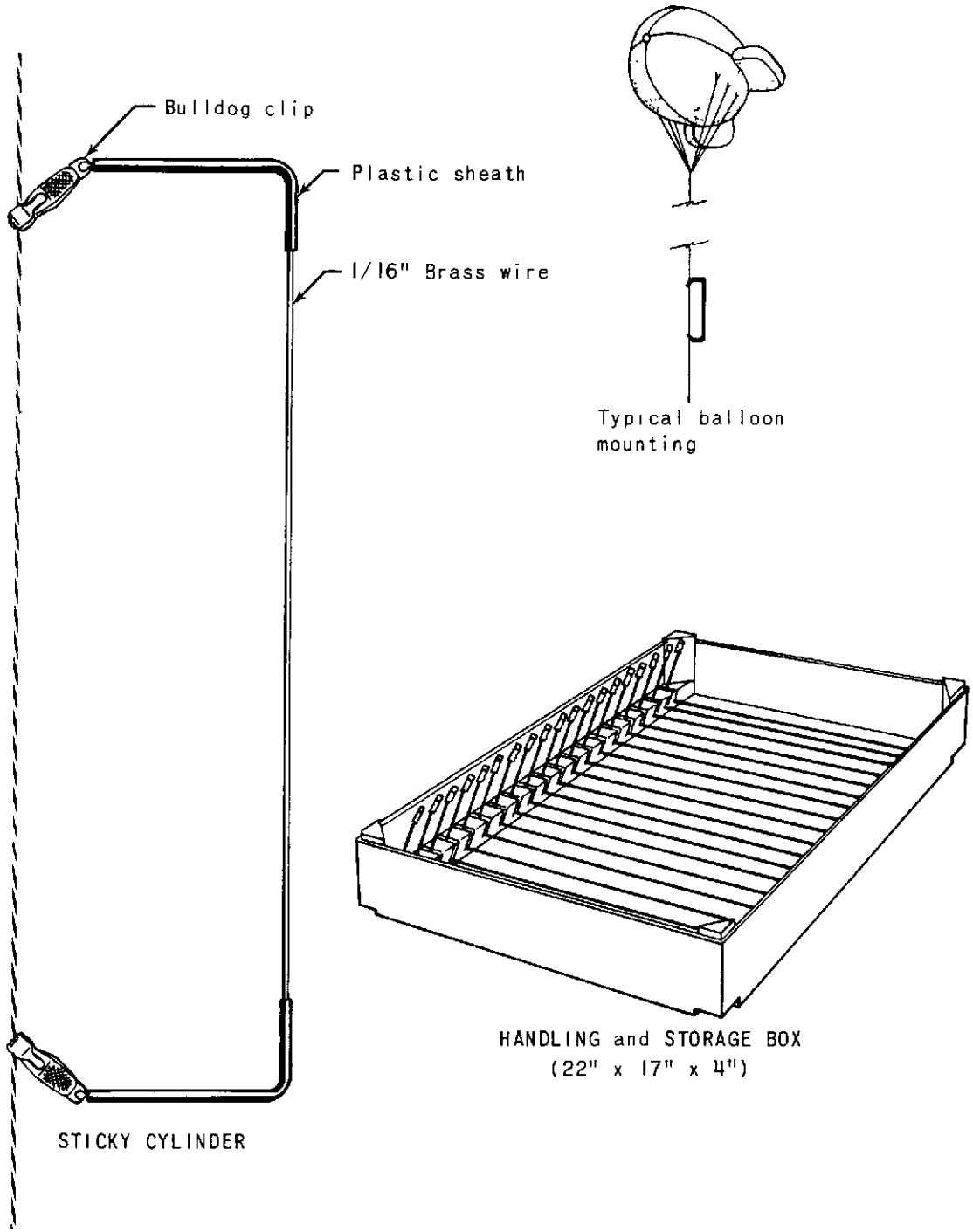


Figure 2.13 Sticky cylinder air sampler.

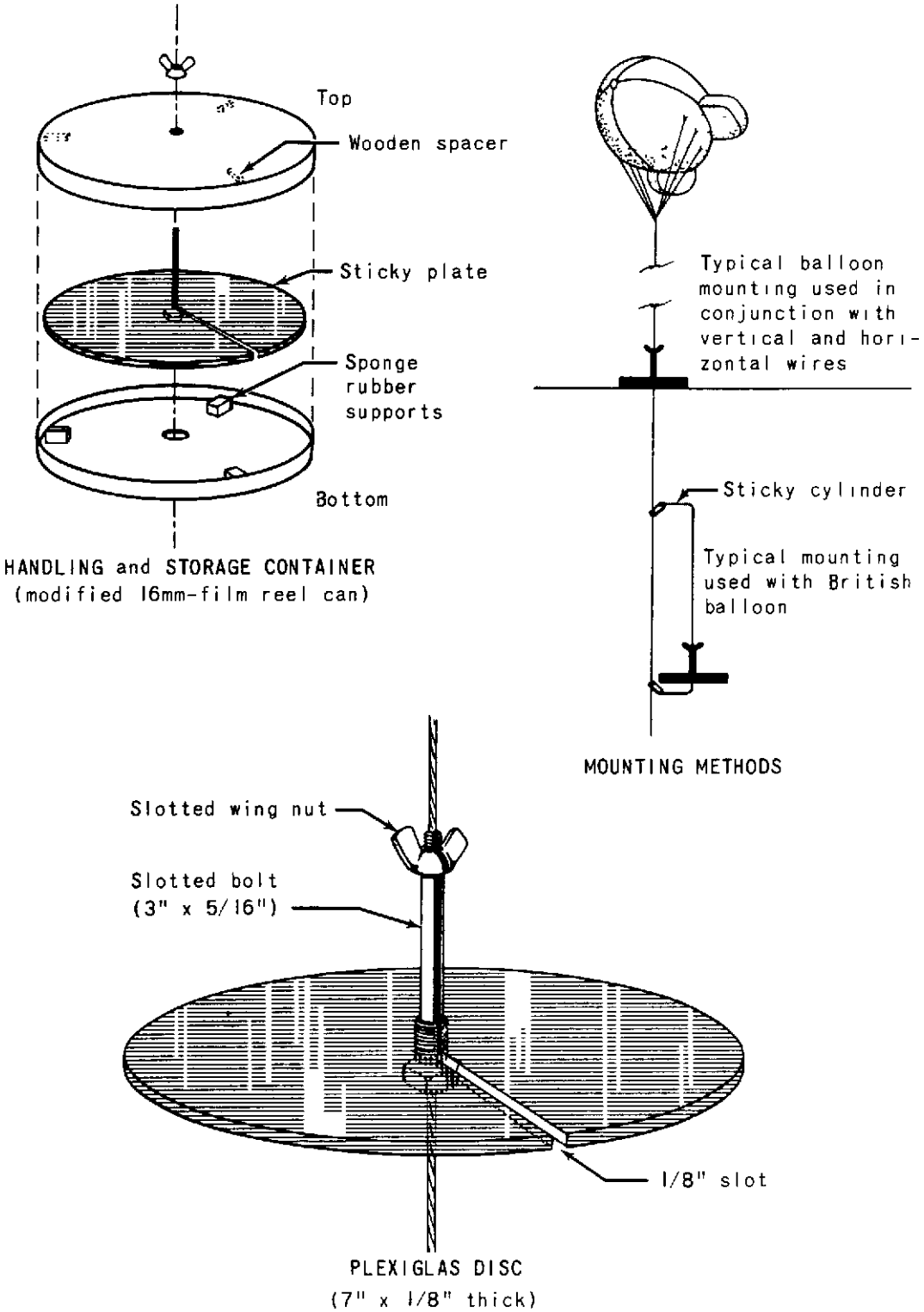


Figure 2.14 Sticky plate air sampler.

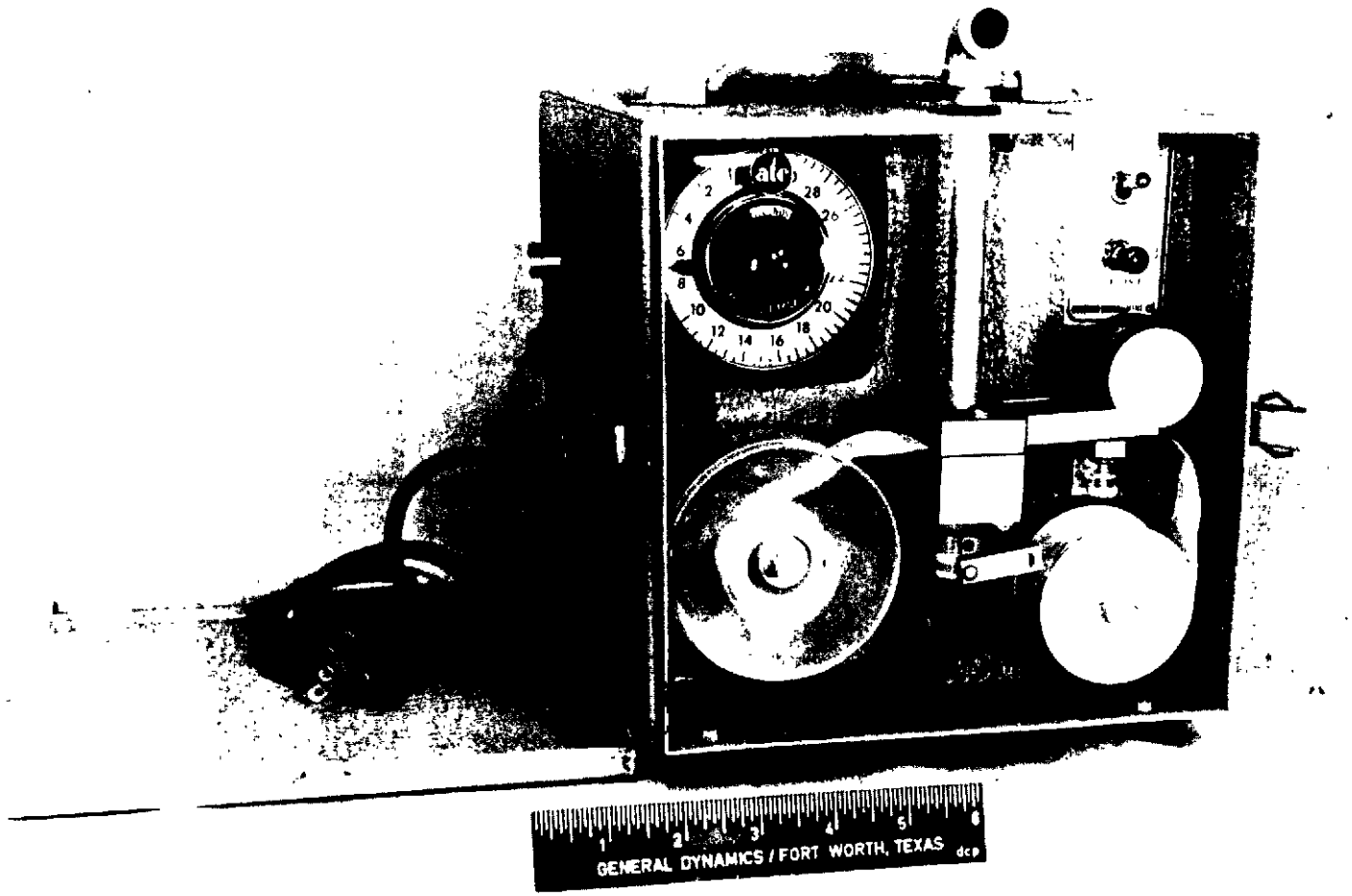
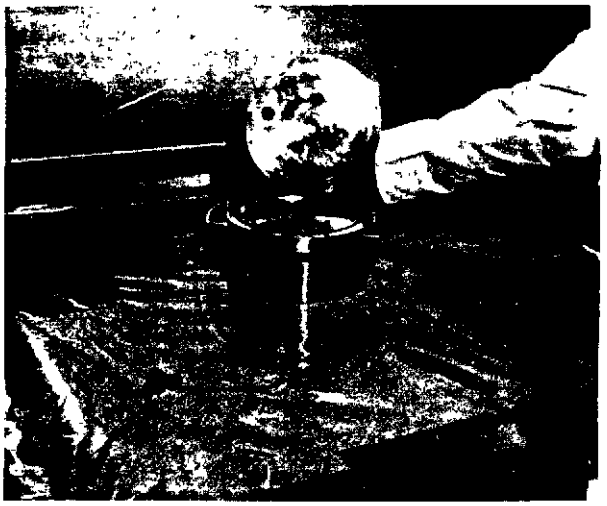
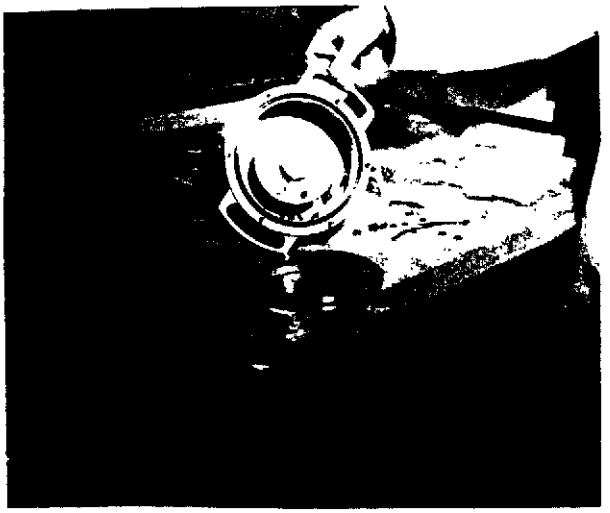


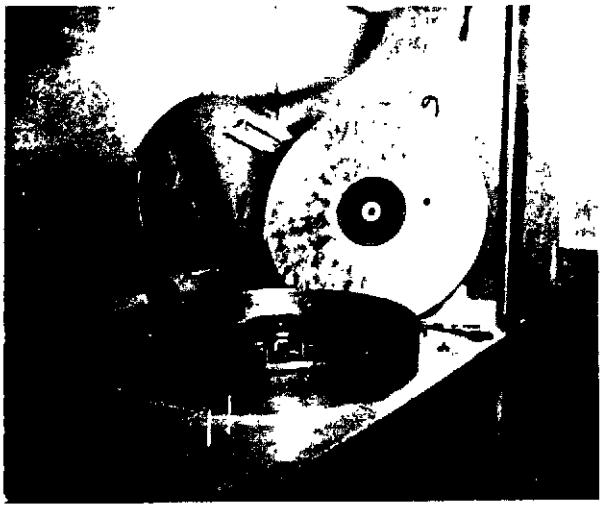
Figure 2.15 Gelman paper-tape sequential air sampler. (General Dynamics photo)



MARK II WITH
COVER REMOVED

EXPOSED SECTIONS
OF MARK II





DISASSEMBLED
MARK I

Figure 2.16 Rotary sequential air sampler. (DASA 120-12-TTR-63, DASA 120-14-TTR-63, DASA 120-13-TTR-63)

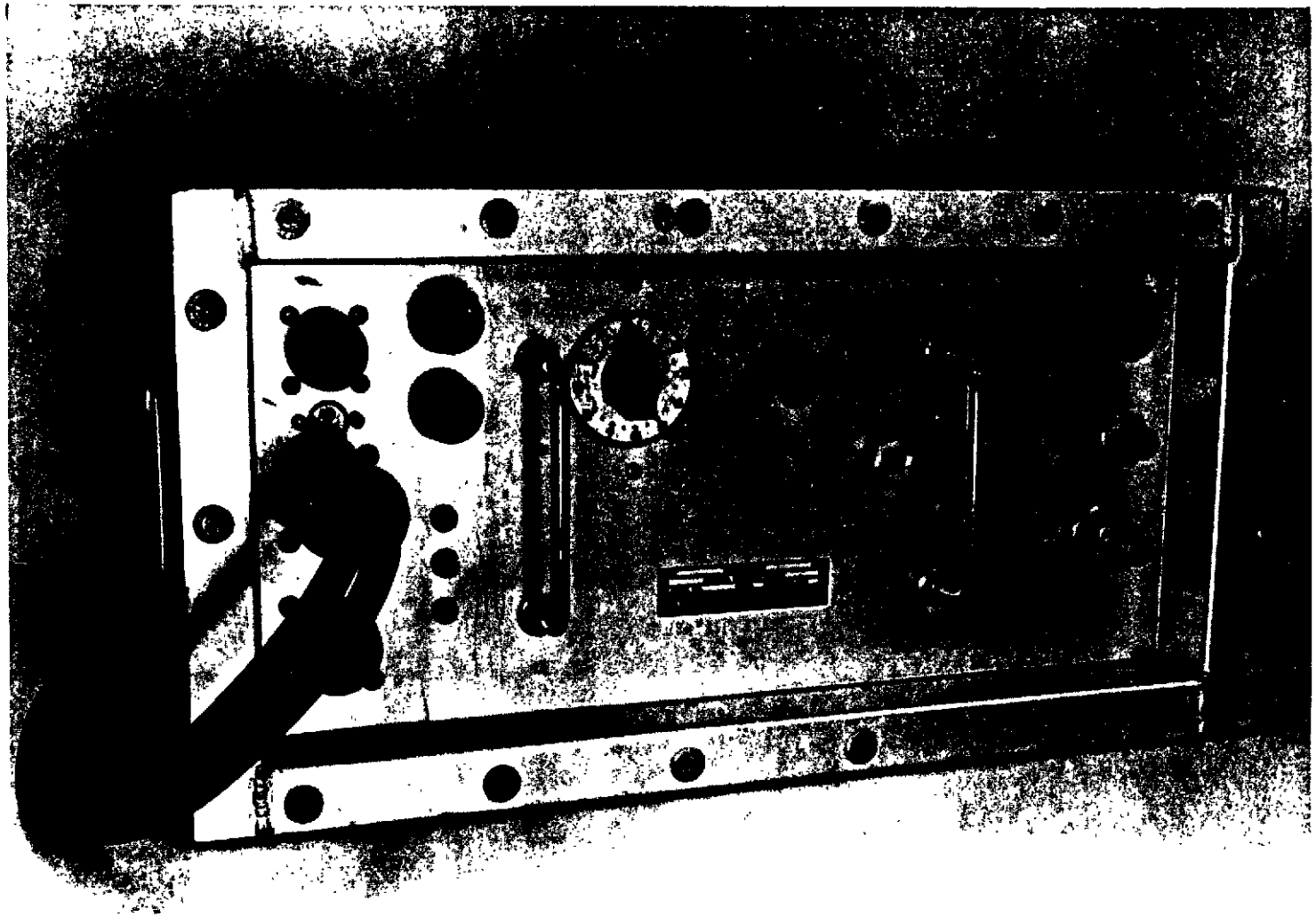


Figure 2.17 Vitro (Eglin) pump. (General Dynamics photo)

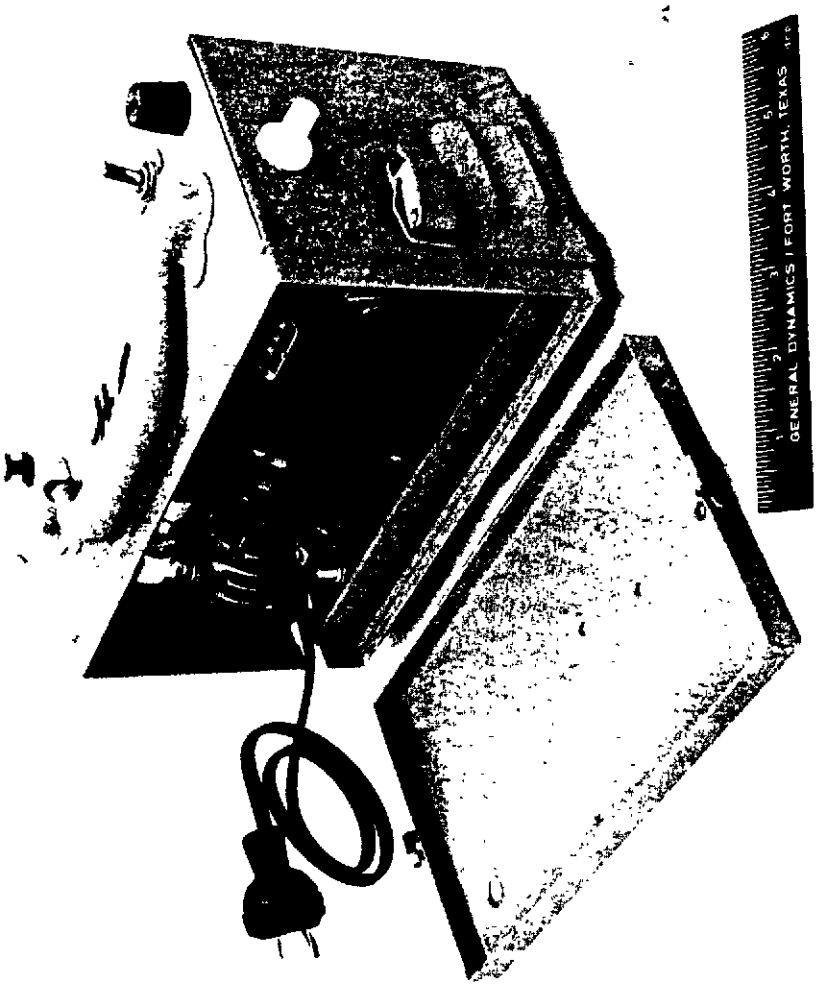


Figure 2.18 Bantam Gelman pump. (General Dynamics photo)

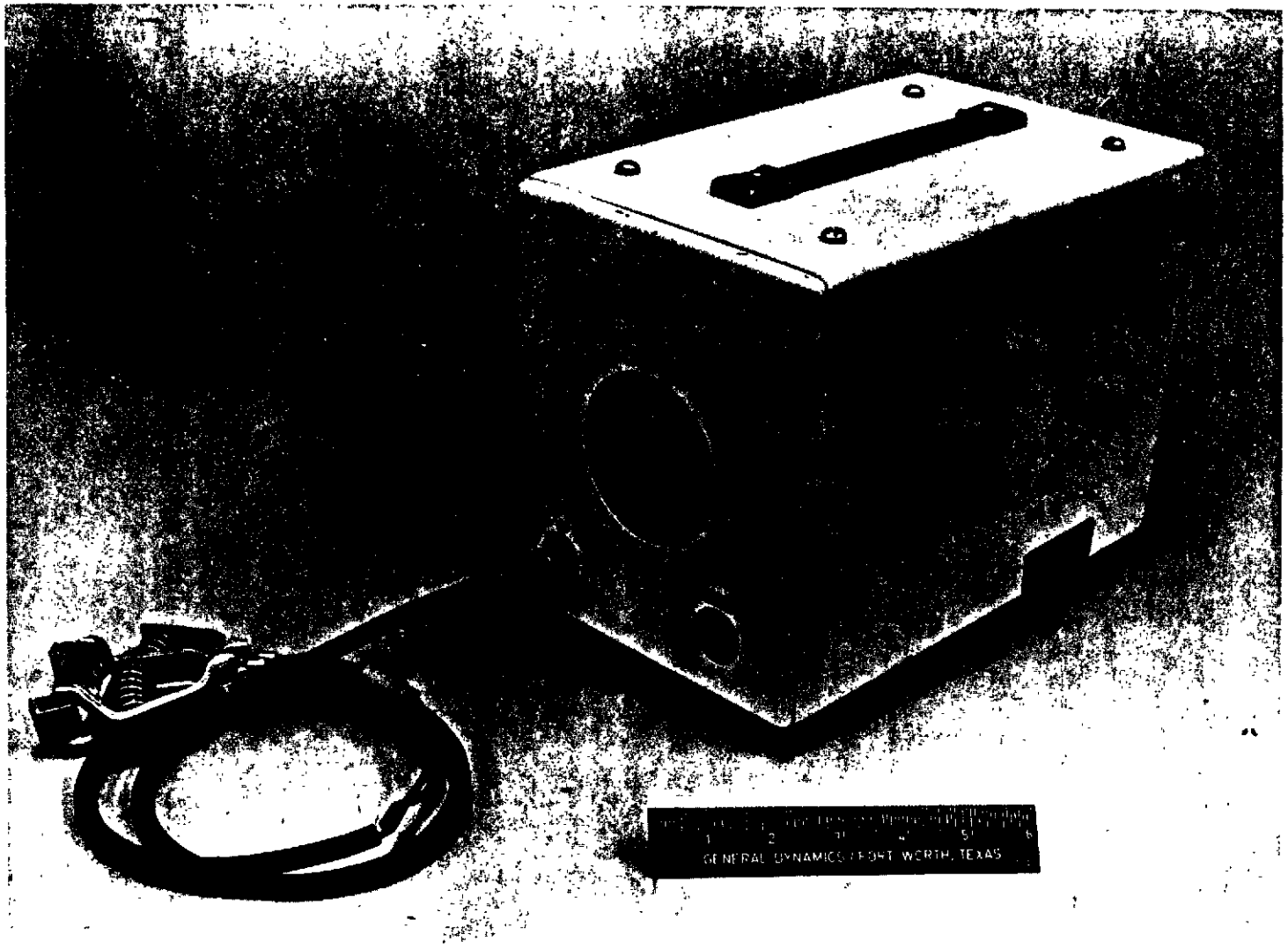


Figure 2.19 British Austen pump. (General Dynamics photo)

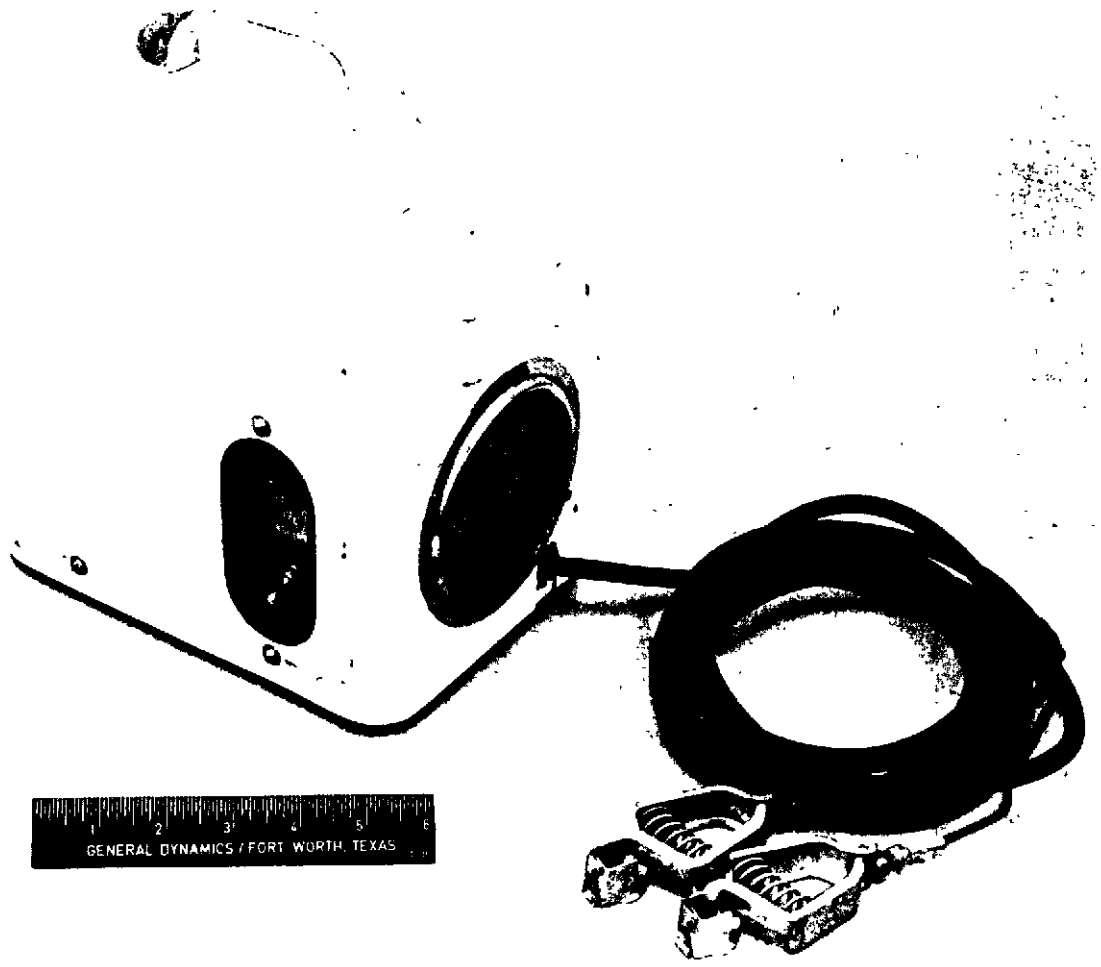


Figure 2.20 British Vancandair SC-6 pump. (General Dynamics photo)

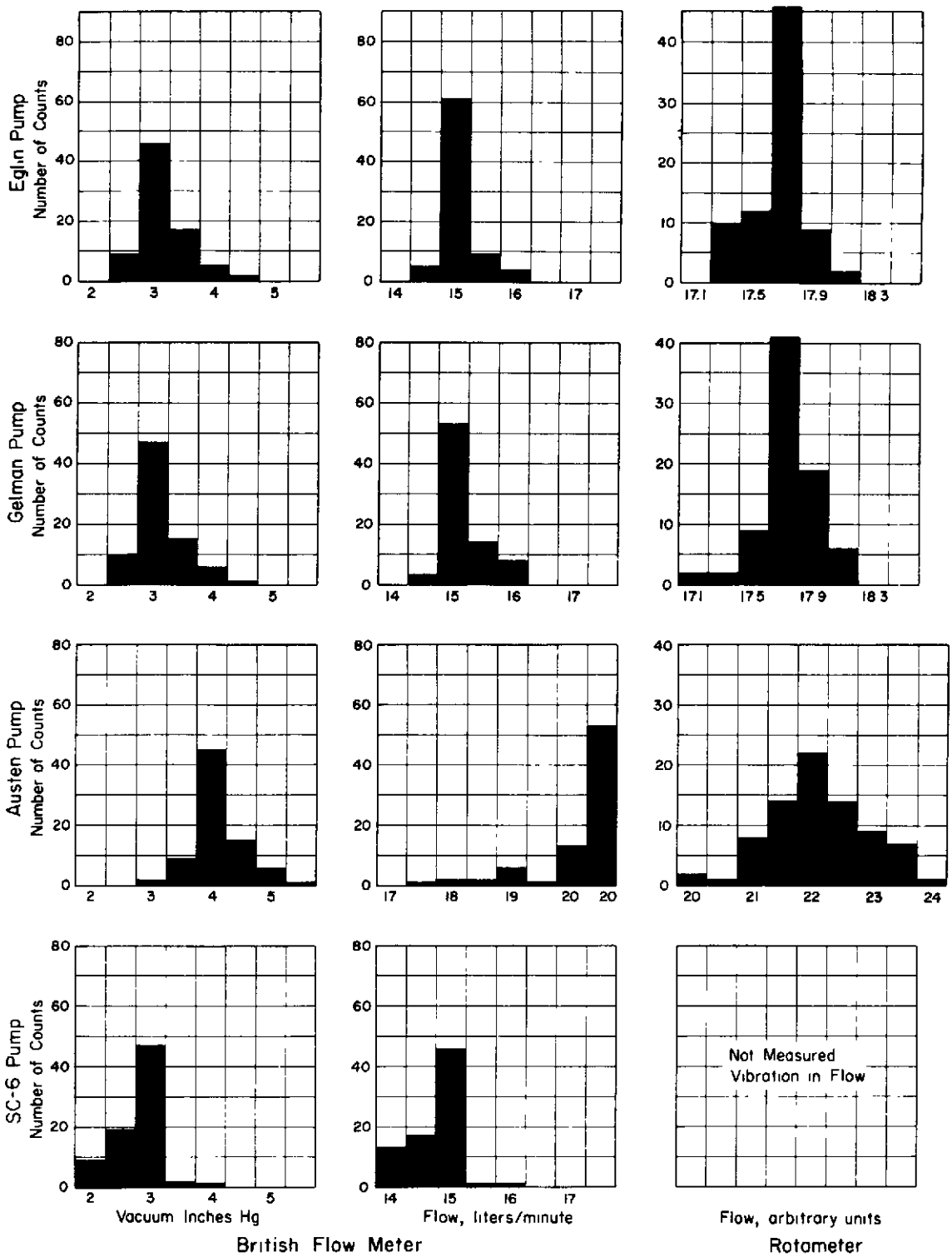


Figure 2.21 Flow rates for 79 Casella samplers.

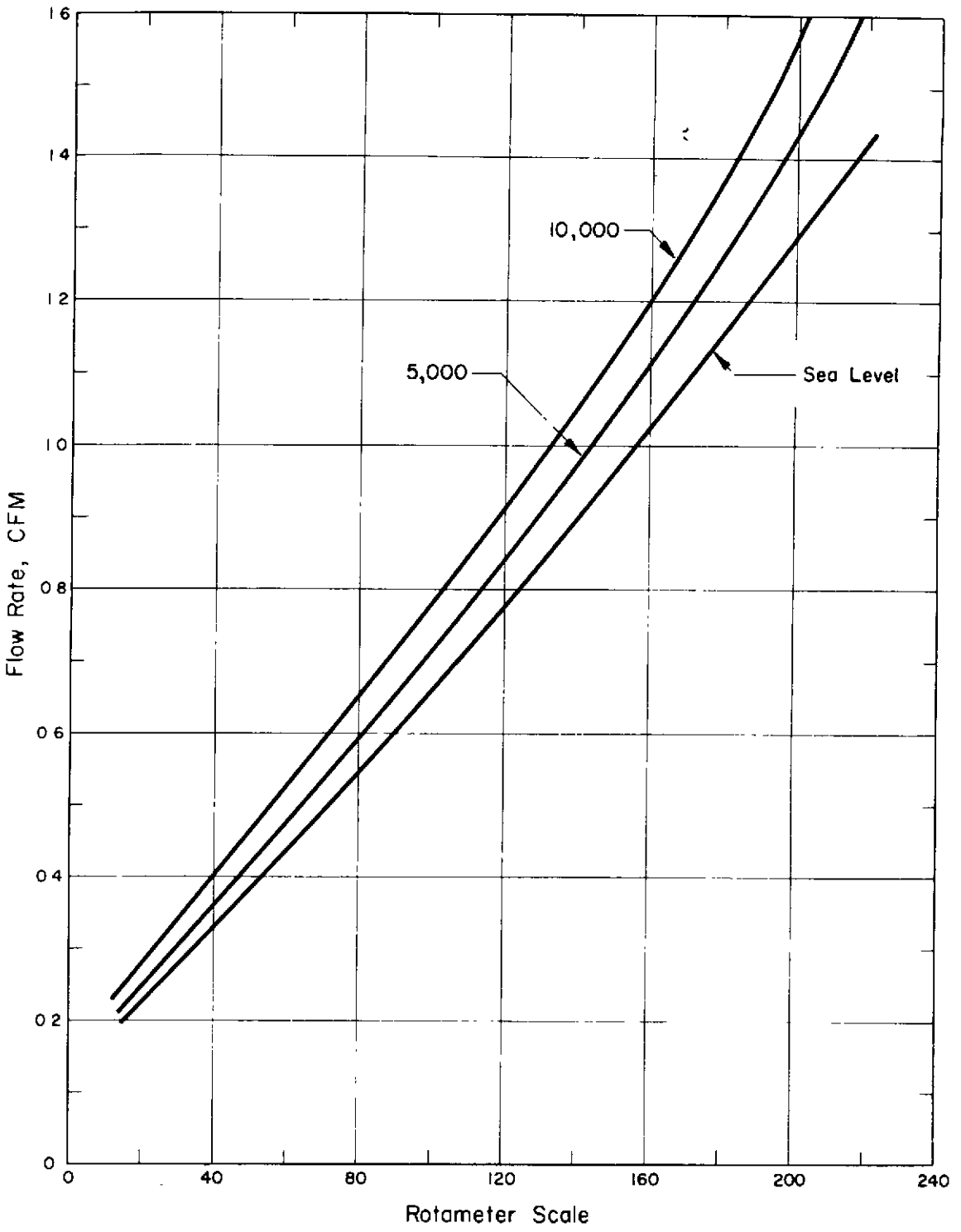


Figure 2.22 Brooks Rotameter calibration curves.

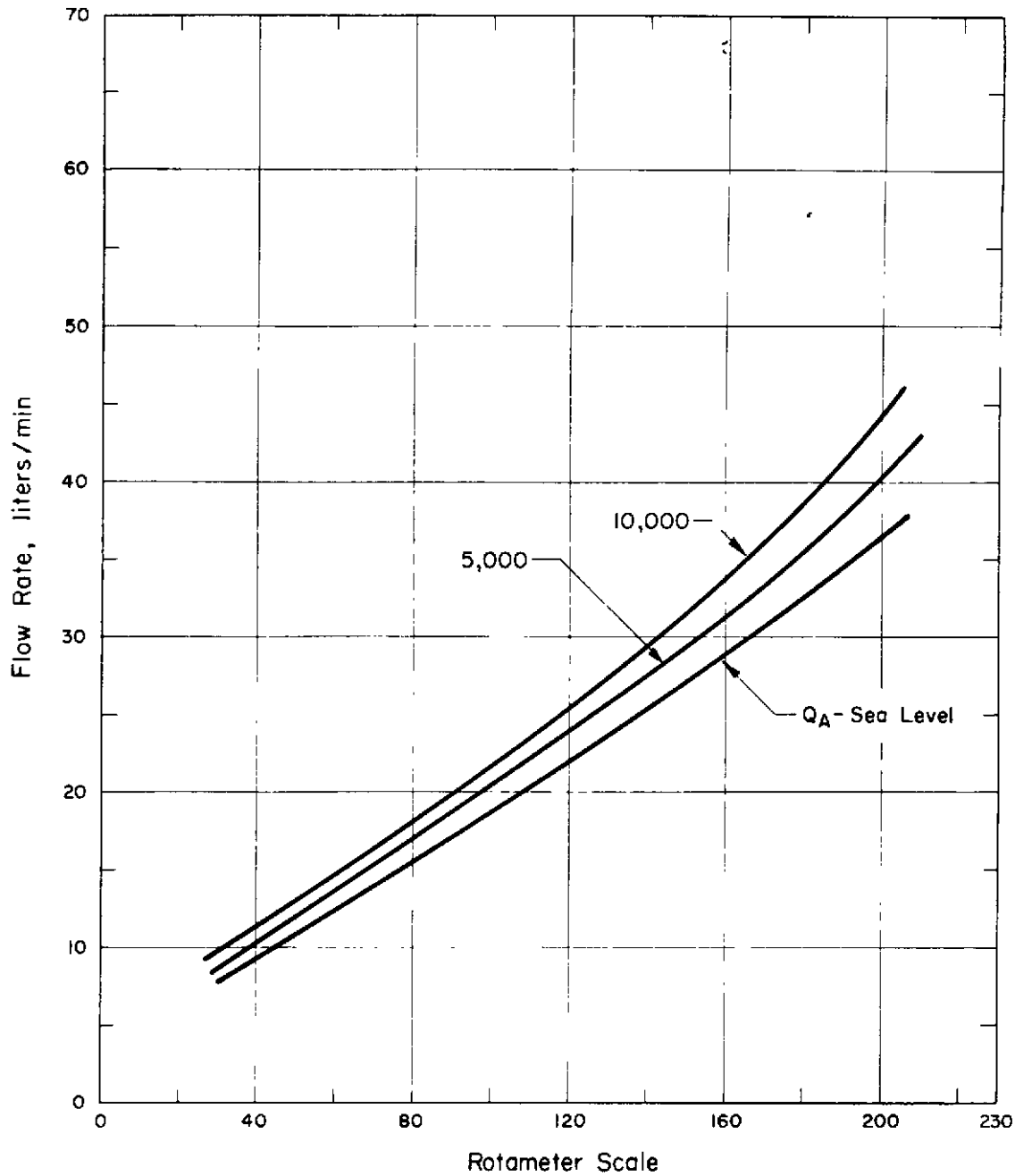


Figure 2.23 Brooks Rotameter calibration curves.

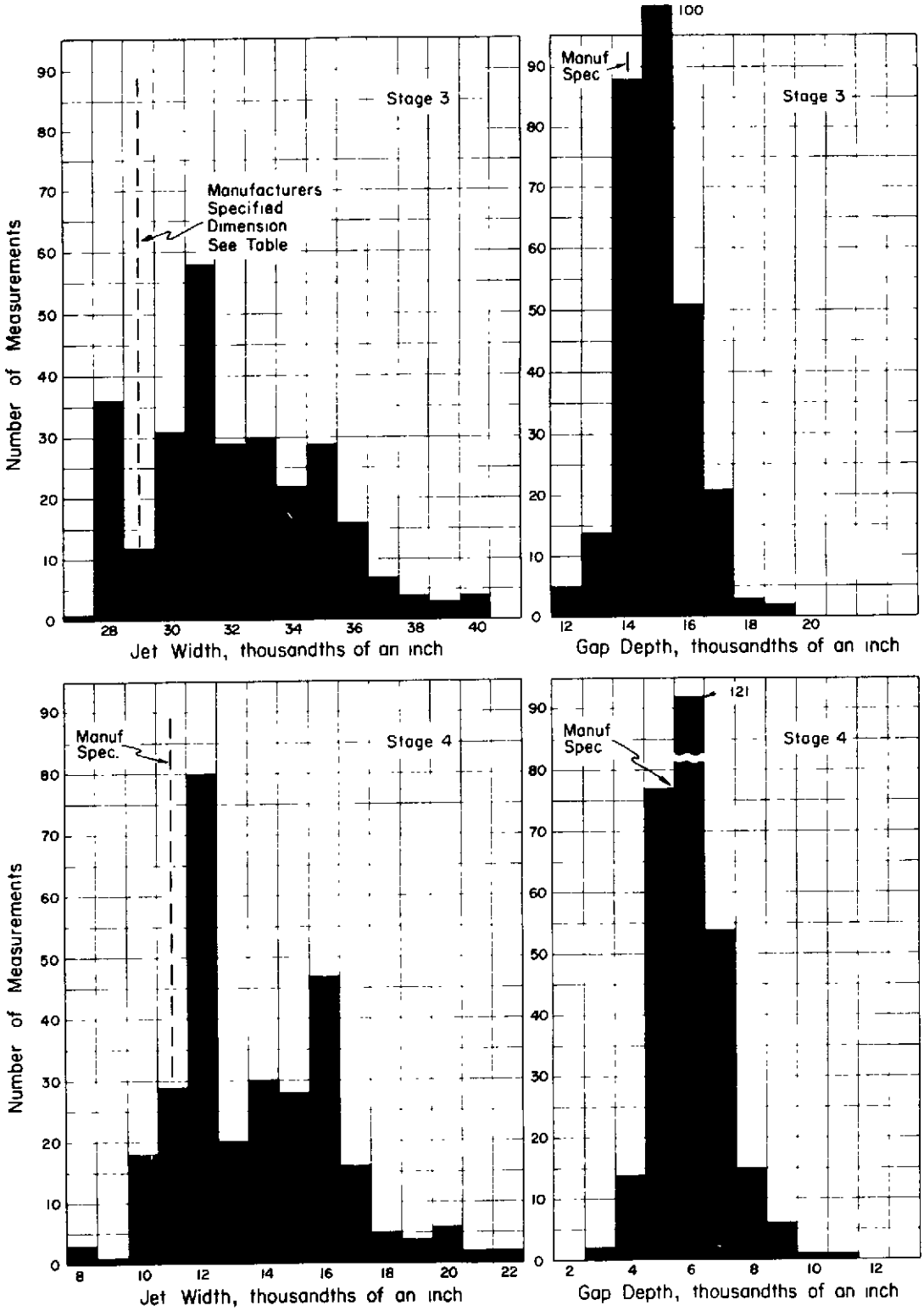


Figure 2.24 Jet and clearance dimensions for Casella Cascade impactors.

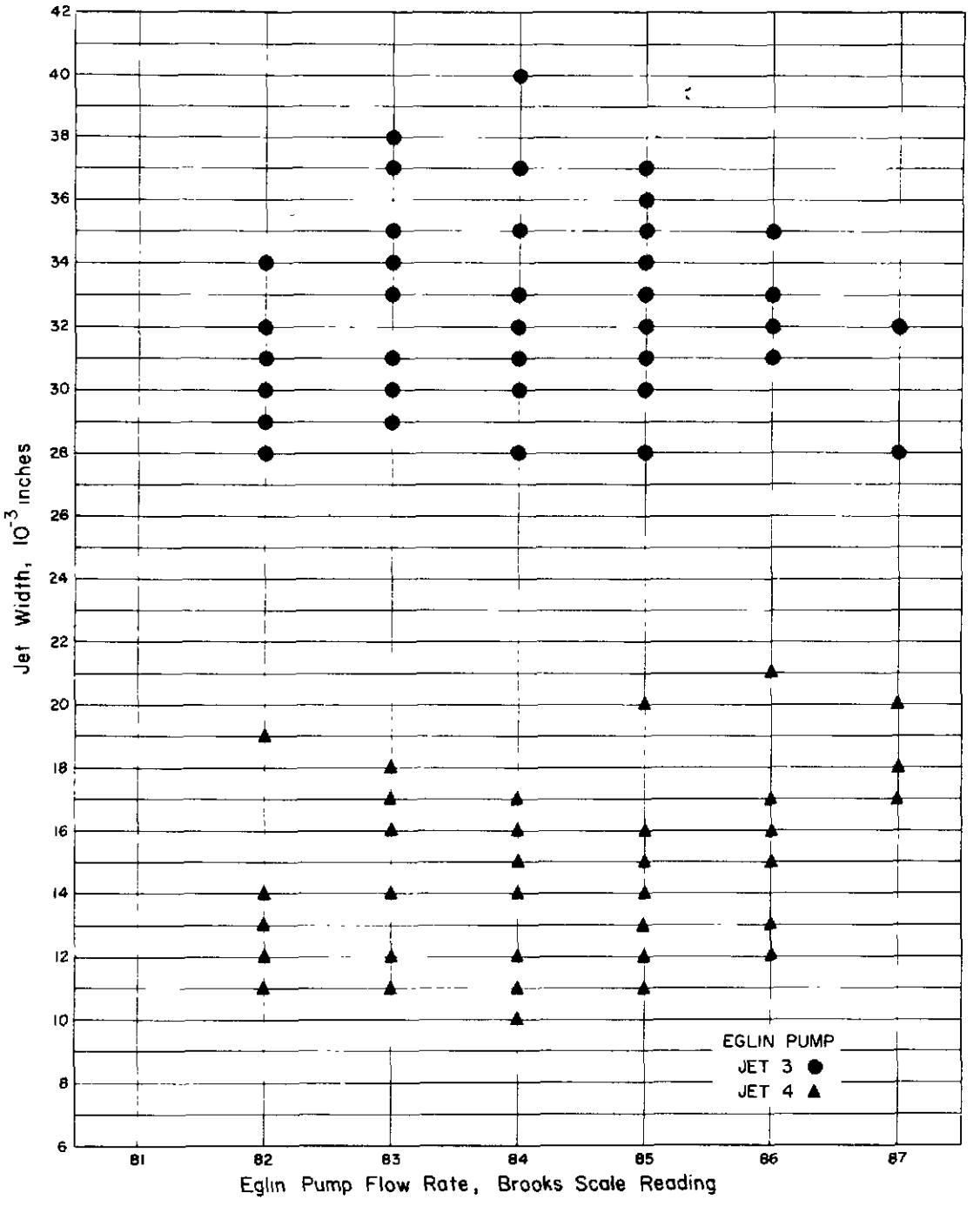


Figure 2.25 Jet width plotted against flow rate through Casella with Eglin pump.

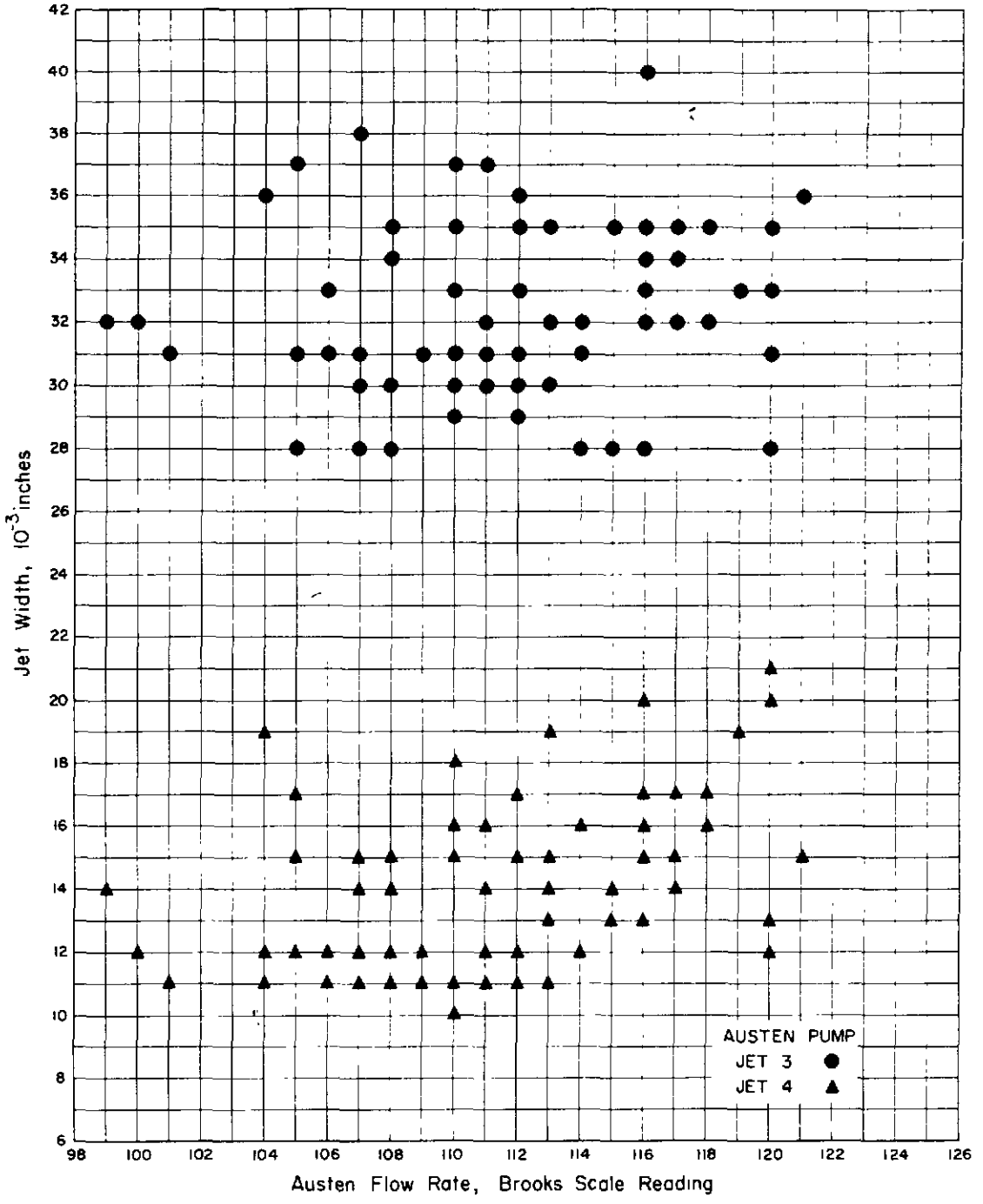


Figure 2.26 Jet width plotted against flow rate through Casella with Austen pump.

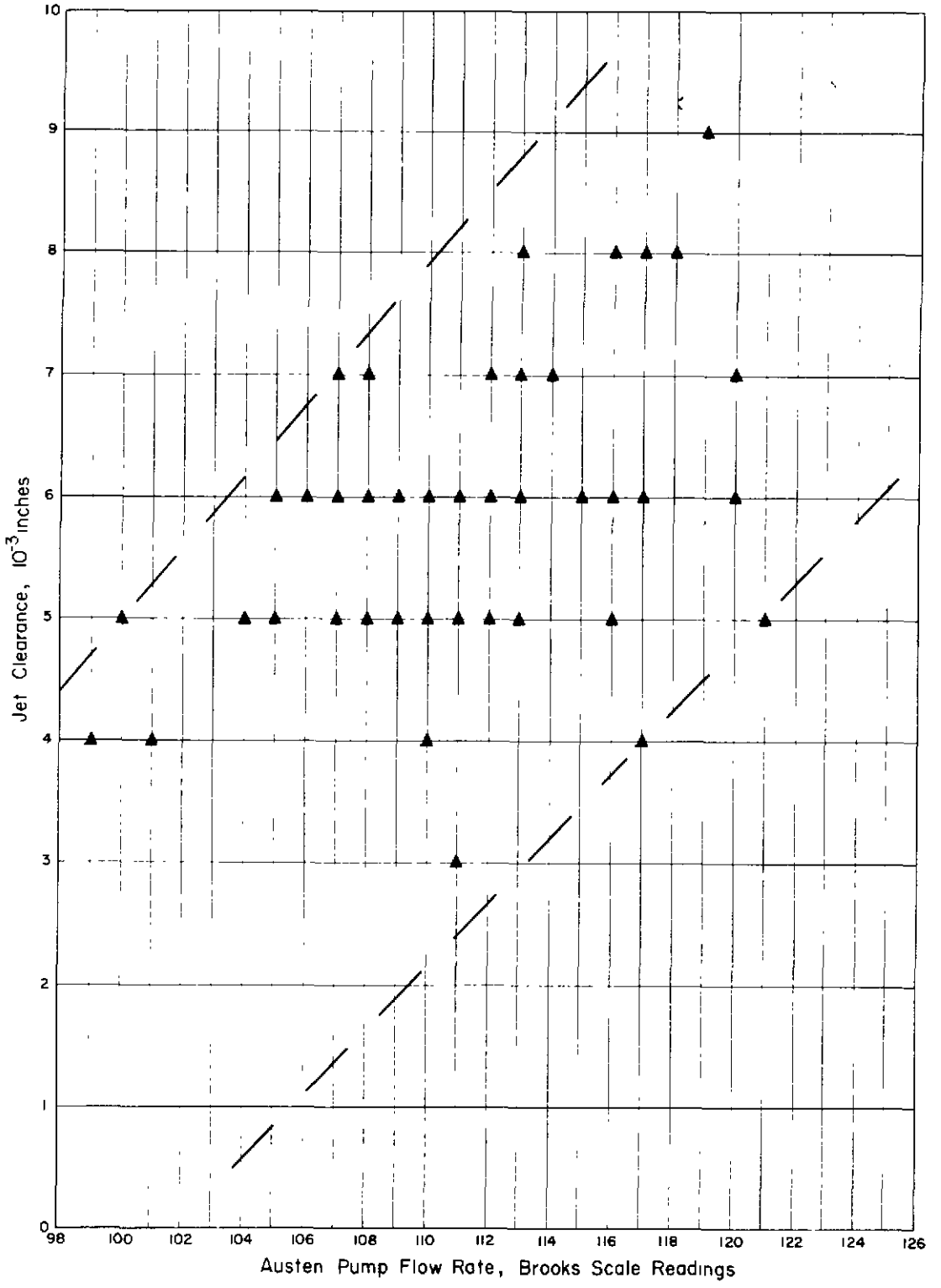


Figure 2.27 Jet gap (spacing between jet and impaction disk) plotted against flow rate through Casella with Austen pump.

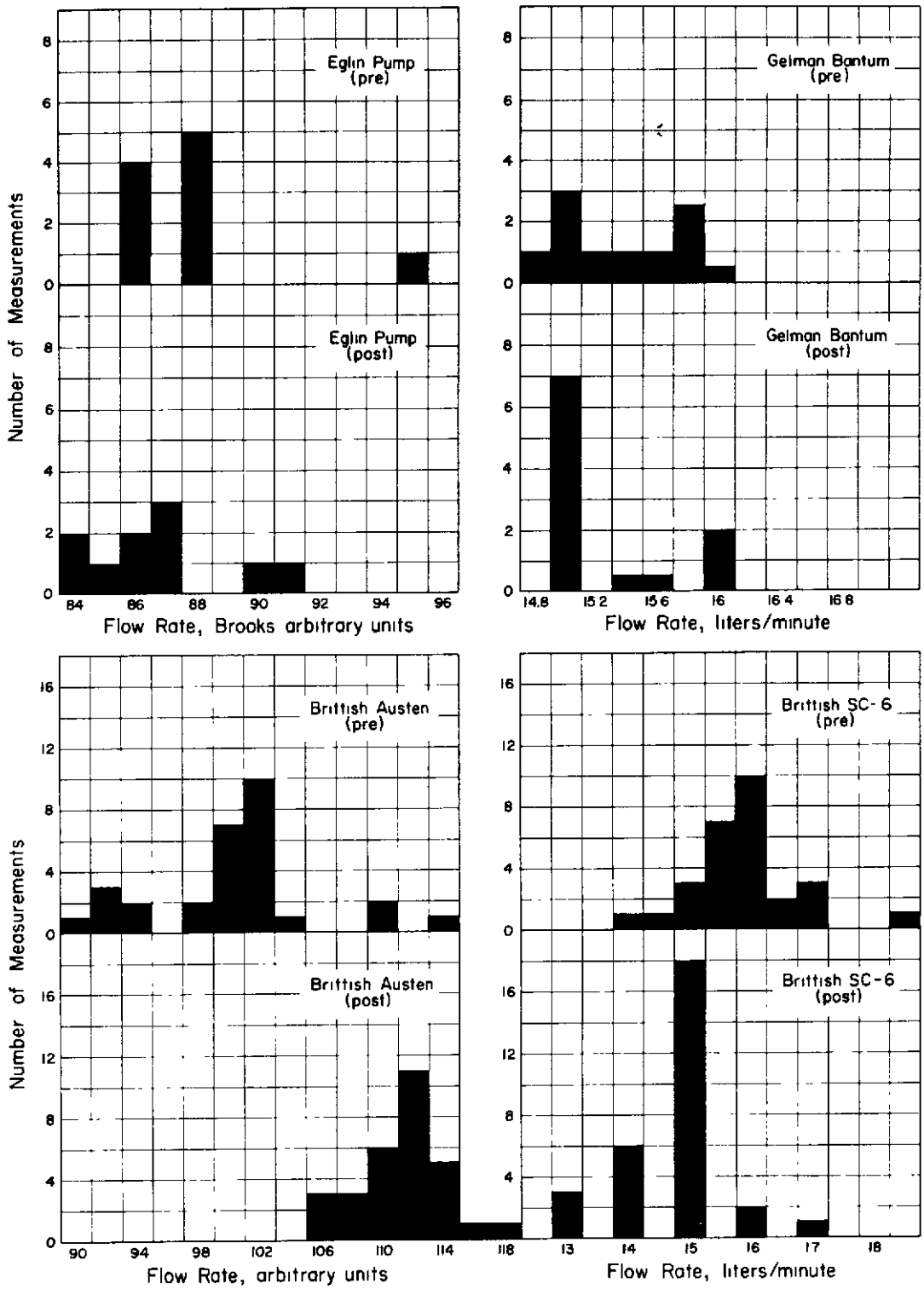


Figure 2.28 Stability of vacuum pumps.

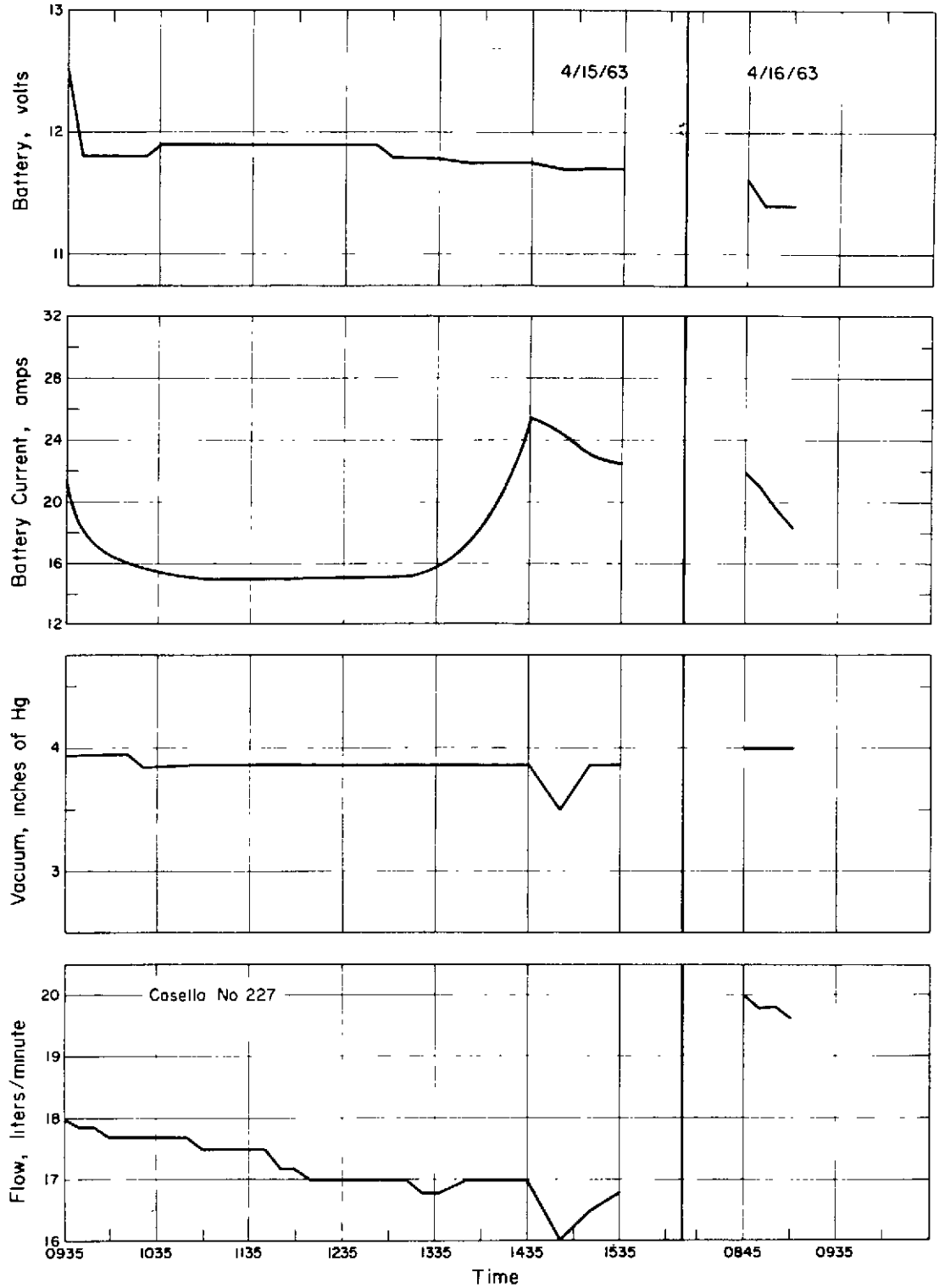


Figure 2.29 Battery durability.

CHAPTER 3

OPERATIONS

Air-sampling operations involved placing sampling instruments and ancillary equipment at stations located on a variety of vertically and horizontally oriented sampling arrays. Detailed listings of the many types of sampling instruments and their locations during each of four Operation Roller Coaster events are presented in Tables 3.1 through 3.4. Details of the various types of sampling arrays are depicted in Figures 3.1 through 3.22.

Two mobile stations (Figure 2.4) were manned during cloud passage on all four events. These mobile units consisted of numerous air-sampling units mounted on a U. S. Army 4-by-4 weapons carrier. The samplers were mounted on a wooden platform directly behind the cab and approximately eight inches above the peak of the cab roof. The pumps and batteries used in support of the air samplers were carried in the bed of the truck. Switches for the individual units were mounted on a panel above the dash on the right side of the cab. Other controls were located outside the rear cab window and could be operated from inside the cab. The mobility of these

units allowed placement on demand within 10 minutes of zero hour.

The most important measurement on the mobile unit was made by the Casella impactor system. This consisted of seven sequential Casella samplers. This defined the time of cloud arrival and buildup and decay of activity and size distribution as a function of cloud passage.

The operational procedure employed for the utilization of the sequential system was as follows:

> The first impactor was made operational at H-5 minutes and continued in operation until the arrival of the cloud was indicated by a portable alpha survey meter. If no meter indication was obtained approximately one minute after the calculated time of arrival, the sequencing was initiated on radio command.
>
> The next six impactors were operated sequentially at predetermined time intervals. The sampling interval for the second through sixth impactors was 15 seconds for the system on the station nearer to ground zero and 30 seconds for the outer station.
>
> The seventh impactor remained in operation until cloud passage was complete. This period usually lasted from 45 to 60 minutes.

The arc locations of the mobile stations were Arcs F and K on the extended arrays of Double Tracks and Clean Slate I and Arcs D and I on the Clean Slate II and III arrays.

In addition to the sequential impactors, several configurations of additional air-sampling equipment were utilized for each event. This equipment consisted of Andersen impactors, Casella Mark II impactors, and

a total-air filter. These impactors utilized the basic slide adhesive with a prior slide coating of strippable film to make them amenable to electron microscope analysis. The specific number of these impactors and the disk adhesive varied with each event. These devices were operated from H-5 minutes until cloud passage was complete.

The mobile unit nearer ground zero also carried special United Kingdom sequential air-sampling and fallout equipment (Figure 2.16). A Gelman sequential tape sampler (Figure 2.15), with a sampling period of 30 seconds, was placed on the far mobile unit. The two mobile units were the only stations manned by this project within the array. Inverted portable alpha survey meters were used to report cloud arrival.

Project 2.2 air-sampling field operations for the four Roller Coaster events are briefly summarized in the following sections.

3.1 DOUBLE TRACKS

The Double Tracks event occurred at 0255:00, PDT, 15 May 1963. The Double Tracks array with air-sampling instrumentation is shown in Figures 3.1 through 3.6 .

3.1.1 Location of Air-Sampling Instruments. The movable array segment of instruments (even-numbered stations only) was positioned as follows:

Arc	Station
B	30 through 90
D	30 through 90
F	30 through 90
H	30 through 90
J	30 through 90
L	30 through 90
N	30 through 90
P	30 through 90
R	30 and 54 through 112

Mobile cloud sampling units were positioned at Arc F, Station 60, and Arc K, Station 50, at about H-30 minutes. Ten Gelman sequential tape air samplers were located on Arc F at Stations 040, 044, 048, 052, 056, 060, 064, 068, 072, and 076.

The large balloon curtain was centered on Arc B at Station 060 and was instrumented and rigged as shown in Figures 3.5 and 3.6. A second balloon array on Arc J had individual balloons located at Stations 034, 040, 046, 052, 058, 064, 070, and 076. Stations 046, 058, and 070 were rigged with two Casella Mark II impactors, suspended at heights of 350 and 700 feet. Each balloon was rigged with 20 sticky cylinders located 50 feet apart along the balloon suspension cable. Power to the instruments on Station 070 was lost at an unknown time.

3.1.2 Activation and Deactivation of Sampling Instruments. The activation and deactivation times for Double Tracks air-sampling instruments were:

Item	Location	Time in Minutes		
		Activated	Deactivated	Total
Array	GZ	H-5	H+34	39
Arc Array	Arc A	H-5	H+35	40
Arc Array	Arcs B-H	H-5	H+44	49
Arc Array	Arc J	H-5	H+52	57
Arc Array	Arc L	H-5	H+72	77
Cloud Sampling Unit	Arc F	H+6.25	H+52	45.75
Cloud Sampling Unit[1]	Arc K	H+11.50	H+71	59.50
Balloon Curtain	Arc B	H-25	H+150	175
Balloon Array[2]	Arc J	H-35	H+145	180
Animal Array	Arc E	H-25	H+60	85
Animal Array	Arc G	H-25	H+60	85
Animal Array	Arc I	H-25	H+60	85
Sequential Air[3]	Arc F	H-5	H+52	57

[1]The generator on the tap sequential failed.

[2]The generator on J-070 stopped running at an unknown time.

[3]The following failures occurred: Station 060, tape take-up fouled; Station 060, tape take-up fouled; Station 052, generator failed to start; Station 076, tape take-up fouled.

The 41 manually operated air samplers on Arc N were activated beginning a H-5 minutes, with deactivation beginning at H+170 minutes. Activation began at the arc center and progressed east and west simultaneously toward the radials. Deactivation began on the east and west radials and progressed toward the center. Activation and deactivation of each half arc required about 28 minutes.

The same procedure was used to activate and de-

activate Arc P and R but required about 33 and 38 minutes, respectively.

3.2 CLEAN SLATE I

The Clean Slate I event occurred at 0416, PDT, 25 May 1963. The array for this event, together with air-sampling instrumentation, is shown in Figures 3.7 through 3.10.

3.2.1 Location of Air-Sampling Instruments. The movable array (even-numbered stations only) of the movable air-sampling instruments constituted a 45-degree segment centered about Station 030 as follows:

Arc	Station
B	000 through 060
D	000 through 060
F	000 through 060
H	000 through 060
J	000 through 060
L	000 through 060
N	000 through 060
P[a]	000 through 060

[a]The Andersen impactors were withdrawn from Arc P and added to the mobile cloud sampling units and to selected arcs closer to GZ.

Mobile units were moved at about H-30 minutes and positioned at Arc F, Station 020, and at Arc K, Station 030. Ten Gelman sequential tape air samplers were located on Arc F at Stations 010, 014, 018, 022, 026, 030, 034, 038, 042, 048. None operated because the east half of the Arc F remoting system failed.

Solubility samplers (14-by-22-inch pyrex trays,

each containing about a pint of distilled water) were exposed to the fallout pattern. The locations of these samplers were:

Arc	Station
A	18, 30, and 42
B	18, 30, and 42
D	18, 30, and 42
H	18, 30, and 42
L	18, 30, and 42
F	20 (3 samples at mobile unit)
K	30 (3 samples at mobile unit)

3.2.2 Activation and Deactivation of the Air-Sampling Instrumentation. The activation and activation times for Clean Slate I air sampling instruments were:

Item	Location	Time in Minutes		
		Activated	Deactivated	Total
Array	GZ	H-5	H+46	51
Arc Array	Arc A,B	H-5	H+46	51
Arc Array	Arc D	H-5	H+49	54
Arc Array[1]	Arc F	H-5	H+60.50	65.50
Arc Array	Arc H	H-5	H+61	66
Arc Array	Arc J	H-5	H+79	84
Arc Array	Arc L	H-5	H+80	85
Mobile Unit[2]	Arc F-020	H+6.25	H+71	64.75
Mobile Unit[2]	Arc K-030	H+11.50	H+102.50	91
Balloon Curtain	Arc B	H-207	N"72	279
Sequential Air	Arc F	H-5	H+60.50	65.50

[1]The east one-half of Arc F failed to function.

[2]Three solubility samples were placed at each unit.

The 41 manually operated air samplers on Arc N were activated, beginning at H-5 minutes, with deactivation beginning at H+120 minutes. Activation began at Stations 000 and 048 and progressed west simultaneously toward the west radial. Deactivation proceeded in the reverse order. Activation of each section of arc required about 28 minutes.

Arc P was the same as Arc N, except that activation and deactivation required about 33 minutes. The Andersen impactors to be located on Arc P were removed, reducing the total number of instruments to 32.

The balloon curtain on Arc B was centered on Station 026 and was instrumented and rigged as shown in Figures 3.5 and 3.6.

3.2.3 Additional Instrumentation. Forty-three air-sampling devices over those formerly scheduled for the Clean Slate I event were located according to the following schedule.

1. One Andersen and Casella at:

   Arc B: Stations 042, 060, 078

   Arc F: Stations 042, 060, 078

   Arc H: Stations 040, 058, 080

   Arc J: Stations 042, 060, 078

   Arc P: Stations 040, 080; one additional Andersen at Station 060

2. One Total Air Sampler, Mark I, at:

Arcs B, F, H, J: Stations 056, 064

Arc N: Stations 040, 056, 060, 064, 078

Arc P: Station 060

3.3 CLEAN SLATE II

The Clean Slate II event occurred at 0347, PDT, 31 May 1963. The Clean Slate II array, with air-sampling instrumentation, is shown in Figures 3.11 to 3.16.

3.3.1 Location of Air-Sampling Instruments. The movable array was a 45-degree segment positioned as follows at about H-1 hour:

Arc	Station
B	18 through 78
D	18 through 78
F	18 through 78
H	6 through 66
J	6 through 66
L	6 through 66

Each mobile unit was moved at about H-30 minutes to Arc D, Station 36, and Arc I, Station 40. Ten Gelman tape sequential air samplers were located on Arc D at Stations 012, 018, 024, 030, 036, 042, 048, 054,060, and 066. The samplers at Stations 012, 024,030, and 066 failed.

The Arc B balloon curtain was centered at Station

B-044 and was instrumented and rigged as shown in Figures 3.5 and 3.6. About 13 sticky cylinders and 3 sticky disks on Line 25 touched the ground when the catenary cable broke.

Solubility samplers were exposed in the following positions:

Arc	Station
A,B,D,F	010, 018, 026, 034, 042
H, L	010, 014, 018, 022, 026, 030, 034, 038, 042, 046
D	036 (2 samples at mobile unit)
I	040 (3 samples at mobile unit)

3.3.2 Activation and Deactivation of Air-Sampling Instrumentation. The activation and deactivation times for Clean Slate II air-sampling instruments are shown below.

Item	Location	Time in Minutes		
		Activated	Deactivated	Total
Array	GZ	H-5	H+48	53
Arc Array	A	H-5	H+48	53
Arc Array	B	H-5	H+58	63
Arc Array	D	H-5	H+87.5	92.5
Arc Array	F	H-5	H+95	100
Arc Array	H	H-5	H+103.5	108.5
Arc Array	J	H-5	H+114	119
Arc Array	L	H-5	H+120	125
Mobile Unit	Arc D	H+8.08	H+88.5	80.42
Mobile Unit	Arc I	H+20	H+105	85
Balloon Curtain	Arc B	H-97	H+79	176
UK Balloon[1]	GZ	H-102	UNK	UNK
Cloud Sampling Towers[2]	GZ	H-5	UNK	UNK

[1]Generator supplying power ran out of gasoline. Running time was about 5 hours.

[2]The instruments were recovered at H+583 minutes. The generator was running, but the impactors were not. It is assumed that the devices stopped running when the towers were blown down by the blast.

Two cloud-sampling towers were located near GZ and were rigged as indicated in Figure 3.16. The two Casella impactors, MK II, on each tower were mounted in a metal box with only the orifices exposed.

3.3.3 Additional Instrumentation. Thirty-eight additional air-sampling instruments over those formerly scheduled for the Clean Slate II event were displayed as indicated below.

1. One Andersen and Casella, Mark II, impactor at:

   Arc B: Stations 042, 060, 078

   Arc F: Stations 042, 060, 078

   Arc H: Stations 040, 058, 080

   Arc J: Stations 042, 060, 078.

2. One total air sampler, Mark I, at Arcs B, F, H, J: Stations 056m 064.

3. Three UK balloons, located near GZ and rigged as indicated in Figure 3.15. (Twelve of the 14 sticky plates were destroyed by blast.)

4. Four Casella impactors, Mark II, mounted on animal racks located at Arc E, Station 048. (Two devices failed to function; of the two which operated, one was equipped with standard resin adhesive and the other was equipped with a specially prepared strippable film.)

3.4 CLEAN SLATE III

The Clean Slate III event occurred at 0330, PDT,

9 June 1963. The Clean Slate III arrays were instrumented as shown in Figures 3.16 through 3.22.

3.4.1 Location of Air-Sampling Instruments. The movable array was extended to a 90-degree span instead of the planned 45-degree span and was displayed on Arcs B, D, F, H, J, and L as follows:

Station	Instrument	Station	Instrument	Station	Instrument
002	Casella	046	Andersen	082	Andersen
006	Total Air	050	Casella	086	Casella
010	Andersen	054	Total Air	090	Total Air
014	Casella	058	Andersen	094	Andersen
018	Total Air	060	Total Air	098	Casella
026	Casella	066	Total Air	106	Andersen
030	Total Air	070	Andersen	110	Casella
034	Andersen	074	Casella	114	Total Air
038	Casella	078	Total Air	118	Andersen
042	Total Air				

Mobile cloud sampling units were moved at about H-30 minutes to Arc D, Station 074, and Arc I, Station 050. Ten Gelman tape sequential air samplers were located on Arc D at Stations 012, 020, 028, 036, 044, 054, 066, 078, 088, and 098.

Solubility samples were exposed at the following positions:

Arc	Station
A,B,D,F	012, 036, 060, 084, 108
H, L	006, 018, 030, 042, 054, 066, 078, 090, 102, 114
D	072 (2 samples at mobile unit)
I	050 (3 samples at mobile unit)

3.4.2 Activation and Deactivation of Air-Sampling Instruments. The activation and deactivation times for Clean Slate III air sampling instruments were as indicated below.

Item	Location	Time in Minutes		
		Activated	Deactivated	Total
Array	GZ, Arc A	H-5	H+44	49
Arc Array	Arc B	H-5	H+48.67	53.67
Arc Array	Arc D	H-5	H+57	61
Arc Array	Arc F	H-5	H+65	69
Arc Array	Arc H	H-5	H+70.5	75.5
Arc Array	Arc J	H-5	H+82	87
Arc Array	Arc L	H-5	H+101	106
Mobile Unit	Arc D	H+9.5	H+58	48.5
Mobile Unit	Arc I	H+23.0	H+75.75	52.75
Cloud Sampling Towers[2]	GZ	H-5	UNK	UNK

[1]The tape sequential air sampler failed to function.

[2]The 60-foot tower was knocked down.

Activation of the manually operated Arc H additional instrumentation located on Stations 030, 060, and 090 began at H-44 minutes on Station 030 and was completed at H-32 minutes on Station 090. Deactivation began at

H+73 minutes on Station 090 and was completed at H+81 minutes on Station 030.

Activation of the manually operated Arc K instrumentation (see Section 3.4.3) began at H−45 minutes on Station 000 and was completed at H−16 minutes on Station 120. Deactivation began at H + 91 minutes on Station 120 and was completed at H + 132 minutes on Station 000.

Activation of the manually operated Clean Slate I instrumentation (see Section 3.4.3) began at H−46 minutes on Arc D, Station 000, and was completed at H + 28 minutes on Arc N, Station 096; deactivation began at H + 113 minutes on Arc D, Station 000, and was completed at H + 277 minutes on Arc N, Station 096.

Two cloud-sampling towers were located near GZ and were rigged as indicated in Figure 3.16. The two Casella impactors, Mark II, on each tower were mounted in a metal box with only the orifices exposed.

3.4.3 Additional Instrumentation. One-hundred thirty-eight additional air-sampling instruments over those formally scheduled for the Clean Slate III event were scheduled as shown below.

1. Andersen impactor, one on each station listed:

   BI: 01, 03, 13, 16

   BM: 04, 06, 08, 10, 12

   Arc A: 006, 018, 030, 042, 054, 066, 078, 090, 102, 114

   Arc B: 026, 042, 054, 060, 078, 080, 106

2. Casella impactor, one on each station listed:

   Arc B: 042, 060, 078

Arc F: 042, 060, 078

Arc H: 040, 060, 080

Arc J: 042, 060, 078

Arc K: every eighth station, 008 through 112, inclusive

(Stations 030, 060, and 090 on Arc H consisted of a Y group of nine impactors, three on each leg, 20 feet between impactors, legs spaced 120 degrees apart, with one leg oriented to GZ and centered on a total-air sampler located at each station.)

3. Total-air sampler, Mark I, one on each station listed:

   Arc B: 56, 64

   Arc F: 56, 64

   Arc H: 56, 64

   Arc J: 56, 64

   Arc K: every eighth station, 028 through 112, inclusive

4. Total air sampler, disposable, one on each station listed:

   Arc K: 000, 004, 012, 020, 108, 116, 120

5. Additional instrumentation placed on the Clean Slate I array, Figure 3.21, consisted of a otal-air sampler, disposable, one on each station listed:

   Station 000: Arcs D, E, F, G, H, I, J, K, L, M, N, O

   Six, spaced 0.5 mile apart, northeast along the road toward Mellan, Nevada, beginning from the intersection with the east radial, Clean Slate I, between Arcs J and K

   Arc N: one every sixth station, 006 through 096, inclusive

6. Two UK balloons were located near GZ and rigged as indicated in Figure 3.22

TABLE 3.1 AIR-SAMPLING INSTRUMENTS, DOUBLE TRACKS

Abbreviations: TAS, total-air sampler; M, Microsorban; NA, not applicable.

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
GROUND ZERO								
BC 03	Eglin	1	62	TAS-D	120	NA	NA	M, AM-4
BC 04	Eglin	2	160	Andersen	A96	Resin	NA	AM-4
BC 05	Eglin	3	181	TAS-D	122	NA	NA	M, AM-4
BC 06	Eglin	4	88	Andersen	A94	Resin	NA	AM-4
BC 07	Eglin	207	247	TAS-D	125	NA	NA	M, AM-4
BC 08	Eglin	6	204	Andersen	A95	Resin	NA	AM-4
BC 09	Eglin	7	149	TAS-D	128	NA	NA	M, AM-4
BC 10	Eglin	8	37	Andersen	A93	Resin	NA	AM-4
BC 11	Eglin	9	240	TAS-D	127	NA	NA	M, AM-4
BC 12	Eglin	10	105	Andersen	A92	Resin	NA	AM-4
BC 13	Eglin	12	31	TAS-D	126	NA	NA	M, AM-4
BI-03	Austen	48	B323SE	Casella	326	Resin	NA	AM-4
BI-02	Austen	202	B507SE	TAS-D	119	NA	NA	M, AM-4
BI-01	Austen	74	B212SE	Casella	178	Resin	NA	AM-4
BI 01	Austen	105	B312SE	TAS-D	123	NA	NA	M, AM-4
BI 03	Austen	76	B214SE	Casella	102	Resin	NA	AM-4
BI 05	Austen	34	B172SE	TAS-D	116	NA	NA	M, AM-4
BI 11	Eglin	13	3	TAS-D	117	NA	NA	M, AM-4
BI 13	Eglin	14	26	Casella	243	Resin	NA	AM-4
BI 15	Eglin	15	16	TAS-D	121	NA	NA	M, AM-4
BI 16	Eglin	16	42	Casella	336	Resin	NA	AM-4
BI 17	Eglin	17	246	TAS-D	124	NA	NA	M, AM-4
BI 18	Eglin	18	44	Casella	355	Resin	NA	AM-4
BM 03	Eglin	19	109	TAS-D	118	NA	NA	M, AM-4
BM 04	Eglin	20	91	Casella	196	Resin	NA	AM-4
BM 05	Eglin	21	60	TAS-D	111	NA	NA	M, AM-4
BM 06	Eglin	23	224	Casella	111	Resin	NA	AM-4
BM 07	Eglin	24	227	TAS-D	115	NA	NA	M, AM-4
BM 08	Eglin	25	21	Casella	347	Resin	NA	AM-4
BM 09	Eglin	26	14	TAS-D	114	NA	NA	M, AM-4
BM 10	Eglin	27	199	Casella	280	Resin	NA	AM-4
BM 11	Eglin	28	113	TAS-D	112	NA	NA	M, AM-4
BM 12	Eglin	29	133	Casella	250	Resin	NA	AM-4
BM 13	Eglin	30	9	TAS-D	113	NA	NA	M, AM-4
ARC A								
000	Eglin	31	90	TAS-D	103	NA	NA	M, AM-4
006	Eglin	32	219	Casella	807	Resin	NA	AM-4
012	Eglin	33	53	TAS-D	30	NA	NA	M, AM-4
018	Eglin	34	241	Casella	240	Resin	NA	AM-4
024	Eglin	35	232	TAS-D	24	NA	NA	M, AM-4
030	Eglin	36	80	Casella	207	Resin	NA	AM-4
036	Eglin	37	18	TAS-D	89	NA	NA	M, AM-4
042	Eglin	38	154	Casella	242	Resin	NA	AM-4
048	Eglin	39	93	TAS-D	87	NA	NA	M, AM-4
054	Eglin	41	230	Casella	321	Resin	NA	AM-4
060	Eglin	42	223	TAS-D	110	NA	NA	M, AM-4
066	Eglin	43	205	Casella	244	Resin	NA	AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC A								
072	Eglin	44	82	TAS-D	34	NA	NA	M,AM-4
078	Eglin	45	94	Casella	105	Resin	NA	AM-4
084	Eglin	46	17	TAS-D	2	NA	NA	M,AM-4
090	Eglin	47	182	Casella	845	Resin	NA	AM-4
096	Eglin	48	164	TAS-D	21	NA	NA	M,AM-4
102	Eglin	49	225	Casella	815	Resin	NA	AM-4
108	Eglin	50	13	TAS-D	1	NA	NA	M,AM-4
114	Eglin	51	42	Casella	241	Resin	NA	AM-4
120	Eglin	52	63	TAS-D	22	NA	NA	M,AM-4
ARC B								
000	Eglin	53	129	TAS-D	56	NA	NA	M,AM-4
014	Eglin	54	28	TAS-D	51	NA	NA	M,AM-4
026	Eglin	55	73	Casella	803	Resin	NA	AM-4
030	SC-6	117	4401	TAS-D	83	NA	NA	M,AM-4
032	Austen	1	B490SE	Casella	822	Resin	NA	AM-4
034	Eglin	145	32	Andersen	A91	Resin	NA	AM-4
036	SC-6	118	4482	TAS-D	82	NA	NA	M,AM-4
038	Austen	2	B207SE	Casella	223	Resin	NA	AM-4
040	Eglin	146	221	Andersen	A83	Resin	NA	AM-4
040	Eglin	56	193	TAS-D	52	NA	NA	M,AM-4
042	SC-6	119	4498	TAS-D	54	NA	NA	M,AM-4
044	Austen	3	B527SE	Casella	844	Resin	NA	AM-4
046	Eglin	147	144	Andersen	A84	Resin	NA	AM-4
048	SC-6	120	4347	TAS-D	58	NA	NA	M,AM-4
050	Austen	4	B515SE	Casella	877	Resin	NA	AM-4
052	Eglin	149	128	Andersen	A81	Resin	NA	AM-4
054	SC-6	121	4403	TAS-D	62	NA	NA	M,AM-4
054	Eglin	57	55	Casella	837	Resin	NA	AM-4
056	Austen	5	B489SE	Casella	181	Resin	NA	AM-4
058	Eglin	150	100	Andersen	A82	Resin	NA	AM-4
060	SC-6	122	4468	TAS-D	53	NA	NA	M,AM-4
062	Austen	6	B521SE	Casella	233	Resin	NA	AM-4
064	Eglin	151	6	Andersen	A87	Resin	NA	AM-4
066	SC-6	123	4457	TAS-D	7	NA	NA	M,AM-4
068	Austen	7	B518SE	Casella	346	Resin	NA	AM-4
068	Eglin	58	239	TAS-D	36	NA	NA	M,AM-4
070	Eglin	152	132	Andersen	A88	Resin	NA	AM-4
072	SC-6	124	4492	TAS-D	57	NA	NA	M,AM-4
074	Austen	8	B456SE	Casella	817	Resin	NA	AM-4
076	Eglin	153	11	Andersen	A89	Resin	NA	AM-4
078	SC-6	125	4517	TAS-D	28	NA	NA	M,AM-4
080	Austen	9	B535SE	Casella	842	Resin	NA	AM-4
080	Eglin	59	183	Casella	283	Resin	NA	AM-4
082	Eglin	154	202	Andersen	A86	Resin	NA	AM-4
084	SC-6	126	4497	TAS-D	50	NA	NA	M,AM-4
086	Austen	10	B221SE	Casella	230	Resin	NA	AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
088	Eglin	155	112	Andersen	A85	Resin	NA	AM-4
090	SC-6	127	4462	TAS-D	12	NA	NA	M, AM-4
092	Eglin	60	107	TAS-D	97	NA	NA	M, AM-4
106	Eglin	61	157	Casella	282	Resin	NA	AM-4
120	Eglin	62	249	TAS-D	98	NA	NA	M, AM-4
1ST BALLOON ARRAY, ARC B								
L1, P1	Gelman	23	NA	TAS-I	506	NA	NA	M, AM-4
L1, P9	Gelman	73	NA	TAS-I	548	NA	NA	M, AM-4
L1, P17	Gelman	71	NA	TAS-I	543	NA	NA	M, AM-4
L2, P5	Gelman	95	NA	Casella	232	Resin	NA	AM-4
L2, P13	Gelman	96	NA	Casella	351	Resin	NA	AM-4
L2, P21	Gelman	97	NA	Casella	858	Resin	NA	AM-4
L3, P1	Gelman	98	NA	Casella	343	Resin	NA	AM-4
L3, P9	Gelman	99	NA	Casella	828	Resin	NA	AM-4
L3, P17	Gelman	100	NA	Casella	192	Resin	NA	AM-4
L4, P5	Gelman	75	NA	TAS-I	563	NA	NA	M, AM-4
L4, P13	Gelman	76	NA	TAS-I	546	NA	NA	M, AM-4
L4, P21	Gelman	77	NA	TAS-I	520	NA	NA	M, AM-4
L5, P1	Gelman	101	NA	Casella	228	Resin	NA	AM-4
L5, P9	Gelman	102	NA	Casella	159	Resin	NA	AM-4
L5, P17	Gelman	103	NA	Casella	225	Resin	NA	AM-4
L6, P5	Gelman	104	NA	Casella	182	Resin	NA	AM-4
L6, P13	Gelman	105	NA	Casella	157	Resin	NA	AM-4
L6, P21	Gelman	106	NA	Casella	314	Resin	NA	AM-4
L7, P1	Gelman	78	NA	TAS-I	537	NA	NA	M, AM-4
L7, P9	Gelman	79	NA	TAS-I	560	NA	NA	M, AM-4
L7, P17	Gelman	80	NA	TAS-I	562	NA	NA	M, AM-4
L8, P5	Gelman	107	NA	Casella	847	Resin	NA	AM-4
L8, P13	Gelman	108	NA	Casella	153	Resin	NA	AM-4
L8, P21	Gelman	109	NA	Casella	862	Resin	NA	AM-4
L9, P1	Gelman	110	NA	Casella	853	Resin	NA	AM-4
L9, P9	Gelman	111	NA	Casella	863	Resin	NA	AM-4
L9, P17	Gelman	112	NA	Casella	855	Resin	NA	AM-4
L10, P5	Gelman	81	NA	TAS-I	567	NA	NA	M, AM-4
L10, P13	Gelman	82	NA	TAS-I	12	NA	NA	M, AM-4
L10, P21	Gelman	83	NA	TAS-I	532	NA	NA	M, AM-4
L11, P1	Gelman	113	NA	Casella	821	Resin	NA	AM-4
L11, P9	Gelman	114	NA	Casella	215	Resin	NA	AM-4
L11, P17	Gelman	115	NA	Casella	802	Resin	NA	AM-4
L12, P5	Gelman	116	NA	Casella	859	Resin	NA	AM-4
L12, P13	Gelman	118	NA	Casella	814	Resin	NA	AM-4
L12, P21	Gelman	119	NA	Casella	138	Resin	NA	AM-4
L13, P1	Gelman	84	NA	TAS-I	573	NA	NA	M, AM-4
L13, P9	Gelman	85	NA	TAS-I	500	NA	NA	M, AM-4
L13, P17	Gelman	86	NA	TAS-I	570	NA	NA	M, AM-4
L14, P5	Gelman	120	NA	Casella	809	Resin	NA	AM-4
L14, P13	Gelman	121	NA	Casella	854	Resin	NA	AM-4
L14, P21	Gelman	122	NA	Casella	841	Resin	NA	AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
L15,P1	Gelman	124	NA	Casella	213	Resin	NA	AM-4
L15,P9	Gelman	125	NA	Casella	840	Resin	NA	AM-4
L15,P17	Gelman	126	NA	Casella	832	Resin	NA	AM-4
L17,P1	Gelman	127	NA	Casella	124	Resin	NA	AM-4
L17,P9	Gelman	128	NA	Casella	149	Resin	NA	AM-4
L17,P17	Gelman	129	NA	Casella	195	Resin	NA	AM-4
L18,P5	Gelman	130	NA	Casella	287	Resin	NA	AM-4
L18,P13	Gelman	131	NA	Casella	820	Resin	NA	AM-4
L18,P21	Gelman	132	NA	Casella	334	Resin	NA	AM-4
L19,P1	Gelman	90	NA	TAS-I	556	NA	NA	M,AM-4
L19,P9	Gelman	70	NA	TAS-I	550	NA	NA	M,AM-4
L19,P17	Gelman	92	NA	TAS-I	575	NA	NA	M,AM-4
L20,P5	Gelman	133	NA	Casella	296	Resin	NA	AM-4
L20,P13	Gelman	21	NA	Casella	276	Resin	NA	AM-4
L20,P21	Gelman	135	NA	Casella	317	Resin	NA	AM-4
L21,P1	Gelman	136	NA	Casella	308	Resin	NA	AM-4
L21,P9	Gelman	137	NA	Casella	852	Resin	NA	AM-4
L21,P17	Gelman	138	NA	Casella	813	Resin	NA	AM-4
L22,P5	Gelman	93	NA	TAS-I	508	NA	NA	M,AM-4
L22,P13	Gelman	94	NA	TAS-I	531	NA	NA	M,AM-4
L22,P21	Gelman	151	NA	TAS-I	557	NA	NA	M,AM-4
L23,P1	Gelman	139	NA	Casella	210	Resin	NA	AM-4
L23,P9	Gelman	140	NA	Casella	850	Resin	NA	AM-4
L23,P17	Gelman	141	NA	Casella	843	Resin	NA	AM-4
L24,P5	Gelman	142	NA	Casella	511	Resin	NA	AM-4
L24,P13	Gelman	143	NA	Casella	122	Resin	NA	AM-4
L24,P21	Gelman	144	NA	Casella	222	Resin	NA	AM-4
L25,P1	Gelman	152	NA	TAS-I	504	NA	NA	M,AM-4
L25,P9	Gelman	154	NA	TAS-I	533	NA	NA	M,AM-4
L25,P17	Gelman	156	NA	TAS-I	525	NA	NA	M,AM-4
L26,P5	Gelman	145	NA	Casella	335	Resin	NA	AM-4
L26,P13	Gelman	146	NA	Casella	246	Resin	NA	AM-4
L26,P21	Gelman	147	NA	Casella	272	Resin	NA	AM-4
L27,P1	Gelman	148	NA	Casella	227	Resin	NA	AM-4
L27,P9	Gelman	149	NA	Casella	239	Resin	NA	AM-4
L27,P17	Gelman	150	NA	Casella	285	Resin	NA	AM-4
L28,P5	Gelman	158	NA	TAS-I	561	NA	NA	M,AM-4
L28,P13	Gelman	160	NA	TAS-I	553	NA	NA	M,AM-4
L28,P21	Gelman	177	NA	TAS-I	521	NA	NA	M,AM-4
L29,P1	Gelman	153	NA	Casella	851	Resin	NA	AM-4
L29,P9	Gelman	155	NA	Casella	834	Resin	NA	AM-4
L29,P17	Gelman	157	NA	Casella	830	Resin	NA	AM-4
L30,P5	Gelman	159	NA	Casella	898	Resin	NA	AM-4
L30,P13	Gelman	161	NA	Casella	801	Resin	NA	AM-4
L30,P21	Gelman	162	NA	Casella	856	Resin	NA	AM-4
L31,P1	Gelman	178	NA	TAS-I	572	NA	NA	M,AM-4
L31,P9	Gelman	179	NA	TAS-I	558	NA	NA	M,AM-4
L31,P17	Gelman	180	NA	TAS-I	554	NA	NA	M,AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC B								
000	Eglin	53	129	TAS-D	56	NA	NA	M, AM-4
014	Eglin	54	28	TAS-D	51	NA	NA	M, AM-4
026	Eglin	55	73	Casella	803	Resin	NA	AM-4
030	SC-6	117	4401	TAS-D	83	NA	NA	M, AM-4
032	Austen	1	B490SE	Casella	822	Resin	NA	AM-4
034	Eglin	145	32	Andersen	A91	Resin	NA	AM-4
036	SC-6	118	4482	TAS-D	82	NA	NA	M, AM-4
038	Austen	2	B207SE	Casella	223	Resin	NA	AM-4
040	Eglin	146	221	Andersen	A83	Resin	NA	AM-4
040	Eglin	56	193	TAS-D	52	NA	NA	M, AM-4
042	SC-6	119	4498	TAS-D	54	NA	NA	M, AM-4
044	Austen	3	B527SE	Casella	844	Resin	NA	AM-4
046	Eglin	147	144	Andersen	A84	Resin	NA	AM-4
048	SC-6	120	4347	TAS-D	58	NA	NA	M, AM-4
050	Austen	4	B515SE	Casella	877	Resin	NA	AM-4
052	Eglin	149	128	Andersen	A81	Resin	NA	AM-4
054	SC-6	121	4403	TAS-D	62	NA	NA	M, AM-4
054	Eglin	57	55	Casella	837	Resin	NA	AM-4
056	Austen	5	B489SE	Casella	181	Resin	NA	AM-4
058	Eglin	150	100	Andersen	A82	Resin	NA	AM-4
060	SC-6	122	4468	TAS-D	53	NA	NA	M, AM-4
062	Austen	6	B521SE	Casella	233	Resin	NA	AM-4
064	Eglin	151	6	Andersen	A87	Resin	NA	AM-4
066	SC-6	123	4457	TAS-D	7	NA	NA	M, AM-4
068	Austen	7	B518SE	Casella	346	Resin	NA	AM-4
068	Eglin	58	239	TAS-D	36	NA	NA	M, AM-4
070	Eglin	152	132	Andersen	A88	Resin	NA	AM-4
072	SC-6	124	4492	TAS-D	57	NA	NA	M, AM-4
074	Austen	8	B456SE	Casella	817	Resin	NA	AM-4
076	Eglin	153	11	Andersen	A89	Resin	NA	AM-4
078	SC-6	125	4517	TAS-D	28	NA	NA	M, AM-4
080	Austen	9	B535SE	Casella	842	Resin	NA	AM-4
080	Eglin	59	183	Casella	283	Resin	NA	AM-4
082	Eglin	154	202	Andersen	A86	Resin	NA	AM-4
084	SC-6	126	4497	TAS-D	50	NA	NA	M, AM-4
086	Austen	10	B221SE	Casella	230	Resin	NA	AM-4
088	Eglin	155	112	Andersen	A85	Resin	NA	AM-4
090	SC-6	127	4462	TAS-D	12	NA	NA	M, AM-4
092	Eglin	60	107	TAS-D	97	NA	NA	M, AM-4
106	Eglin	61	157	Casella	282	Resin	NA	AM-4
120	Eglin	62	249	TAS-D	98	NA	NA	M, AM-4
ARC D								
006	Eglin	63	208	Casella	340	Resin	NA	AM-4
020	Eglin	64	75	TAS-D	16	NA	NA	M, AM-4
030	SC-6	128	4491	TAS-II	759	NA	NA	M, AM-4
032	Austen	11	B528SE	Casella	833	Resin	NA	AM-4
034	Eglin	65	106	Andersen	A48	Resin	NA	AM-4
034	Eglin	156	242	Casella	295	Resin	NA	AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
036	SC-6	129	4518	TAS-II	741	NA	NA	M,AM-4
938	Austen	12	B482SE	Casella	812	Resin	NA	AM-4
040	Eglin	157	102	Andersen	A46	Resin	NA	AM-4
042	SC-6	130	4480	TAS-II	717	NA	NA	M,AM-4
044	Austen	13	B496SE	Casella	205	Resin	NA	AM-4
046	Eglin	158	35	Andersen	A39	Resin	NA	AM-4
048	SC-6	131	4442	TAS-II	730	NA	NA	M,AM-4
048	Eglin	66	172	TAS-D	26	NA	NA	M,AM-4
050	Austen	14	B465SE	Casella	125	Resin	NA	AM-4
052	Eglin	159	127	Andersen	A45	Resin	NA	AM-4
054	SC-6	132	4302	TAS-II	784	NA	NA	M,AM-4
056	Austen	15	B509SE	Casella	151	Resin	NA	AM-4
058	Eglin	160	70	Andersen	A47	Resin	NA	AM-4
060	SC-6	133	4414	TAS-II	738	NA	NA	M,AM-4
060	Eglin	67	114	Casella	176	Resin	NA	AM-4
062	Austen	16	B512SE	Casella	332	Resin	NA	AM-4
064	Eglin	161	214	Andersen	A43	Resin	NA	AM-4
066	SC-6	134	4357	TAS-II	777	NA	NA	M,AM-4
068	Austen	17	B500SE	Casella	171	Resin	NA	AM-4
070	Eglin	162	145	Andersen	A44	Resin	NA	AM-4
072	SC-6	135	4400	TAS-II	750	NA	NA	M,AM-4
074	Austen	18	B497SE	Casella	329	Resin	NA	AM-4
074	Eglin	68	74	TAS-D	92	NA	NA	M,AM-4
076	Eglin	163	216	Andersen	A42	Resin	NA	AM-4
078	SC-6	136	4396	TAS-II	785	NA	NA	M,AM-4
080	Austen	19	B513SE	Casella	503	Resin	NA	AM-4
082	Eglin	164	36	Andersen	A41	Resin	NA	AM-4
084	SC-6	137	4356	TAS-II	735	NA	NA	M,AM-4
086	Austen	20	B462SE	Casella	165	Resin	NA	AM-4
088	Eglin	165	97	Andersen	A40	Resin	NA	AM-4
088	Eglin	69	119	Casella	306	Resin	NA	AM-4
090	SC-6	138	4294	TAS-II	793	NA	NA	M,AM-4
100	Eglin	71	196	TAS-D	20	NA	NA	M,AM-4
114	Eglin	72	68	TAS-D	37	NA	NA	M,AM-4
BIOLOGICAL ARRAY, ARC E								
054	SC-6	NA	4327	Casella	345	Resin	NA	AM-4
056	SC-6	NA	4376	Casella	156	Resin	NA	AM-4
056	SC-6	NA	4439	TAS-I	576	NA	NA	M,AM-4
056	Austen	NA	B148SE	TAS-D	70	NA	NA	M,AM-4
056	Austen	NA	B149SE	Casella	217	Resin	NA	AM-4
056	Austen	NA	B205SE	Casella	305	Resin	Acetate	AM-4
058	Austen	NA	B344SE	Casella	861	Resin	NA	AM-4
058	Austen	NA	B141SE	TAS-I	551	NA	NA	M,AM-4
058	Austen	NA	B142SE	TAS-D	69	NA	NA	M,AM-4
058	Austen	NA	B197SE	Casella	199	Resin	NA	AM-4
058	Austen	NA	B494SE	TAS-D	59	NA	NA	M,AM-4
058	Austen	NA	B180SE	Casella	194	Resin	Acetate	AM-4
060	Austen	NA	B493SE	Casella	349	Resin	NA	AM-4
060	SC-6	NA	4353	TAS-I	510	NA	NA	M,AM-4
060	SC-6	NA	4305	Casella	236	Resin	NA	AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
ARC F	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
000	Eglin	198	79	TAS-D	4	NA	NA	M, AM-4
014	Eglin	74	165	TAS-D	48	NA	NA	M, AM-4
026	Eglin	75	156	Casella	848	Resin	NA	AM-4
030	SC-6	139	4328	TAS-II	757	NA	NA	M, AM-4
032	Austen	21	B501SE	Casella	209	Resin	NA	AM-4
034	Eglin	166	121	Andersen	A25	Resin	NA	AM-4
036	SC-6	140	4488	TAS-II	780	NA	NA	M, AM-4
038	Austen	22	B469SE	Casella	108	Resin	NA	AM-4
040	Eglin	167	25	Andersen	A26	Resin	NA	AM-4
040	Eglin	76	87	TAS-D	3	NA	NA	M, AM-4
042	SC-6	141	4377	TAS-II	799	NA	NA	M, AM-4
044	Austen	23	B526SE	Casella	168	Resin	NA	AM-4
046	Eglin	199	234	Andersen	A28	Resin	NA	AM-4
048	SC-6	142	4575	TAS-II	703	NA	NA	M, AM-4
050	Austen	24	B463SE	Casella	269	Resin	NA	AM-4
052	Eglin	169	177	Andersen	A27	Resin	NA	AM-4
054	SC-6	143	4437	TAS-II	775	NA	NA	M, AM-4
054	Eglin	77	43	Casella	135	Resin	NA	AM-4
056	Austen	25	B343SE	Casella	316	Resin	NA	AM-4
058	Eglin	170	110	Andersen	A29	Resin	NA	AM-4
060	SC-6	144	4409	TAS-II	793	NA	NA	M, AM-4
062	Austen	26	B492SE	Casella	128	Resin	NA	AM-4
064	Eglin	171	162	Andersen	A20	Resin	NA	AM-4
066	SC-6	145	4511	TAS-II	722	NA	NA	M, AM-4
068	Austen	27	B529SE	Casella	100	Resin	NA	AM-4
068	Eglin	78	57	TAS-D	29	NA	NA	M, AM-4
070	Eglin	173	23	Andersen	A23	Resin	NA	AM-4
072	SC-6	146	4446	TAS-II	715	NA	NA	M, AM-4
074	Austen	28	B533SE	Casella	288	Resin	NA	AM-4
076	Eglin	174	171	Andersen	A24	Resin	NA	AM-4
078	SC-6	147	4340	TAS-II	763	NA	NA	M, AM-4
080	Austen	29	B320SE	Casella	220	Resin	NA	AM-4
080	Eglin	79	118	Casella	237	Resin	NA	AM-4
082	Eglin	175	136	Andersen	A22	Resin	NA	AM-4
084	SC-6	148	4343	TAS-II	755	NA	NA	M, AM-4
086	Austen	30	B485SE	Casella	304	Resin	NA	AM-4
088	Eglin	176	66	Andersen	A21	Resin	NA	AM-4
090	SC-6	149	4382	TAS-II	792	NA	NA	M, AM-4
092	Eglin	80	41	TAS-D	104	NA	NA	M, AM-4
106	Eglin	81	198	Casella	331	Resin	NA	AM-4
120	Eglin	82	190	TAS-D	45	NA	NA	M, AM-4
SEQUENTIAL SAMPLERS, ARC F								
040	Gelman	1	NA	Sequential	1	NA	NA	Tape
044	Gelman	2	NA	Sequential	2	NA	NA	Tape
048	Gelman	3	NA	Sequential	3	NA	NA	Tape
052	Gelman	4	NA	Sequential	4	NA	NA	Tape
056	Gelman	5	NA	Sequential	5	NA	NA	Tape
060	Gelman	6	NA	Sequential	6	NA	NA	Tape
064	Gelman	7	NA	Sequential	7	NA	NA	Tape
068	Gelman	8	NA	Sequential	8	NA	NA	Tape
072	Gelman	9	NA	Sequential	9	NA	NA	Tape
076	Gelman	10	NA	Sequential	10	NA	NA	Tape

TABLE 3.1 CONTINUED

Position	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
MOBILE STATION NO. 1, ARC F, STATION 060								
1	Austen	NA	B175SE	Casella	131	Resin	NA	AM-4
2	Austen	NA	B175SE	Casella	235	Resin	NA	AM-4
3	Austen	NA	B175SE	Casella	101	Resin	NA	AM-4
4	Austen	NA	B175SE	Casella	129	Resin	NA	AM-4
5	Austen	NA	B175SE	Casella	882	Resin	NA	AM-4
6	Austen	NA	B175SE	Casella	818	Resin	NA	AM-4
7	Austen	NA	B175SE	Casella	154	Resin	NA	AM-4
Center	Austen	NA	B175SE	TAS-I	530	NA	NA	M, AM-4
8	Austen	NA	B396SE	Andersen	M3	Gelatin	Acetate	AM-4
9	Austen	NA	B147SE	Andersen	M2	Gelatin	Acetate	AM-4
10	Austen	NA	B231SE	Andersen	M1	Gelatin	Acetate	AM-4
11	Austen	NA	B160SE	Casella	110	Gelatin	Acetate	AM-4
12	Austen	NA	B847SE	Casella	358	Gelatin	Acetate	AM-4
13	Austen	NA	NA	Guzender	M-II	Resin	NA	AM-4
14	Austen	NA	NA	Guzender	M-I	Resin	NA	AM-4
BIOLOGICAL ARRAY, ARC G								
050	SC-6		4471	Casella	301	Resin	NA	AM-4
052	SC-6		4345	Casella	167	Resin	NA	AM-4
052	SC-6		4546	Casella	202	Resin	NA	AM-4
052	SC-6		4477	Casella	204	Resin	NA	AM-4
054	SC-6		4415	TAS-I	184	NA	NA	M, AM-4
054	SC-6		4501	Casella	141	Resin	NA	AM-4
054	SC-6		4430	Casella	253	Resin	NA	AM-4
054	Austen		B176SE	TAS-D	76	NA	NA	M, AM-4
054	Austen		B193SE	Casella	292	Resin	Acetate	AM-4
056	SC-6		4428	Casella	197	Resin	NA	AM-4
056	SC-6		4506	TAS-D	77	NA	NA	M, AM-4
056	Austen		B318SE	TAS-I	559	NA	NA	M, AM-4
056	Austen		B147SE	Casella	123	Resin	NA	AM-4
058	SC-6		4460	TAS-I	519	NA	NA	M, AM-4
058	SC-6		4312	Casella	263	Resin	NA	AM-4
058	Austen		B491SE	TAS-D	80	NA	NA	M, AM-4
058	Austen		B467SE	Casella	112	Resin	NA	AM-4
060	SC-6		4422	Casella	860	Resin	NA	AM-4
060	SC-6		4493	TAS-D	84	NA	NA	M, AM-4
060	SC-6		4367	Casella	144	Resin	NA	AM-4
060	SC-6		4479	TAS-I	534	NA	NA	M, AM-4
060	Austen		B225SE	Casella	284	Resin	Acetate	AM-4
062	SC-6		4549	Casella	183	Resin	NA	AM-4
062	SC-6		4298	Casella	265	Resin	NA	AM-4
064	SC-6		4512	Casella	206	Resin	NA	AM-4
064	SC-6		4344	Casella	274	Resin	NA	AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC H								
006	Eglin	84	59	Casella	177	Resin	NA	AM-4
020	Eglin	85	33	TAS-D	99	NA	NA	M, AM-4
030	SC-6	150	4444	TAS-II	708	NA	NA	M, AM-4
032	Austen	31	B471SE	Casella	255	Resin	NA	AM-4
034	Eglin	86	101	Casella	330	Resin	NA	AM-4
034	Eglin	177	116	Andersen	A6	Resin	NA	AM-4
036	SC-6	151	4306	TAS-II	771	NA	NA	M, AM-4
038	Austen	32	B355SE	Casella	808	Resin	NA	AM-4
040	Eglin	178	229	Andersen	A7	Resin	NA	AM-4
042	SC-6	152	4321	TAS-II	776	NA	NA	M, AM-4
044	Austen	33	B352SE	Casella	824	Resin	NA	AM-4
046	Eglin	180	89	Andersen	A1	Resin	NA	AM-4
048	SC-6	153	4361	TAS-II	798	NA	NA	M, AM-4
048	Eglin	87	131	TAS-D	108	NA	NA	M, AM-4
050	Austen	34	B522SE	Casella	825	Resin	NA	AM-4
052	Eglin	181	137	Andersen	A2	Resin	NA	AM-4
054	SC-6	154	4323	TAS-II	718	NA	NA	M, AM-4
056	Austen	35	B523SE	Casella	806	Resin	NA	AM-4
058	Eglin	182	2	Andersen	A30	Resin	NA	AM-4
060	SC-6	155	4301	TAS-II	758	NA	NA	M, AM-4
060	Eglin	88	174	Casella	827	Resin	NA	AM-4
062	Austen	36	B475SE	Casella	277	Resin	NA	AM-4
064	Eglin	183	58	Andersen	A3	Resin	NA	AM-4
066	SC-6	156	4320	TAS-II	737	NA	NA	M, AM-4
068	Austen	37	B310SE	Casella	247	Resin	NA	AM-4
070	Eglin	184	24	Andersen	A8	Resin	NA	AM-4
072	SC-6	157	4365	TAS-II	764	NA	NA	M, AM-4
074	Austen	38	B520SE	Casella	200	Resin	NA	AM-4
074	Eglin	89	64	TAS-D	10	NA	NA	M, AM-4
076	Eglin	185	169	Andersen	A9	Resin	NA	AM-4
078	SC-6	158	4475	TAS-II	781	NA	NA	M, AM-4
080	Austen	39	B238SE	Casella	109	Resin	NA	AM-4
082	Eglin	186	81	Andersen	A4	Resin	NA	AM-4
084	SC-6	159	4417	TAS-II	731	NA	NA	M, AM-4
086	Austen	40	B330SE	Casella	320	Resin	NA	AM-4
088	Eglin	187	176	Andersen	A5	Resin	NA	AM-4
088	Eglin	90	134	Casella	329	Resin	NA	AM-4
090	SC-6	160	4383	TAS-II	734	NA	NA	M, AM-4
100	Eglin	91	40	TAS-D	38	NA	NA	M, AM-4
114	Eglin	114	139	TAS-D	9	NA	NA	M, AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
BIOLOGICAL ARRAY, ARC I								
055	Austen	NA	B143SE	Casella	259	Resin	NA	AM-4
057	Austen	NA	B144SE	TAS-D	55	NA	NA	M, AM-4
057	Austen	NA	B227SE	Casella	350	Resin	NA	AM-4
057	SC-6	NA	4426	Casella	139	Resin	NA	AM-4
057	SC-6	NA	4486	TAS-I	579	NA	NA	M, AM-4
057	Austen	NA	B525SE	Casella	152	Resin	Acetate	AM-4
059	Austen	NA	B139SE	Casella	262	Resin	NA	AM-4
059	Austen	NA	B479SE	TAS-I	507	NA	NA	M, AM-4
059	Austen	NA	B140SE	TAS-D	63	NA	NA	M, AM-4
059	Austen	NA	B145SE	TAS-D	73	NA	NA	M, AM-4
059	Austen	NA	B146SE	Casella	134	Resin	NA	AM-4
059	Austen	NA	B159SE	Casella	118	Resin	Acetate	AM-4
061	SC-6	NA	4474	TAS-I	545	NA	NA	M, AM-4
061	Austen	NA	B308SE	Casella	258	Resin	NA	AM-4
061	SC-6	NA	4329	Casella	281	Resin	NA	AM-4
ARC J								
000	Eglin	93	194	Andersen	A66	Resin	NA	AM-4
014	Eglin	95	180	TAS-II	709	NA	NA	M, AM-4
026	Eglin	96	39	Casella	826	Resin	NA	AM-4
030	SC-6	161	4489	TAS-II	721	NA	NA	M, AM-4
032	Austen	41	B478SE	Casella	804	Resin	NA	AM-4
034	Eglin	188	215	Andersen	A67	Resin	NA	AM-4
036	SC-6	162	4454	TAS-II	761	NA	NA	M, AM-4
038	Austen	42	B495SE	Casella	147	Resin	NA	AM-4
040	Eglin	189	210	TAS-II	742	NA	NA	M, AM-4
040	Eglin	97	46	TAS-II	773	NA	NA	M, AM-4
042	SC-6	163	4505	TAS-II	790	NA	NA	M, AM-4
044	Austen	43	B502SE	Casella	231	Resin	NA	AM-4
046	Eglin	190	8	Andersen	A69	Resin	NA	AM-4
048	SC-6	164	4311	TAS-II	706	NA	NA	M, AM-4
050	Austen	44	B464SE	Casella	819	Resin	NA	AM-4
052	Eglin	191	244	Andersen	A70	Resin	NA	AM-4
054	SC-6	165	4398	TAS-II	766	NA	NA	M, AM-4
054	Eglin	98	29	Casella	190	Resin	NA	AM-4
056	Austen	45	B179SE	Casella	836	Resin	NA	AM-4
058	Eglin	192	243	Andersen	A74	Resin	NA	AM-4
060	SC-6	166	4354	TAS-II	783	NA	NA	M, AM-4
062	Austen	46	B150SE	Casella	816	Resin	NA	AM-4
064	Eglin	193	143	Andersen	A64	Resin	NA	AM-4
066	SC-6	167	4380	TAS-II	774	NA	NA	M, AM-4
068	Austen	47	B192SE	Casella	169	Resin	NA	AM-4
068	Eglin	99	159	TAS-II	797	NA	NA	M, AM-4
070	Eglin	194	209	Andersen	A76	Resin	NA	AM-4
072	SC-6	168	4348	TAS-D	5	NA	NA	M, AM-4
074	Austen	48	B510SE	Casella	823	Resin	NA	AM-4
076	Eglin	195	51	Andersen	A75	Resin	NA	AM-4
078	SC-6	169	4319	TAS-D	16	NA	NA	M, AM-4
080	Austen	49	B334SE	Casella	107	Resin	NA	AM-4
080	Eglin	101	123	Casella	221	Resin	NA	AM-4
082	Eglin	196	86	Andersen	A65	Resin	NA	AM-4
084	SC-6	170	4322	TAS-D	32	NA	NA	M, AM-4
086	Austen	50	B215SE	Casella	229	Resin	NA	AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
088	Eglin	197	15	Andersen	A68	Resin	NA	AM-4
090	SC-6	171	4509	TAS-D	11	NA	NA	M, AM-4
092	Eglin	102	153	TAS-D	19	NA	NA	M, AM-4
106	Eglin	103	191	Casella	310	Resin	NA	AM-4
120	Eglin	104	45	TAS-D	8	NA	NA	M, AM-4
BRITISH BALLOON ARRAY, ARC J								
L4, P6	Gelman	18	NA	Casella	191	Resin	NA	AM-4
L4, P13	Gelman	9	NA	Casella	298	Resin	NA	AM-4
L6, P6	Gelman	14	NA	Casella	163	Resin	NA	AM-4
L6, P13	Gelman	10	NA	Casella	115	Resin	NA	AM-4
L8, P6	Gelman	15	NA	Casella	198	Resin	NA	AM-4
L8, P13	Gelman	17	NA	Casella	275	Resin	NA	AM-4
MOBILE STATION NO. 2, ARC K, STATION 050								
1	Austen	NA	B342SE	Casella	810	Resin	NA	AM-4
2	Austen	NA	B342SE	Casella	120	Resin	NA	AM-4
3	Austen	NA	B342SE	Casella	174	Resin	NA	AM-4
4	Austen	NA	B342SE	Casella	839	Resin	NA	AM-4
5	Austen	NA	B342SE	Casella	805	Resin	NA	AM-4
6	Austen	NA	B342SE	Casella	311	Resin	NA	AM-4
7	Austen	NA	B342SE	Casella	866	Resin	NA	AM-4
Center	Austen	NA	B167SE	TAS-I	504	NA	NA	M, AM-4
8	Austen	NA	B230SE	Andersen	M5	Gelatin	Acetate	AM-4
9	Austen	NA	B148SE	Andersen	M4	Gelatin	Acetate	AM-4
10	Austen	NA	3210SE	Andersen	M6	Gelatin	Acetate	AM-4
11	Austen	NA	B460SE	Casella	811	Gelatin	Acetate	AM-4
12	Austen	NA	B164SE	Casella	835	Gelatin	Acetate	AM-4
13	Gelman	11		Sequential	11	NA	NA	AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC L								
006	Eglin	105	220	Casella	352	Resin	NA	AM-4
020	Eglin	106	10	TAS-D	14	NA	NA	M,AM-4
030	SC-6	172	4463	TAS-II	728	NA	NA	M,AM-4
032	Austen	51	B149SE	Casella	268	Resin	NA	AM-4
034	Austen	217	B314SE	Andersen	A33	Resin	NA	AM-4
034	Eglin	107	213	Casella	234	Resin	NA	AM-4
036	SC-6	173	4339	TAS-II	704	NA	NA	M,AM-4
038	Austen	52	B142SE	Casella	226	Resin	NA	AM-4
040	Austen	218	B204SE	Andersen	A34	Resin	NA	AM-4
042	SC-6	174	4317	TAS-II	740	NA	NA	M,AM-4
044	Austen	53	B335SE	Casella	309	Resin	NA	AM-4
046	Austen	219	B336SE	Andersen	A36	Resin	NA	AM-4
048	SC-6	175	4450	TAS-II	789	NA	NA	M,AM-4
048	Eglin	108	117	TAS-D	81	NA	NA	M,AM-4
050	Austen	54	B483SE	Casella	342	Resin	NA	AM-4
052	Austen	220	B184SE	Andersen	A37	Resin	NA	AM-4
054	SC-6	176	4360	TAS-II	705	NA	NA	M,AM-4
056	Austen	55	B235SE	Casella	117	Resin	NA	AM-4
058	Austen	221	B309SE	Andersen	A38	Resin	NA	AM-4
060	SC-6	178	4304	TAS-II	787	NA	NA	M,AM-4
060	Eglin	109	195	Casella	208	Resin	NA	AM-4
062	Austen	56	B519SE	Casella	293	Resin	NA	AM-4
064	Austen	222	B473SE	Andersen	A57	Resin	NA	AM-4
066	SC-6	179	4484	TAS-II	778	NA	NA	M,AM-4
068	Austen	57	B199SE	Casella	137	Resin	NA	AM-4
070	Austen	223	B143SE	Andersen	A31	Resin	NA	AM-4
072	SC-6	180	4467	TAS-II	779	NA	NA	M,AM-4
074	Austen	58	B213SE	Casella	104	Resin	NA	AM-4
074	Eglin	110	1	TAS-D	25	NA	NA	M,AM-4
076	Austen	224	B321SE	Andersen	A32	Resin	NA	AM-4
078	SC-6	181	4303	TAS-II	770	NA	NA	M,AM-4
080	Austen	59	B304SE	Casella	257	Resin	NA	AM-4
082	Austen	225	B348SE	Andersen	A63	Resin	NA	AM-4
084	SC-6	182	4488	TAS-II	753	NA	NA	M,AM-4
086	Austen	60	B470SE	Casella	857	Resin	NA	AM-4
088	Austen	226	B141SE	Andersen	A90	Resin	NA	AM-4
088	Eglin	111	184	Casella	251	Resin	NA	AM-4
090	SC-6	183	4459	TAS-II	733	NA	NA	M,AM-4
100	Eglin	112	122	TAS-D	106	NA	NA	M,AM-4
114	Austen	227	B203SE	TAS-D	101	NA	NA	M,AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC N								
000	Eglin	114	139	TAS-D	105	NA	NA	M, AM-4
014	Eglin	115	185	TAS-D	100	NA	NA	M, AM-4
026	Eglin	116	152	Casella	315	Resin	NA	AM-4
030	SC-6	184	4308	TAS-II	724	NA	NA	M, AM-4
032	Austen	156	B461SE	Casella	260	Resin	NA	AM-4
034	Eglin	209	207	Andersen	A59	Resin	NA	AM-4
036	SC-6	185	4381	TAS-II	747	NA	NA	M, AM-4
038	Austen	62	B187SE	Casella	238	Resin	NA	AM-4
040	Eglin	118	201	Andersen	A58	Resin	NA	AM-4
040	Eglin	129	218	TAS-D	9	NA	NA	M, AM-4
042	SC-6	186	4467	TAS-II	727	NA	NA	M, AM-4
044	Austen	63	B477SE	Casella	216	Resin	NA	AM-4
046	Eglin	112	122	Andersen	A62	Resin	NA	AM-4
048	SC-6	187	4371	TAS-II	752	NA	NA	M, AM-4
050	Austen	64	B347SE	Casella	840	Resin	NA	AM-4
052	Eglin	206	4	Andersen	A61	Resin	NA	AM-4
054	SC-6	188	4337	TAS-II	791	NA	NA	M, AM-4
054	Eglin	119	150	Casella	846	Resin	NA	AM-4
056	Austen	65	B178SE	Casella	300	Resin	NA	AM-4
058	Austen	91	B350SE	Andersen	A60	Resin	NA	AM-4
060	SC-6	189	4472	TAS-II	743	NA	NA	M, AM-4
062	Austen	66	B236SE	Casella	354	Resin	NA	AM-4
064	Austen	92	B452SE	Andersen	A51	Resin	NA	AM-4
066	SC-6	190	4373	TAS-II	745	NA	NA	M, AM-4
068	Austen	67	B530SE	Casella	203	Resin	NA	AM-4
068	Eglin	120	20	TAS-D	23	NA	NA	M, AM-4
070	Austen	93	B510SE	Andersen	A49	Resin	NA	AM-4
072	SC-6	191	4370	TAS-II	707	NA	NA	M, AM-4
074	Austen	68	B163SE	Casella	166	Resin	NA	AM-4
076	Austen	94	B333SE	Andersen	A33	Resin	NA	AM-4
078	SC-6	192	4338	TAS-II	782	NA	NA	M, AM-4
080	Austen	69	B222SE	Casella	218	Resin	NA	AM-4
080	Eglin	121	50	Casella	170	Resin	NA	AM-4
082	Austen	95	B356SE	Andersen	A55	Resin	NA	AM-4
084	SC-6	193	4513	TAS-II	744	NA	NA	M, AM-4
086	Austen	70	B219SE	Casella	158	Resin	NA	AM-4
088	Eglin	96	39	Andersen	A50	Resin	NA	AM-4
090	SC-6	194	4487	TAS-II	772	NA	NA	M, AM-4
092	Eglin	122	231	TAS-D	102	NA	NA	M, AM-4
106	Eglin	123	146	Casella	187	Resin	NA	AM-4
120	Eglin	124	179	TAS-D	17	NA	NA	M, AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC P								
006	Eglin	125	175	Casella	271	Resin	NA	AM-4
020	Eglin	126	236	TAS-D	93	NA	NA	M,AM-4
030	SC-6	195	4494	TAS-II	768	NA	NA	M,AM-4
032	Austen	71	B232SE	Casella	273	Resin	NA	AM-4
034	Austen	97	B152SE	Andersen	A15	Resin	NA	AM-4
034	Eglin	127	12	Casella	307	Resin	NA	AM-4
036	SC-6	196	4447	TAS-II	710	NA	NA	M,AM-4
038	Austen	72	B327SE	Casella	254	Resin	NA	AM-4
040	Austen	98	B325SE	Andersen	A14	Resin	NA	AM-4
042	SC-6	197	4438	TAS-II	712	NA	NA	M,AM-4
044	Austen	73	B188SE	Casella	219	Resin	NA	AM-4
046	Austen	99	B154SE	Andersen	A13	Resin	NA	AM-4
048	SC-6	198	4502	TAS-II	760	NA	NA	M,AM-4
048	Eglin	129	218	TAS-D	44	NA	NA	M,AM-4
050	Austen	74	B459SE	Casella	130	Resin	NA	AM-4
052	Austen	100	B139SE	Andersen	A10	Resin	NA	AM-4
054	SC-6	199	4389	TAS-II	736	NA	NA	M,AM-4
056	Austen	75	B505SE	Casella	126	Resin	NA	AM-4
058	Austen	101	B524SE	Andersen	A11	Resin	NA	AM-4
060	SC-6	200	4496	TAS-II	786	NA	NA	M,AM-4
060	Eglin	130	200	Casella	201	Resin	NA	AM-4
062	Austen	76	B185SE	Casella	214	Resin	NA	AM-4
064	Austen	102	B484SE	Andersen	A16	Resin	NA	AM-4
066	SC-6	201	4299	TAS-II	723	NA	NA	M,AM-4
068	Austen	77	B486SE	Casella	193	Resin	NA	AM-4
070	Austen	103	B155SE	Andersen	A54	Resin	NA	AM-4
072	SC-6	202	4378	TAS-II	765	NA	NA	M,AM-4
074	Austen	78	B153SE	Casella	312	Resin	NA	AM-4
074	Eglin	131	226	TAS-D	109	NA	NA	M,AM-4
076	Austen	104	B506SE	Andersen	A36	Resin	NA	AM-4
078	SC-6	203	4296	TAS-II	751	NA	NA	M,AM-4
080	Austen	79	B191SE	Casella	252	Resin	NA	AM-4
082	Austen	105	B511SE	Andersen	A52	Resin	NA	AM-4
084	SC-6	204	4334	TAS-II	769	NA	NA	M,AM-4
086	Austen	80	B504SE	Casella	800	Resin	NA	AM-4
088	Austen	106	B144SE	Andersen	A53	Resin	NA	AM-4
088	Eglin	132	30	Casella	348	Resin	NA	AM-4
090	SC-6	205	4252	TAS-II	796	NA	NA	M,AM-4
100	Eglin	133	104	TAS-D	49	NA	NA	M,AM-4
114	Eglin	134	7	TAS-D	13	NA	NA	M,AM-4

TABLE 3.1 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC R								
000	Eglin	135	245	TAS-D	33	NA	NA	M, AM-4
014	Eglin	136	130	TAS-D	86	NA	NA	M, AM-4
026	Eglin	137	148	Casella	829	Resin	NA	AM-4
030	SC-6	206	4392	TAS-II	713	NA	NA	M, AM-4
040	Eglin	138	211	TAS-D	90	NA	NA	M, AM-4
054	Eglin	139	77	Casella	831	Resin	NA	AM-4
054	SC-6	210	4420	TAS-II	788	NA	NA	M, AM-4
056	Austen	85	B200SE	Casella	341	Resin	NA	AM-4
058	Austen	111	B481SE	Andersen	A19	Resin	NA	AM-4
060	SC-6	211	4466	TAS-II	700	NA	NA	M, AM-4
062	Austen	112	B177SE	Casella	173	Resin	NA	AM-4
064	Austen	66	B208SE	Andersen	A73	Resin	NA	AM-4
066	SC-6	212	4435	TAS-II	794	NA	NA	M, AM-4
068	Austen	113	B189SE	Casella	302	Resin	NA	AM-4
068	Eglin	140	54	TAS-D	95	NA	NA	M, AM-4
070	Austen	87	B457SE	Andersen	A72	Resin	NA	AM-4
072	SC-6	213	4427	TAS-II	726	NA	NA	M, AM-4
074	Austen	88	B196SE	Casella	344	Resin	NA	AM-4
076	Austen	114	B345SE	Andersen	A78	Resin	NA	AM-4
078	SC-6	214	4295	TAS-II	719	NA	NA	M, AM-4
080	Eglin	141	212	Casella	189	Resin	NA	AM-4
080	Austen	89	B313SE	TAS-D	66	NA	NA	M, AM-4
082	Austen	115	B216SE	Andersen	A77	Resin	NA	AM-4
084	SC-6	215	4452	TAS-II	754	NA	NA	M, AM-4
086	Austen	90	B351SE	Casella	881	Resin	NA	AM-4
088	Austen	116	B198SE	Andersen	A71	Resin	NA	AM-4
090	SC-6	216	4358	TAS-II	729	NA	NA	M, AM-4
092	Austen	81	B324SE	Casella	338	Resin	NA	AM-4
092	Eglin	142	140	TAS-D	107	NA	NA	M, AM-4
094	Austen	107	B311SE	Andersen	A80	Resin	NA	AM-4
096	SC-6	207	4432	TAS-II	714	NA	NA	M, AM-4
098	Austen	82	B145SE	Casella	106	Resin	NA	AM-4
100	Austen	108	B466SE	Andersen	A79	Resin	NA	AM-4
102	SC-6	208	4366	TAS-II	716	NA	NA	M, AM-4
104	Austen	83	B499SE	Casella	132	Resin	NA	AM-4
106	Austen	109	B202SE	Andersen	A17	Resin	NA	AM-4
106	Eglin	143	217	Casella	286	Resin	NA	AM-4
108	SC-6	209	4469	TAS-II	767	NA	NA	M, AM-4
110	Austen	84	B329SE	Casella	303	Resin	NA	AM-4
112	Austen	110	B472SE	Andersen	A18	Resin	NA	AM-4

TABLE 3.2 AIR-SAMPLING INSTRUMENTS, CLEAN SLATE I

Abbreviations: TAS, total-air sampler; M, Microsorban; NA, not applicable.

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
GROUND ZERO								
BC 03	Eglin	9	240	TAS-D	8	NA	NA	M, AM-4
BC 04	Eglin	207	247	Andersen	A123	Resin	Mylar	AM-4
BC 05	Eglin	16	42	TAS-D	61	NA	NA	M, AM-4
BC 06	Eglin	6	204	Andersen	A119	Resin	Mylar	AM-4
BC 07	Eglin	8	37	TAS-D	9	NA	NA	M, AM-4
BC 08	Eglin	13	3	Andersen	A121	Resin	Mylar	AM-4
BC 09	Eglin	10	105	TAS-D	3	NA	NA	M, AM-4
BC 10	Eglin	3	181	Andersen	A122	Resin	Mylar	AM-4
BC 11	Eglin	17	246	TAS-D	38	NA	NA	M, AM-4
BC 12	Eglin	18	44	Andersen	A125	Resin	Mylar	AM-4
BC 13	Eglin	7	149	TAS-D	39	NA	NA	M, AM-4
BI 03	Austen	105	B312SE	Casella	309	Resin	NA	AM-4
BI 02	Austen	74	B212SE	TAS-D	107	NA	NA	M, AM-4
BI 01	Austen	48	B323SE	Casella	813	Resin	NA	AM-4
BI 01	Austen	34	B172SE	TAS-D	33	NA	NA	M, AM-4
BI 03	Austen	202	B507SE	Casella	239	Resin	NA	AM-4
BI 05	Austen	76	B214SE	TAS-D	15	NA	NA	M, AM-4
BI 11	Eglin	15	16	TAS-D	47	NA	NA	M, AM-4
BI 13	Eglin	2	160	Casella	138	Resin	NA	AM-4
BI 15	Eglin	4	88	TAS-D	74	NA	NA	M, AM-4
BI 16	Eglin	12	31	Casella	358	Resin	NA	AM-4
BI 17	Eglin	1	62	TAS-D	79	NA	NA	M, AM-4
BI 18	Eglin	14	26	Casella	263	Resin	NA	AM-4
BM 03	Eglin	26	14	TAS-D	24	NA	NA	M, AM-4
BM 04	Eglin	41	230	Casella	253	Resin	NA	AM-4
BM 05	Eglin	30	9	TAS-D	46	NA	NA	M, AM-4
BM 06	Eglin	38	154	Casella	288	Resin	NA	AM-4
BM 07	Eglin	42	223	TAS-D	16	NA	NA	M, AM-4
BM 08	Eglin	39	93	Casella	343	Resin	NA	AM-4
BM 09	Eglin	51	42	TAS-D	77	NA	NA	M, AM-4
BM 10	Eglin	23	224	Casella	801	Resin	NA	AM-4
BM 11	Eglin	25	21	TAS-D	26	NA	NA	M, AM-4
BM 12	Eglin	52	63	Casella	198	Resin	NA	AM-4
BM 13	Eglin	28	113	TAS D	109	NA	NA	M, AM-4
ARC A								
000	Eglin	31	90	TAS-D	11	NA	NA	M, AM-4
006	Eglin	44	82	Casella	131	Resin	NA	AM-4
012	Eglin	19	109	TAS-D	7A	NA	NA	M, AM-4
018	Eglin	35	232	Casella	806	Resin	NA	AM-4
024	Eglin	46	17	TAS-D	7	NA	NA	M, AM-4
030	Eglin	33	53	Casella	174	Resin	NA	AM-4
036	Eglin	47	182	TAS-D	53	NA	NA	M, AM-4
042	Eglin	48	164	Casella	355	Resin	NA	AM-4
048	Eglin	37	18	TAS-D	41	NA	NA	M, AM-4
054	Eglin	36	80	Casella	834	Resin	NA	AM-4
060	Eglin	20	91	TAS-D	105	NA	NA	M, AM-4
066	Eglin	45	94	Casella	130	Resin	NA	AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
072	Eglin	24	227	TAS-D	94	NA	NA	M, AM-4
078	Eglin	27	199	Casella	271	Resin	NA	AM-4
084	Eglin	29	133	TAS-D	93	NA	NA	M, AM-4
090	Eglin	43	205	Casella	832	Resin	NA	AM-4
096	Eglin	21	60	TAS-D	28	NA	NA	M, AM-4
102	Eglin	49	225	Casella	819	Resin	NA	AM-4
108	Eglin	50	13	TAS-D	63	NA	NA	M, AM-4
114	Eglin	31	90	Casella	847	Resin	NA	AM-4
120	Eglin	34	241	TAS-D	104	NA	NA	M, AM-4
ARC B								
000	Austen	8	B456SE	Casella	330	Resin	NA	AM-4
000	Eglin	53	129	TAS-D	1	NA	NA	M, AM-4
002	SC-6	124	4492	TAS-II	737	NA	NA	M, AM-4
004	Eglin	152	132	Andersen	A87	Resin	Mylar	AM-4
006	Austen	7	B518SE	Casella	268	Resin	NA	AM-4
008	SC-6	123	4457	TAS-II	771	NA	NA	M, AM-4
010	Eglin	151	6	Andersen	A60	Resin	Mylar	AM-4
012	Austen	6	B521SE	Casella	183	Resin	Mylar	AM-4
014	SC-6	127	4462	TAS-II	714	NA	NA	M, AM-4
014	Eglin	54	28	TAS-D	69	NA	NA	M, AM-4
016	Eglin	155	112	Andersen	A66	Resin	Mylar	AM-4
018	Austen	10	B221SE	Casella	228	Resin	NA	AM-4
020	SC-6	126	4497	TAS-II	712	NA	NA	M, AM-4
022	Eglin	154	202	Andersen	A35	Resin	Mylar	AM-4
024	Austen	9	B535SE	Casella	201	Resin	NA	AM-4
026	SC-6	125	4517	TAS-II	728	NA	NA	M, AM-4
026	Eglin	55	73	Casella	822	Resin	NA	AM-4
028	Eglin	153	11	Andersen	A22	Resin	Mylar	AM-4
030	SC-6	117	4401	TAS-II	733	NA	NA	M, AM-4
032	Austen	1	B490SE	Casella	197	Resin	NA	AM-4
034	Eglin	145	32	Andersen	A49	Resin	Mylar	AM-4
036	SC-6	118	4482	TAS-II	791	NA	NA	M, AM-4
038	Austen	2	B207SE	Casella	156	Resin	NA	AM-4
040	Eglin	146	221	Andersen	A56	Resin	Mylar	AM-4
040	Eglin	56	193	TAS-D	103	NA	NA	M, AM-4
042	SC-6	119	4498	TAS-II	788	NA	NA	M, AM-4
042	Austen	229	B461SE	Andersen	A11	Resin	Mylar	AM-4
042	Austen	228	B166SE	Casella	203	Resin	NA	AM-4
044	Austen	3	B527SE	Casella	853	Resin	NA	AM-4
046	Eglin	147	144	Andersen	A41	Resin	Mylar	AM-4
048	SC-6	120	4347	TAS-II	774	NA	NA	M, AM-4
050	Austen	4	B515SE	Casella	344	Resin	NA	AM-4
052	Eglin	149	128	Andersen	A21	Resin	Mylar	AM-4
054	SC-6	121	4403	TAS-II	757	NA	NA	M, AM-4
054	Eglin	57	55	Casella	191	Resin	NA	AM-4
056	Austen	5	B489SE	Casella	345	Resin	NA	AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
056	Austen	230	B180SE	TAS-I	504	NA	NA	M, AM-4
058	Eglin	150	100	Andersen	A39	Resin	Mylar	AM-4
060	SC-6	122	4468	TAS-II	775	NA	NA	M, AM-4
060	Austen	232	B425SE	Andersen	A26	Resin	Mylar	AM-4
060	Austen	231	B458SE	Casella	824	Resin	NA	AM-4
064	Austen	233	B146SE	TAS-I	531	NA	NA	M, AM-4
068	Eglin	58	239	TAS-D	30	NA	NA	M, AM-4
078	Austen	235	B498SE	Casella	335	Resin	NA	AM-4
078	Austen	234	B525SE	Andersen	A57	Resin	Mylar	AM-4
080	Eglin	59	183	Casella	311	Resin	NA	AM-4
092	Eglin	60	107	TAS-D	84	NA	NA	M, AM-4
106	Eglin	61	157	Casella	181	Resin	NA	AM-4
120	Eglin	62	249	TAS-D	99	NA	NA	M, AM-4
1st BALLOON ARRAY, ARC B								
L1,P1	Gelman	72	NA	TAS-I	532	NA	NA	M, AM-4
L1,P9	Gelman	73	NA	TAS-I	562	NA	NA	M, AM-4
L1,P17	Gelman	74	NA	TAS-I	576	NA	NA	M, AM-4
L2,P5	Gelman	95	NA	Casella	851	Resin	Acetate	AM-4
L2,P13	Gelman	96	NA	Casella	190	Resin	NA	AM-4
L2,P21	Gelman	97	NA	Casella	132	Resin	Acetate	AM-4
L3,P1	Gelman	98	NA	Casella	221	Resin	NA	AM-4
L3,P9	Gelman	99	NA	Casella	217	Resin	NA	AM-4
L3,P17	Gelman	100	NA	Casella	157	Resin	NA	AM-4
L4,P5	Gelman	75	NA	TAS-I	537	NA	NA	M, AM-4
L4,P13	Gelman	76	NA	TAS-I	508	NA	NA	M, AM-4
L4,P21	Gelman	77	NA	TAS-I	546	NA	NA	M, AM-4
L5,P1	Gelman	101	NA	Casella	306	Resin	Acetate	AM-4
L5,P9	Gelman	102	NA	Casella	376	Resin	NA	AM-4
L5,P17	Gelman	103	NA	Casella	124	Resin	Acetate	AM-4
L6,P5	Gelman	104	NA	Casella	106	Resin	Acetate	AM-4
L6,P13	Gelman	105	NA	Casella	209	Resin	NA	AM-4
L6,P21	Gelman	106	NA	Casella	232	Resin	Acetate	AM-4
L7,P1	Gelman	78	NA	TAS-I	510	NA	NA	M, AM-4
L7,P9	Gelman	79	NA	TAS-I	573	NA	NA	M, AM-4
L7,P17	Gelman	80	NA	TAS-I	579	NA	NA	M, AM-4
L8,P5	Gelman	107	NA	Casella	329	Resin	Acetate	AM-4
L8,P13	Gelman	108	NA	Casella	115	Resin	NA	AM-4
L8,P21	Gelman	109	NA	Casella	849	Resin	Acetate	AM-4
L9,P1	Gelman	110	NA	Casella	274	Resin	NA	AM-4
L9,P9	Gelman	111	NA	Casella	123	Resin	NA	AM-4
L9,P17	Gelman	112	NA	Casella	280	Resin	NA	AM-4
L10,P5	Gelman	81	NA	TAS-I	561	NA	NA	M, AM-4
L10,P13	Gelman	82	NA	TAS-I	520	NA	NA	M, AM-4
L10,P21	Gelman	83	NA	TAS-I	500	NA	NA	M, AM-4
L11,P1	Gelman	113	NA	Casella	827	Resin	Acetate	AM-4
L11,P9	Gelman	114	NA	Casella	848	Resin	Acetate	AM-4
L11,P17	Gelman	115	NA	Casella	234	Resin	NA	AM-4
L12,P5	Gelman	116	NA	Casella	807	Resin	Acetate	AM-4
L12,P13	Gelman	118	NA	Casella	208	Resin	NA	AM-4
L12,P21	Gelman	119	NA	Casella	170	Resin	Acetate	AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
L13,P1	Gelman	84	NA	TAS-I	559	NA	NA	M, AM-4
L13,P9	Gelman	85	NA	TAS-I	521	NA	NA	M, AM-4
L13,P17	Gelman	86	NA	TAS-I	184	NA	NA	M, AM-4
L14,P5	Gelman	120	NA	Casella	202	Resin	NA	AM-4
L14,P13	Gelman	121	NA	Casella	246	Resin	Acetate	AM-4
L14,P21	Gelman	122	NA	Casella	159	Resin	NA	AM-4
L15,P1	Gelman	124	NA	Casella	820	Resin	Acetate	AM-4
L15,P9	Gelman	125	NA	Casella	336	Resin	NA	AM-4
L15,P17	Gelman	126	NA	Casella	226	Resin	Acetate	AM-4
L17,P1	Gelman	127	NA	Casella	342	Resin	Acetate	AM-4
L17,P9	Gelman	128	NA	Casella	168	Resin	NA	AM-4
L17,P17	Gelman	129	NA	Casella	811	Resin	Acetate	AM-4
L18,P5	Gelman	130	NA	Casella	111	Resin	NA	AM-4
L18,P13	Gelman	131	NA	Casella	841	Resin	Acetate	AM-4
L18,P21	Gelman	132	NA	Casella	204	Resin	NA	AM-4
L19,P1	Gelman	90	NA	TAS-I	12	NA	NA	M, AM-4
L19,P9	Gelman	70	NA	TAS-I	519	NA	NA	M, AM-4
L19,P17	Gelman	92	NA	TAS-I	556	NA	NA	M, AM-4
L20,P5	Gelman	133	NA	Casella	177	Resin	Acetate	AM-4
L20,P13	Gelman	21	NA	Casella	511	Resin	NA	AM-4
L20,P21	Gelman	135	NA	Casella	340	Resin	Acetate	AM-4
L21,P1	Gelman	136	NA	Casella	307	Resin	NA	AM-4
L21,P9	Gelman	137	NA	Casella	826	Resin	Acetate	AM-4
L21,P17	Gelman	138	NA	Casella	804	Resin	NA	AM-4
L22,P5	Gelman	93	NA	TAS-I	529	NA	NA	M, AM-4
L22,P13	Gelman	94	NA	TAS-I	555	NA	NA	M, AM-4
L22,P21	Gelman	151	NA	TAS-I	563	NA	NA	M, AM-4
L23,P1	Gelman	139	NA	Casella	101	Resin	Acetate	AM-4
L23,P9	Gelman	140	NA	Casella	284	Resin	NA	AM-4
L23,P17	Gelman	141	NA	Casella	310	Resin	Acetate	AM-4
L24,P5	Gelman	142	NA	Casella	305	Resin	NA	AM-4
L24,P13	Gelman	143	NA	Casella	216	Resin	Acetate	AM-4
L24,P21	Gelman	144	NA	Casella	354	Resin	NA	AM-4
L25, P1	Gelman	152	NA	TAS-I	543	NA	NA	M, AM-4
L25,P9	Gelman	154	NA	TAS-I	558	NA	NA	M, AM-4
L25,P17	Gelman	156	NA	TAS-I	557	NA	NA	M, AM-4
L26,P5	Gelman	145	NA	Casella	858	Resin	Acetate	AM-4
L26,P13	Gelman	22	NA	Casella	856	Resin	NA	AM-4
L26,P21	Gelman	147	NA	Casella	334	Resin	Acetate	AM-4
L27,P1	Gelman	148	NA	Casella	251	Resin	Acetate	AM-4
L27,P9	Gelman	149	NA	Casella	881	Resin	NA	AM-4
L27,P17	Gelman	150	NA	Casella	317	Resin	Acetate	AM-4
L28,P5	Gelman	158	NA	TAS-I	11	NA	NA	M, AM-4
L28,P13	Gelman	160	NA	TAS-I	502	NA	NA	M, AM-4
L28,P21	Gelman	177	NA	TAS-I	516	NA	NA	M, AM-4
L29,P1	Gelman	153	NA	Casella	112	Resin	NA	AM-4
L29,P9	Gelman	155	NA	Casella	352	Resin	Acetate	AM-4
L29,P17	Gelman	157	NA	Casella	314	Resin	NA	AM-4
L30,P5	Gelman	159	NA	Casella	803	Resin	Acetate	AM-4
L30,P13	Gelman	161	NA	Casella	163	Resin	NA	AM-4
L30,P21	Gelman	162	NA	Casella	167	Resin	NA	AM-4
L31,P1	Gelman	178	NA	TAS-I	577	NA	NA	M, AM-4
L31,P9	Gelman	179	NA	TAS-I	535	NA	NA	M, AM-4
L31,P17	Gelman	180	NA	TAS-I	522	NA	NA	M, AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC D								
000	Austen	18	B497SE	Casella	118	Resin	NA	AM-4
002	SC-6	135	4400	TAS-II	717	NA	NA	M, AM-4
004	Eglin	162	145	Andersen	A55	Resin	Mylar	AM-4
006	Austen	17	B500SE	Casella	176	Resin	NA	AM-4
006	Eglin	63	208	Casella	213	Resin	NA	AM-4
008	SC-6	134	4357	TAS-II	723	NA	NA	M, AM-4
010	Eglin	161	214	Andersen	A65	Resin	Mylar	AM-4
012	Austen	16	B512SE	Casella	300	Resin	NA	AM-4
014	SC-6	138	4294	TAS-II	740	NA	NA	M, AM-4
016	Eglin	165	97	Andersen	A1	Resin	Mylar	AM-4
018	Austen	20	B462SE	Casella	857	Resin	NA	AM-4
020	SC-6	137	4356	TAS-II	792	NA	NA	M, AM-4
020	Eglin	64	75	TAS-D	57	NA	NA	M, AM-4
022	Eglin	164	36	Andersen	A9	Resin	Mylar	AM-4
024	Austen	19	B513SE	Casella	125	Resin	NA	AM-4
026	SC-6	136	4396	TAS-II	768	NA	NA	M, AM-4
028	Eglin	163	216	Andersen	A13	Resin	Mylar	AM-4
030	SC-6	128	4491	TAS-II	764	NA	NA	M, AM-4
032	Austen	11	B528SE	Casella	252	Resin	NA	AM-4
034	Eglin	65	106	Andersen	A40	Resin	Mylar	AM-4
034	Eglin	156	242	Casella	259	Resin	NA	AM-4
036	SC-6	224	4512	TAS-II	787	NA	NA	M, AM-4
038	Austen	12	B482SE	Casella	285	Resin	NA	AM-4
040	Eglin	203	48	Andersen	A91	Resin	Mylar	AM-4
042	SC-6	130	4480	TAS-II	772	NA	NA	M, AM-4
044	Austen	13	B496SE	Casella	241	Resin	NA	AM-4
046	Eglin	158	35	Andersen	A5	Resin	Mylar	AM-4
048	SC-6	131	4442	TAS-II	738	NA	NA	M, AM-4
048	Eglin	66	172	TAS-D	6	NA	NA	M, AM-4
050	Austen	14	B465SE	Casella	137	Resin	NA	AM-4
052	Eglin	159	127	Andersen	A51	Resin	Mylar	AM-4
054	SC-6	132	4302	TAS-II	798	NA	NA	M, AM-4
056	Austen	15	B509SE	Casella	298	Resin	NA	AM-4
058	Eglin	200	5	Andersen	A4	Resin	Mylar	AM-4
060	SC-6	133	4414	TAS-II	734	NA	NA	M, AM-4
060	Eglin	139	77	Casella	308	Resin	NA	AM-4
074	Eglin	68	74	TAS-D	62	NA	NA	M, AM-4
088	Eglin	69	119	Casella	128	Resin	NA	AM-4
100	Eglin	71	196	TAS-D	25	NA	NA	M, AM-4
114	Eglin	72	68	TAS-D	54	NA	NA	M, AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC F								
000	Austen	28	B533SE	Casella	254	Resin	NA	AM-4
000	Eglin	198	79	TAS-D	51	NA	NA	M, AM-4
002	SC-6	146	4446	TAS-II	785	NA	NA	M, AM-4
004	Eglin	173	23	Andersen	A62	Resin	Mylar	AM-4
006	Austen	27	B529SE	Casella	312	Resin	NA	AM-4
008	SC-6	145	4511	TAS-II	753	NA	NA	M, AM-4
010	Eglin	171	162	Andersen	A84	Resin	Mylar	AM-4
012	Austen	26	B492SE	Casella	503	Resin	NA	AM-4
014	SC-6	149	4382	TAS-II	762	NA	NA	M, AM-4
014	Eglin	74	165	TAS-D	85	NA	NA	M, AM-4
016	Eglin	176	66	Andersen	A46	Resin	Mylar	AM-4
018	Austen	30	B485SE	Casella	817	Resin	NA	AM-4
020	SC-6	148	4343	TAS-II	760	NA	NA	M, AM-4
022	Eglin	175	136	Andersen	A24	Resin	Mylar	AM-4
024	Austen	29	B320SE	Casella	281	Resin	NA	AM-4
026	SC-6	147	4340	TAS-II	763	NA	NA	M, AM-4
026	Eglin	75	156	Casella	230	Resin	NA	AM-4
028	Eglin	174	171	Andersen	A75	Resin	Mylar	AM-4
030	SC-6	139	4328	TAS-II	767	NA	NA	M, AM-4
032	Austen	21	B501SE	Casella	219	Resin	NA	AM-4
034	Eglin	166	121	Andersen	A48	Resin	Mylar	AM-4
036	SC-6	140	4488	TAS-II	780	NA	NA	M, AM-4
038	Austen	22	B469SE	Casella	278	Resin	NA	AM-4
040	Eglin	167	25	Andersen	A42	Resin	Mylar	AM-4
040	Eglin	76	87	TAS-D	37	NA	NA	M, AM-4
042	SC-6	141	4377	TAS-II	745	NA	NA	M, AM-4
042	Austen	236	B344SE	Casella	244	Resin	NA	AM-4
042	Austen	237	B218SE	Andersen	A7	Resin	Mylar	AM-4
044	Austen	23	B526SE	Casella	301	Resin	NA	AM-4
046	Eglin	199	234	Andersen	A95	Resin	Mylar	AM-4
048	SC-6	142	4575	TAS-II	797	NA	NA	M, AM-4
050	Austen	24	B463SE	Casella	141	Resin	NA	AM-4
052	Eglin	169	177	Andersen	A64	Resin	Mylar	AM-4
054	SC-6	143	4431	TAS-II	779	NA	NA	M, AM-4
054	Eglin	77	43	Casella	214	Resin	NA	AM-4
056	Austen	25	B343SE	Casella	262	Resin	NA	AM-4
056	Austen	238	B176SE	TAS-I	554	NA	NA	M, AM-4
058	Eglin	170	110	Andersen	A78	Resin	Mylar	AM-4
060	SC-6	144	4409	TAS-II	750	NA	NA	M, AM-4
060	Austen	239	B168SE	Casella	845	Resin	NA	AM-4
060	Austen	240	B316SE	Andersen	A25	Resin	Mylar	AM-4
064	Austen	241	B159SE	TAS-I	575	NA	NA	M, AM-4
068	Eglin	78	57	TAS-D	101	NA	NA	M, AM-4
078	Austen	242	B197SE	Casella	178	Resin	NA	AM-4
078	Austen	243	B491SE	Andersen	A16	Resin	Mylar	AM-4
080	Eglin	79	118	Casella	117	Resin	NA	AM-4
092	Eglin	80	41	TAS-D	18	NA	NA	M, AM-4
106	Eglin	81	198	Casella	151	Resin	NA	AM-4
120	Eglin	82	190	TAS-D	110	NA	NA	M, AM-4

TABLE 3.2 CONTINUED

Position	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
MOBILE STATION No. 1 ARC F								
1	Austen	NA	B175SE	Casella	242	Resin	NA	AM-4
2	Austen	NA	B175SE	Casella	105	Resin	NA	AM-4
3	Austen	NA	B175SE	Casella	860	Resin	NA	AM-4
4	Austen	NA	B175SE	Casella	825	Resin	NA	AM-4
5	Austen	NA	B175SE	Casella	255	Resin	NA	AM-4
6	Austen	NA	B175SE	Casella	293	Resin	NA	AM-4
7	Austen	NA	B175SE	Casella	814	Resin	NA	AM-4
Center	Austen	NA	B331SE	TAS-D	102	NA	NA	M,AM-4
8	Austen	NA	B346SE	Andersen	A94	Gelatin	Acetate	AM-4
9	Austen	NA	B147SE	Andersen	A34	Gelatin	Acetate	AM-4
10	Austen	NA	B231SE	Andersen	A28	Gelatin	Acetate	AM-4
11	Austen	NA	B160SE	Casella	315	Gelatin	Acetate	AM-4
12	Austen	NA	B487SE	Casella	210	Gelatin	Acetate	AM-4
13	Austen	NA	NA	Guzender	MK-II	Resin	NA	AM-4
14	Austen	NA	NA	Guzender	MK-I	Resin	NA	AM-4
15	Austen	114	B345SE	Casella	331	Resin	Acetate	AM-4
16	Austen	90	B351SE	Casella	818	Resin	Acetate	AM-4
17	Austen	NA	B248SE	Casella	A14	Resin	Acetate	AM-4
18	Austen	NA	B250SE	Casella	A29	Resin	Acetate	AM-4
SEQUENTIAL SAMPLERS, ARC F								
002	Gelman	3		Sequential	3	NA	NA	AM-4
008	Gelman	9		Sequential	9	NA	NA	AM-4
014	Gelman	7		Sequential	7	NA	NA	AM-4
020	Gelman	5		Sequential	5	NA	NA	AM-4
026	Gelman	1		Sequential	1	NA	NA	AM-4
032	Gelman	4		Sequential	4	NA	NA	AM-4
038	Gelman	8		Sequential	8	NA	NA	AM-4
044	Gelman	10		Sequential	10	NA	NA	AM-4
050	Gelman	2		Sequential	2	NA	NA	AM-4
056	Gelman	6		Sequential	6	NA	NA	AM-4
AEC H								
000	Austen	38	B520SE	Casella	341	Resin	NA	AM-4
002	SC-6	157	4365	TAS-II	761	NA	NA	M,AM-4
004	Eglin	184	24	Andersen	A71	Resin	Mylar	AM-4
006	Austen	37	B310SE	Casella	304	Resin	NA	AM-4
006	Eglin	84	59	Casella	104	Resin	NA	AM-4
008	SC-6	156	4320	TAS-II	778	NA	NA	M,AM-4
010	Eglin	183	58	Andersen	A70	Resin	Mylar	AM-4
012	Austen	36	B475SE	Casella	265	Resin	NA	AM-4
014	SC-6	160	4361	TAS-II	770	NA	NA	M,AM-4
016	Eglin	187	176	Andersen	A96	Resin	Mylar	AM-4
018	Austen	40	B330SE	Casella	802	Resin	NA	AM-4
020	SC-6	159	4477	TAS-II	752	NA	NA	M,AM-4
020	Eglin	85	33	TAS-D	21	NA	NA	M,AM-4
022	Eglin	186	81	Andersen	A81	Resin	Mylar	AM-4
024	Austen	39	B238SE	Casella	349	Resin	NA	AM-4
026	SC-6	158	4383	TAS-II	758	NA	NA	M,AM-4
028	Eglin	185	169	Andersen	A73	Resin	Mylar	AM-4
030	SC-6	150	4444	TAS-II	710	NA	NA	M,AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
032	Austen	31	B471SE	Casella	135	Resin	NA	AM-4
034	Eglin	86	101	Casella	110	Resin	NA	AM-4
034	Eglin	177	116	Andersen	A2	Resin	Mylar	AM-4
036	SC-6	151	4306	TAS-II	730	NA	NA	M, AM-4
038	Austen	32	B355SE	Casella	109	Resin	NA	AM-4
040	Eglin	178	229	Andersen	A8	Resin	Mylar	AM-4
040	Austen	NA	B198SE	Casella	194	Resin	NA	AM-4
040	Austen	NA	B200SE	Andersen	A19	Resin	Mylar	AM-4
042	SC-6	152	4321	TAS-II	755	NA	NA	M, AM-4
044	Austen	33	B352SE	Casella	215	Resin	NA	AM-4
046	Eglin	180	89	Andersen	A20	Resin	Mylar	AM-4
048	SC-6	153	4475	TAS-II	718	NA	NA	M, AM-4
048	Eglin	87	131	TAS-D	12	NA	NA	M, AM-4
050	Austen	34	B522SE	Casella	189	Resin	NA	A, -4
052	Eglin	181	137	Andersen	A36	Resin	Mylar	AM-4
054	SC-6	154	4325	TAS-II	747	NA	NA	M, AM-4
056	Austen	NA	B523SE	Casella	223	Resin	NA	AM-4
056	Austen	NA	B313SE	TAS-I	525	NA	NA	M, AM-4
058	Eglin	182	2	Andersen	A43	Resin	Mylar	AM-4
058	Austen	NA	B177SE	Casella	231	Resin	NA	AM-4
058	Austen	NA	B351SE	Andersen	A69	Resin	Mylar	AM-4
060	SC-6	155	4301	TAS-II	716	NA	NA	M, AM-4
060	Eglin	138	211	Casella	247	Resin	NA	AM-4
064	Austen	NA	B216SE	TAS-I	550	NA	NA	M, AM-4
074	Eglin	89	64	TAS-D	55	NA	NA	M, AM-4
080	Austen	NA	B329SE	Casella	350	Resin	NA	AM-4
080	Austen	NA	B311SE	Andersen	A74	Resin	Mylar	AM-4
088	Eglin	90	134	Casella	830	Resin	NA	AM-4
100	Eglin	91	40	TAS-D	42	NA	NA	M, AM-4
114	Eglin	92	52	TAS-D	23	NA	NA	M, AM-4
ARC J								
000	Austen	48	B510SE	Casella	227	Resin	NA	AM-4
000	Eglin	93	194	TAS-D	72	NA	NA	M, AM-4
002	SC-6	168	4348	TAS-II	722	NA	NA	M, AM-4
004	Eglin	194	209	Andersen	A59	Resin	Mylar	AM-4
006	Austen	47	B192SE	Casella	840	Resin	NA	AM-4
008	SC-6	167	4380	TAS-II	707	NA	NA	M, AM-4
010	Eglin	193	143	Andersen	A38	Resin	Mylar	AM-4
012	Austen	46	B150SE	Casella	158	Resin	NA	AM-4
014	Eglin	95	180	TAS-D	48	NA	NA	M, AM-4
014	SC-6	171	4509	TAS-II	769	NA	NA	M, AM-4
016	Eglin	197	15	Andersen	A17	Resin	Mylar	AM-4
018	Austen	50	B215SE	Casella	152	Resin	NA	AM-4
020	SC-6	170	4322	TAS-II	703	NA	NA	M, AM-4
022	Eglin	140	54	Andersen	A80	Resin	Mylar	AM-4
024	Austen	49	B334SE	Casella	220	Resin	NA	AM-4
026	SC-6	169	4319	TAS-II	776	NA	NA	M, AM-4
026	Eglin	96	39	Casella	823	Resin	NA	AM-4
028	Eglin	195	51	Andersen	A44	Resin	Mylar	AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
030	SC-6	161	4489	TAS-I	545	NA	NA	M,AM-4
032	Austen	41	B478SE	Casella	296	Resin	NA	AM-4
034	Eglin	188	215	Andersen	A88	Resin	Mylar	AM-4
036	SC-6	162	4454	TAS-II	790	NA	NA	M,AM-4
038	Austen	42	B495SE	Casella	898	Resin	NA	AM-4
040	Eglin	189	210	Andersen	A52	Resin	Mylar	AM-4
040	Eglin	97	46	TAS-D	82	NA	NA	M,AM-4
042	SC-6	163	4505	TAS-II	759	NA	NA	M,AM-4
042	Austen	253	B158SE	Casella	286	Resin	NA	AM-4
042	Austen	252	B205SE	Andersen	A10	Resin	Mylar	AM-4
044	Austen	43	B502SE	Casella	839	Resin	NA	AM-4
046	Eglin	190	8	Andersen	A67	Resin	Mylar	AM-4
048	SC-6	164	4311	TAS-II	715	NA	NA	M,AM-4
050	Austen	44	B464SE	Casella	200	Resin	NA	AM-4
052	Eglin	191	244	Andersen	A31	Resin	Mylar	AM-4
054	SC-6	165	4398	TAS-II	713	NA	NA	M,AM-4
054	Eglin	98	29	Casella	144	Resin	NA	AM-4
056	Austen	249	B308SE	TAS-I	507	NA	NA	M,AM-4
056	Austen	45	B179SE	Casella	292	Resin	NA	AM-4
058	Eglin	192	243	Andersen	A61	Resin	Mylar	AM-4
060	SC-6	166	4354	TAS-II	782	NA	NA	M,AM-4
060	Austen	255	B211SE	Casella	348	Resin	NA	AM-4
060	Austen	246	B479SE	Andersen	A45	Resin	Mylar	AM-4
064	Austen	257	B238SE	TAS-I	570	NA	NA	M,AM-4
068	Eglin	99	159	TAS-D	44	NA	NA	M,AM-4
078	Austen	259	B531SE	Casella	852	Resin	NA	AM-4
078	Austen	258	B532SE	Andersen	A18	Resin	Mylar	AM-4
080	Eglin	101	123	Casella	257	Resin	NA	AM-4
092	Eglin	102	153	TAS-D	87	NA	NA	M,AM-4
106	Eglin	103	191	Casella	272	Resin	NA	AM-4
120	Eglin	104	45	TAS-D	5	NA	NA	M,AM-4
MOBILE STATION NO. 2, ARC K								
1	Austen	NA	B342SE	Casella	882	Resin	NA	AM-4
2	Austen	NA	B342SE	Casella	195	Resin	NA	AM-4
3	Austen	NA	B342SE	Casella	147	Resin	NA	AM-4
4	Austen	NA	B342SE	Casella	808	Resin	NA	AM-4
5	Austen	NA	B342SE	Casella	866	Resin	NA	AM-4
6	Austen	NA	B342SE	Casella	805	Resin	NA	AM-4
7	Austen	NA	B342SE	Casella	193	Resin	NA	AM-4
Center	Austen	NA	Unknown	TAS-D	81	NA	NA	M,AM-4
8	Austen	NA	B230SE	Andersen	A77	Gelatin	Acetate	AM-4
9	Austen	NA	B148SE	Andersen	A23	Gelatin	Acetate	AM-4
10	Austen	NA	B210SE	Andersen	A27	Gelatin	Acetate	AM-4
11	Austen	NA	B460SE	Casella	100	Gelatin	Acetate	AM-4
12	Austen	NA	B164SE	Casella	282	Gelatin	Acetate	AM-4
13	Austen	NA	B466SE	Andersen	A68	Resin	Acetate	AM-4
14	Austen	NA	B202SE	Andersen	A30	Resin	Acetate	AM-4
15	Austen	NA	B145SE	Casella	173	Resin	Acetate	AM-4
16	Austen	NA	B324SE	Casella	351	Resin	Acetate	AM-4
17	Gelman	11	NA	Sequential	11	NA	NA	AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC L								
000	Austen	58	B213SE	Casella	196	Resin	NA	AM-4
002	SC-6	180	4467	TAS-II	777	NA	NA	M, AM-4
004	Austen	223	B143SE	Andersen	A114	Resin	Mylar	AM-4
006	Austen	57	B119SE	Casella	233	Resin	NA	AM-4
006	Eglin	105	220	Casella	815	Resin	NA	AM-4
008	SC-6	179	4484	TAS-II	773	NA	NA	M, AM-4
010	Austen	222	B473SE	Andersen	A111	Resin	Mylar	AM-4
012	Austen	56	B519SE	Casella	338	Resin	NA	AM-4
014	SC-6	183	4459	TAS-II	781	NA	NA	M, AM-4
016	Austen	226	B141SE	Andersen	A120	Resin	Mylar	AM-4
018	Austen	60	B470SE	Casella	828	Resin	NA	AM-4
020	SC-6	182	4488	TAS-II	786	NA	NA	M, AM-4
020	Eglin	106	10	TAS-D	58	NA	NA	M, AM-4
022	Austen	225	B348SE	Andersen	A117	Resin	Mylar	AM-4
024	Austen	59	B340SE	Casella	850	Resin	NA	AM-4
026	SC-6	181	4303	TAS-II	796	NA	NA	M, AM-4
028	Austen	224	B321SE	Andersen	A116	Resin	Mylar	AM-4
030	SC-6	172	4463	TAS-II	731	NA	NA	M, AM-4
032	Austen	51	B149SE	Casella	877	Resin	NA	AM-4
034	Austen	217	B314SE	Andersen	A112	Resin	Mylar	AM-4
034	Eglin	107	213	Casella	332	Resin	NA	AM-4
036	SC-6	173	4339	TAS-II	705	NA	NA	M, AM-4
038	Austen	52	B142SE	Casella	199	Resin	NA	AM-4
040	Austen	218	B204SE	Andersen	A115	Resin	Mylar	AM-4
042	SC-6	174	4317	TAS-II	754	NA	NA	M, AM-4
044	Austen	53	B335SE	Casella	229	Resin	NA	AM-4
046	Austen	219	B336SE	Andersen	A118	Resin	Mylar	AM-4
048	SC-6	175	4450	TAS-II	799	NA	NA	M, AM-4
048	Eglin	108	117	TAS-D	89	NA	NA	M, AM-4
050	Austen	54	B483SE	Casella	260	Resin	NA	AM-4
052	Austen	220	B184SE	Andersen	A124	Resin	Mylar	AM-4
054	SC-6	176	4360	TAS-II	742	NA	NA	M, AM-4
056	Austen	55	B235SE	Casella	810	Resin	NA	AM-4
058	Austen	221	B309SE	Andersen	A113	Resin	Mylar	AM-4
060	SC-6	178	4304	TAS-II	783	NA	NA	M, AM-4
060	Eglin	109	195	Casella	283	Resin	NA	AM-4
074	Eglin	110	1	TAS-D	4	NA	NA	M, AM-4
088	Eglin	111	184	Casella	192	Resin	NA	AM-4
100	Eglin	112	122	TAS-D	27	NA	NA	M, AM-4
114	Austen	227	203	TAS-D	65	NA	NA	M, AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC N								
000	Eglin	114	139	TAS-D	13	NA	NA	M,AM-4
000	Austen	68	B163SE	Casella	126	Resin	NA	AM-4
002	SC-6	191	4370	TAS-II	721	NA	NA	M,AM-4
004	Austen	93	B510SE	Andersen	A82	Resin	Mylar	AM-4
006	Austen	67	B530SE	Casella	182	Resin	NA	AM-4
008	SC-6	190	4373	TAS-II	766	NA	NA	M,AM-4
010	Austen	92	B452SE	Andersen	A50	Resin	Mylar	AM-4
012	Austen	66	B236SE	Casella	346	Resin	NA	AM-4
014	Eglin	115	185	TAS-D	91	NA	NA	M,AM-4
014	SC-6	194	4487	TAS-II	794	NA	NA	M,AM-4
016	Austen	96	B468SE	Andersen	A85	Resin	Mylar	AM-4
018	Austen	70	B219SE	Casella	320	Resin	NA	AM-4
020	SC-6	193	4513	TAS-II	724	NA	NA	M,AM-4
022	Austen	95	B356SE	Andersen	A76	Resin	Mylar	AM-4
024	Austen	69	B222SE	Casella	277	Resin	NA	AM-4
026	SC-6	192	4338	TAS-II	793	NA	NA	M,AM-4
026	Eglin	116	152	Casella	861	Resin	NA	AM-4
028	Austen	94	B333SE	Andersen	A83	Resin	Mylar	AM-4
030	SC-6	184	4308	TAS-II	708	NA	NA	M,AM-4
032	Austen	229	B461SE	Casella	206	Resin	NA	AM-4
034	Eglin	209	207	Andersen	A86	Resin	Mylar	AM-4
036	SC-6	185	4381	TAS-II	706	NA	NA	M,AM-4
038	Austen	62	B182SE	Casella	836	Resin	NA	AM-4
040	Eglin	118	201	Andersen	A32	Resin	Mylar	AM-4
040	Eglin	129	218	TAS-D	50	NA	NA	M,AM-4
040	SC-6	222	4298	TAS-I	560	NA	NA	M,AM-4
042	SC-6	186	4467	TAS-II	729	NA	NA	M,AM-4
044	Austen	64	B347SE	Casella	800	Resin	NA	AM-4
046	Eglin	112	122	Andersen	A93	Resin	Mylar	AM-4
048	SC-6	187	4371	TAS-II	736	NA	NA	M,AM-4
050	Austen	65	B178SE	Casella	207	Resin	NA	AM-4
052	Eglin	206	4	Andersen	A63	Resin	Mylar	AM-4
054	SC-6	188	4337	TAS-II	795	NA	NA	M,AM-4
054	SC-6	188	4337	TAS-II	795	NA	NA	M,AM-4
054	Eglin	119	150	Casella	816	Resin	NA	AM-4
056	Austen	63	B477SE	Casella	153	Resin	NA	AM-4
056	SC-6	213	4427	TAS-I	553	NA	NA	M,AM-4
058	Austen	91	B350SE	Andersen	A90	Resin	Mylar	AM-4
060	SC-6	189	4472	TAS-II	743	NA	NA	M,AM-4
060	SC-6	192	4338	TAS-I	567	NA	NA	M,AM-4
064	Austen	NA	B180SE	TAS-I	574	NA	NA	M,AM-4
068	Eglin	113	69	TAS-D	35	NA	NA	M,AM-4
080	Eglin	121	50	Casella	120	Resin	NA	AM-4
080	Austen	225	B348SE	TAS-I	506	NA	NA	M,AM-4
092	Eglin	122	231	TAS-D	68	NA	NA	M,AM-4
106	Eglin	123	146	Casella	321	Resin	NA	AM-4
120	Eglin	124	179	TAS-D	83	NA	NA	M,AM-4

TABLE 3.2 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC P								
000	Austen	78	B153SE	Casella	165	Resin	NA	AM-4
002	SC-6	202	4378	TAS-II	744	NA	NA	M, AM-4
006	Austen	77	B486SE	Casella	171	Resin	NA	AM-4
006	Eglin	125	175	Casella	240	Resin	NA	AM-4
008	SC-6	201	4299	TAS-II	784	NA	NA	M, AM-4
012	Austen	76	B185SE	Casella	218	Resin	NA	AM-4
014	SC-6	205	4252	TAS-II	765	NA	NA	M, AM-4
018	Austen	79	B191SE	TAS-II	704	NA	NA	M, AM-4
020	SC-6	204	4334	TAS-II	725	NA	NA	M, AM-4
020	Eglin	126	236	TAS-D	49	NA	NA	M, AM-4
024	Austen	86	B208SE	Casella	269	Resin	NA	AM-4
024	Austen	114	B345SE	Casella	205	Resin	NA	AM-4
026	SC-6	203	4296	TAS-II	741	NA	NA	M, AM-4
030	SC-6	NA	4502	TAS-II	735	NA	NA	M, AM-4
032	Austen	71	B232SE	Casella	833	Resin	NA	AM-4
034	Austen	50	B215SE	Casella	NA	NA	NA	AM-4
034	Eglin	127	12	Casella	844	Resin	NA	AM-4
036	SC-6	NA	4447	TAS-II	751	NA	NA	M, AM-4
038	Austen	72	B327SE	Casella	302	Resin	NA	AM-4
040	Austen	11	B528SE	Casella	237	Resin	NA	AM-4
042	SC-6	NA	4389	TAS-II	719	NA	NA	M, AM-4
044	Austen	70	B219SE	Casella	295	Resin	NA	AM-4
048	SC-6	NA	4438	TAS-II	700	NA	NA	M, AM-4
048	Eglin	129	218	TAS-D	100	NA	NA	M, AM-4
050	Austen	98	B325SE	Casella	108	Resin	NA	AM-4
054	SC-6	NA	4494	TAS-II	709	NA	NA	M, AM-4
056	Austen	75	B505SE	Casella	134	Resin	NA	AM-4
060	SC-6	NA	4496	TAS-II	727	NA	NA	M, AM-4
060	Austen	111	B481SE	TAS-I	533	NA	NA	M, AM-4
060	Eglin	130	200	Casella	243	Resin	NA	AM-4
074	Eglin	142	140	TAS-D	78	NA	NA	M, AM-4
088	Eglin	132	30	Casella	166	Resin	NA	AM-4
100	Eglin	133	104	TAS-D	106	NA	NA	M, AM-4
114	Eglin	134	7	TAS-D	34	NA	NA	M, AM-4
SOLUBILITY SAMPLES								
A 018	NA	NA	NA	Water	NA	NA	NA	NA
A 030				Water				
A 042				Water				
B 018				Water				
B 030				Water				
B 042				Water				
D 032				Water				
D 044				Water				
D 056				Water				
F 020				Water				
F 020				Water				
F 020				Water				
H 018				Water				
H 030				Water				
H 042				Water				
K 030				Water				
K 030				Water				
L 018				Water				
L 030				Water				
L 042				Water				

TABLE 3.3 AIR-SAMPLING INSTRUMENTS, CLEAN SLATE II

Abbreviations: TAS, total-air sampler; M, Microsorban; NA, not applicable.

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
GROUND ZERO								
BC 03	Eglin	24	227	TAS-D	86	NA	NA	M, AM-4
BC 04	Eglin	45	94	Andersen	A115	Resin	Mylar	AM-4
BC 05	Eglin	29	133	TAS-D	23	NA	NA	M, AM-4
BC 06	Eglin	21	60	Andersen	A68	Resin	Mylar	AM-4
BC 07	Eglin	27	199	TAS-D	44	NA	NA	M, AM-4
BC 08	Eglin	50	13	Andersen	A42	Resin	Mylar	AM-4
BC 09	Eglin	49	225	TAS-D	20	NA	NA	M, AM-4
BC 10	Eglin	119	150	Andersen	A76	Resin	Mylar	AM-4
BC 11	Eglin	34	241	TAS-D	29	NA	NA	M, AM-4
BC 12	Eglin	31	90	Andersen	A73	Resin	Mylar	AM-4
BC 13	Eglin	33	53	TAS-D	27	NA	NA	M, AM-4
BI-02	Austen	76	B185SE	Casella	812	Resin	NA	AM-4
BI-01	Austen	34	B522SE	TAS-D	8	NA	NA	M, AM-4
BI 00	Austen	202	B507SE	Casella	807	Resin	NA	AM-4
BI 01	Austen	105	B511SE	TAS-D	31	NA	NA	M, AM-4
BI 03	Austen	74	B459SE	Casella	352	Resin	NA	AM-4
BI 05	Austen	48	B510SE	TAS-D	33	NA	NA	M, AM-4
BI 11	Eglin	51	42	TAS-D	12	NA	NA	M, AM-4
BI 13	Eglin	39	93	Casella	196	Resin	NA	AM-4
BI 15	Eglin	23	224	TAS-D	72	NA	NA	M, AM-4
BI 16	Eglin	28	113	Casella	115	Resin	NA	AM-4
BI 17	Eglin	46	17	TAS-D	19	NA	NA	M, AM-4
BI 18	Eglin	47	182	Casella	237	Resin	NA	AM-4
BM 03	Eglin	5	34	TAS-D	11	NA	NA	M, AM-4
BM 04	Eglin	42	223	Casella	801	Resin	NA	AM-4
BM 05	Eglin	30	9	TAS-D	82	NA	NA	M, AM-4
BM 06	Eglin	32	219	Casella	829	Resin	NA	AM-4
BM 07	Eglin	19	109	TAS-D	34	NA	NA	M, AM-4
BM 08	Eglin	37	18	Casella	172	Resin	NA	AM-4
BM 09	Eglin	35	232	TAS-D	81	NA	NA	M, AM-4
BM 10	Eglin	44	82	Casella	869	Resin	NA	AM-4
BM 11	Eglin	48	164	TAS-D	74	NA	NA	M, AM-4
BM 12	Eglin	36	80	Casella	803	Resin	NA	AM-4
BM 13	Eglin	20	91	TAS-D	7	NA	NA	M, AM-4
Tower A1	Gelman	24	NA	Casella	144	Dow Corning-4	NA	Type E
Tower A2	Gelman	174	NA	Casella	254	Dow Corning-4	NA	Type E
Tower B1	Gelman	38	NA	Casella	126	Dow Corning-4	NA	Type E
Tower B2	Gelman	25	NA	Casella	134	Dow Corning-4	NA	Type E
Balloon Pos. 1	Gelman	183	NA	Casella	127	Resin	NA	AM-4
Balloon Pos. 8	Gelman	3	NA	Casella	146	Resin	NA	AM-4

TABLE 3.3 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC A								
000	Eglin	4	88	TAS-D	36	NA	NA	M, AM-4
006	Eglin	10	105	Casella	336	Resin	NA	AM-4
012	Eglin	38	154	TAS-D	24	NA	NA	M, AM-4
018	Eglin	3	181	Casella	329	Resin	NA	AM-4
024	Eglin	207	247	TAS-D	2	NA	NA	M, AM-4
030	Eglin	18	44	Casella	111	Resin	NA	AM-4
036	Eglin	14	26	TAS-D	15	NA	NA	M, AM-4
042	Eglin	17	246	Casella	813	Resin	NA	AM-4
048	Eglin	7	149	TAS-D	46	NA	NA	M, AM-4
054	Eglin	6	204	Casella	830	Resin	NA	AM-4
060	Eglin	8	37	TAS-D	47	NA	NA	M, AM-4
066	Eglin	16	42	Casella	219	Resin	NA	AM-4
072	Eglin	15	16	TAS-D	58	NA	NA	M, AM-4
078	Eglin	13	3	Casella	106	Resin	NA	AM-4
084	Eglin	19	109	TAS-D	43	NA	NA	M, AM-4
090	Eglin	12	31	Casella	298	Resin	NA	AM-4
096	Eglin	1	62	TAS-D	5	NA	NA	M, AM-4
102	Eglin	2	160	Casella	849	Resin	NA	AM-4
108	Eglin	41	230	TAS-D	35	NA	NA	M, AM-4
114	Eglin	25	21	Casella	135	Resin	NA	AM-4
120	Eglin	26	14	TAS-D	39	NA	NA	M, AM-4
ARC B								
000	Eglin	53	129	TAS-D	42	NA	NA	M, AM-4
014	Eglin	54	28	TAS-D	38	NA	NA	M, AM-4
020	Eglin	153	11	Andersen	A4	Resin	Mylar	AM-4
022	Austen	8	B456SE	Casella	342	Resin	NA	AM-4
024	SC-6	124	4492	TAS-II	785	NA	NA	M, AM-4
026	Eglin	152	132	Andersen	A33	Resin	Mylar	AM-4
026	Eglin	55	73	Casella	251	Resin	NA	AM-4
028	Austen	7	B518SE	Casella	316	Resin	NA	AM-4
030	SC-6	117	4401	TAS-II	779	NA	NA	M, AM-4
032	Austen	1	B490SE	Casella	340	Resin	NA	AM-4
034	Eglin	145	32	Andersen	A74	Resin	Mylar	AM-4
036	SC-6	118	4482	TAS-II	797	NA	NA	M, AM-4
038	Austen	2	B207SE	Casella	308	Resin	NA	AM-4
040	Eglin	146	221	Andersen	A92	Resin	Mylar	AM-4
040	Eglin	56	193	TAS-D	10	NA	NA	M, AM-4
042	SC-6	119	4498	TAS-II	784	NA	NA	M, AM-4
042	Austen	228	B166SE	Casella	848	Resin	NA	AM-4
042	Austen	229	B461SE	Andersen	A47	Resin	Mylar	AM-4
044	Austen	3	B527SE	Casella	183	Resin	NA	AM-4
046	Eglin	147	144	Andersen	A54	Resin	Mylar	AM-4
048	SC-6	120	4347	TAS	767	NA	NA	M, AM-4
050	Austen	4	B515SE	Casella	802	Resin	NA	AM-4
052	Eglin	149	128	Andersen	A8	Resin	Mylar	AM-4
054	SC-6	121	4403	TAS-II	770	NA	NA	M, AM-4

TABLE 3.3 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
054	Eglin	57	55	Casella	285	Resin	NA	AM-4
056	Austen	5	B489SE	Casella	833	Resin	NA	AM-4
056	Austen	230	B180SE	TAS-I	516	NA	NA	M, AM-4
058	Eglin	150	100	Andersen	A27	Resin	Mylar	AM-4
060	SC-6	122	4468	TAS-II	738	NA	NA	M, AM-4
060	Austen	231	B458SE	Andersen	A40	Resin	Mylar	AM-4
060	Austen	232	B425SE	Casella	163	Resin	NA	AM-4
062	Austen	6	B521SE	Casella	882	Resin	NA	AM-4
064	Eglin	151	6	Andersen	A6	Resin	Mylar	AM-4
064	Austen	233	B146SE	TAS-I	508	NA	NA	M, AM-4
066	SC-6	123	4457	TAS-II	771	NA	NA	M, AM-4
068	Eglin	58	239	TAS-D	4	NA	NA	M, AM-4
068	SC-6	125	4517	TAS-II	775	NA	NA	M, AM-4
068	Austen	9	B535SE	Casella	154	Resin	NA	AM-4
070	Eglin	154	202	Andersen	A80	Resin	Mylar	AM-4
072	SC-6	126	4497	TAS-II	788	NA	NA	M, AM-4
074	Austen	10	B221SE	Casella	858	Resin	NA	AM-4
076	Eglin	155	112	Andersen	A120	Resin	Mylar	AM-4
078	SC-6	127	4462	TAS-II	754	NA	NA	M, AM-4
078	Austen	234	B525SE	Casella	101	Resin	NA	AM-4
078	Austen	235	B498SE	Andersen	A30	Resin	Mylar	AM-4
080	Eglin	59	183	Casella	314	Resin	NA	AM-4
092	Eglin	60	107	TAS-D	30	NA	NA	M, AM-4
106	Eglin	61	157	Casella	898	Resin	NA	AM-4
120	Eglin	62	249	TAS-D	59	NA	NA	M, AM-4
1st BALLOON ARRAY, ARC B								
L1, P1	Gelman	23	NA	TAS-I	533	NA	NA	M, AM-4
L1, P9	Gelman	73	NA	TAS-I	525	NA	NA	M, AM-4
L1, P17	Gelman	71	NA	TAS-I	534	NA	NA	M, AM-4
L2, P5	Gelman	95	NA	Casella	300	Resin	Acetate	AM-4
L2, P13	Gelman	96	NA	Casella	107	Resin	Acetate	AM-4
L2, P1	Gelman	97	NA	Casella	238	Resin	Acetate	AM-4
L3, P1	Gelman	98	NA	Casella	209	Resin	NA	AM-4
L3, P9	Gelman	99	NA	Casella	503	Resin	NA	AM-4
L3, P17	Gelman	100	NA	Casella	202	Resin	NA	AM-4
L4, P5	Gelman	75	NA	TAS-I	543	NA	NA	M, AM-4
L4, P13	Gelman	76	NA	TAS-I	184	NA	NA	M, AM-4
L4, P21	Gelman	77	NA	TAS-I	554	NA	NA	M, AM-4
L5, P1	Gelman	101	NA	Casella	804	Resin	NA	AM-4
L5, P9	Gelman	102	NA	Casella	222	Resin	NA	AM-4
L5, P17	Gelman	103	NA	Casella	304	Resin	NA	AM-4
L6, P5	Gelman	104	NA	Casella	329	Resin	Acetate	AM-4
L6, P13	Gelman	105	NA	Casella	152	Resin	Acetate	AM-4
L6, P21	Gelman	106	NA	Casella	225	Resin	Acetate	AM-4
L7, P1	Gelman	78	NA	TAS-I	574	NA	NA	M, AM-4
L7, P9	Gelman	79	NA	TAS-I	555	NA	NA	M, AM-4
L7, P17	Gelman	80	NA	TAS-I	530	NA	NA	M, AM-4
L8, P5	Gelman	107	NA	Casella	846	Resin	Acetate	AM-4
L8, P13	Gelman	108	NA	Casella	190	Resin	Acetate	AM-4
L8, P21	Gelman	109	NA	Casella	842	Resin	Acetate	AM-4

TABLE 3.3 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
L9, P1	Gelman	110	NA	Casella	200	Resin	NA	AM-4
L9, P9	Gelman	111	NA	Casella	234	Resin	NA	AM-4
L9, P17	Gelman	112	NA	Casella	301	Resin	NA	AM-4
L10, P5	Gelman	81	NA	TAS-I	529	NA	NA	M, AM-4
L10, P13	Gelman	82	NA	TAS-I	563	NA	NA	M, AM-4
L10, P21	Gelman	83	NA	TAS-I	553	NA	NA	M, AM-4
L11, P1	Gelman	113	NA	Casella	824	Resin	NA	AM-4
L11, P9	Gelman	114	NA	Casella	326	Resin	NA	AM-4
L11, P17	Gelman	115	NA	Casella	199	Resin	NA	AM-4
L12, P5	Gelman	116	NA	Casella	303	Resin	Acetate	AM-4
L12, P13	Gelman	118	NA	Casella	805	Resin	Acetate	AM-4
L12, P21	Gelman	119	NA	Casella	862	Resin	Acetate	AM-4
L13, P1	Gelman	84	NA	TAS-I	502	NA	NA	M, AM-4
L13, P9	Gelman	85	NA	TAS-I	573	NA	NA	M, AM-4
L13, P17	Gelman	86	NA	TAS-I	504	NA	NA	M, AM-4
L14, P5	Gelman	120	NA	Casella	831	Resin	Acetate	AM-4
L14, P13	Gelman	121	NA	Casella	843	Resin	Acetate	AM-4
L14, P21	Gelman	122	NA	Casella	837	Resin	Acetate	AM-4
L15, P1	Gelman	124	NA	Casella	108	Resin	NA	AM-4
L15, P9	Gelman	125	NA	Casella	244	Resin	NA	AM-4
L15, P17	Gelman	126	NA	Casella	814	Resin	NA	AM-4
L17, P1	Gelman	127	NA	Casella	125	Resin	NA	AM-4
L17, P9	Gelman	128	NA	Casella	250	Resin	NA	AM-4
L17, P17	Gelman	129	NA	Casella	259	Resin	NA	AM-4
L18, P5	Gelman	130	NA	Casella	129	Resin	Acetate	AM-4
L18, P13	Gelman	131	NA	Casella	149	Resin	Acetate	AM-4
L18, P21	Gelman	132	NA	Casella	158	Resin	Acetate	AM-4
L19, P1	Gelman	90	NA	TAS-I	519	NA	NA	M, AM-4
L19, P9	Gelman	70	NA	TAS-I	556	NA	NA	M, AM-4
L19, P17	Gelman	92	NA	TAS-I	567	NA	NA	M, AM-4
L20, P5	Gelman	133	NA	Casella	284	Resin	Acetate	AM-4
L20, P13	Gelman	21	NA	Casella	809	Resin	Acetate	AM-4
L20, P21	Gelman	135	NA	Casella	817	Resin	Acetate	AM-4
L21, P1	Gelman	136	NA	Casella	283	Resin	NA	AM-4
L21, P9	Gelman	137	NA	Casella	347	Resin	NA	AM-4
L21, P17	Gelman	138	NA	Casella	355	Resin	NA	AM-4
L22, P5	Gelman	93	NA	TAS-I	521	NA	NA	M, AM-4
L22, P13	Gelman	94	NA	TAS-I	510	NA	NA	M, AM-4
L22, P21	Gelman	151	NA	TAS-I	575	NA	NA	M, AM-4
L23, P1	Gelman	139	NA	Casella	247	Resin	NA	AM-4
L23, P9	Gelman	140	NA	Casella	174	Resin	NA	AM-4
L23, P17	Gelman	141	NA	Casella	232	Resin	NA	AM-4
L24, P5	Gelman	142	NA	Casella	863	Resin	Acetate	AM-4
L24, P13	Gelman	143	NA	Casella	231	Resin	Acetate	AM-4
L24, P21	Gelman	144	NA	Casella	128	Resin	Acetate	AM-4
L25, P1	Gelman	152	NA	TAS-I	506	NA	NA	M, AM-4
L25, P9	Gelman	154	NA	TAS-I	522	NA	NA	M, AM-4
L25, P17	Gelman	156	NA	TAS-I	572	NA	NA	M, AM-4

TABLE 3.3 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
L26, P5	Gelman	145	NA	Casella	102	Resin	Acetate	AM-4
L26, P13	Gelman	22	NA	Casella	187	Resin	Acetate	AM-4
L26, P21	Gelman	147	NA	Casella	275	Resin	Acetate	AM-4
L27, P1	Gelman	148	NA	Casella	168	Resin	NA	AM-4
L27, P9	Gelman	149	NA	Casella	171	Resin	NA	AM-4
L27, P17	Gelman	150	NA	Casella	257	Resin	NA	AM-4
L28, P5	Gelman	158	NA	TAS-I	12	NA	NA	M, AM-4
L28, P13	Gelman	160	NA	TAS-I	531	NA	NA	M, AM-4
L28, P21	Gelman	177	NA	TAS-I	537	NA	NA	M, AM-4
L29, P1	Gelman	153	NA	Casella	281	Resin	NA	AM-4
L29, P9	Gelman	155	NA	Casella	811	Resin	NA	AM-4
L29, P17	Gelman	157	NA	Casella	866	Resin	NA	AM-4
L30, P5	Gelman	159	NA	Casella	217	Resin	Acetate	AM-4
L30, P13	Gelman	161	NA	Casella	235	Resin	Acetate	AM-4
L30, P21	Gelman	162	NA	Casella	823	Resin	Acetate	AM-4
L31, P1	Gelman	178	NA	TAS-I	545	NA	NA	M, AM-4
L31, P9	Gelman	179	NA	TAS-I	561	NA	NA	M, AM-4
L31, P17	Gelman	180	NA	TAS-I	579	NA	NA	M, AM-4
ARC D								
006	Eglin	63	208	Casella	821	Resin	NA	AM-4
018	SC-6	136	4396	TAS-II	774	NA	NA	M, AM-4
020	Eglin	163	216	Andersen	A69	Resin	Mylar	AM-4
020	Eglin	64	75	TAS-D	51	NA	NA	M, AM-4
022	Austen	18	B497SE	Casella	192	Resin	NA	AM-4
024	SC-6	135	4400	TAS-II	768	NA	NA	M, AM-4
026	Eglin	162	145	Andersen	A27	Resin	Mylar	AM-4
028	Austen	17	B500SE	Casella	815	Resin	NA	AM-4
030	SC-6	128	4491	TAS-II	759	NA	NA	M, AM-4
032	Austen	11	B528SE	Casella	120	Resin	NA	AM-4
034	Eglin	65	106	Andersen	A72	Resin	Mylar	AM-4
034	Eglin	156	242	Casella	850	Resin	NA	AM-4
036	SC-6	224	4512	TAS-II	717	NA	NA	M, AM-4
038	Austen	12	B482SE	Casella	236	Resin	NA	AM-4
040	Eglin	203	48	Andersen	A13	Resin	Mylar	AM-4
042	SC-6	130	4480	TAS-II	735	NA	NA	M, AM-4
044	Austen	13	B496SE	Casella	124	Resin	NA	AM-4
046	Eglin	158	35	Andersen	A48	Resin	Mylar	AM-4
048	SC-6	131	4442	TAS-II	795	NA	NA	M, AM-4
048	Eglin	66	172	TAS-D	49	NA	NA	M, AM-4
050	Austen	14	B465SE	Casella	856	Resin	NA	AM-4
052	Eglin	159	127	Andersen	A94	Resin	Mylar	AM-4
054	SC-6	132	4302	TAS-II	712	NA	NA	M, AM-4
056	Austen	15	B509SE	Casella	854	Resin	NA	AM-4
058	Eglin	200	5	Andersen	A113	Resin	Mylar	AM-4
060	SC-6	133	4414	TAS-II	796	NA	NA	M, AM-4
060	Eglin	139	77	Casella	307	Resin	NA	AM-4
062	Austen	16	B512SE	Casella	351	Resin	NA	AM-4
064	Eglin	161	214	Andersen	96	Resin	Mylar	AM-4
066	SC-6	134	4357	TAS-II	773	NA	NA	M, AM-4

TABLE 3.3 CONTINUED

Position	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
068	Austen	19	B513SE	Casella	201	Resin	NA	AM-4
070	Eglin	164	36	Andersen	66	Resin	Mylar	AM-4
072	SC-6	137	4356	TAS-II	708	NA	NA	M, AM-4
074	Austen	20	B462SE	Casella	334	Resin	NA	AM-4
074	Eglin	68	74	TAS-D	26	NA	NA	M, AM-4
076	Eglin	165	97	Andersen	86	Resin	Mylar	AM-4
078	SC-6	138	4294	TAS-II	794	NA	NA	M, AM-4
088	Eglin	69	119	Casella	855	Resin	NA	AM-4
100	Eglin	71	196	TAS-D	3	NA	NA	M, AM-4
114	Eglin	72	68	TAS-D	52	NA	NA	M, AM-4
MOBILE STATION NO. 1, ARC D, STATION 036								
1	Austen	NA	B175SE	Casella	221	Resin	NA	AM-4
2	Austen	NA	B175SE	Casella	309	Resin	NA	AM-4
3	Austen	NA	B175SE	Casella	276	Resin	NA	AM-4
4	Austen	NA	B175SE	Casella	193	Resin	NA	AM-4
5	Austen	NA	B175SE	Casella	263	Resin	NA	AM-4
6	Austen	NA	B175SE	Casella	282	Resin	NA	AM-4
7	Austen	NA	B175SE	Casella	808	Resin	NA	AM-4
Center	Austen	NA	B331SE	TAS-II	741	NA	NA	M, AM-4
9	Austen	NA	B346SE	Andersen	A16	Gelatin	Acetate	AM-4
10	Austen	NA	B147SE	Andersen	A57	Gelatin	Acetate	AM-4
11	Austen	NA	B231SE	Andersen	A26	Gelatin	Acetate	AM-4
12	Austen	NA	B160SE	Casella	320	Resin	Acetate	AM-4
13	Austen	NA	B487SE	Casella	306	Resin	Acetate	AM-4
14	Austen	NA	B323SE	Guzender-II	NA	Resin	NA	AM-4
15	Austen	NA	B323SE	Guzender-I	NA	Resin	NA	AM-4
16	Austen	NA	3251SE	Casella	262	Gelatin	Acetate	AM-4
17	Austen	NA	B245SE	Casella	295	Gelatin	Acetate	AM-4
18	Austen	NA	B248SE	Andersen	A123	Resin	Acetate	AM-4
	Austen	NA	B250SE	Andersen	A19	Resin	Acetate	AM-4
SEQUENTIAL SAMPLERS, ARC D								
012	Gelman	1	NA	Sequential	1	NA	NA	Tape
018	Gelman	9	NA	Sequential	9	NA	NA	Tape
024	Gelman	3	NA	Sequential	3	NA	NA	Tape
030	Gelman	10	NA	Sequential	10	NA	NA	Tape
036	Gelman	8	NA	Sequential	8	NA	NA	Tape
042	Gelman	4	NA	Sequential	4	NA	NA	Tape
048	Gelman	2	NA	Sequential	2	NA	NA	Tape
054	Gelman	6	NA	Sequential	6	NA	NA	Tape
060	Gelman	7	NA	Sequential	7	NA	NA	Tape
066	Gelman	5	NA	Sequential	5	NA	NA	Tape

TABLE 3.3 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC F								
000	Eglin	198	79	TAS-D	65	NA	NA	M, AM-4
014	Eglin	74	165	TAS-D	45	NA	NA	M, AM-4
018	SC-6	147	4340	TAS-II	740	NA	NA	M, AM-4
020	Eglin	174	171	Andersen	A53	Resin	Mylar	AM-4
022	Austen	28	B533SE	Casella	317	Resin	NA	AM-4
024	SC-6	146	4446	TAS-II	714	NA	NA	M, AM-4
026	Eglin	173	23	Andersen	A84	Resin	Mylar	AM-4
026	Eglin	75	156	Casella	288	Resin	NA	AM-4
028	Austen	27	B529SE	Casella	213	Resin	NA	AM-4
030	SC-6	139	4328	TAS-II	724	NA	NA	M, AM-4
032	Austen	21	B501SE	Casella	176	Resin	NA	AM-4
034	Eglin	166	121	Andersen	A71	Resin	Mylar	AM-4
036	SC-6	140	4488	TAS-II	752	NA	NA	M, AM-4
038	Austen	22	B469SE	Casella	223	Resin	NA	AM-4
040	Eglin	167	25	Andersen	A23	Resin	Mylar	AM-4
040	Eglin	76	87	TAS-D	78	NA	NA	M, AM-4
042	Austen	236	B344SE	Casella	358	Resin	NA	AM-4
042	Austen	237	B218SE	Andersen	A43	Resin	Mylar	AM-4
042	SC-6	141	4377	TAS-II	791	NA	NA	M, AM-4
044	Austen	23	B526SE	Casella	215	Resin	NA	AM-4
046	Eglin	199	234	Andersen	A88	Resin	Mylar	AM-4
048	SC-6	142	4575	TAS-II	725	NA	NA	M, AM-4
050	Austen	24	B463SE	Casella	194	Resin	NA	AM-4
052	Eglin	169	177	Andersen	A34	Resin	Mylar	AM-4
054	SC-6	143	4431	TAS-II	728	NA	NA	M, AM-4
054	Eglin	77	43	Casella	310	Resin	NA	AM-4
056	Austen	238	B176SE	TAS-I	500	NA	NA	M, AM-4
056	Austen	25	B343SE	Casella	216	Resin	NA	AM-4
058	Eglin	170	110	Andersen	A2	Resin	Mylar	AM-4
060	SC-6	144	4409	TAS-II	790	NA	NA	M, AM-4
060	Austen	239	B168SE	Casella	139	Resin	NA	AM-4
060	Austen	240	B316SE	Andersen	A83	Resin	Mylar	AM-4
062	Austen	26	B492SE	Casella	205	Resin	NA	AM-4
064	Eglin	171	162	Andersen	A111	Resin	Mylar	AM-4
064	Austen	241	B159SE	TAS-I	535	NA	NA	M, AM-4
066	SC-6	145	4511	TAS-II	755	NA	NA	M, AM-4
068	Austen	29	B320SE	Casella	265	Resin	NA	AM-4
068	Eglin	78	57	TAS-D	9	NA	NA	M, AM-4
070	Eglin	175	136	Andersen	A38	Resin	Mylar	AM-4
072	SC-6	148	4343	TAS-II	750	NA	NA	M, AM-4
074	Austen	30	B485SE	Casella	246	Resin	NA	AM-4
076	Eglin	176	66	Andersen	A28	Resin	Mylar	AM-4
078	SC-6	149	4382	TAS-II	733	NA	NA	M, AM-4
078	Austen	242	B197SE	Casella	332	Resin	NA	AM-4
078	Austen	243	B491SE	Andersen	A91	Resin	Mylar	AM-4
080	Eglin	79	118	Casella	851	Resin	NA	AM-4
092	Eglin	80	41	TAS-D	55	NA	NA	M, AM-4
106	Eglin	81	198	Casella	278	Resin	NA	AM-4
120	Eglin	82	190	TAS-D	50	NA	NA	M, AM-4

TABLE 3.3 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhésive	Film	Filter
ARC H								
006	Eglin	84	59	Casella	280	Resin	NA	AM-4
006	SC-6	160	4361	TAS-II	729	NA	NA	M, AM-4
008	Eglin	187	176	Andersen	A9	Resin	Mylar	AM-4
010	Austen	40	B330SE	Casella	122	Resin	NA	AM-4
012	SC-6	159	4477	TAS-II	731	NA	NA	M, AM-4
014	Eglin	186	81	Andersen	A10	Resin	Mylar	AM-4
016	Austen	39	B238SE	Casella	157	Resin	NA	AM-4
018	SC-6	158	4383	TAS-II	772	NA	NA	M, AM-4
020	Eglin	185	169	Andersen	A25	Resin	Mylar	AM-4
020	Eglin	85	33	TAS-D	17	NA	NA	M, AM-4
022	Austen	38	B520SE	Casella	189	Resin	NA	AM-4
024	SC-6	157	4365	TAS-II	777	NA	NA	M, AM-4
026	Eglin	184	24	Andersen	A27	Resin	Mylar	AM-4
028	Austen	37	B310SE	Casella	861	Resin	NA	AM-4
030	SC-6	150	4444	TAS-II	719	NA	NA	M, AM-4
032	Austen	31	B471SE	Casella	841	Resin	NA	AM-4
034	Eglin	177	116	Andersen	A122	Resin	Mylar	AM-4
034	Eglin	86	101	Casella	827	Resin	NA	AM-4
036	SC-6	151	4306	TAS-II	760	NA	NA	M, AM-4
038	Austen	32	B355SE	Casella	826	Resin	NA	AM-4
040	Eglin	178	229	Andersen	A116	Resin	Mylar	AM-4
040	Austen	NA	B198SE	Casella	820	Resin	NA	AM-4
040	Austen	NA	B200SE	Andersen	A118	Resin	Mylar	AM-4
042	SC-6	152	4321	TAS-II	782	NA	NA	M, AM-4
044	Austen	33	B352SE	Casella	349	Resin	NA	AM-4
046	Eglin	180	89	Andersen	A114	Resin	Mylar	AM-4
048	SC-6	153	4475	TAS-II	744	NA	NA	M, AM-4
048	Eglin	87	131	TAS-D	80	NA	NA	M, AM-4
050	Austen	34	B522SE	Casella	296	Resin	NA	AM-4
052	Eglin	181	137	Andersen	A87	Resin	Mylar	AM-4
054	SC-6	154	4325	TAS-II	776	NA	NA	M, AM-4
056	Austen	35	B523SE	Casella	260	Resin	NA	AM-4
056	Austen	NA	B313SE	TAS-I	577	NA	NA	M, AM-4
058	Eglin	182	2	Andersen	A59	Resin	Mylar	AM-4
058	Austen	NA	B351SE	Andersen	A81	Resin	Mylar	AM-4
058	Austen	NA	B177SE	Casella	252	Resin	NA	AM-4
060	Eglin	138	211	Casella	226	Resin	NA	AM-4
060	SC-6	155	4301	TAS-II	706	NA	NA	M, AM-4
062	Austen	36	B475SE	Casella	208	Resin	NA	AM-4
064	Eglin	183	58	Andersen	A55	Resin	Mylar	AM-4
064	Austen	NA	B216SE	TAS-I	520	NA	NA	M, AM-4
066	SC-6	156	4320	TAS-II	793	NA	NA	M, AM-4
074	Eglin	89	54	TAS-D	77	NA	NA	M, AM-4
080	Austen	NA	B329SE	Casella	167	Resin	NA	AM-4
080	Austen	NA	B311SE	Andersen	A20	Resin	Mylar	AM-4
088	Eglin	90	184	Casella	100	Resin	NA	AM-4
100	Eglin	91	40	TAS-D	14	NA	NA	M, AM-4
114	Eglin	92	52	TAS-D	6	NA	NA	M, AM-4

TABLE 3.3 CONTINUED

Position	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
MOBILE ARRAY NO. 2, ARC I, STATION 040								
1	Austen	NA	B342SE	Casella	173	Resin	NA	AM-4
2	Austen	NA	B342SE	Casella	170	Resin	NA	AM-4
3	Austen	NA	B342SE	Casella	277	Resin	NA	AM-4
4	Austen	NA	B342SE	Casella	169	Resin	NA	AM-4
5	Austen	NA	B342SE	Casella	118	Resin	NA	AM-4
6	Austen	NA	B342SE	Casella	354	Resin	NA	AM-4
7	Austen	NA	B342SE	Casella	229	Resin	NA	AM-4
Center	Austen	NA	B167SE	TAS-II	715	NA	NA	M, AM-4
8	Austen	NA	B230SE	Andersen	A63	Gelatin	Acetate	AM-4
9	Austen	NA	B148SE	Andersen	A60	Gelatin	Acetate	AM-4
10	Austen	NA	B210SE	Andersen	A93	Gelatin	Acetate	AM-4
11	Austen	NA	B460SE	Casella	156	Gelatin	Acetate	AM-4
12	Austen	NA	B164SE	Casella	305	Gelatin	Acetate	AM-4
13	Austen	NA	B466SE	Andersen	A49	Resin	Acetate	AM-4
14	Austen	NA	B202SE	Andersen	A62	Resin	Acetate	AM-4
15	Austen	NA	B208SE	Casella	240	Resin	Acetate	AM-4
16	Austen	NA	B150SE	Casella	343	Resin	Acetate	AM-4
17	Gelman	11	NA	Sequential	11	Resin	NA	AM-4

TABLE 3.3 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC J								
000	Eglin	93	194	TAS-D	13	NA	NA	M, AM-4
006	SC-6	171	4509	TAS-II	747	NA	NA	M, AM-4
008	Eglin	197	15	Andersen	A7	Resin	Mylar	AM-4
010	Austen	50	B215SE	Casella	258	Resin	NA	AM-4
012	SC-6	170	4322	TAS-II	736	NA	NA	M, AM-4
014	Eglin	140	54	Andersen	A67	Resin	Mylar	AM-4
014	Eglin	95	180	TAS-D	18	NA	NA	M, AM-4
016	Austen	49	B334SE	Casella	239	Resin	NA	AM-4
018	SC-6	169	4319	TAS-II	727	NA	NA	M, AM-4
020	Eglin	195	51	Andersen	A89	Resin	Mylar	AM-4
022	Austen	48	B510SE	Casella	112	Resin	NA	AM-4
024	SC-6	168	4348	TAS-II	730	NA	NA	M, AM-4
026	Eglin	194	209	Andersen	A31	Resin	Mylar	AM-4
026	Eglin	96	39	Casella	881	Resin	NA	AM-4
028	Austen	47	B192SE	Casella	241	Resin	NA	AM-4
030	SC-6	161	4489	TAS-II	704	NA	NA	M, AM-4
032	Austen	41	B478SE	Casella	350	Resin	NA	AM-4
034	Eglin	188	215	Andersen	A95	Resin	Mylar	AM-4
036	SC-6	162	4454	TAS-II	757	NA	NA	M, AM-4
038	Austen	42	B495SE	Casella	511	Resin	NA	AM-4
040	Eglin	143	217	Andersen	A121	Resin	Mylar	AM-4
040	Eglin	97	46	TAS-D	1	NA	NA	M, AM-4
042	SC-6	163	4505	TAS-II	781	NA	NA	M, AM-4
042	Austen	253	B158SE	Casella	341	Resin	NA	AM-4
042	Austen	252	B205SE	Andersen	A119	Resin	Mylar	AM-4
044	Austen	43	B502SE	Casella	109	Resin	NA	AM-4
046	Eglin	190	8	Andersen	A61	Resin	Mylar	AM-4
048	SC-6	164	4311	TAS-II	709	NA	NA	M, AM-4
050	Austen	44	B464SE	Casella	177	Resin	NA	AM-4
052	Eglin	191	244	Andersen	A117	Resin	Mylar	AM-4
054	SC-6	165	4398	TAS-II	792	NA	NA	M, AM-4
054	Eglin	98	29	Casella	877	Resin	NA	AM-4
056	Austen	249	B308SE	TAS-I	509	NA	NA	M, AM-4
056	Austen	45	B179SE	Casella	828	Resin	NA	AM-4
058	Eglin	192	243	Andersen	A19	Resin	Mylar	AM-4
060	SC-6	166	4354	TAS-II	764	NA	NA	M, AM-4
060	Austen	255	B211SE	Casella	104	Resin	NA	AM-4
060	Austen	246	NA	Andersen	A45	Resin	Mylar	AM-4
062	Austen	46	B150SE	Casella	195	Resin	NA	AM-4
064	Eglin	193	143	Andersen	A1	Resin	Mylar	AM-4
064	Austen	257	B237SE	TAS-I	550	NA	NA	M, AM-4
066	SC-6	167	4380	TAS-II	789	NA	NA	M, AM-4
068	Eglin	99	159	TAS-D	75	NA	NA	M, AM-4
078	Austen	259	B531SE	Casella	253	Resin	NA	AM-4
078	Austen	258	B532SE	Andersen	A44	Resin	Mylar	AM-4
080	Eglin	101	123	Casella	233	Resin	NA	AM-4
092	Eglin	102	153	TAS-D	57	NA	NA	M, AM-4
106	Eglin	103	191	Casella	206	Resin	NA	AM-4
120	Eglin	104	45	TAS-D	48	NA	NA	M, AM-4

TABLE 3.3 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC L								
006	Eglin	105	220	Casella	123	Resin	NA	AM-4
006	SC-6	183	4459	TAS-II	758	NA	NA	M,AM-4
008	Austen	226	B141SE	Andersen	A78	Resin	Mylar	AM-4
010	Austen	60	B470SE	Casella	204	Resin	NA	AM-4
012	SC-6	182	4488	TAS-II	723	NA	NA	M,AM-4
014	Austen	225	B348SE	Andersen	A46	Resin	Mylar	AM-4
016	Austen	59	B340SE	Casella	810	Resin	NA	AM-4
018	SC-6	181	4303	TAS-II	703	NA	NA	M,AM-4
020	Austen	224	B321SE	Andersen	A32	Resin	NA	AM-4
020	Eglin	106	10	TAS-D	28	NA	NA	M,AM-4
022	Austen	58	B213SE	Casella	220	Resin	NA	AM-4
024	SC-6	180	4467	TAS-II	734	NA	NA	M,AM-4
026	Austen	223	B143SE	Andersen	A39	Resin	Mylar	AM-4
028	Austen	57	B199SE	Casella	338	Resin	NA	AM-4
030	SC-6	172	4463	TAS-II	786	NA	NA	M,AM-4
032	Austen	51	B149SE	Casella	228	Resin	NA	AM-4
034	Austen	217	B314SE	Andersen	A24	Resin	Mylar	AM-4
034	Eglin	107	213	Casella	230	Resin	NA	AM-4
036	SC-6	173	4339	TAS-II	721	NA	NA	M,AM-4
038	Austen	52	B142SE	Casella	137	Resin	NA	AM-4
040	Austen	218	B204SE	Andersen	A82	Resin	Mylar	AM-4
042	SC-6	174	4317	TAS-II	710	NA	NA	M,AM-4
044	Austen	53	B335SE	Casella	110	Resin	NA	AM-4
046	Austen	219	B336SE	Andersen	A64	Resin	Mylar	AM-4
048	SC-6	175	4450	TAS-II	751	NA	NA	M,AM-4
050	Austen	54	B483SE	Casella	274	Resin	NA	AM-4
052	Austen	220	B184SE	Andersen	A52	Resin	Mylar	AM-4
054	SC-6	176	4360	TAS-II	700	NA	NA	M,AM-4
056	Austen	55	B235SE	Casella	138	Resin	NA	AM-4
058	Austen	221	B309SE	Andersen	A70	Resin	Mylar	AM-4
060	SC-6	178	4304	TAS-II	761	NA	NA	M,AM-4
060	Eglin	109	195	Casella	132	Resin	NA	AM-4
062	Austen	56	B519SE	Casella	822	Resin	NA	AM-4
048	Eglin	108	117	TAS-D	22	NA	NA	M,AM-4
064	Austen	222	B473SE	Andersen	A90	Resin	Mylar	AM-4
066	SC-6	179	4484	TAS-II	753	NA	NA	M,AM-4
074	Eglin	110	1	TAS-D	37	NA	NA	M,AM-4
088	Eglin	111	184	Casella	269	NA	NA	AM-4
100	Eglin	112	122	TAS-D	40	NA	NA	M,AM-4
114	Austen	227	B203SE	TAS-D	62	NA	NA	M,AM-4

TABLE 3.3 CONTINUED

Arc and Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhésive	Film	Filter
SOLUBILITY SAMPLES								
A 010	NA	NA	NA	Water	NA	NA	NA	NA
A 018				Water				
A 026				Water				
A 034				Water				
A 042				Water				
B 010				Water				
B018				Water				
B 026				Water				
B 034				Water				
B 042				Water				
D 010				Water				
D 018				Water				
D 026				Water				
D 034				Water				
D 040				Water				
D 040				Water				
D 040				Water				
D 042				Water				
H 010				Water				
H 014				Water				
H 018				Water				
H 022				Water				
H 026				Water				
H 030				Water				
H 034				Water				
H 038				Water				
H 042				Water				
H 046				Water				
L 010				Water				
L 014				Water				
L 018				Water				
L 022				Water				
L 026				Water				
L 030				Water				
L 034				Water				
L 038				Water				
L 042				Water				
L 046				Water				

TABLE 3.4 AIR-SAMPLING INSTRUMENTS, CLEAN SLATE III

Abbreviations: TAS, total-air sampler; M, Microsorban; NA, not applicable.

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
GROUND ZERO								
BC 03	Eglin	34	241	TAS-D	38	NA	NA	M,AM-4
BC 04	Eglin	31	90	Andersen	A61	Resin	Mylar	AM-4
BC 05	Eglin	46	17	TAS-D	34	NA	NA	M,AM-4
BC 06	Eglin	29	133	Andersen	A43	Resin	Mylar	AM-4
BC 07	Eglin	24	227	TAS-D	2	NA	NA	M,AM-4
BC 08	Eglin	119	150	Andersen	A27	Resin	Mylar	AM-4
BC 09	Eglin	45	94	TAS-D	28	NA	NA	M,AM-4
BC 10	Eglin	43	225	Andersen	A52	Resin	Mylar	AM-4
BC 11	Eglin	28	113	TAS-D	35	NA	NA	M,AM-4
BC 12	Eglin	47	182	Andersen	A18	Resin	Mylar	AM-4
BC 13	Eglin	50	13	TAS-D	18	NA	NA	M,AM-4
BI-02	Austen	105	B511SE	Casella	214	Resin	NA	AM-4
BI-01	Austen	76	B185SE	TAS-D	124	NA	NA	M,AM-4
BI 00	Austen	74	B459SE	Casella	241	Resin	NA	AM-4
BI 01	Eglin	206	4	Andersen	A122	Resin	Mylar	AM-4
BI 01	Austen	202	B507SE	TAS-D	40	NA	NA	M,AM-4
BI 03	Eglin	134	7	Andersen	A124	Resin	Mylar	AM-4
BI 03	Austen	34	B522SE	Casella	195	Resin	NA	AM-4
BI 05	Austen	48	B510SE	TAS-D	14	NA	NA	M,AM-4
BI 11	Eglin	48	164	TAS-D	20	NA	NA	M,AM-4
BI 13	Eglin	209	207	Andersen	A95	Resin	Mylar	AM-4
BI 13	Eglin	33	53	Casella	220	Resin	NA	AM-4
BI 15	Eglin	23	224	TAS-D	13	NA	NA	M,AM-4
BI 16	Eglin	114	139	Andersen	A117	Resin	Mylar	AM-4
BI 16	Eglin	21	60	Casella	167	Resin	NA	AM-4
BI 17	Eglin	27	199	TAS-D	39	NA	NA	M,AM-4
BI 18	Eglin	39	93	Casella	110	Resin	NA	AM-4
BM 03	Eglin	30	9	TAS-D	123	NA	NA	M,AM-4
BM 04	Eglin	202	65	Andersen	A50	Resin	Mylar	AM-4
BM 04	Eglin	37	18	Casella	109	Resin	NA	AM-4
BM 05	Eglin	20	91	TAS-D	24	NA	NA	M,AM-4
BM 06	Eglin	32	219	Casella	206	Resin	NA	AM-4
BM 06	Eglin	123	146	Andersen	A11	Resin	Mylar	AM-4
BM 07	Eglin	51	142	TAS-D	22	NA	NA	M,AM-4
BM 08	Eglin	42	233	Casella	826	Resin	NA	AM-4
BM 08	Eglin	208	155	Andersen	A36	Resin	Mylar	AM-4
BM 09	Eglin	44	82	TAS-D	5	NA	NA	M,AM-4
BM 10	Eglin	19	109	Casella	338	Resin	NA	AM-4
BM 10	Eglin	210	96	Andersen	A29	Resin	Mylar	AM-4
BM 11	Eglin	36	80	TAS-D	10	NA	NA	M,AM-4
BM 12	Eglin	52	63	Casella	351	Resin	NA	AM-4
BM 12	Eglin	125	175	Andersen	A125	Resin	Mylar	AM-4
BM 13	Eglin	133	104	TAS-D	30	NA	NA	M,AM-4
Tower A1	Gelman	43	NA	Casella	127	Dow Corning-4	NA	Type E
Tower A2	Gelman	39	NA	Casella	347	Dow Corning-4	NA	Type E
Tower B1	Gelman	42	NA	Casella	172	Dow Corning-4	NA	Type E
Tower B2	Gelman	28	NA	Casella	163	Dow Corning-4	NA	Type E

TABLE 3.4 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC A								
000	Eglin	13	3	TAS-D	3	NA	NA	M, AM-4
006	Eglin	142	140	Andersen	A90	Resin	Mylar	AM-4
006	Eglin	18	44	Casella	226	Resin	NA	AM-4
012	Eglin	17	246	TAS-D	15	NA	NA	M, AM-4
018	Eglin	136	130	Andersen	A27	Resin	Mylar	AM-4
018	Eglin	15	16	Casella	861	Resin	NA	AM-4
024	Eglin	12	31	TAS-D	32	NA	NA	M, AM-4
030	Eglin	127	12	Andersen	A120	Resin	Mylar	AM-4
030	Eglin	16	42	Casella	202	Resin	NA	AM-4
036	Eglin	7	149	TAS-D	92	NA	NA	M, AM-4
042	Eglin	132	30	Andersen	A33	Resin	Mylar	AM-4
042	Eglin	6	204	Casella	255	Resin	NA	AM-4
048	Eglin	14	26	TAS-D	120	NA	NA	M, AM-4
054	Eglin	121	50	Andersen	A74	Resin	Mylar	AM-4
054	Eglin	4	88	Casella	215	Resin	NA	AM-4
060	Eglin	3	181	TAS-D	27	NA	NA	M, AM-4
066	Eglin	126	236	Andersen	A114	Resin	Mylar	AM-4
066	Eglin	10	105	Casella	293	Resin	NA	AM-4
072	Eglin	38	154	TAS-D	23	NA	NA	M, AM-4
078	Eglin	205	67	Andersen	A59	Resin	Mylar	AM-4
078	Eglin	207	247	Casella	281	Resin	NA	AM-4
084	Eglin	8	37	TAS-D	29	NA	NA	M, AM-4
090	Eglin	130	200	Andersen	A16	Resin	Mylar	AM-4
090	Eglin	9	240	Casella	503	Resin	NA	AM-4
096	Eglin	2	160	TAS-D	19	NA	NA	M, AM-4
102	Eglin	129	218	Andersen	A4	Resin	Mylar	AM-4
102	Eglin	41	230	Casella	104	Resin	NA	AM-4
108	Eglin	26	14	TAS-D	7	NA	NA	M, AM-4
114	Eglin	20	91	Andersen	A92	Resin	Mylar	AM-4
114	Eglin	1	62	Casella	152	Resin	NA	AM-4
120	Eglin	25	21	TAS-D	125	NA	NA	M, AM-4
ARC B								
000	Eglin	53	129	TAS-D	122	NA	NA	M, AM-4
002	Austen	1	B490SE	Casella	129	Resin	NA	AM-4
006	SC-6	118	4482	TAS-II	743	NA	NA	M, AM-4
010	Eglin	146	221	Andersen	A45	Resin	Mylar	AM-4
014	Austen	3	B527SE	Casella	262	Resin	NA	AM-4
014	Eglin	54	28	TAS-D	31	NA	NA	M, AM-4
018	SC-6	120	4347	TAS-II	767	NA	NA	M, AM-4
022	Eglin	149	128	Andersen	A80	Resin	Mylar	AM-4
026	Austen	5	B489SE	Casella	204	Resin	NA	AM-4
026	Eglin	55	73	Casella	842	Resin	NA	AM-4
026	Eglin	211	206	Andersen	69	Resin	Mylar	AM-4
030	SC-6	117	4401	TAS-II	770	NA	NA	M, AM-4
034	Eglin	145	32	Andersen	A46	Resin	Mylar	AM-4
038	Austen	2	B207SE	Casella	165	Resin	NA	AM-4
040	Eglin	168	92	TAS-D	94	NA	NA	M, AM-4
042	SC-6	119	4498	TAS-II	781	NA	NA	M, AM-4
042	Austen	228	B323SE	Casella	301	Resin	NA	AM-4
042	Austen	229	B467SE	Andersen	A40	Resin	Mylar	AM-4

TABLE 3.4 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
046	Eglin	147	144	Andersen	A64	Resin	Mylar	AM-4
050	Austen	4	B515SE	Casella	199	Resin	NA	AM-4
054	SC-6	121	4403	TAS-II	704	NA	NA	M,AM-4
054	Eglin	57	55	Casella	811	Resin	NA	AM-4
054	Eglin	116	152	Andersen	A67	Resin	Mylar	AM-4
056	Austen	5	B489SE	TAS-I	535	NA	NA	M,AM-4
058	Eglin	150	100	Andersen	A49	Resin	Mylar	AM-4
060	SC-6	122	4468	TAS-II	705	NA	NA	M,AM-4
060	Austen	231	B318SE	Casella	288	Resin	NA	AM-4
060	Austen	232	B317SE	Andersen	A54	Resin	Mylar	AM-4
062	Austen	6	B521SE	Casella	840	Resin	NA	AM-4
064	Austen	233	B146SE	TAS-I	534	NA	NA	M,AM-4
066	SC-6	123	4457	TAS-II	782	NA	NA	M,AM-4
068	Eglin	58	239	TAS-D	61	NA	NA	M,AM-4
070	Eglin	152	132	Andersen	A32	Resin	Mylar	AM-4
074	Austen	8	B456SE	Casella	194	Resin	NA	AM-4
078	SC-6	125	4517	TAS-II	780	NA	NA	M,AM-4
078	Austen	234	B525SE	Casella	244	Resin	NA	AM-4
078	Austen	235	B498SE	Andersen	A87	Resin	Mylar	AM-4
080	Eglin	59	183	Casella	260	Resin	NA	AM-4
080	Eglin	124	179	Andersen	A13	Resin	Mylar	AM-4
082	Eglin	154	202	Andersen	A116	Resin	Mylar	AM-4
086	Austen	10	B221SE	Casella	189	Resin	NA	AM-4
090	SC-6	127	4462	TAS-II	734	NA	NA	M,AM-4
092	Eglin	60	107	TAS-D	46	NA	NA	M,AM-4
094	Eglin	151	6	Andersen	A47	Resin	Mylar	AM-4
098	Austen	7	B518SE	Casella	157	Resin	NA	AM-4
102	SC-6	124	4492	TAS-II	783	NA	NA	M,AM-4
106	Eglin	153	11	Andersen	A30	Resin	Mylar	AM-4
106	Eglin	61	157	Casella	296	Resin	NA	AM-4
106	Eglin	118	201	Andersen	A24	Resin	Mylar	AM-4
110	Austen	9	B535SE	Casella	511	Resin	NA	AM-4
114	SC-6	126	4497	TAS-II	759	NA	NA	M,AM-4
118	Eglin	155	112	Andersen	A60	Resin	Mylar	AM-4
120	Eglin	62	249	TAS-D	100	NA	NA	M,AM-4
ARC D								
002	Austen	11	B528SE	Casella	265	Resin	NA	AM-4
006	SC-6	224	4512	TAS-II	737	NA	NA	M,AM-4
006	Eglin	63	208	Casella	257	Resin	NA	AM-4
010	Eglin	203	48	Andersen	A7	Resin	Mylar	AM-4
014	Austen	13	B496SE	Casella	159	Resin	NA	AM-4
018	SC-6	131	4442	TAS-II	764	NA	NA	M,AM-4
020	Eglin	64	75	TAS-D	118	NA	NA	M,AM-4
022	Eglin	159	127	Andersen	A44	Resin	Mylar	AM-4
026	Austen	15	B509SE	Casella	198	Resin	NA	AM-4
030	SC-6	128	4491	TAS-II	791	NA	NA	M,AM-4
034	Eglin	65	106	Andersen	A31	Resin	Mylar	AM-4
034	Eglin	156	242	Casella	230	Resin	NA	AM-4

TABLE 3.4 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
038	Austen	12	B482SE	Casella	217	Resin	NA	AM-4
042	SC-6	130	4480	TAS-II	755	NA	NA	M, AM-4
046	Eglin	158	35	Andersen	A86	Resin	Mylar	AM-4
048	Eglin	144	49	TAS-D	52	NA	NA	M, AM-4
050	Austen	14	B465SE	Casella	332	Resin	NA	AM-4
054	SC-6	132	4302	TAS-II	713	NA	NA	M, AM-4
058	Eglin	200	5	Andersen	A77	Resin	Mylar	AM-4
060	SC-6	133	4414	TAS-II	747	NA	NA	M, AM-4
060	Eglin	139	77	Casella	139	Resin	NA	AM-4
062	Austen	16	B512SE	Casella	307	Resin	NA	AM-4
066	SC-6	134	4357	TAS-II	716	NA	NA	M, AM-4
070	Eglin	162	145	Andersen	A34	Resin	Mylar	AM-4
074	Austen	18	B497SE	Casella	275	Resin	NA	AM-4
074	Eglin	141	212	TAS-D	109	NA	NA	M, AM-4
078	SC-6	136	4396	TAS-II	797	NA	NA	M, AM-4
082	Eglin	164	36	Andersen	A94	Resin	Mylar	AM-4
086	Austen	20	B462SE	Casella	819	Resin	NA	AM-4
088	Eglin	69	119	Casella	149	Resin	NA	AM-4
090	SC-6	138	4378	TAS-II	787	NA	NA	M, AM-4
094	Eglin	161	214	Andersen	A53	Resin	Mylar	AM-4
098	Austen	17	B500SE	Casella	348	Resin	NA	AM-4
100	Eglin	71	196	TAS-D	47	NA	NA	M, AM-4
102	SC-6	135	4400	TAS-II	789	NA	NA	M, AM-4
106	Eglin	163	216	Andersen	A19	Resin	Mylar	AM-4
110	Austen	19	B513SE	Casella	286	Resin	NA	AM-4
114	SC-6	137	4356	TAS-II	738	NA	NA	M, AM-4
114	Eglin	72	68	TAS-D	119	NA	NA	M, AM-4
118	Eglin	135	245	Andersen	A26	Resin	Mylar	AM-4
SEQUENTIAL SAMPLERS, ARC D								
012	Gelman	10	NA	Sequential	10	NA	NA	Tape
020	Gelman	1	NA	Sequential	1	NA	NA	Tape
028	Gelman	9	NA	Sequential	9	NA	NA	Tape
036	Gelman	7	NA	Sequential	7	NA	NA	Tape
044	Gelman	5	NA	Sequential	5	NA	NA	Tape
054	Gelman	4	NA	Sequential	4	NA	NA	Tape
066	Gelman	6	NA	Sequential	6	NA	NA	Tape
078	Gelman	2	NA	Sequential	2	NA	NA	Tape
088	Gelman	3	NA	Sequential	3	NA	NA	Tape
098	Gelman	8	NA	Sequential	8	NA	NA	Tape

TABLE 3.4 CONTINUED

Position	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
MOBILE STATION NO. 1, ARC D, STATION 074								
01	Austen		B147SE	Casella	856	Resin	NA	AM-4
02	Austen		B147SE	Casella	341	Resin	NA	AM-4
03	Austen		B147SE	Casella	828	Resin	NA	AM-4
04	Austen		B147SE	Casella	269	Resin	NA	AM-4
05	Austen		B147SE	Casella	130	Resin	NA	AM-4
06	Austen		B147SE	Casella	358	Resin	NA	AM-4
07	Austen		B147SE	Casella	218	Resin	NA	AM-4
Center	Austen		B346SE	TAS-II	770	NA	NA	M, AM-4
08	Austen		B160SE	Andersen	A28	Gelatin	Acetate	AM-4
09	Austen		Unknown	Andersen	A82	Gelatin	Acetate	AM-4
10	Austen		B322SE	Andersen	A118	Gelatin	Acetate	AM-4
11	Austen		B323SE	Casella	354	Resin	Acetate	AM-4
12	Austen		B203SE	Casella	848	Resin	Acetate	AM-4
13	Austen		B487SE	Guzender	MK-II	Resin	NA	AM-4
14	Austen		B487SE	Guzender	MK-I	Resin	NA	AM-4
15	Austen		B233SE	Casella	882	Gelatin	Acetate	AM-4
16	Austen		B189SE	Casella	844	Gelatin	Acetate	AM-4
17	Austen		Unknown	Andersen	A121	Resin	Acetate	AM-4
18	Austen		B226SE	Andersen	A42	Resin	Acetate	AM-4
ARC F								
000	Eglin	115	185	TAS-D	37	NA	NA	M, AM-4
002	Austen	21	B501SE	Casella	815	Resin	NA	AM-4
006	SC-6	140	4488	TAS-II	793	NA	NA	M, AM-4
010	Eglin	167	25	Andersen	A81	Resin	Mylar	AM-4
014	Austen	23	B526SE	Casella	208	Resin	NA	AM-4
014	Eglin	74	165	TAS-D	33	NA	NA	M, AM-4
018	SC-6	142	4575	TAS-II	797	NA	NA	M, AM-4
022	Eglin	169	177	Andersen	A84	Resin	Mylar	AM-4
026	Austen	25	B343SE	Casella	809	Resin	NA	AM-4
026	Eglin	75	156	Casella	111	Resin	NA	AM-4
030	SC-6	139	4328	TAS-II	784	NA	NA	M, AM-4
034	Eglin	166	121	Andersen	A57	Resin	Mylar	AM-4
038	Austen	22	B469SE	Casella	850	Resin	NA	AM-4
040	Eglin	76	87	TAS-D	11	NA	NA	M, AM-4
042	Austen	236	B344SE	Casella	877	Resin	NA	AM-4
042	SC-6	141	4377	TAS-II	721	NA	NA	M, AM-4
046	Eglin	199	234	Andersen	A38	Resin	Mylar	AM-4
050	Austen	24	B463SE	Casella	892	Resin	NA	AM-4
054	SC-6	143	4437	TAS-II	776	NA	NA	M, AM-4
054	Eglin	77	43	Casella	304	Resin	NA	AM-4
056	Austen	238	B176SE	TAS-I	11	NA	NA	M, AM-4
058	Eglin	170	110	Andersen	A23	Resin	Mylar	AM-4
060	SC-6	144	4409	TAS-II	706	NA	NA	M, AM-4
060	Austen	240	B316SE	Casella	254	Resin	NA	AM-4
062	Austen	26	B492SE	Casella	222	Resin	NA	AM-4
064	Austen	241	B159SE	TAS-I	548	NA	NA	M, AM-4
066	SC-6	145	4511	TAS-II	795	NA	NA	M, AM-4
068	Eglin	78	57	TAS-D	16	NA	NA	M, AM-4
070	Eglin	173	23	Andersen	A70	Resin	Mylar	AM-4
074	Austen	28	B533SE	Casella	823	Resin	NA	AM-4

TABLE 3.4 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
078	SC-6	147	4340	TAS-II	727	NA	NA	M, AM-4
078	Austen	243	B491SE	Casella	843	Resin	NA	AM-4
080	Eglin	113	69	Casella	178	Resin	NA	AM-4
082	Eglin	175	136	Andersen	A48	Resin	Mylar	AM-4
086	Austen	30	B485SE	Casella	213	Resin	NA	AM-4
090	SC-6	149	4382	TAS-II	714	NA	NA	M, AM-4
092	Eglin	80	41	TAS-D	49	NA	NA	M, AM-4
094	Eglin	171	162	Andersen	A115	Resin	Mylar	AM-4
098	Austen	27	B529SE	Casella	125	Resin	NA	AM-4
102	SC-6	146	4446	TAS-II	728	NA	NA	M, AM-4
106	Eglin	122	231	Andersen	A96	Resin	Mylar	AM-4
106	Eglin	81	198	Casella	355	Resin	NA	AM-4
110	Austen	29	B320SE	Casella	253	Resin	NA	AM-4
114	SC-6	148	4343	TAS-II	766	NA	NA	M, AM-4
118	Eglin	176	66	Andersen	A20	Resin	Mylar	AM-4
120	Eglin	82	190	TAS-D	120	NA	NA	M, AM-4
ARC H								
090	Austen	230	B180SE	Casella	102	Resin	NA	AM-4
090	Austen	229	B461SE	Casella	112	Resin	NA	AM-4
090	Austen	70	B219SE	Casella	298	Resin	NA	AM-4
094	Eglin	183	58	Andersen	A111	Resin	Mylar	AM-4
098	Austen	37	B310SE	Casella	239	Resin	NA	AM-4
100	Eblin	91	40	TAS-D	48	NA	NA	M, AM-4
102	SC-6	157	4365	TAS-II	779	NA	NA	M, AM-4
106	Eglin	185	169	Andersen	A25	Resin	Mylar	AM-4
110	Austen	39	B238SE	Casella	169	Resin	NA	AM-4
114	Sc-6	159	4417	TAS-II	757	NA	NA	M, AM-4
114	Eglin	92	52	TAS-D	41	NA	NA	M, AM-4
118	Eglin	187	176	Andersen	A6	Resin	Mylar	AM-4
002	Austen	31	B471SE	Casella	106	Resin	NA	AM-4
006	SC-6	151	4306	TAS-II	729	NA	NA	M, AM-4
006	Eglin	84	59	Casella	853	Resin	NA	AM-4
010	Eglin	178	229	Andersen	A88	Resin	Mylar	AM-4
014	Austen	33	B352SE	Casella	806	Resin	NA	AM-4
018	SC-6	153	4475	TAS-II	788	NA	NA	M, AM-4
020	Eglin	85	33	TAS-D	112	NA	NA	M, AM-4
022	Eglin	181	137	Andersen	A73	Resin	Mylar	AM-4
026	Austen	35	B523SE	Casella	829	Resin	NA	AM-4
030	SC-6	150	4444	TAS-II	745	NA	NA	M, AM-4
030	Austen	100	B139SE	Casella	247	Resin	NA	AM-4
030	Austen	91	B350SE	Casella	235	Resin	NA	AM-4
030	Austen	62	B182SE	Casella	234	Resin	NA	AM-4
030	Austen	64	B347SE	Casella	107	Resin	NA	AM-4
030	Austen	67	B530SE	Casella	852	Resin	NA	AM-4
030	Austen	101	B524SE	Casella	807	Resin	NA	AM-4
030	Austen	105	B511SE	Casella	228	Resin	NA	AM-4
030	Austen	231	B458SE	Casella	854	Resin	NA	AM-4

TABLE 3.4 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC H								
030	Austen	71	B232SE	Casella	283	Resin	NA	AM-4
034	Eglin	177	116	Andersen	A119	Resin	Mylar	AM-4
034	Eglin	86	101	Casella	805	Resin	NA	AM-4
038	Austen	32	B355SE	Casella	276	Resin	NA	AM-4
040	Austen	NA	B198SE	Casella	810	Resin	NA	AM-4
042	SC-6	152	4321	TAS-II	768	NA	NA	M,AM-4
046	Eglin	180	89	Andersen	A78	Resin	Mylar	AM-4
048	Eglin	87	131	TAS-D	114	NA	NA	M,AM-4
050	Austen	34	B522SE	Casella	890	Resin	NA	AM-4
054	SC-6	154	4323	TAS-II	738	NA	NA	M,AM-4
056	Austen	NA	B313SE	TAS-I	184	NA	NA	M,AM-4
058	Eglin	182	2	Andersen	A2	Resin	Mylar	AM-4
058	Austen	NA	B177SE	Casella	223	Resin	NA	AM-4
060	SC-6	155	4301	TAS-II	703	NA	NA	M,AM-4
060	Eglin	138	211	Casella	803	Resin	NA	AM-4
060	Austen	98	B325SE	Casella	236	Resin	NA	AM-4
060	Austen	94	B333SE	Casella	329	Resin	NA	AM-4
060	Austen	97	B152SE	Casella	345	Resin	NA	AM-4
060	Austen	65	B178SE	Casella	344	Resin	NA	AM-4
060	Austen	73	B188SE	Casella	881	Resin	NA	AM-4
060	Austen	63	B477SE	Casella	191	Resin	NA	AM-4
060	Austen	96	B468SE	Casella	886	Resin	NA	AM-4
060	Austen	76	B185SE	Casella	216	Resin	NA	AM-4
060	Austen	69	B222SE	Casella	824	Resin	NA	AM-4
062	Austen	36	B475SE	Casella	258	Resin	NA	AM-4
064	Austen	NA	B216SE	TAS-I	561	NA	NA	M,AM-4
066	SC-6	156	4320	TAS-II	769	NA	NA	M,AM-4
070	Eglin	184	24	Andersen	A55	Resin	Mylar	AM-4
074	Austen	38	B520SE	Casella	232	Resin	NA	AM-4
074	Eglin	89	64	TAS-D	62	NA	NA	M,AM-4
078	SC-6	158	4383	TAS-II	753	NA	NA	M,AM-4
080	Austen	NA	B329SE	Casella	315	Resin	NA	AM-4
082	Eglin	186	81	Andersen	A8	Resin	Mylar	AM-4
086	Austen	40	B330SE	Casella	203	Resin	NA	AM-4
088	Eglin	90	184	Casella	237	Resin	NA	AM-4
090	SC-6	160	4361	TAS-II	718	NA	NA	M,AM-4
090	Austen	72	B327SE	Casella	310	Resin	NA	AM-4
090	Austen	66	B236SE	Casella	176	Resin	NA	AM-4
090	Austen	75	B505SE	Casella	174	Resin	NA	AM-4
090	Austen	87	B457SE	Casella	330	Resin	NA	AM-4
090	Austen	232	B225SE	Casella	221	Resin	NA	AM-4
090	Austen	68	B163SE	Casella	274	Resin	NA	AM-4

TABLE 3.4 CONTINUED

Position	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
MOBILE STATION NO. 2, ARC I, STATION 050								
01	Austen	NA	B342SE	Casella	132	Resin	NA	AM-4
02	Austen	NA	B342SE	Casella	122	Resin	NA	AM-4
03	Austen	NA	B342SE	Casella	181	Resin	NA	AM-4
04	Austen	NA	B342SE	Casella	237	Resin	NA	AM-4
05	Austen	NA	B342SE	Casella	847	Resin	NA	AM-4
06	Austen	NA	B342SE	Casella	120	Resin	NA	AM-4
07	Austen	NA	B342SE	Casella	822	Resin	NA	AM-4
Center	Austen	NA	B167SE	TAS-II	708	NA	NA	M,AM-4
8	Austen	NA	B230SE	Andersen	A17	Gelatin	Acetate	AM-4
9	Austen	NA	B148SE	Andersen	A39	Gelatin	Acetate	AM-4
10	Austen	NA	B210SE	Andersen	A66	Gelatin	Acetate	AM-4
11	Austen	NA	B460SE	Casella	151	Resin	Acetate	AM-4
12	Austen	NA	B164SE	Casella	144	Resin	Acetate	AM-4
13	Austen	NA	B466SE	Andersen	A89	Resin	Acetate	AM-4
14	Austen	NA	B202SE	Andersen	A62	Resin	Acetate	AM-4
15	Austen	NA	B145SE	Casella	340	Gelatin	Acetate	AM-4
16	Austen	NA	B324SE	Casella	183	Gelatin	Acetate	AM-4
17	Gelman	11	NA	Sequential	11	NA	NA	AM-4
ARC J								
000	Eglin	93	194	TAS-D	56	NA	NA	M,AM-4
002	Austen	41	B478SE	Casella	170	Resin	NA	AM-4
006	SC-6	162	4454	TAS-II	794	NA	NA	M,AM-4
010	Eglin	189	210	Andersen	A112	Resin	Mylar	AM-4
014	Austen	43	B502SE	Casella	277	Resin	NA	AM-4
014	Eglin	95	180	TAS-D	97	NA	NA	M,AM-4
018	SC-6	164	4311	TAS-II	761	NA	NA	M,AM-4
022	Eglin	191	244	Andersen	A5	Resin	Mylar	AM-4
026	Austen	45	B179SE	Casella	311	Resin	NA	AM-4
026	Eglin	96	39	Casella	317	Resin	NA	AM-4
030	SC-6	161	4489	TAS-II	717	NA	NA	M,AM-4
034	Eglin	188	215	Andersen	A123	Resin	Mylar	AM-4
038	Austen	42	B495SE	Casella	818	Resin	NA	AM-4
040	Eglin	97	46	TAS-D	59	NA	NA	M,AM-4
042	Austen	253	B158SE	Casella	320	Resin	NA	AM-4
042	SC-6	163	4505	TAS-II	767	NA	NA	M,AM-4
046	Eglin	190	8	Andersen	A10	Resin	Mylar	AM-4
050	Austen	44	B464SE	Casella	845	Resin	NA	AM-4
054	SC-6	165	4398	TAS-II	700	NA	NA	M,AM-4
054	Eglin	98	29	Casella	814	Resin	NA	AM-4
056	Austen	249	B308SE	TAS-I	579	NA	NA	M,AM-4
058	Eglin	192	243	Andersen	A37	Resin	Mylar	AM-4
060	SC-6	129	4518	TAS-II	724	NA	NA	M,AM-4
060	Austen	255	B211SE	Casella	173	Resin	NA	AM-4
062	Austen	46	B150SE	Casella	303	Resin	NA	AM-4
064	Austen	257	B237SE	TAS-I	510	NA	NA	M,AM-4
066	SC-6	167	4380	TAS-II	752	NA	NA	M,AM-4
068	Eglin	99	159	TAS-D	84	NA	NA	M,AM-4
070	Eglin	194	209	Andersen	A35	Resin	Mylar	AM-4
074	Austen	48	B510SE	Casella	227	Resin	NA	AM-4

TABLE 3.4 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
078	SC-6	169	4319	TAS-II	796	NA	NA	M,AM-4
078	Austen	259	B531SE	Casella	219	Resin	NA	AM-4
080	Eglin	101	123	Casella	271	Resin	NA	AM-4
082	Eglin	140	54	Andersen	A51	Resin	Mylar	AM-4
086	Austen	50	B215SE	Casella	830	Resin	NA	4914
090	SC-6	171	4509	TAS-II	709	NA	NA	M,AM-4
092	Eglin	102	153	TAS-D	70	NA	NA	M,AM-4
094	Eglin	193	143	Andersen	A56	Resin	Mylar	AM-4
098	Austen	47	182	Casella	841	Resin	NA	AM-4
102	SC-6	168	4348	TAS-II	750	NA	NA	M,AM-4
106	Eglin	195	51	Andersen	A85	Resin	Mylar	AM-4
106	Eglin	103	191	Casella	146	Resin	NA	AM-4
110	Austen	49	B334SE	Casella	801	Resin	NA	AM-4
114	SC-6	170	4322	TAS-I	762	NA	NA	M,AM-4
118	Eglin	197	15	Andersen	A14	Resin	Mylar	AM-4
120	Eglin	104	45	TAS-D	57	NA	NA	M,AM-4
ARC K								
000	SC-6		4345	TAS-D	104	NA	NA	M,AM-4
004	SC-6		4439	TAS-D	106	NA	NA	M,AM-4
008	SC-6		4305	Casella	343	Resin	NA	AM-4
012	SC-6		4349	TAS-D	82	NA	NA	M,AM-4
016	SC-6		4501	Casella	225	Resin	NA	AM-4
020	SC-6		4353	TAS-D	86	NA	NA	M,AM-4
024	SC-6		4477	Casella	242	Resin	NA	AM-4
028	SC-6		4486	TAS-II	760	NA	NA	M,AM-4
032	Austen		B356SE	Casella	187	Resin	NA	AM-4
036	Austen		B154SE	TAS-II	730	NA	NA	M,AM-4
040	Austen		B155SE	Casella	816	Resin	NA	AM-4
044	Austen		B197SE	TAS-II	731	NA	NA	M,AM-4
048	SC-6		4474	Casella	115	Resin	NA	AM-4
052	SC-6		4460	TAS-I	522	NA	NA	M,AM-4
056	SC-6		4426	Casella	305	Resin	NA	AM-4
060	SC-6		4415	TAS-I	555	NA	NA	M,AM-4
064	Austen		B510SE	Casella	295	Resin	NA	AM-4
068	Austen		B532SE	TAS-I	520	NA	NA	M,AM-4
072	Austen		B229SE	Casella	147	Resin	NA	AM-4
076	Austen		B493SE	TAS-I	562	NA	NA	M,AM-4
080	Austen		B517SE	Casella	238	Resin	NA	AM-4
084	SC-6		4422	TAS-I	537	NA	NA	M,AM-4
088	Austen		B218SE	Casella	847	Resin	NA	AM-4
092	Austen		B506SE	TAS-I	550	NA	NA	M,AM-4
096	Austen		B196SE	Casella	346	Resin	NA	AM-4
100	Austen		B227SE	TAS-I	570	NA	NA	M,AM-4
104	Austen		B499SE	Casella	349	Resin	NA	AM-4
108	SC-6		4376	TAS-D	76	NA	NA	M,AM-4
112	Austen		B166SE	Casella	153	Resin	NA	AM-4
116	SC-6		4479	TAS-D	85	NA	NA	M,AM-4
120	SC-6		4329	TAS-D	66	NA	NA	M,AM-4

TABLE 3.4 CONTINUED

Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
ARC L								
002	Austen	51	B149SE	Casella	834	Resin	NA	AM-4
006	SC-6	173	4339	TAS-II	710	NA	NA	M,AM-4
006	Eglin	105	20	Casella	326	Resin	NA	AM-4
010	Austen	218	B204SE	Andersen	A72	Resin	Mylar	AM-4
014	Austen	53	B335SE	Casella	273	Resin	NA	AM-4
018	SC-6	175	4450	TAS-II	765	NA	NA	M,AM-4
020	Eglin	106	10	TAS-D	113	NA	NA	M,AM-4
022	Austen	220	B184SE	Andersen	A1	Resin	Mylar	AM-4
026	Austen	55	B235SE	Casella	888	Resin	NA	AM-4
030	SC-6	172	4463	TAS-II	722	NA	NA	M,AM-4
034	Austen	217	B314SE	Andersen	A9	Resin	Mylar	AM-4
034	Eglin	107	213	Casella	138	Resin	NA	AM-4
038	Austen	52	B142SE	Casella	860	Resin	NA	AM-4
042	SC-6	174	4317	TAS-II	735	NA	NA	M,AM-4
046	Austen	219	B336SE	Andersen	A63	Resin	Mylar	AM-4
048	Eglin	108	117	TAS-D	77	NA	NA	M,AM-4
050	Austen	54	B483SE	Casella	243	Resin	NA	AM-4
054	SC-6	176	4360	TAS-II	719	NA	NA	M,AM-4
058	Austen	221	B309SE	Andersen	A76	Resin	Mylar	AM-4
060	SC-6	178	4304	TAS-II	773	NA	NA	M,AM-4
060	Eglin	109	105	Casella	192	Resin	NA	AM-4
062	Austen	56	B519SE	Casella	336	Resin	NA	AM-4
066	SC-6	179	4484	TAS-II	741	NA	NA	M,AM-4
070	Austen	223	B143SE	Andersen	A68	Resin	Mylar	AM-4
074	Austen	58	B213SE	Casella	825	Resin	NA	AM-4
074	Eglin	110	1	TAS-D	83	NA	NA	M,AM-4
078	SC-6	181	4303	TAS-II	790	NA	NA	M,AM-4
082	Austen	225	B348SE	Andersen	A83	Resin	Mylar	AM-4
086	Austen	60	B470SE	Casella	190	Resin	NA	AM-4
088	Eglin	111	184	Casella	866	Resin	NA	AM-4
090	SC-6	183	4459	TAS-II	758	NA	NA	M,AM-4
094	Austen	247	B193SE	Andersen	A71	Resin	Mylar	AM-4
098	Austen	57	B199SE	Casella	863	Resin	NA	AM-4
100	Eglin	112	122	TAS-D	75	NA	NA	M,AM-4
102	SC-6	180	4467	TAS-II	740	NA	NA	M,AM-4
106	Austen	224	B321SE	Andersen	A91	Resin	Mylar	AM-4
110	Austen	59	B340SE	Casella	865	Resin	NA	AM-4
114	SC-6	182	4485	TAS-II	744	NA	NA	M,AM-4
114	Austen	227	B203SE	TAS-D	108	NA	NA	M,AM-4
118	Austen	226	B141SE	Andersen	A93	Resin	Mylar	AM-4

TABLE 3.4 CONTINUED

Arc and Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
SOLUBILITY SAMPLES								
A 012		NA	NA	Water	NA	NA	NA	NA
A 036				Water				
A 060				Water				
A 084				Water				
A 108				Water				
B 012				Water				
B 036				Water				
B 060				Water				
B 084				Water				
B 108				Water				
D 012				Water				
D 018				Water				
D 036				Water				
D 074				Water				
D 074				Water				
D 074				Water				
D 084				Water				
H 006				Water				
H 018				Water				
H 030				Water				
H 042				Water				
H 054				Water				
H 066				Water				
H 078				Water				
H 090				Water				
H 102				Water				
H 114				Water				
I 050				Water				
I 050				Water				
I 050				Water				
L 006				Water				
L 018				Water				
L 030				Water				
L 042				Water				
L 054				Water				
L 066				Water				
L 078				Water				
L 090				Water				
L 102				Water				
L 114				Water				

TABLE 3.4 CONTINUED

Abbreviations: TAS, total-air sampler; M, Microsorban; MR, Mellan Road; NA, not applicable.

Arc and Station	Vacuum Pump			Sampler				
	Type	Field Number	Serial Number	Type	Field Number	Adhesive	Film	Filter
SAMPLERS LOCATED ON CLEAN SLATE I NETWORK								
D 000	SC-6	NA	4452	TAS-D	93	NA	NA	M,AM-4
E 000	SC-6	NA	4481	TAS-D	110	NA	NA	M,AM-4
F 000	SC-6	NA	4298	TAS-D	67	NA	NA	M,AM-4
G 000	SC-6	NA	4472	TAS-D	63	NA	NA	M,AM-4
H 000	SC-6	NA	4389	TAS-D	8	NA	NA	M,AM-4
I 000	SC-6	NA	4427	TAS-D	12	NA	NA	M,AM-4
J 000	SC-6	NA	4299	TAS-D	17	NA	NA	M,AM-4
K 000	SC-6	NA	4494	TAS-D	50	NA	NA	M,AM-4
L 000	SC-6	NA	4296	TAS-D	26	NA	NA	M,AM-4
M 000	SC-6	NA	4425	TAS-D	6	NA	NA	M,AM-4
N 000	SC-6	NA	4246	TAS-D	103	NA	NA	M,AM-4
N 006	SC-6	NA	4358	TAS-D	54	NA	NA	M,AM-4
N 012	SC-6	NA	4344	TAS-D	42	NA	NA	M,AM-4
N 018	SC-6	NA	4371	TAS-D	58	NA	NA	M,AM-4
N 024	SC-6	NA	4493	TAS-D	44	NA	NA	M,AM-4
N 030	SC-6	NA	4308	TAS-D	116	NA	NA	M,AM-4
N 036	SC-6	NA	4312	TAS-D	65	NA	NA	M,AM-4
N 042	SC-6	NA	4373	TAS-D	53	NA	NA	M,AM-4
N 048	SC-6	NA	4367	TAS-D	71	NA	NA	M,AM-4
N 054	SC-6	NA	4370	TAS-D	68	NA	NA	M,AM-4
N 060	SC-6	NA	4432	TAS-D	115	NA	NA	M,AM-4
N 066	SC-6	NA	4502	TAS-D	45	NA	NA	M,AM-4
N 072	SC-6	NA	4447	TAS-D	78	NA	NA	M,AM-4
N 078	SC-6	NA	4461	TAS-D	80	NA	NA	M,AM-4
N 084	SC-6	NA	4327	TAS-D	89	NA	NA	M,AM-4
N 090	SC-6	NA	4438	TAS-D	60	NA	NA	M,AM-4
N 096	SC-6	NA	4506	TAS-D	107	NA	NA	M,AM-4
O 000	SC-6	NA	4496	TAS-D	51	NA	NA	M,AM-4
MR 01	SC-6	NA	4469	TAS-D	117	NA	NA	M,AM-4
MR 02	SC-6	NA	4392	TAS-D	43	NA	NA	M,AM-4
MR 03	SC-6	NA	4366	TAS-D	4	NA	NA	M,AM-4
MR 04	SC-6	NA	4435	TAS-D	36	NA	NA	M,AM-4
MR 05	SC-6	NA	4466	TAS-D	111	NA	NA	M,AM-4

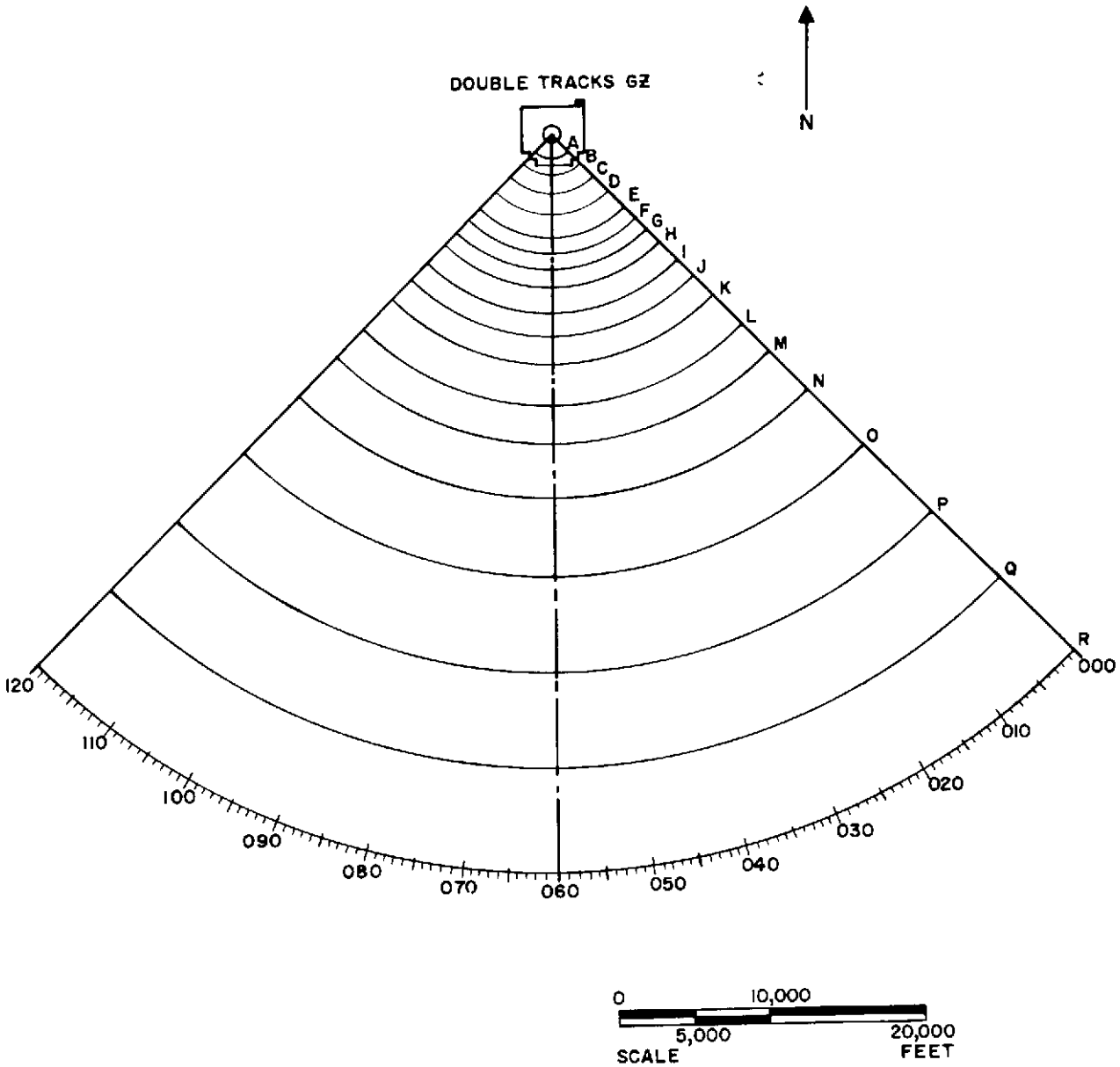


Figure 3.1 Double Tracks array.

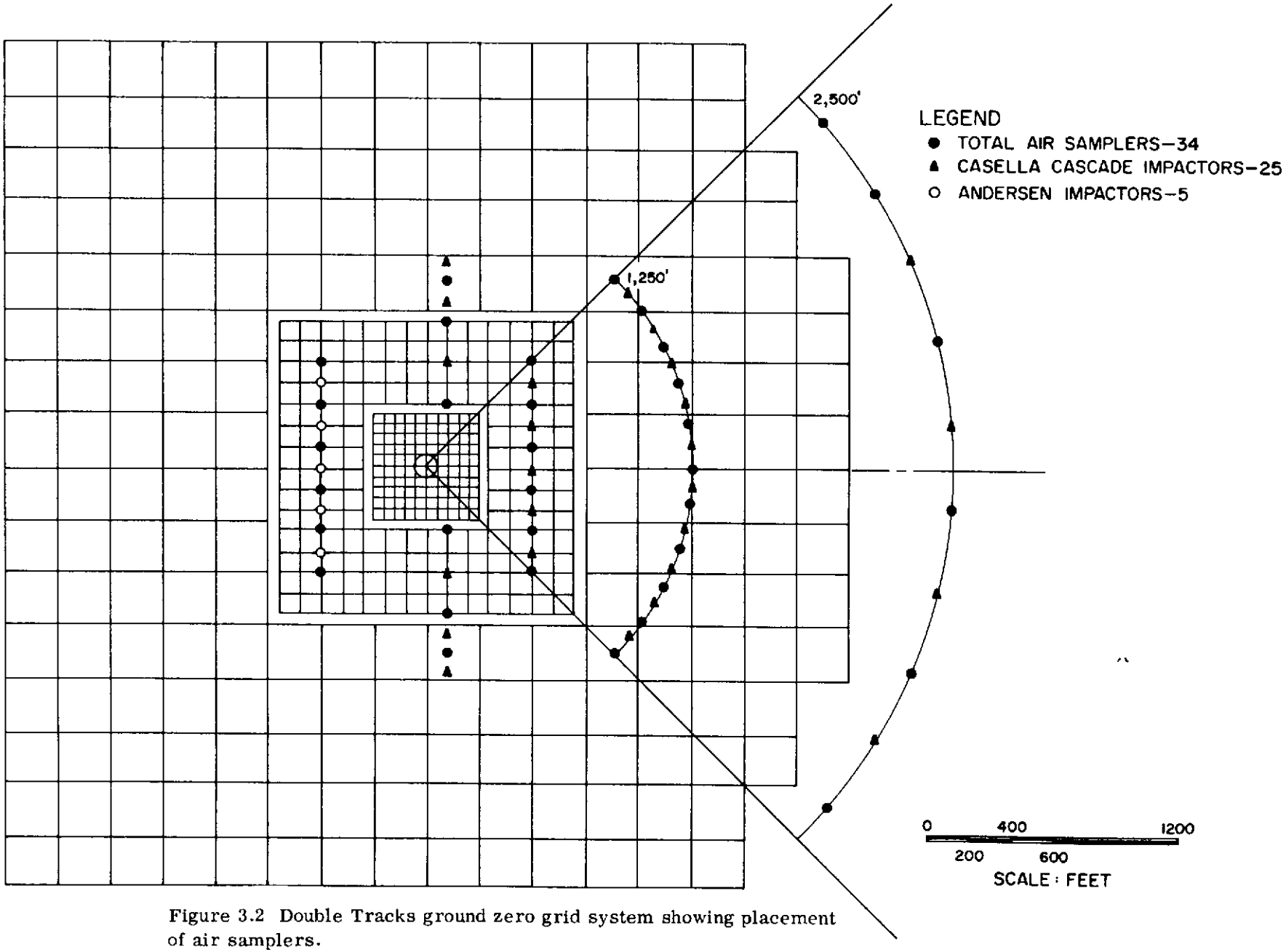


Figure 3.2 Double Tracks ground zero grid system showing placement of air samplers.

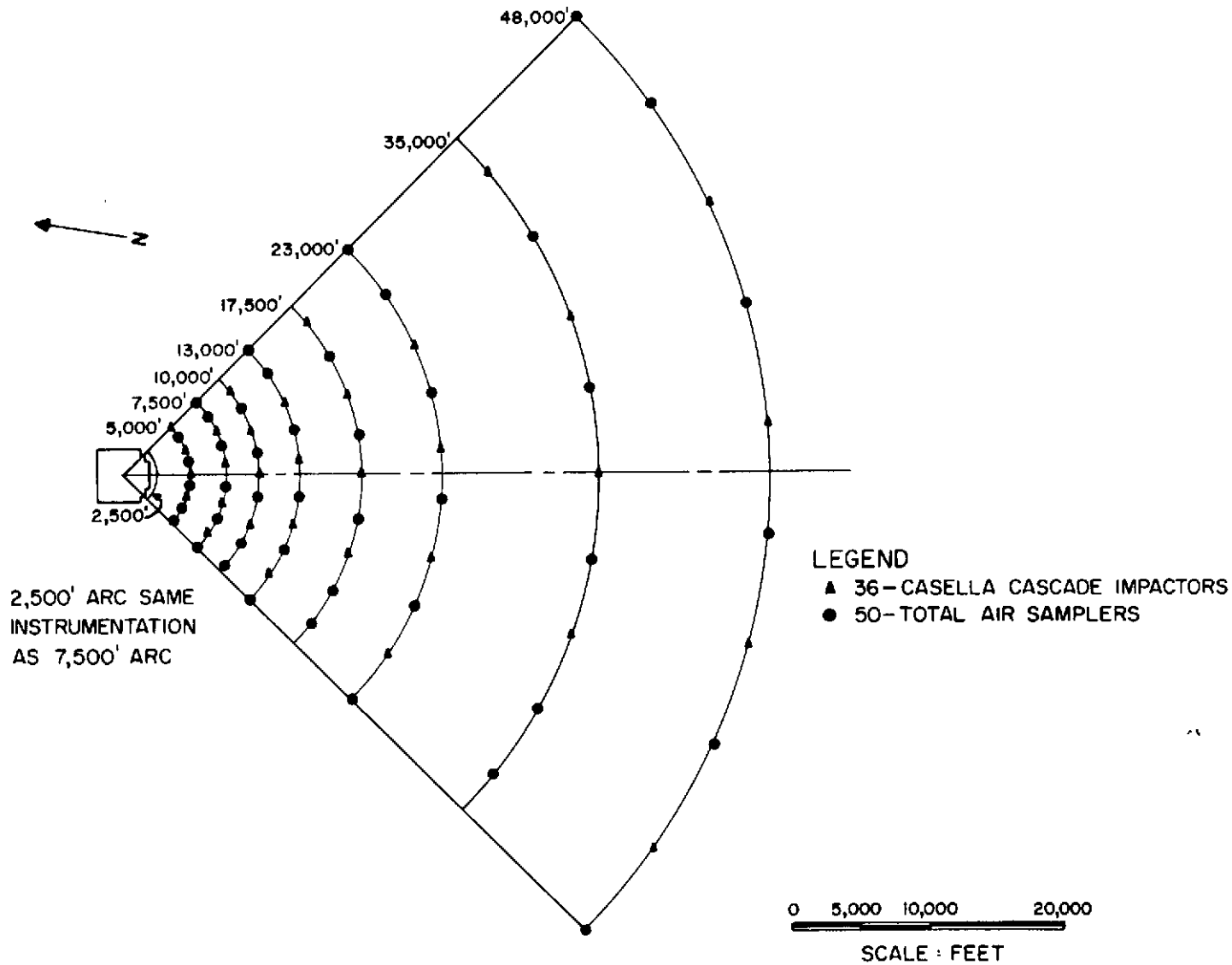


Figure 3.3 Double Tracks array showing placement of fixed array for air samplers.

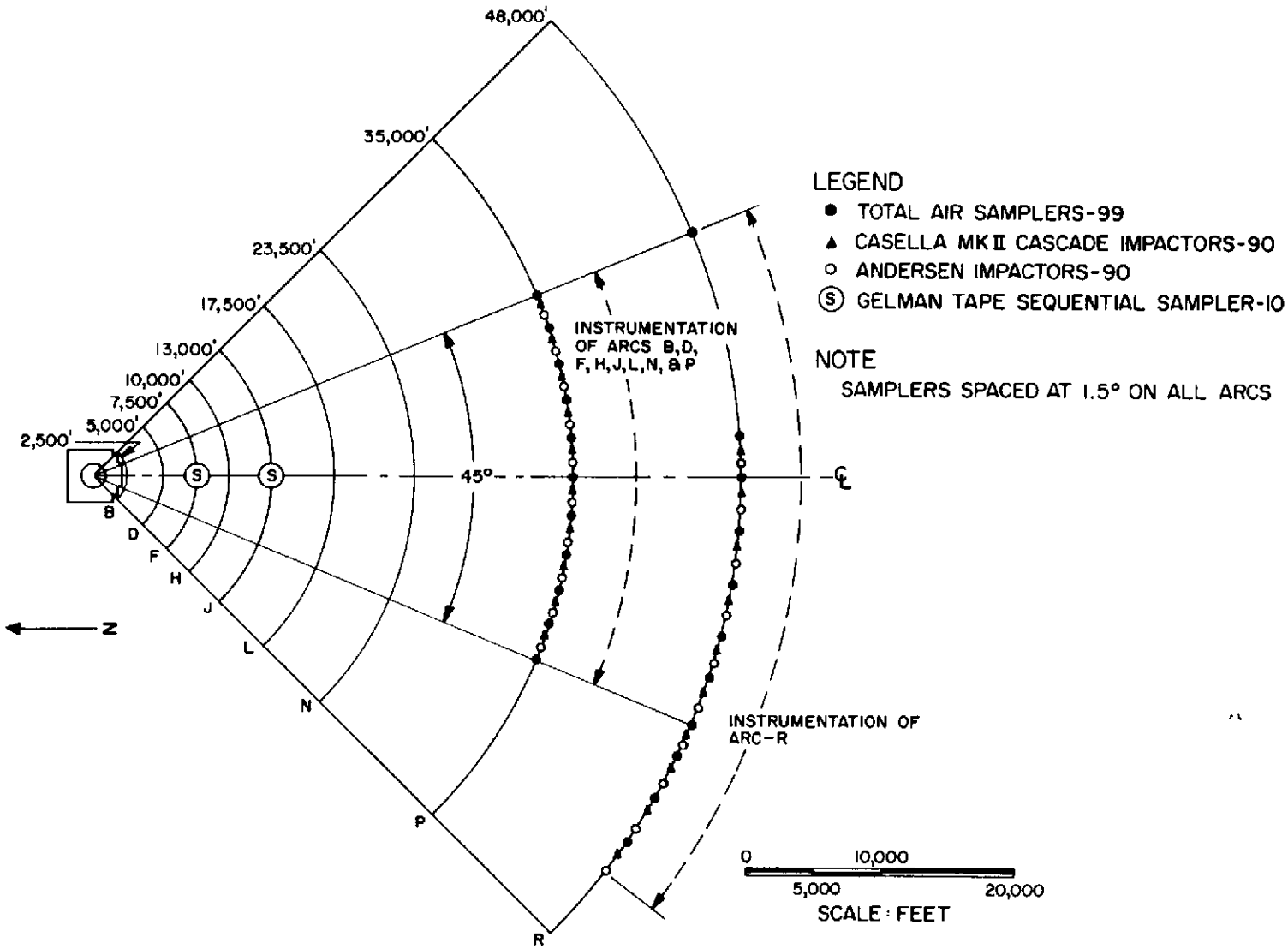


Figure 3.4 Double Tracks array showing placement of movable array for air samplers.

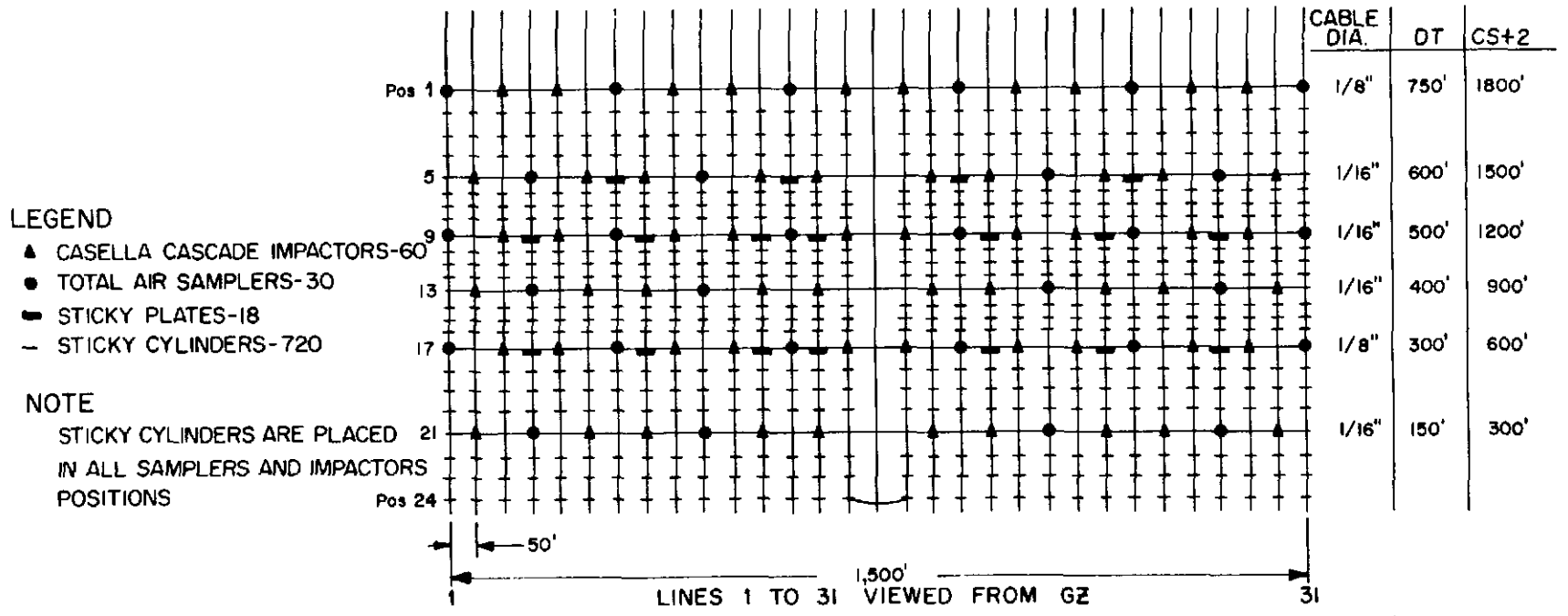
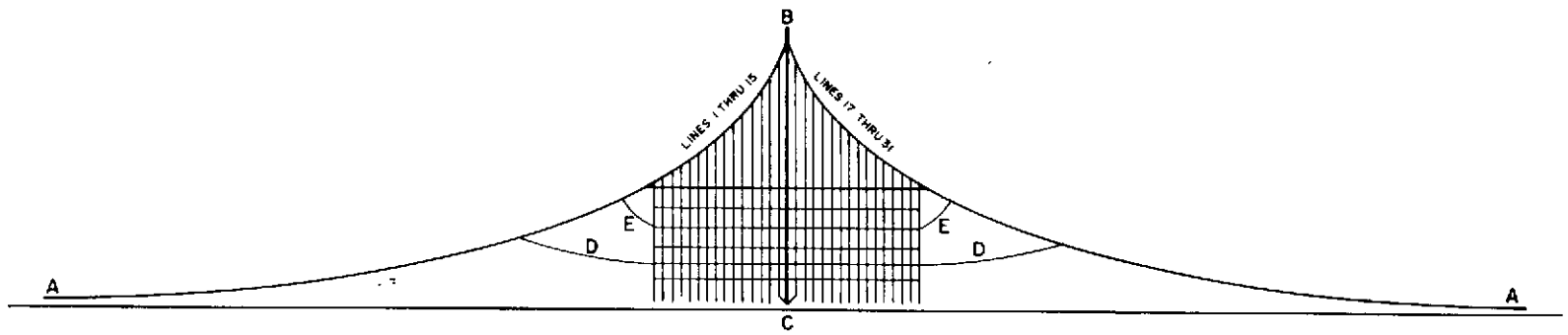


Figure 3.5 Instrumentation of the Arc B (2,500 foot) balloon curtain for the Double Tracks event.



LEGEND:

A - CATENARY ANCHOR TRUCKS (3750' FROM C)
B - BALLOON POSITION (1755' ABOVE EARTH)
C - CENTER ANCHOR TRUCK (WITH 12 TON CONCRETE BLOCK)
D - BRIDLE CABLES (STRANDED STEEL 1/8" DIA x 1735' LONG)
E - BRIDLE CABLES (STRANDED STEEL 1/8" DIA. x 234' LONG)

CABLE DATA		
CODE	DIA.	LENGTH
LINE A TO B	5/16"	4237'
LINE C TO B	5/8"	1755'
LINE D	1/8"	1735'
LINE E	1/8"	234'
LINES 1 AND 15	1/8"	
LINES 17 AND 31	1/8"	

NOTES:

1. ALL VERTICAL MESSENGER CABLES (EXCEPT THOSE ON DATA TABLE) ARE 1/16" DIA., AND ARE SPACED AT 50' INTERVALS.
2. HORIZONTAL MESSENGER CABLE ARE AT ELEVATIONS OF 150', 300', 400', 500', 600', & 750'

Figure 3.6 Perspective view of the Arc B balloon curtain.

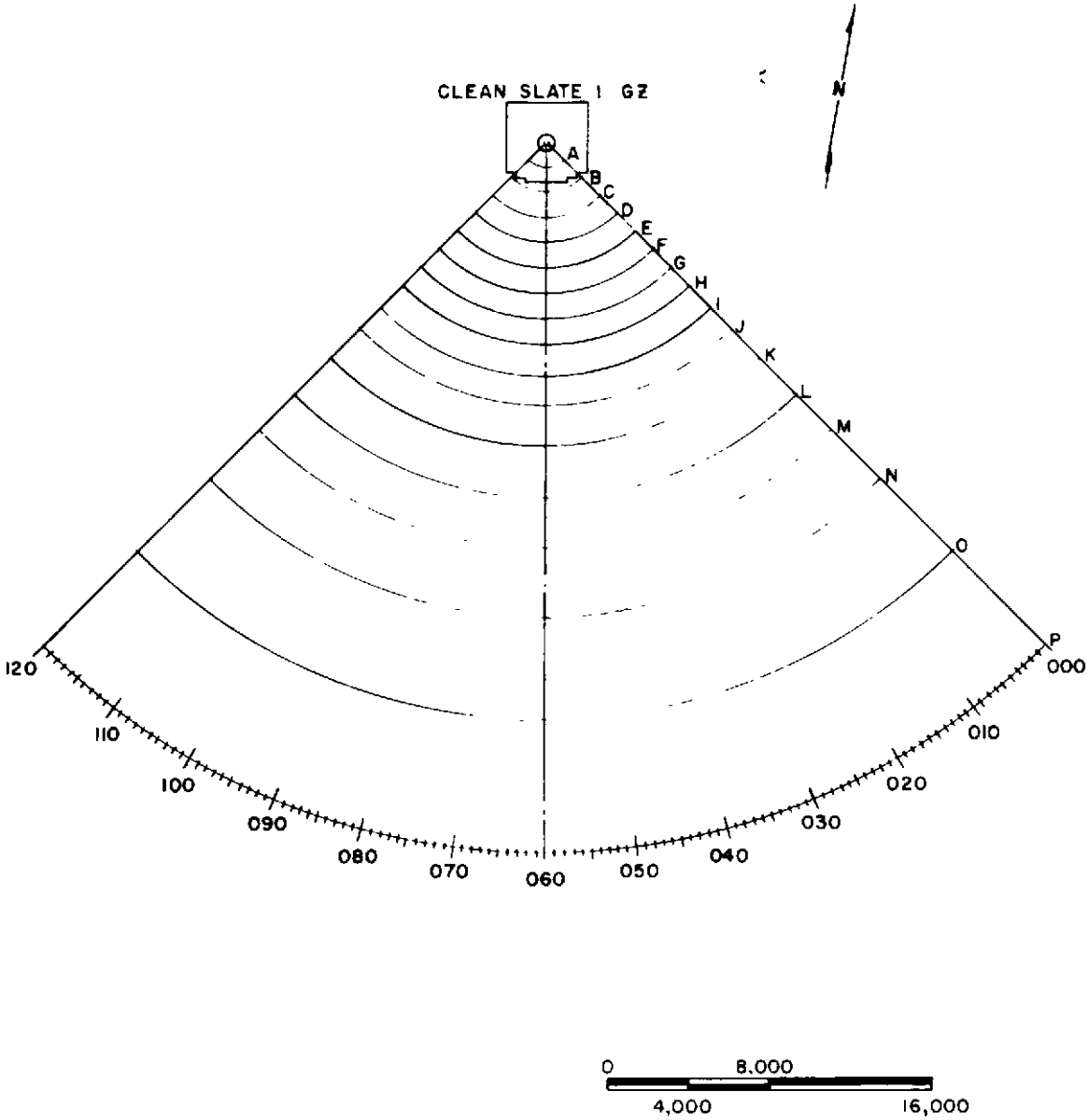


Figure 3.7 Clean Slate I array.

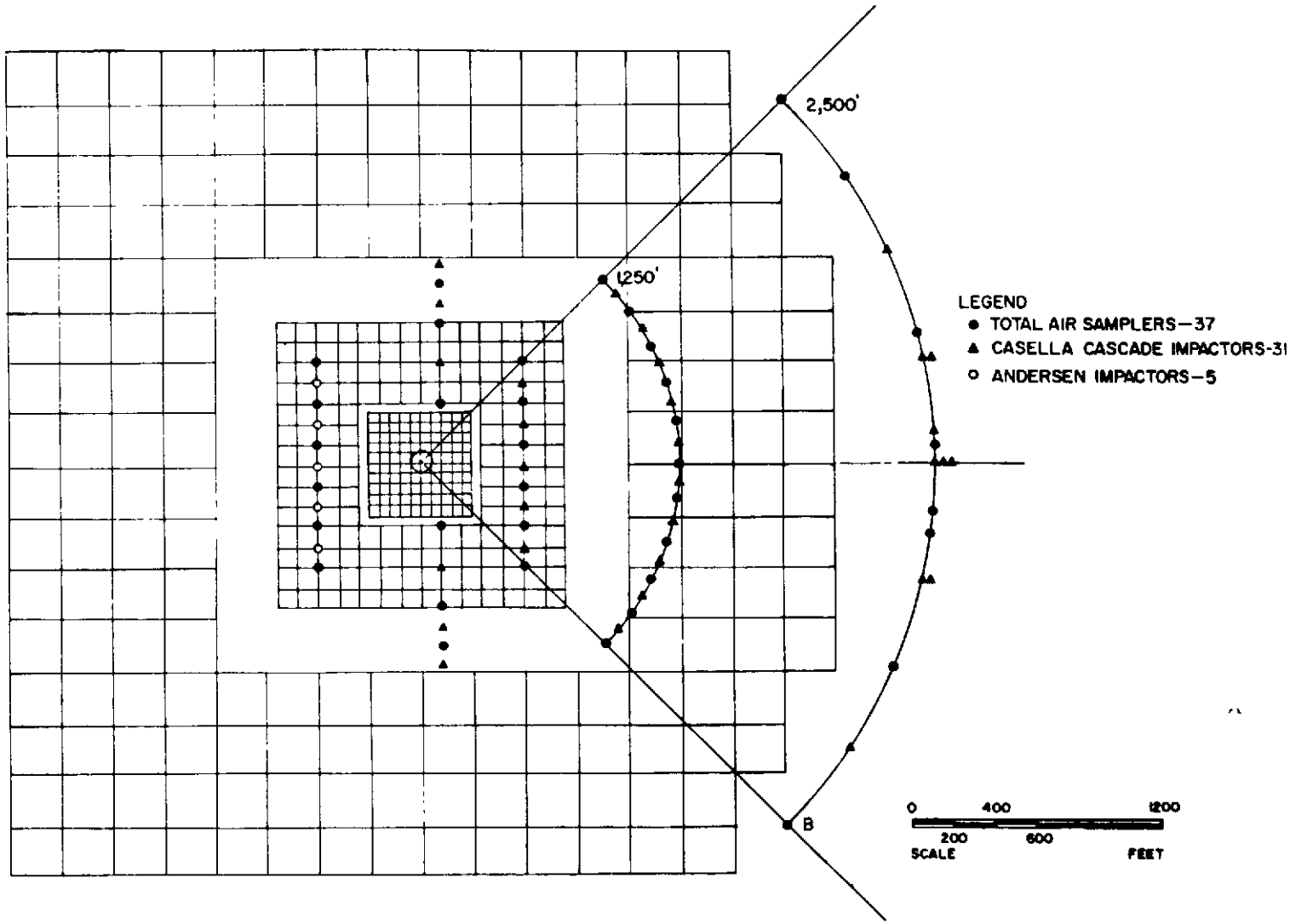


Figure 3.8 Clean Slate I ground zero grid system showing placement of air samplers.

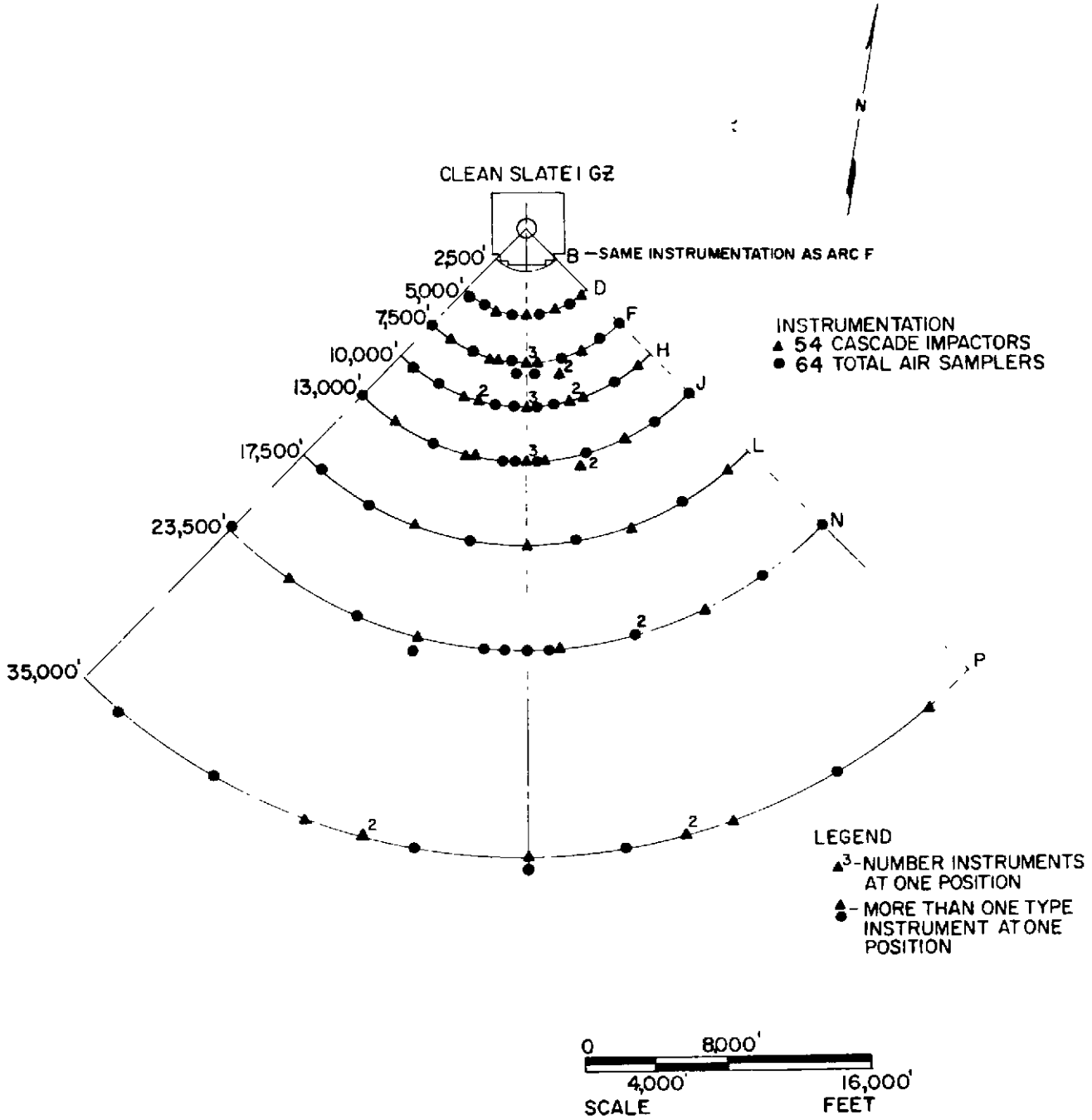
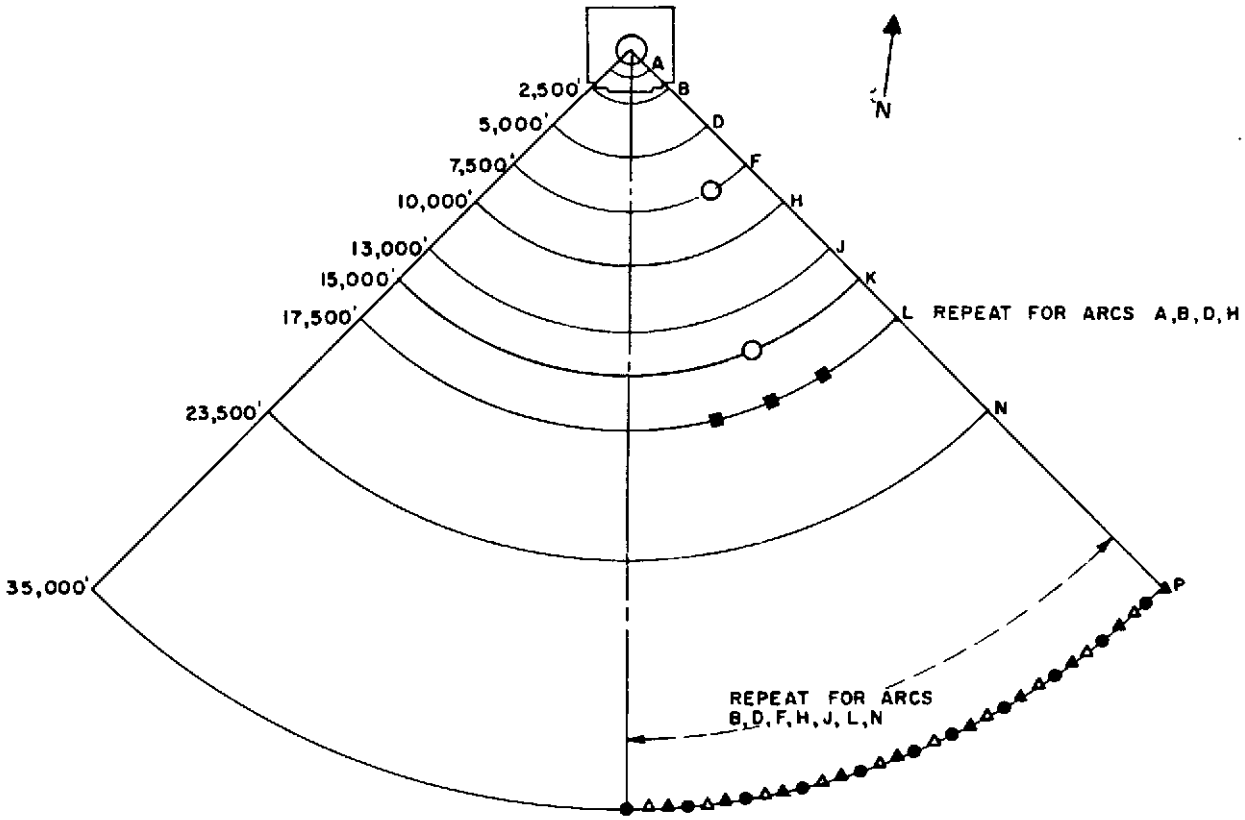


Figure 3.9 Clean Slate I array showing placement of fixed array for air samplers.



TOTAL INSTRUMENTATION
- ● TOTAL AIR SAMPLERS-88
- ▲ CASELLA MKII CASCADE IMPACTORS-80
- △ ANDERSEN IMPACTORS-80
- ■ SOLUBILITY SAMPLERS-15
- ○ MOBILE STATIONS-2

NOTE
SAMPLERS AT 1.5° SPACING ON ALL ARCS

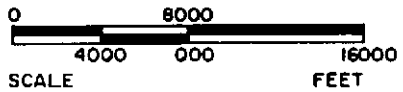


Figure 3.10 Clean Slate I array showing placement of movable array for air samplers.

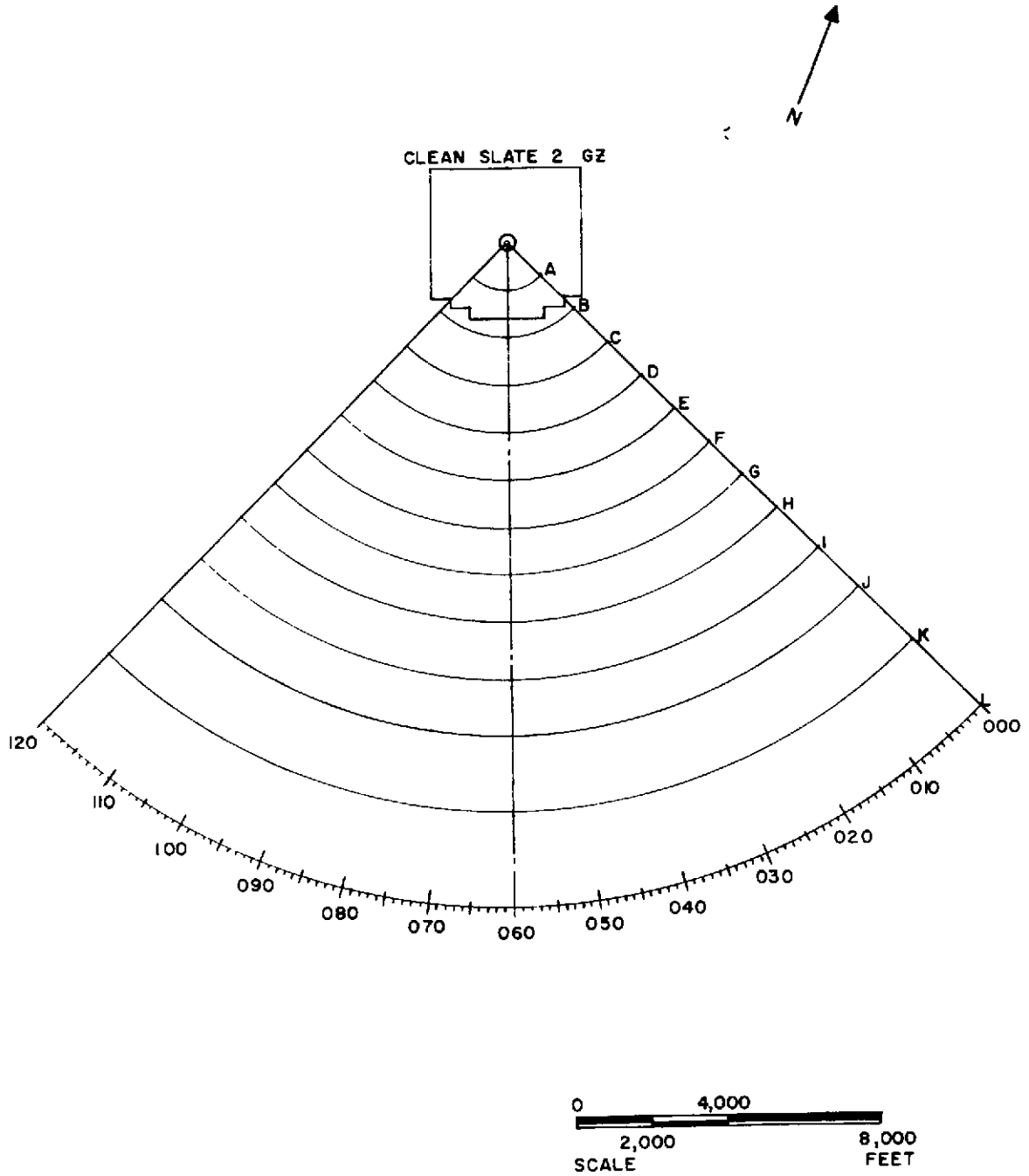


Figure 3.11 Clean Slate II array.

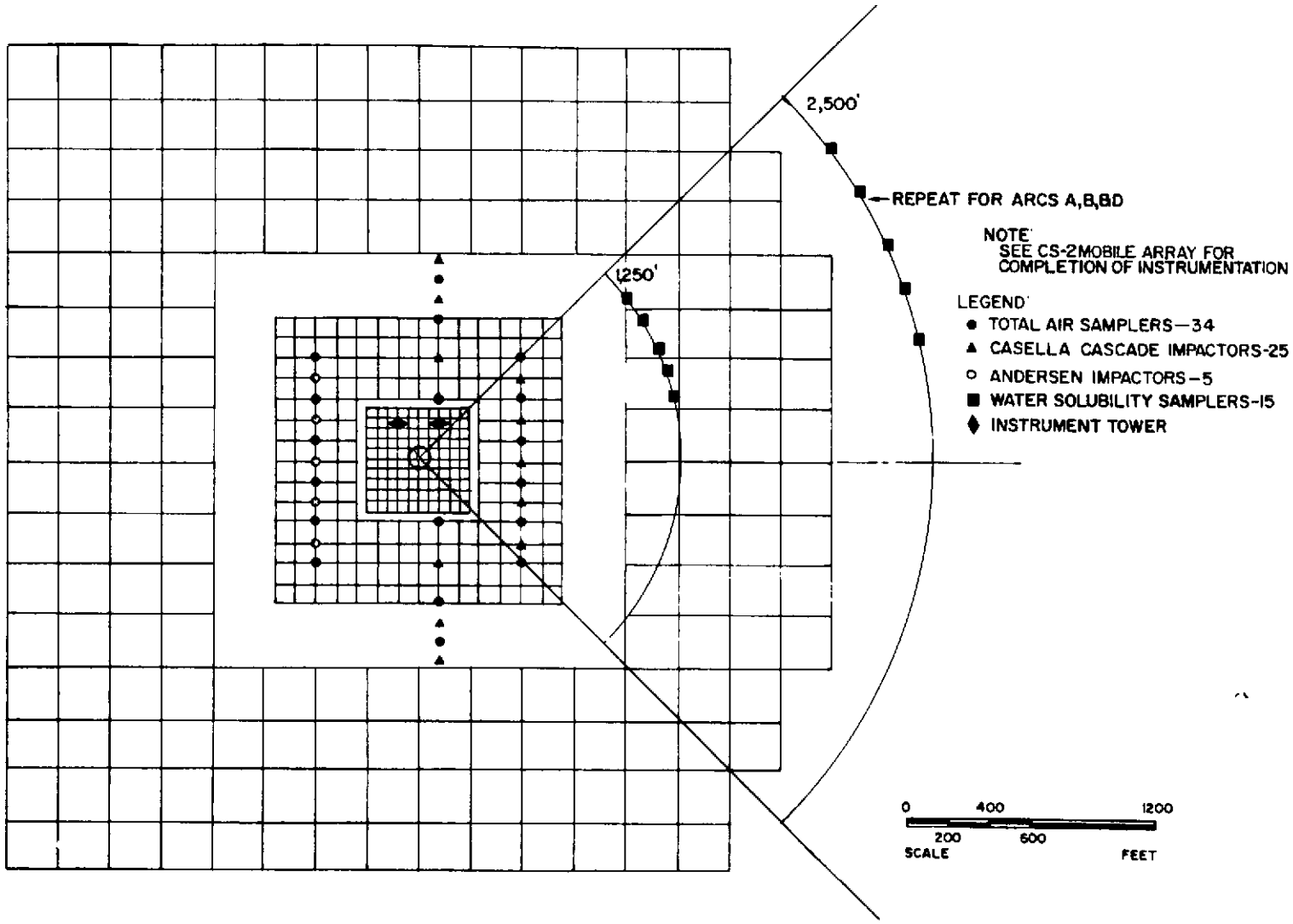


Figure 3.12 Clean Slate II ground zero grid system showing placement of air samplers.

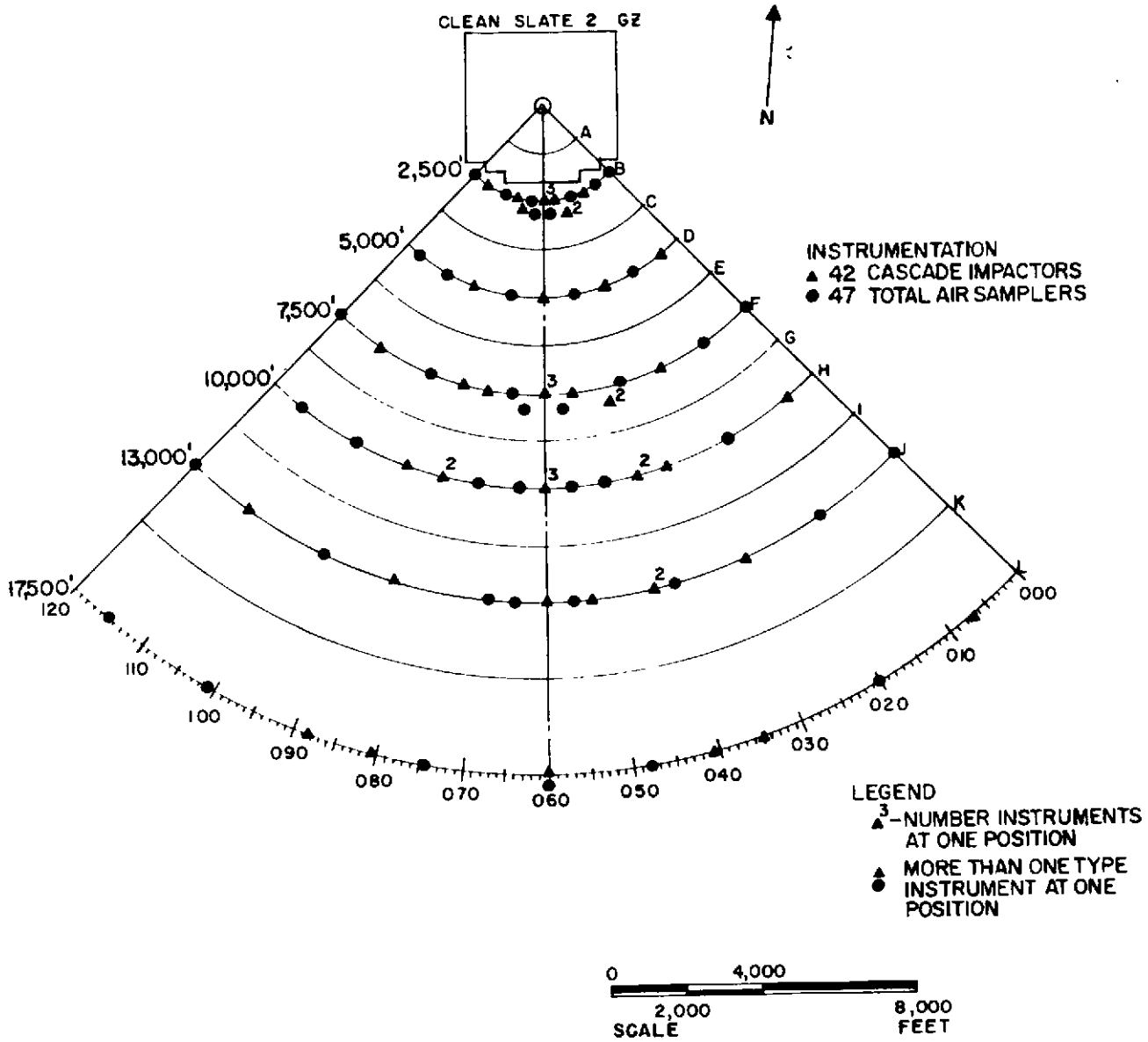


Figure 3.13 Clean Slate II array showing placement of fixed array for air samplers.

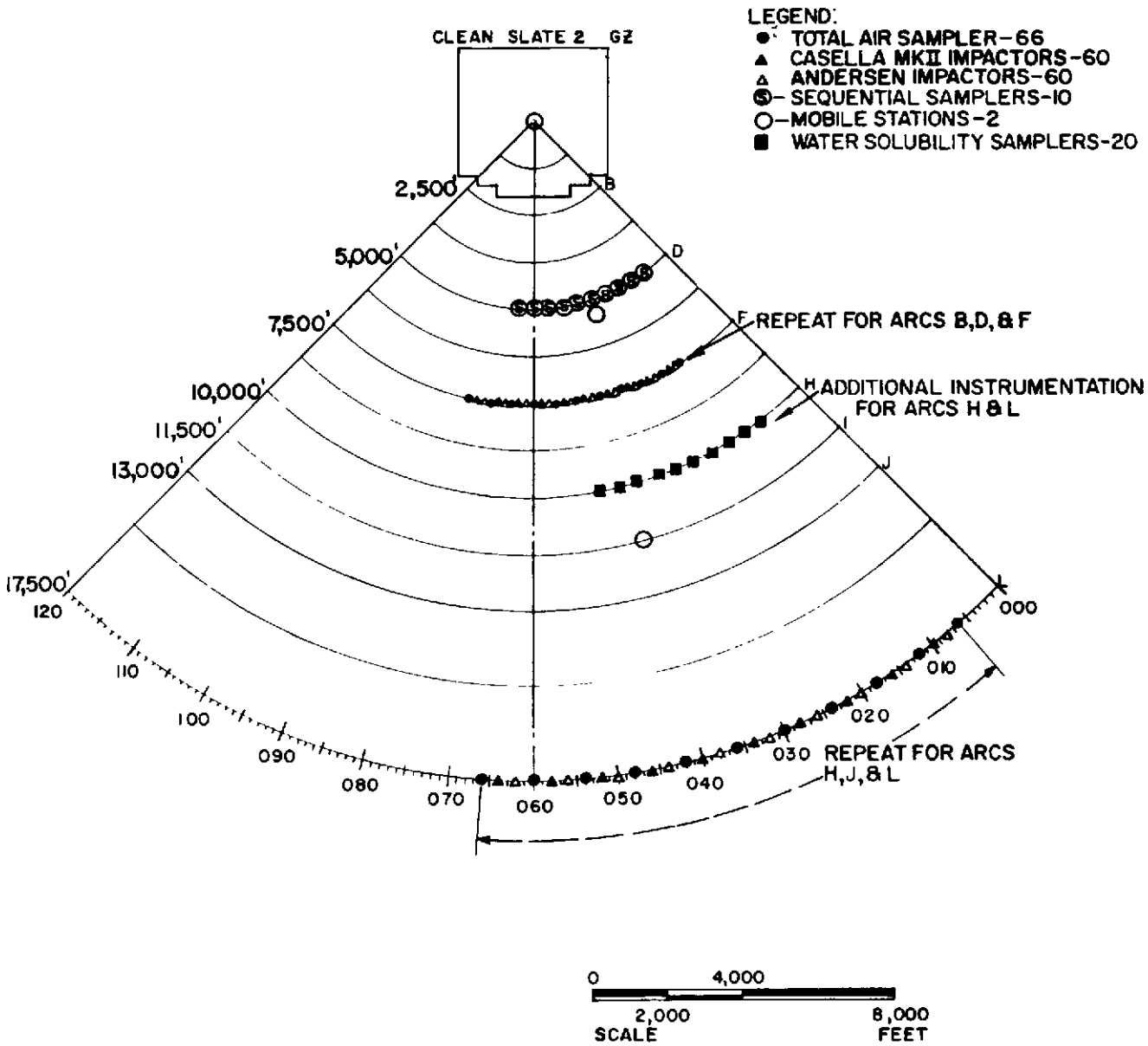
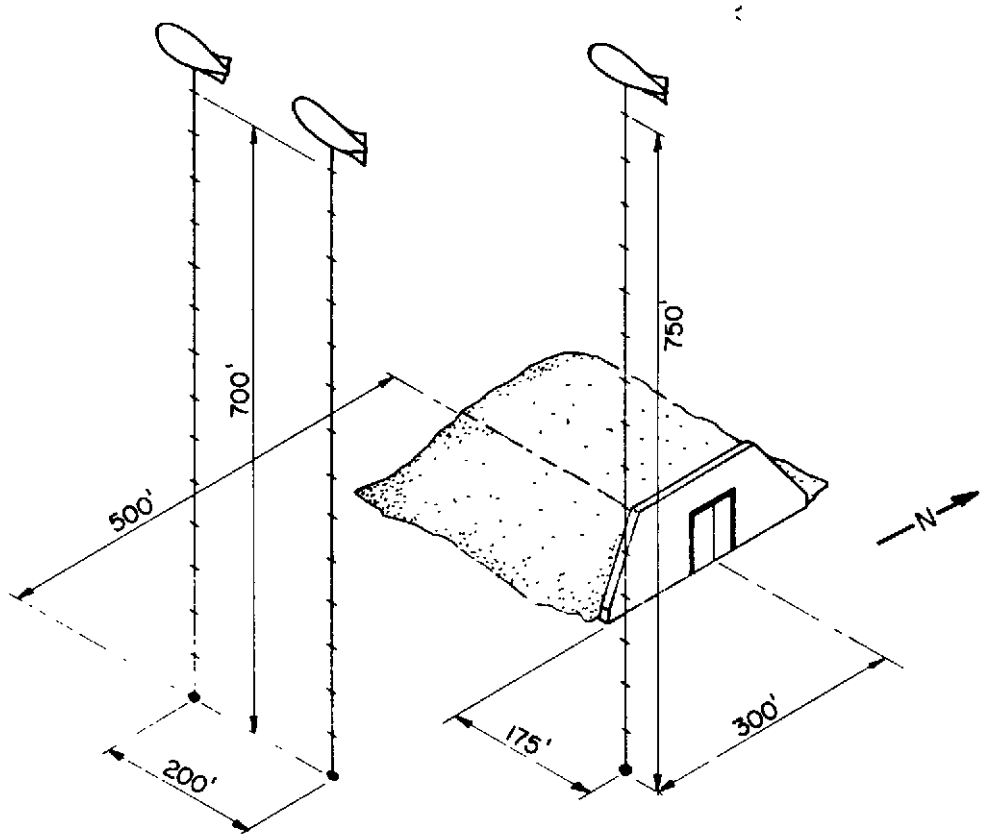


Figure 3.14 Clean Slate II array showing placement of movable array for air samplers.



On 700-foot balloons:
Alternating Sticky Cylinders and Discs at 50-foot intervals starting from top with Sticky Cylinder.

On 750-foot balloons: Casella Impactors at 700 feet and 350 feet
Sticky Cylinders at 50-foot intervals.

Figure 3.15 Instrumentation and placement of ground zero balloon array, Clean Slate II.

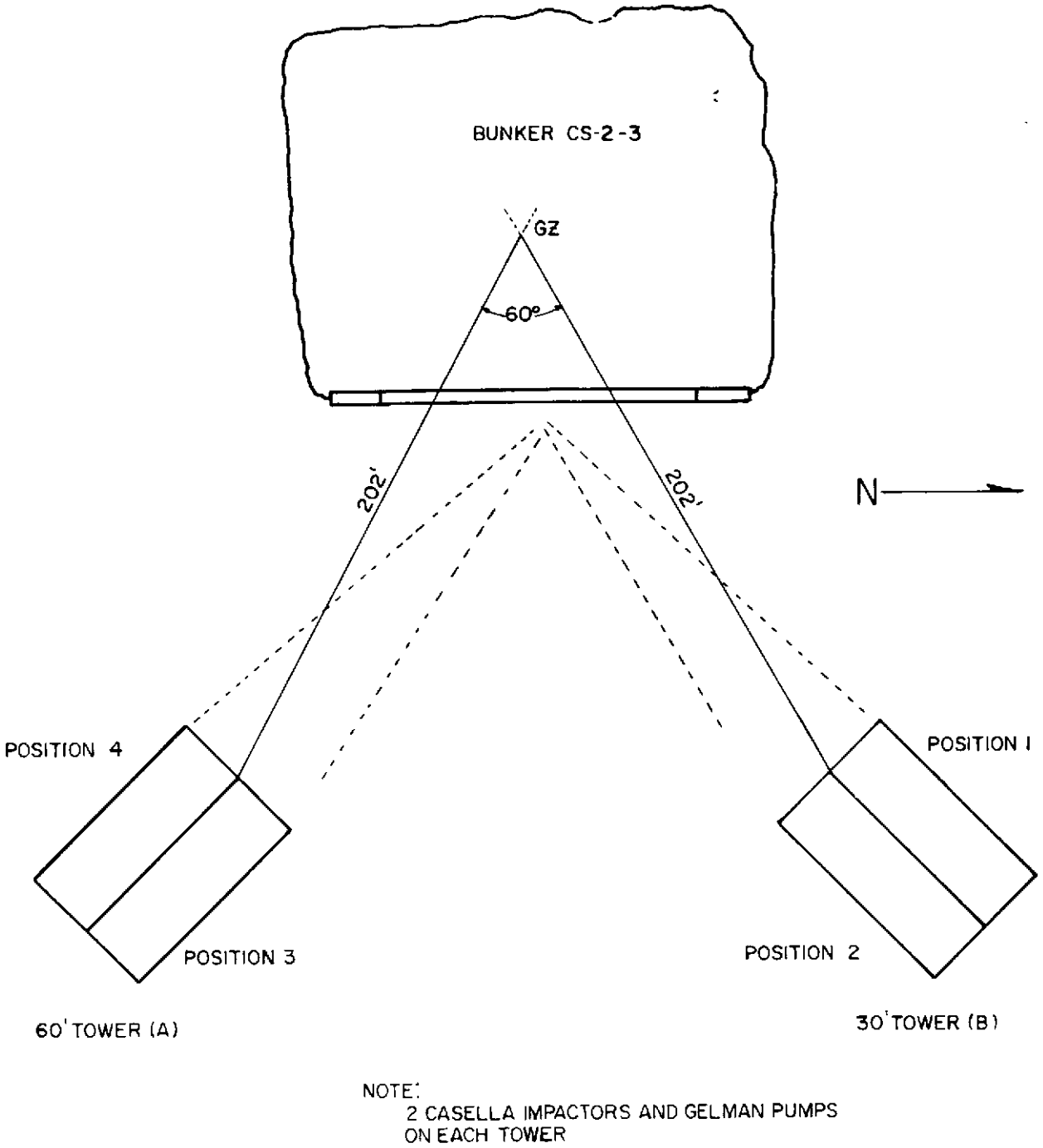


Figure 3.16 Instrumentation and location of ground zero tower array for Clean Slate II and III

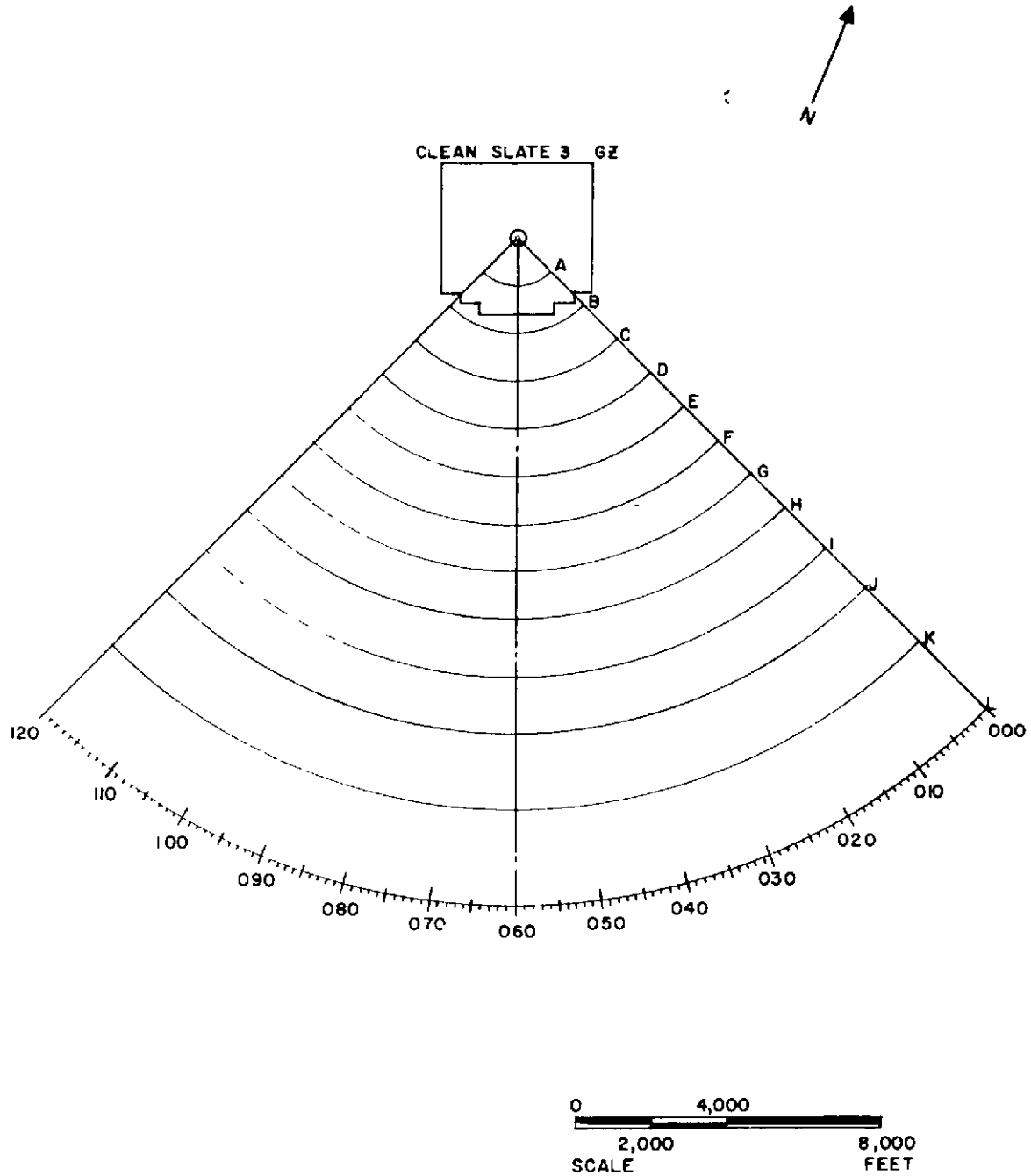


Figure 3.17 Clean Slate III array.

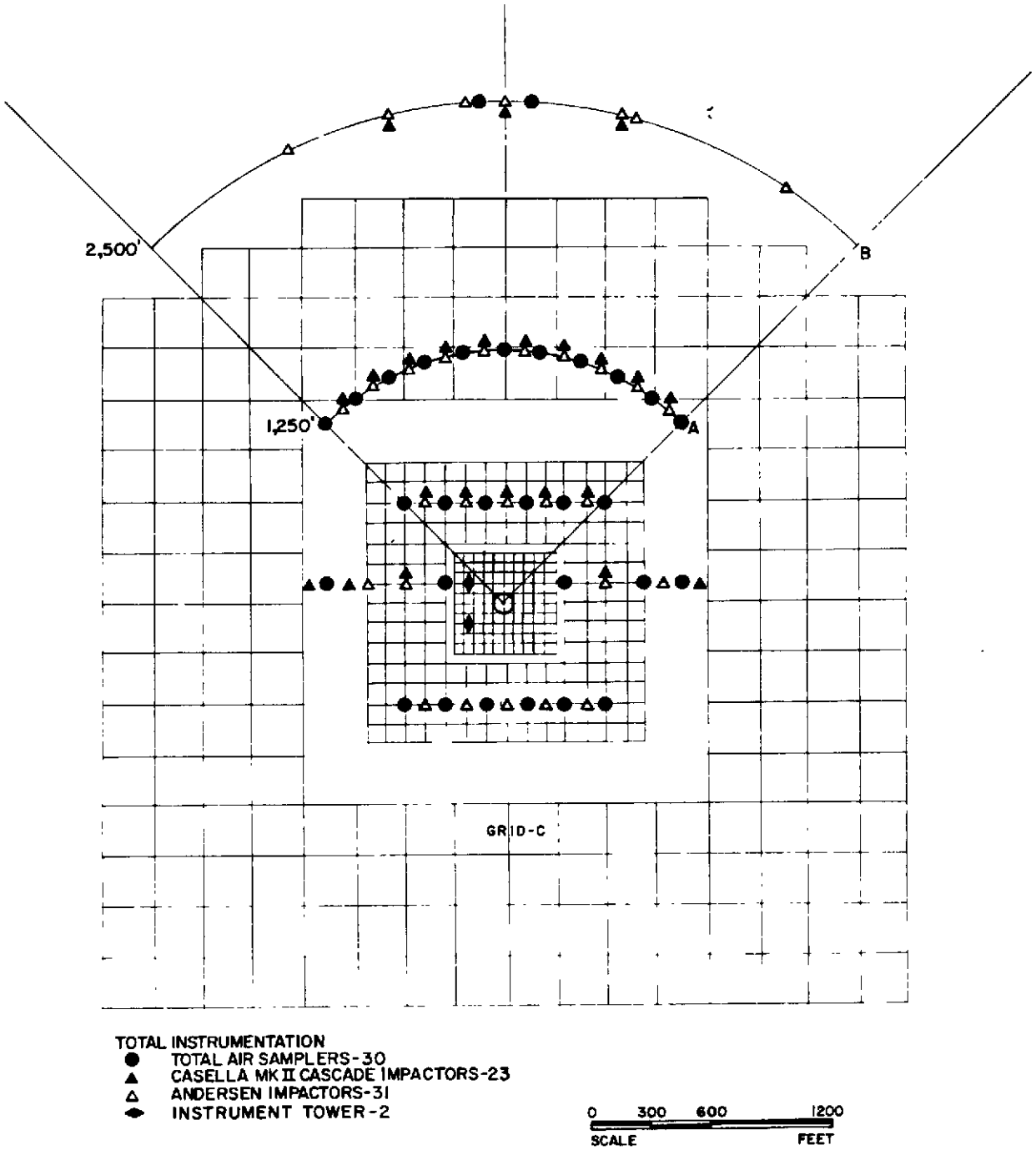


Figure 3.18 Clean Slate III ground zero grid system showing placement of air samplers.

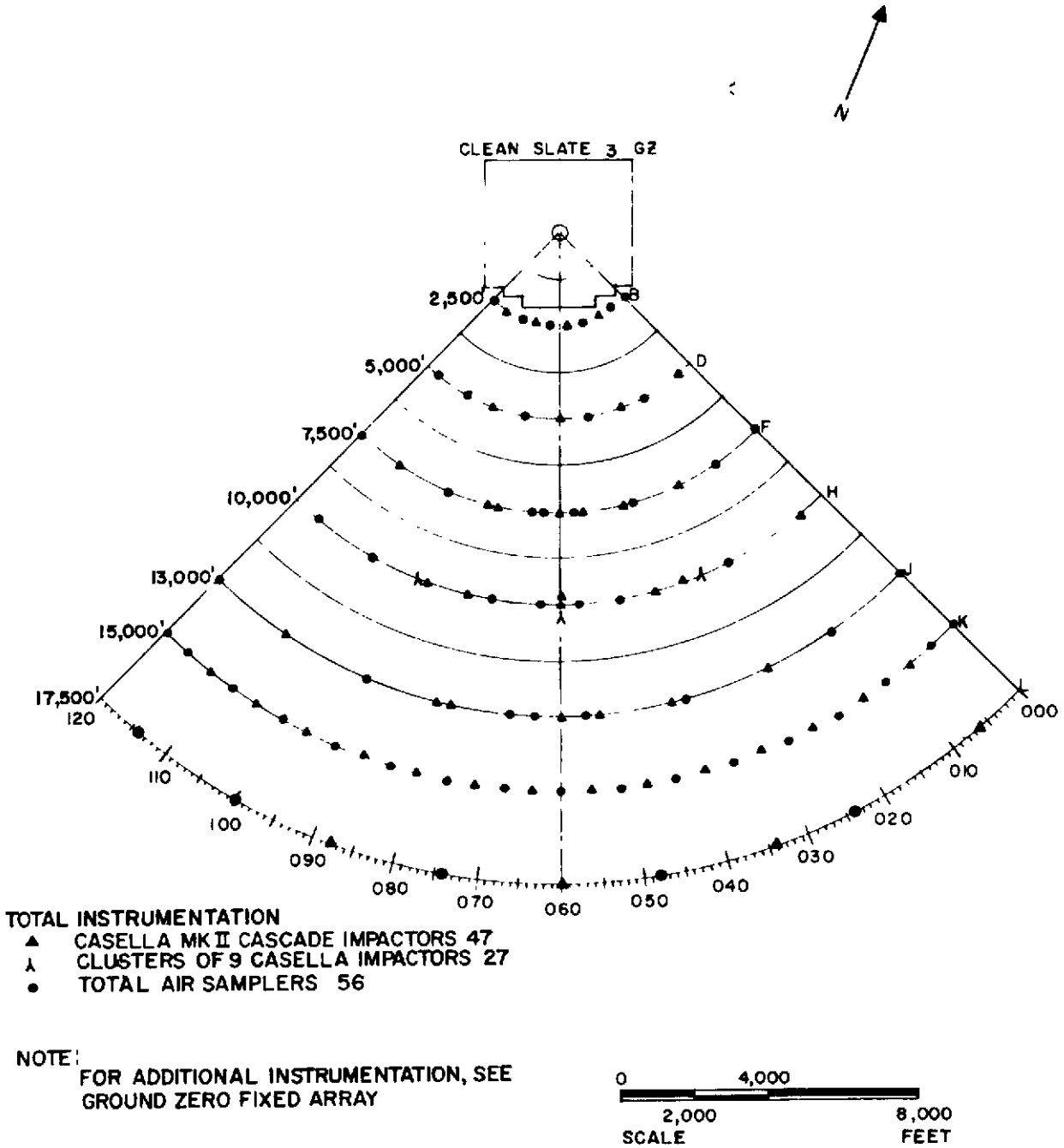


Figure 3.19 Clean Slate III array showing placement of fixed array for air samplers.

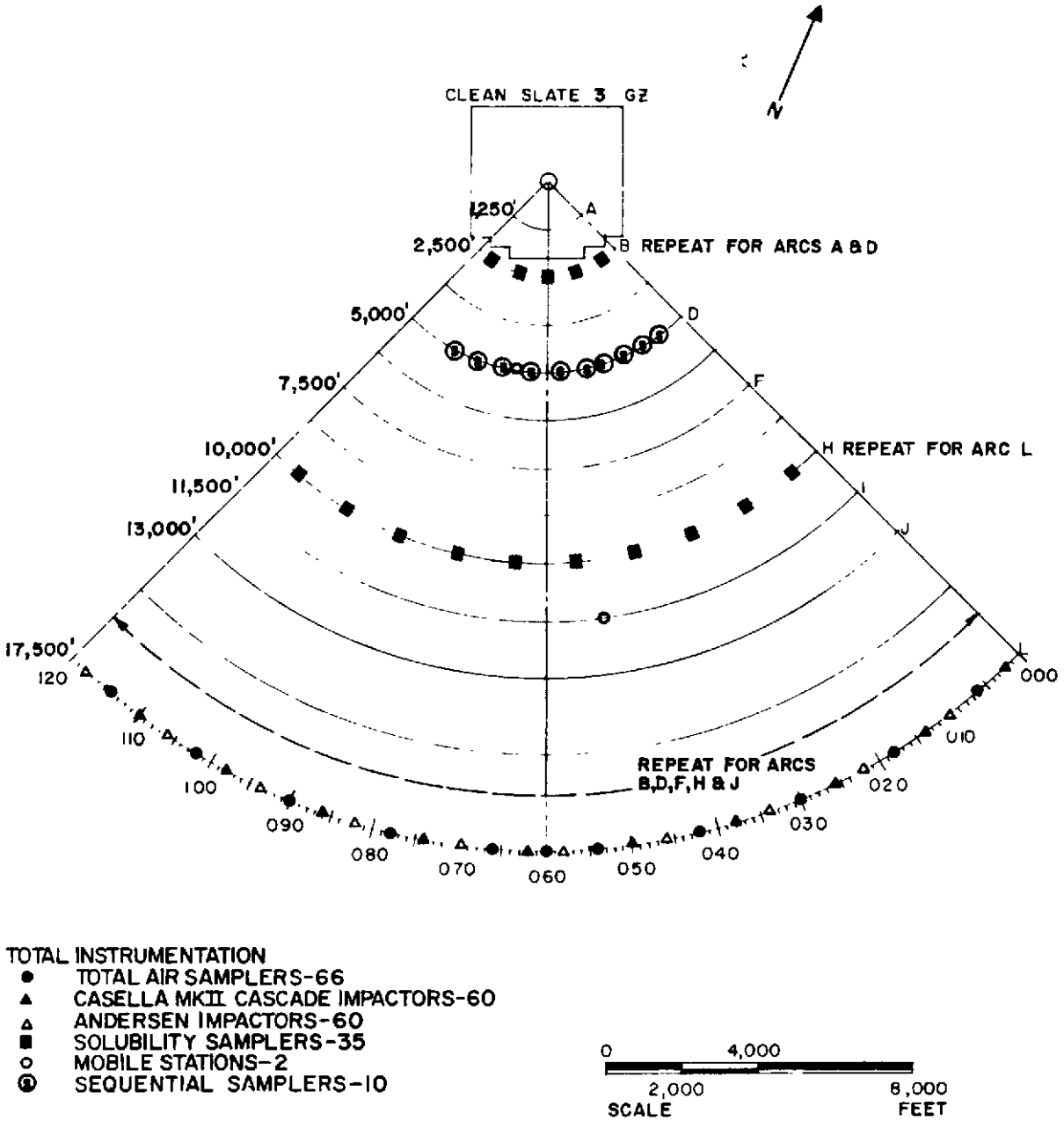


Figure 3.20 Clean Slate III array showing placement of movable array for air samplers.

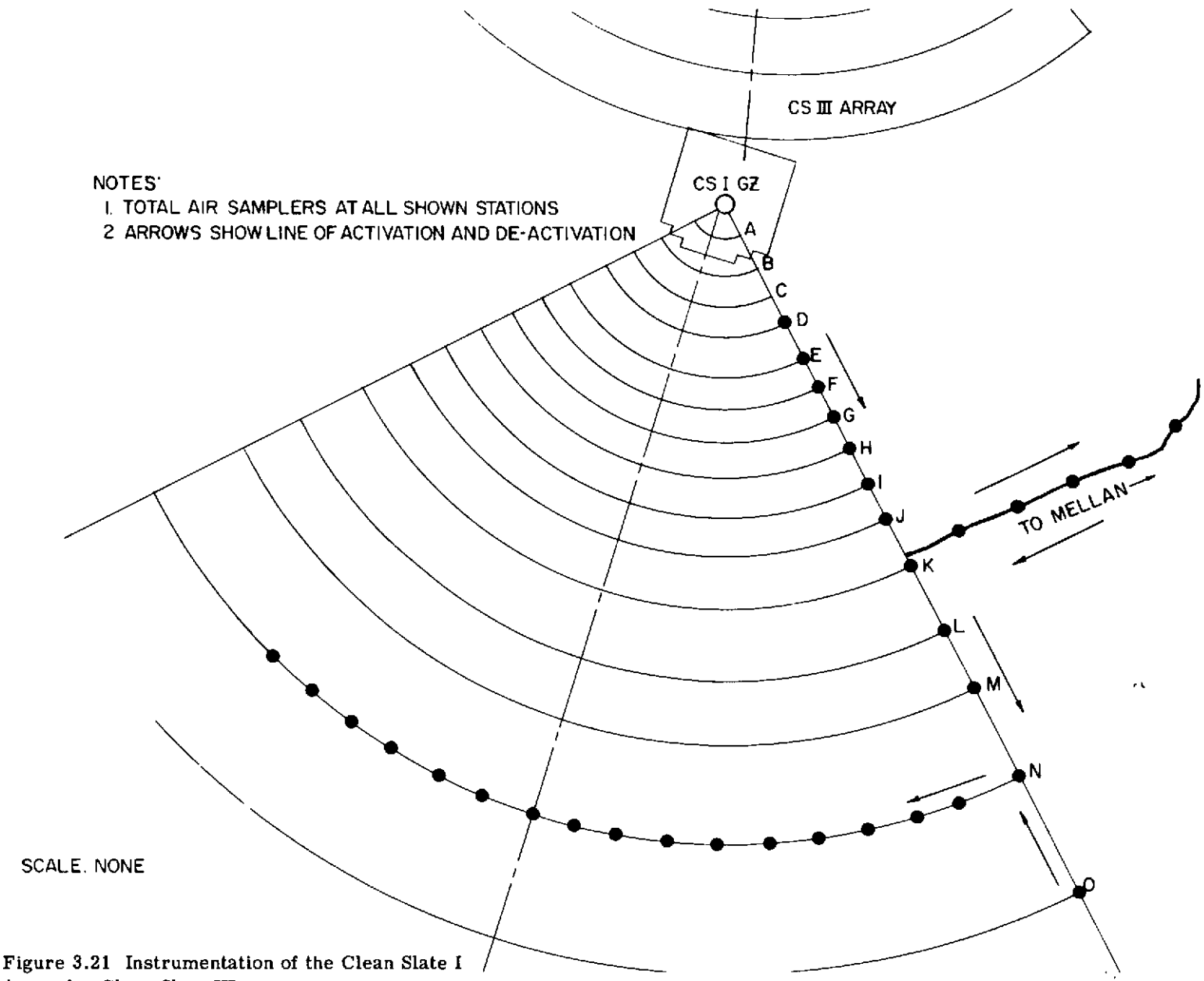
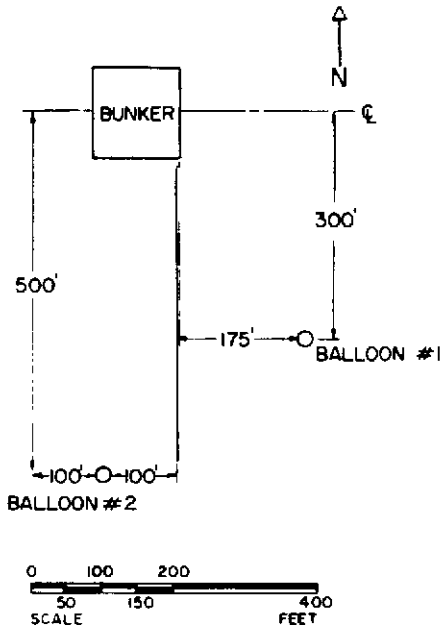


Figure 3.21 Instrumentation of the Clean Slate I Array for Clean Slate III.



POSITION OF INSTRUMENT	BALLOON #1	BALLOON #2
1	SC	SC
2	SC	SP
3	SC	SC
4	SC	SP
5	SC	SC
6	SC	SP
7	SC	SC
8	SC	SP
9	SC	SC
10	SC	SP
11	SC	SC
12	SC	SP
13	SC	SC
14	SC	SP
15	SC	—

NOTE
POSITIONS 14 & 15 LOCATED 10' ABOVE GROUND

SC - STICKY CYLINDER

SP - STICKY PLATE

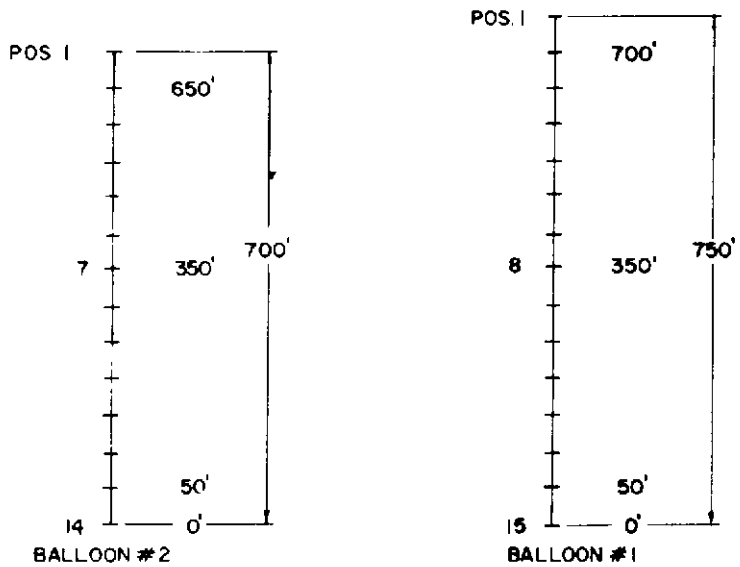


Figure 3.22 Instrumentation and placement of ground zero balloon array, Clean Slate III.

CHAPTER 4

RESULTS

Alpha counts of activity collected by Cascade impactors positioned on both the horizontal and vertical air-sampling arrays during all four of Operation Roller Coaster events are presented in Tables 4.1 through 4.4. The selection of particular air samplers for field counting was based on alpha surveys of ground contamination across the network arcs immediately following each event and on gross alpha surveys of samples as they were processed through the counting facilities of Project 5.1a. The calculations of total and respirable dose data presented in these tables were made by multiplying the cumulative dis/min data for impactor stages by the conversion factor 7.2973×10^{-6}. Although these data are extremely preliminary, they serve the very essential function of identifying samples for chemical analyses and an interesting preliminary look at the quality of the results which could be expected from the thorough analysis of the samples collected.

CHAPTER 4

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TABLE 4.1 IMPACTOR COUNTING DATA, DOUBLE TRACKS

For Casellas, respirable dose based on Stages 2, 3, 4, and 5; all others based on Stages 3, 4, 5, 6, and 7. Abbreviations used as follows: AND, Andersen; CAS, Casella; A, swipe of Andersen Stage No. 1 inlet; M, Stage missing; NA, not applicable.

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
GROUND ZERO					dis/min, alpha						$10^{-3}\mu g$	$10^{-3}\mu g$
BE 04	AND	2540	4	0	0	0	0	NA	0	0	0.029	0
BC 06	AND	2542	8	0	5	0	5	NA	0	0	0.13	0.037
BC 08	AND	2544	8	0	0	0	0	NA	0	13	0.15	0.095
BC 10	AND	2546	0	0	4	4	0	NA	0	8	0.12	0.088
BC 12	AND	2548	12	5	5	0	0	NA	5	4	0.23	0.066
BI-03	CAS	2493	NA	0	0	0	0	0	NA	NA	0	0
BI-01	CAS	2491	0	0	4	0	0	NA	NA	NA	0.029	0.029
BI 03	CAS	2489	NA	0	0	0	4	0	NA	NA	0.029	0.029
BI 13	CAS	2497	NA	0	0	0	0	0	NA	NA	0	0
BI 16	CAS	2499	NA	0	0	0	M	0	NA	NA	0	0
BI 18	CAS	2501	NA	11	15	11	7	4	NA	NA	0.35	0.16
BM 04	CAS	2503	NA	0	0	0	4	0	NA	NA	0.029	0.029
BM 06	CAS	2505	NA	0	0	0	0	4	NA	NA	0.029	0.029
BM 08	CAS	2507	NA	11	8	11	19	104	NA	NA	1.1	0.98
BM 10	CAS	2535	NA	19	0	0	0	0	NA	NA	0.14	0
BM 12	CAS	2537	NA	0	0	4	0	13	NA	NA	0.12	0.12
ARC A												
006	CAS	2516	NA	0	0	0	0	4	NA	NA	0.029	0.029
018	CAS	2518	NA	0	4	0	0	4	NA	NA	0.058	0.029
030	CAS	2520	NA	0	0	0	0	0	NA	NA	0	0
042	CAS	2522	NA	4	4	4	4	4	NA	NA	0.15	0.088
054	CAS	2524	NA	0	0	0	0	4	NA	NA	0.029	0.029
066	CAS	2526	NA	1490	2520	3344	406	1015	NA	NA	64	35
078	CAS	2528	NA	1420	1420	770	188	410	NA	NA	31	10
090	CAS	2530	NA	12	4	0	0	13	NA	NA	0.21	0.095
102	CAS	2532	NA	0	0	0	0	0	NA	NA	0	0
114	CAS	2533	NA	0	0	0	0	0	NA	NA	0	0
ARC B												
038	CAS	2095	NA	4	4	0	0	34	NA	NA	0.31	0.25
052	AND	2403	NA	0	0	0	0	NA	0	0	0	0
054	CAS	2401	NA	0	4	0	4	8	NA	NA	0.12	0.088
056	CAS	2415	NA	43	59	0	0	0	NA	NA	0.74	0
058	AND	2096	39	95	269	753	359	NA	225	210	14	11
062	CAS	2405	NA	67	549	8	12	5	NA	NA	4.7	0.18
064	AND	2413	25	101	258	400	317	NA	138	34	9.3	6.5
068	CAS	2402	NA	6480	10000	4320	1380	1540	NA	NA	170	53
070	AND	2426	482	910	2510	6200	4270	NA	2300	1150	130	100
074	CAS	2408	NA	3920	3520	2140	695	1170	NA	NA	84	29
076	AND	2092	0	0	0	0	0	NA	5	0	0.037	0.037
080	CAS	2416	NA	0	4	0	4	8	NA	NA	0.12	0.088
086	CAS	2098	NA	4	0	4	0	0	NA	NA	0.058	0.029

TABLE 4.1 CONTINUED

Station	Sampler	Tracer lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
1st BALLOON ARRAY, ARC B						dis/min, alpha					$10^{-3}\mu g$	$10^{-3}\mu g$
L2,P5	CAS	2435	NA	19	0	0	0	8	NA	NA	0.2	0.058
L2,P13	CAS	2436	NA	774	287	106	16	39	NA	NA	8.9	1.2
L2,P21	CAS	2437	NA	4050	4760	1510	802	905	NA	NA	88	23
L3,P1	CAS	2459	NA	7	7	7	4	0	NA	NA	0.18	0.08
L3,P9	CAS	2464	NA	8900	10600	4350	1410	1630	NA	NA	200	54
L3,P17	CAS	2461	NA	51900	4150	194	0	354	NA	NA	410	4.0
L5,P1	CAS	2905	NA	0	4	0	0	0	NA	NA	0.029	0
L5,P9	CAS	2906	NA	126000	7310	4620	2070	2120	NA	NA	1000	64
L5,P17	CAS	2907	NA	131000	19900	5890	1510	2500	NA	NA	1200	72
L6,P5	CAS	2102	NA	0	0	0	0	0	NA	NA	0	0
L6,P13	CAS	2110	NA	63500	6180	5140	1350	1380	NA	NA	570	57
L6,P21	CAS	2150	NA	16900	1750	2510	M	569	NA	NA	160	22
L8,P5	CAS	2981	NA	0	0	4	0	13	NA	NA	0.12	0.12
L8,P13	CAS	2111	NA	66100	4010	1680	824	452	NA	NA	530	22
L8,P21	CAS	2151	NA	9920	874	2050	290	466	NA	NA	99	20
L9,P1	CAS	2909	NA	4	0	0	0	8	NA	NA	0.088	0.058
L9,P9	CAS	2910	NA	4	7	7	37	0	NA	NA	0.4	0.32
L9,P17	CAS	2911	NA	10200	3500	1330	345	485	NA	NA	120	16
L11,P1	CAS	2913	NA	4	4	0	0	13	NA	NA	0.15	0.095
L11,P9	CAS	2915	NA	0	0	0	0	13	NA	NA	0.095	0.095
L11,P17	CAS	2916	NA	5100	1000	380	143	146	NA	NA	49	4.9
L12,P5	CAS	2103	NA	0	0	0	0	0	NA	NA	0	0
L12,P13	CAS	2112	NA	0	0	4	0	4	NA	NA	0.058	0.058
L12,P21	CAS	2152	NA	23500	950	2080	323	589	NA	NA	200	22
L14,P5	CAS	2104	NA	0	0	0	0	0	NA	NA	0	0
L14,P13	CAS	2113	NA	0	0	0	0	0	NA	NA	0	0
L14,P21	CAS	2153	NA	25400	1860	1920	315	911	NA	NA	220	23
L15,P1	CAS	2918	NA	4	0	0	0	0	NA	NA	0.029	0
L15,P9	CAS	2877	NA	4	0	4	0	0	NA	NA	0.058	0.029
L15,P17	CAS	2878	NA	0	8	0	0	4	NA	NA	0.088	0.029
L17,P1	CAS	2880	NA	0	0	0	0	4	NA	NA	0.029	0.029
L17,P8	CAS	2881	NA	0	0	0	0	0	NA	NA	0	0
L17,P16	CAS	2882	NA	0	0	0	0	0	NA	NA	0	0
L18,P5	CAS	2105	NA	0	4	0	0	0	NA	NA	0.029	0
L18,P13	CAS	2114	NA	0	4	0	0	0	NA	NA	0.029	0
L18,P21	CAS	2154	NA	7030	1690	361	289	96	NA	NA	69	5.4
L20,P5	CAS	2106	NA	0	0	0	0	8	NA	NA	0.058	0.058
L20,P13	CAS	2115	NA	0	4	0	0	0	NA	NA	0.029	0
L20,P21	CAS	2155	NA	1270	336	287	30	116	NA	NA	15	3.2
L21,P1	CAS	2137	NA	0	0	4	0	0	NA	NA	0.029	0.029
L21,P9	CAS	2138	NA	4	0	0	0	0	NA	NA	0.029	0
L21,P17	CAS	2139	NA	11	7	7	7	0	NA	NA	0.23	0.1
L23,P1	CAS	2142	NA	0	0	0	0	0	NA	NA	0	0
L23,P9	CAS	2143	NA	0	8	8	0	0	NA	NA	0.12	0.058
L23,P17	CAS	2144	NA	0	0	0	4	0	NA	NA	0.029	0.029
L24,P5	CAS	2107	NA	0	0	0	0	0	NA	NA	0	0
L24,P13	CAS	2116	NA	0	0	0	0	0	NA	NA	0	0
L24,P21	CAS	2156	NA	0	0	0	0	0	NA	NA	0	0
L26,P5	CAS	2108	NA	0	4	0	0	0	NA	NA	0.029	0

TABLE 4.1 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
			dis/min, alpha								$10^{-3}\mu g$	$10^{-3}\mu g$
L26,P13	CAS	2117	NA	0	0	0	0	0	NA	NA	0	0
L26,P21	CAS	2157	NA	0	0	0	0	0	NA	NA	0	0
L27,?	CAS	2148	NA	0	0	0	0	0	NA	NA	0	0
L27,?	CAS	2146	NA	0	3	3	0	0	NA	NA	0.044	0.022
L27,?	CAS	2147	NA	0	0	0	0	8	NA	NA	0.858	0.858
L29,P1	CAS	2982	NA	8	4	0	0	4	NA	NA	0.12	0.029
L29,P9	CAS	2983	NA	0	0	0	0	0	NA	NA	0	0
L29,P17	CAS	2984	NA	0	0	0	0	0	NA	NA	0	0
L30,P5	CAS	2109	NA	4	0	0	0	5	NA	NA	0.066	0.037
L30,P13	CAS	2118	NA	5	0	0	0	0	NAS	NA	0.037	0
L30,P21	CAS	2158	NA	4	0	0	0	0	NA	NA	0.029	0
ARC D												
032	CAS	2926	NA	0	0	8	4	4	NA	NA	0.12	0.12
034	AND	2871	4	5	9	5	9	NA	5	9	0.34	0.2
040	AND	2865	0	0	0	0	0	NA	0	8	0.058	0.058
044	CAS	2867	NA	60	0	4	4	0	NA	NA	0.5	0.058
046	AND	2868	8	0	0	4	0	NA	28	0	0.29	0.23
050	CAS	2863	NA	146	4	0	0	0	NA	NA	1.1	0
052	AND	2924	97	634	20	29	0	NA	0	3	5.7	0.23
056	CAS	2870	NA	996	153	12	4	9	NA	NA	8.6	0.18
058	AND	2927	12	0	0	0	0	NA	0	3	0.11	0.022
060	CAS	2857	NA	153	19	8	0	8	NA	NA	1.4	0.12
062	CAS	2923	NA	1160	113	69	451	10	NA	NA	13	3.9
064	AND	2920	47	103	300	623	556	NA	556	110	17	13
068	CAS	2922	NA	2870	1640	1320	490	543	NA	NA	50	17
070	CAS	2922	214	363	188	1940	1890	NA	735	620	43	38
074	CAS	2848	NA	15	15	8	8	12	NA	NA	0.42	0.2
076	AND	2854	0	13	17	0	9	NA	17	3	0.43	0.21
080	CAS	2850	NA	75	4	0	8	0	NA	NA	0.64	0.058
034	CAS	2919	NA	0	4	0	0	0	NA	NA	0.029	0
ARC E												
056	CAS	9653	NA	684	122	49	19	17	NA	NA	6.5	0.62
056	CAS	9687	NA	566	46	29	17	18	NA	NA	4.9	0.49
058	CAS	9689	NA	1030	17	4	0	0	NA	NA	7.7	0.029
MOBILE STATION NO. 1, ARC F												
Pos 1	CAS	2159	NA	61	7	274	0	8	NA	NA	2.6	2.1
Pos 2	CAS	2160	NA	588	21	0	0	0	NA	NA	4.4	0
Pos 3	CAS	2161	NA	50	7	7	11	13	NA	NA	0.64	0.23
Pos 4	CAS	2162	NA	0	15	29	26	13	NA	NA	0.61	0.50
Pos 5	CAS	2165	NA	862	0	5	0	13	NA	NA	6.4	0.13
Pos 6	CAS	2166	NA	4	0	0	0	0	NA	NA	0.029	0
Pos 7	CAS	2167	NA	239	15	15	4	0	NA	NA	2.0	0.14
Pos 8	AND	2168	66	212	171	208	111	NA	60	13	6.1	2.9
Pos 9	AND	2170	27	50	159	173	82	NA	23	3	3.8	2.1
Pos 10	AND	2174	19	825	145	239	84	NA	52	13	10	2.8
Pos 11	CAS	2175	NA	0	0	0	0	0	NA	NA	0	0
Pos 12	CAS	2176	NA	663	15	38	100	2	NA	NA	6.0	1.0

TABLE 4.1 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
ARC F			dis/min, alpha								$10^{-3}\mu g$	$10^{-3}\mu g$
032	CAS	2758	NA	0	0	4	0	0	NA	NA	0.029	0.029
034	AND	2778	12	0	0	0	0	NA	0	4	0.12	0.029
038	CAS	2763	NA	0	0	0	0	4	NA	NA	0.029	0.029
040	AND	2774	0	0	6	3	0	NA	0	2	0.08	0.037
044	CAS	2766	NA	31	0	4	4	4	NA	NA	0.31	0.088
046	AND	2771	54	430	37	0	0	NA	0	2	3.8	0.015
050	CAS	2769	NA	74	0	134	60	5	NA	NA	2.0	1.5
052	AND	2781	23	9	9	51	14	NA	0	10	0.85	0.55
054	CAS	2761	NA	150	108	27	12	21	NA	NA	2.3	0.44
056	CAS	2780	NA	234	43	17	13	5	NA	NA	2.3	0.26
058	AND	2767	24	26	44	44	22	NA	4	8	1.3	0.57
062	CAS	2773	NA	1410	135	212	61	95	NA	NA	14	2.7
064	AND	2759	478	621	851	2900	1690	NA	451	500	55	40
068	CAS	2762	NA	1580	1570	637	226	395	NA	NA	32	9.2
070	AND	2764	31	115	203	244	65	NA	65	74	5.8	3.3
074	CAS	2747	NA	2	8	0	0	4	NA	NA	0.1	0.029
076	AND	2756	0	5	0	0	0	NA	0	4	0.066	0.029
080	CAS	2755	NA	8	0	8	0	4	NA	NA	0.15	0.088
086	CAS	2751	NA	0	0	0	0	M	NA	NA	0	0
ARC H												
032	CAS	2737	NA	0	0	0	4	5	NA	NA	0.066	0.066
034	CAS	2708	NA	0	5	0	0	4	NA	NA	0.066	0.029
034	AND	2721	25	0	0	0	0	NA	0	2	0.2	0.015
038	CAS	2730	NA	4	0	0	0	0	NA	NA	0.029	0
040	AND	2718	4	1410	0	0	0	NA	0	0	10	0
044	CAS	2734	NA	4	0	0	0	0	NA	NA	0.029	0
046	AND	2714	239	736	4	13	0	NA	0	2	7.3	0.11
050	CAS	2720	NA	84	22	57	4	5	NA	NA	1.3	0.48
052	AND	2711	35	766	151	80	21	NA	18	12	7.9	0.96
056	CAS	2727	NA	893	95	82	9	24	NA	NA	8.1	0.84
058	AND	2707	210	837	423	202	78	NA	32	34	13	2.5
060	CAS	2723	NA	1358	547	214	68	89	NA	NA	17	2.7
062	CAS	2717	NA	2820	2530	684	174	159	NA	NA	46	7.4
064	AND	2728	243	713	1270	1700	1180	NA	469	263	42	26
068	CAS	2724	NA	435	1280	506	137	273	NA	NA	19	6.7
070	AND	2725	54	147	216	759	414	NA	198	106	14	11
074	CAS	2713	NA	65	246	78	22	56	NA	NA	3.4	1.1
076	AND	2732	0	0	0	0	0	NA	0	4	0.029	0.029
BIOLOGICAL ARRAY, ARC I												
057	CAS	9655	NA	1230	125	61	49	38	NA	NA	11	1.1
059	CAS	9693	NA	42	175	46	33	45	NA	NA	2.5	0.51
059	CAS	9675	NA	1190	532	349	130	190	NA	NA	17	4.9
059	CAS	9628	NA	0	0	0	0	0	NA	NA	0.066	0.066
061	CAS	9676	NA	3250	743	679	147	259	NA	NA	37	7.9

TABLE 4.1 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
BRITISH BALLOON			dis/min, alpha								10^{-3} µg	10^{-3} µg
L4, P6	CAS	2476	NA	65	0	0	4	8	NA	NA	0.56	0.088
L4, P13	CAS	2477	NA	2610	562	M	360	226	NA	NA	27	4.3
L6, P6	CAS	2481	NA	0	0	0	0	0	NA	NA	0	0
L6, P13	CAS	2482	NA	448	224	152	30	108	NA	NA	7.0	2.1
L8, P6	CAS	2485	NA	0	0	0	0	5	NA	NA	0.037	0.037
L8, P13	CAS	2486	NA	0	4	2	4	4	NA	NA	0.1	0.073
ARC J												
032	CAS	2818	NA	4	0	0	0	13	NA	NA	0.12	0.095
034	AND	2819	8	0	0	0	0	NA	0	4	0.88	0.029
038	CAS	2814	NA	0	0	0	4	5	NA	NA	0.066	0.066
044	CAS	2807	NA	182	642	100	265	328	NA	NA	11	5.1
046	AND	2809	1650	401	0	0	0	NA	M	13	15	0.095
050	CAS	2811	NA	2009	17	4	4	4	NA	NA	15	0.088
052	AND	2816	43	423	9	0	0	NA	0	0	3.5	0
054	CAS	2800	NA	998	22	39	13	14	NA	NA	7.9	0.48
056	CAS	2801	NA	329	23	61	11	34	NA	NA	3.3	0.77
058	AND	2812	175	1180	888	648	272	NA	177	132	25	9.0
062	CAS	2804	NA	2160	921	1180	247	418	NA	NA	36	13
064	AND	2805	257	298	868	1540	912	NA	329	365	33	23
068	CAS	2797	NA	39	39	59	20	30	NA	NA	1.4	0.80
074	CAS	2790	NA	73	9	13	4	0	NA	NA	0.72	0.12
MOBILE STATION NO. 2, ARC K, STATION 050												
Pos 1	CAS	2181	NA	350	0	18	15	4	NA	NA	2.8	0.27
Pos 2	CAS	2163	NA	0	0	0	0	0	NA	NA	0	0
Pos 3	CAS	2133	NA	203	0	0	0	0	NA	NA	1.5	0
Pos 4	CAS	2135	NA	395	0	0	4	2	NA	NA	2.9	0.44
Pos 5	CAS	2177	NA	0	0	0	0	0	NA	NA	0	0
Pos 6	CAS	2179	NA	0	0	0	0	NA	NA	NA	0	0
Pos 7	CAS	2169	NA	0	0	4	0	0	NA	NA	0.029	0.029
Pos 8	AND	2164	4	15	0	0	0	NA	0	8	0.2	0.058
Pos 9	AND	2132	4	89	0	0	0	NA	0	4	0.71	0.029
Pos 10	AND	2134	0	27	9	22	18	NA	13	3	0.67	0.41
Pos 11	CAS	2178	NA	491	0	4	0	0	NA	NA	3.6	0.029
Pos 12	CAS	2180	NA	0	0	0	0	0	NA	NA	0	0
ARC L												
032	CAS	2037	NA	0	0	4	4	0	NA	NA	0.058	0.058
034	AND	2027	8	0	0	0	0	NA	0	3	0.08	0.022
038	CAS	2022	NA	0	4	0	0	4	NA	NA	0.058	0.029
040	AND	2023	8	0	0	0	0	NA	0	13	0.15	0.095
044	CAS	2056	NA	187	226	0	0	0	NA	NA	3.0	0
046	AND	2061	8	573	0	0	0	NA	0	0	4.2	0
050	CAS	2009	NA	23	0	0	0	0	NA	NA	0.17	0
052	AND	2064	4	401	0	0	0	NA	0	3	3.0	0.022
056	CAS	2040	NA	0	4	9	4	0	NA	NA	0.12	0.095
058	AND	2011	173	616	31	53	22	NA	9	0	6.6	0.61
060	CAS	2036	NA	322	30	61	9	34	NA	NA	3.3	0.76
062	CAS	2060	NA	1506	76	87	38	37	NA	NA	13	1.2
064	AND	2031	109	291	296	351	80	NA	65	63	9.2	4.1
068	CAS	2063	NA	560	191	78	26	57	NA	NA	6.7	1.2
070	AND	2058	NA	105	59	108	50	NA	25	22	2.7	1.5
080	CAS	2025	NA	9	0	9	4	5	NA	NA	0.2	0.13

TABLE 4.1 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
			dis/min, alpha								10^{-3} µg	10^{-3} µg
ARC N												
026	CAS	2825	NA	0	0	0	0	0	NA	NA	0	0
032	CAS	2884	NA	0	0	0	0	13	NA	NA	0.095	0.095
034	AND	2899	8	88	9	18	18	NA	23	3	1.2	0.45
038	CAS	2891	NA	9	0	0	0	0	NA	NA	0.066	0
040	AND	2892	16	0	0	0	0	NA	0	5	0.15	0.037
044	CAS	2887	NA	397	4	0	0	4	NA	NA	3.0	0.029
046	AND	2889	25	0	0	0	0	NA	0	0	0.18	0
050	CAS	2898	NA	1070	17	0	0	0	NA	NA	7.9	0
052	AND	2885	4	41	14	23	32	NA	32	13	1.2	0.73
054	CAS	3976	NA	1370	38	11	0	4	NA	NA	10	0.11
056	CAS	2894	NA	341	9	9	4	2	NA	NA	2.7	0.11
058	AND	2842	0	21	65	83	36	NA	18	17	1.8	1.1
062	CAS	2841	NA	341	121	69	17	70	NA	NA	4.5	1.1
064	AND	2828	23	20	142	246	133	NA	0	46	4.5	3.1
068	CAS	2837	NA	402	330	79	32	63	NA	NA	6.6	1.3
070	AND	2831	12	20	89	281	94	NA	84	25	4.4	3.5
074	CAS	2830	NA	12	23	23	12	13	NA	NA	0.61	0.35
080	CAS	2827	NA	31	54	0	8	4	NA	NA	0.71	0.088
ARC P												
006	CAS	2008	NA	4	7	15	4	7	NA	NA	0.27	0.19
032	CAS	2082	NA	0	0	4	4	54	NA	NA	0.45	0.45
034	AND	2080	16	0	9	0	0	NA	5	NA	0.22	0.037
034	CAS	2018	NA	4	0	4	0	37	NA	NA	0.33	0.30
038	CAS	2079	NA	4	16	12	0	26	NA	NA	0.42	0.28
040	AND	2077	23	117	63	36	14	NA	68	5	2.4	0.9
044	CAS	2089	NA	552	17	4	4	77	NA	NA	4.8	0.62
046	AND	2090	70	152	41	143	28	NA	18	10	3.4	1.5
050	CAS	2086	NA	1120	22	13	0	57	NA	NA	8.8	0.51
052	AND	2087	27	1240	97	97	28	NA	14	23	11	1.2
056	CAS	2054	NA	74	12	67	8	98	NA	NA	1.9	1.3
058	AND	2084	43	124	97	83	18	NA	0	31	2.9	0.96
060	CAS	2053	NA	504	8	30	4	25	NA	NA	4.2	0.43
062	CAS	2020	NA	350	16	12	4	9	NA	NA	2.9	0.18
064	AND	2041	93	657	127	103	44	NA	15	21	7.7	1.3
068	CAS	2043	NA	121	82	12	4	31	NA	NA	1.8	0.34
070	AND	2017	23	84	145	28	0	NA	0	4	2.1	0.23
074	CAS	2047	NA	4	0	0	0	8	NA	NA	0.088	0.058
076	AND	2044	27	239	42	14	9	NA	0	17	2.5	0.29
080	CAS	2050	NA	11	4	4	0	4	NA	NA	0.17	0.058
082	AND	2048	8	170	0	60	0	NA	0	17	1.9	0.56
086	CAS	2015	NA	33	12	0	4	14	NA	NA	0.46	0.13
088	AND	2051	0	0	208	0	0	NA	0	13	1.6	0.095
088	CAS	2091	NA	0	4	4	0	0	NA	NA	0.058	0.029

TABLE 4.1 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
ARC R			dis/min, alpha								$10^{-3}\mu g$	$10^{-3}\mu g$
026	CAS	2931	NA	186	47	56	5	17	NA	NA	2.3	0.57
054	CAS	2946	NA	734	89	89	19	42	NA	NA	7.1	1.1
056	CAS	2947	NA	500	291	723	31	34	NA	NA	12	5.8
058	AND	2951	97	47	93	52	28	NA	13	23	2.6	0.85
062	CAS	2940	NA	210	107	116	13	28	NA	NA	3.5	1.1
064	AND	2965	58	240	447	355	198	NA	83	90	11	5.3
068	CAS	2943	NA	280	186	103	14	45	NA	NA	4.6	1.2
070	AND	2962	66	143	217	258	74	NA	32	92	6.4	3.3
074	CAS	2960	NA	339	227	96	19	17	NA	NA	5.1	0.96
076	AND	2941	89	249	103	212	150	NA	33	97	6.8	3.6
080	CAS	2961	NA	56	117	73	13	19	NA	NA	2.0	0.77
082	AND	2934	23	105	268	404	105	NA	57	43	7.3	4.4
086	CAS	2964	NA	72	110	49	19	38	NA	NA	2.1	0.77
088	AND	2937	12	29	7	11	38	NA	75	25	1.4	1.1
092	CAS	2953	NA	136	125	38	23	21	NA	NA	2.5	0.6
094	AND	2958	8	129	194	157	83	NA	18	41	4.6	2.2
098	CAS	2957	NA	34	64	38	11	25	NA	NA	1.3	0.54
100	AND	2944	8	13	83	71	32	NA	10	33	1.8	1.1
104	CAS	2950	NA	26	77	9	4	0	NA	NA	0.85	0.095
106	AND	2955	4	14	14	23	9	NA	5	NA	0.50	0.27
106	CAS	2968	NA	0	9	9	0	4	NA	NA	0.16	0.095
110	CAS	2936	NA	0	4	0	9	0	NA	NA	0.095	0.066
112	AND	2948	8	0	0	0	0	NA	4	0	0.088	0.029

TABLE 4.2 IMPACTOR COUNTING DATA, CLEAN SLATE I

For Casellas, respirable dose based on Stages 2, 3, 4, and 5; all others based on Stages 3, 4, 5, 6, and 7. Abbreviations used as follows: AND, Andersen; CAS, Casella; A, swipe of Andersen Stage No. 1 inlet; M, stage missing; NA, not applicable.

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
GROUND ZERO					dis/min, alpha						$10^{-3}\mu g$	$10^{-3}\mu g$
BI 03	CAS	3370	NA	4	8	4	4	17	NA	NA	0.28	0.18
BI 01	CAS	3365	NA	0	4	8	4	25	NA	NA	0.3	0.27
BI 03	CAS	3368	NA	4	8	4	4	13	NA	NA	0.24	0.15
BI 13	CAS	3371	NA	4	8	4	8	17	NA	NA	0.3	0.21
BI 16	CAS	3367	NA	0	0	0	8	0	NA	NA	0.058	0.058
BI 18	CAS	3366	NA	0	8	4	4	13	NA	NA	0.21	0.15
BM 04	CAS	3373	NA	4	8	8	4	4	NA	NA	0.2	0.12
BM 06	CAS	3372	NA	84	27	19	8	13	NA	NA	1.1	0.29
BM 08	CAS	3369	NA	0	0	4	0	0	NA	NA	0.029	0.029
BM 10	CAS	3374	NA	11	4	4	8	13	NA	NA	0.29	0.18
BM 12	CAS	3375	NA	23	19	8	11	29	NA	NA	0.66	0.35
ARC A												
018	CAS	3355	NA	0	0	0	0	0	NA	NA	0	0
030	CAS	3356	NA	19	8	12	4	0	NA	NA	0.31	0.12
ARC B												
016	AND	3315	12	4	0	0	0	NA	0	21	0.27	0.15
018	CAS	2700	NA	0	4	0	0	30	NA	NA	0.25	0.22
022	AND	3314	103	16300	23	11	0	NA	0	47	120	0.42
024	CAS	2697	NA	34	4	0	8	37	NA	NA	0.61	0.33
026	CAS	2688	NA	4	4	0	4	12	NA	NA	0.18	0.12
028	AND	3313	42	1580	18	2	2	NA	0	0	12	0.029
032	CAS	2687	NA	0	0	4	4	0	NA	NA	0.058	0.058
034	AND	3304	8	2	0	0	0	NA	0	0	0.073	0
038	CAS	2686	NA	4	4	4	8	34	NA	NA	0.4	0.34
040	AND	3303	0	2	0	5	0	NA	7	43	0.42	0.4
1st BALLOON ARRAY, ARC B												
L2,P5	CAS	3418	NA	4	12	0	0	4	NA	NA	0.15	0.029
L2,P13	CAS	3411	NA	0	0	0	0	0	NA	NA	0	0
L2,P21	CAS	3413	NA	0	0	0	0	0	NA	NA	0	0
L3,P1	CAS	3421	NA	0	0	0	52	0	NA	NA	0.38	0.38
L3,P17	CAS	3417	NA	20	0	0	0	9	NA	NA	0.21	0.021
L5,P1	CAS	3420	NA	4	0	0	4	0	NA	NA	0.058	0.029
L5,P9	CAS	3422	NA	0	0	0	4	0	NA	NA	0.029	0.029
L5,P17	CAS	3416	NA	4	4	0	4	4	NA	NA	0.15	0.058
L6,P5	CAS	3412	NA	0	0	0	0	0	NA	NA	0	0
L6,P13	CAS	3419	NA	4	0	0	4	0	NA	NA	0.058	0.029
L6,P21	CAS	3415	NA	111	32	12	4	22	NA	NA	1.3	0.29
L8,P5	CAS	3424	NA	0	0	4	0	0	NA	NA	0.029	0.029
L8,P13	CAS	3431	NA	4	0	0	0	4	NA	NA	0.058	0.029
L8,P21	CAS	3427	NA	1320	239	40	12	17	NA	NA	12	0.5
L9,P1	CAS	3429	NA	0	0	0	24	0	NA	NA	0.18	0.18
L9,P9	CAS	3426	NA	8	4	0	0	9	NA	NA	0.015	0.065
L9,P17	CAS	3423	NA	4	0	0	0	4	NA	NA	0.058	0.029
L11,P1	CAS	3430	NA	0	0	8	4	0	NA	NA	0.088	0.088

TABLE 4.2 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
			dis/min, alpha								$10^{-3}\mu g$	$10^{-3}\mu g$
L11,P9	CAS	3425	NA	0	0	0	4	0	NA	NA	0.029	0.029
L11,P17	CAS	3428	NA	4	0	0	0	0	NA	NA	0.029	0
L12,P5	CAS	3439	NA	36	44	84	128	38	NA	NA	2.4	1.8
L12,P13	CAS	3448	NA	0	0	0	0	0	NA	NA	0	0
L12,P21	CAS	3436	NA	4440	1320	140	52	43	NA	NA	44	1.7
L14,P5	CAS	3435	NA	1240	928	872	M	363	NA	NA	25	9.9
L14,P13	CAS	3437	NA	4	0	0	0	0	NA	NA	0.029	0
L14,P21	CAS	3438	NA	1780	272	96	24	21	NA	NA	16	1.0
L15,P1	CAS	3433	NA	0	0	4	4	0	NA	NA	0.058	0.058
L15,P9	CAS	3432	NA	3350	836	1350	696	165	NA	NA	47	16
L15,P17	CAS	3434	NA	124	52	44	64	13	NA	NA	2.2	0.89
L17,P1	CAS	3444	NA	0	4	0	0	0	NA	NA	0.029	0
L17,P9	CAS	3442	NA	1010	624	624	204	162	NA	NA	19	7.2
L17,P17	CAS	3440	NA	309	87	103	32	9	NA	NA	3.9	1.1
L18,P5	CAS	3451	NA	16	4	0	0	0	NA	NA	0.015	0
L18,P13	CAS	3446	NA	36	4	0	0	4	NA	NA	0.32	0.029
L18,P21	CAS	3449	NA	1060	499	115	4	4	NA	NA	12	0.9
L20,P5	CAS	3450	NA	64000	9740	3190	1750	364	NA	NA	580	39
L20,P13	CAS	3452	NA	1050	198	63	36	30	NA	NA	10	0.95
L20,P21	CAS	3447	NA	1320	144	8	0	9	NA	NA	11	0.13
L21,P1	CAS	3443	NA	0	0	4	0	4	NA	NA	0.058	0.058
L21,P9	CAS	3441	NA	1.1+5	14800	2900	2320	346	NA	NA	950	41
L21,P17	CAS	3445	NA	8790	3370	455	412	94	NA	NA	96	7.0
L23,P1	CAS	3455	NA	0	0	0	0	0	NA	NA	0	0
L23,P9	CAS	3453	NA	65700	12600	3260	1870	554	NA	NA	610	42
L23,P17	CAS	3454	NA	8830	1690	276	223	30	NA	NA	81	3.9
L24,P5	CAS	3458	NA	31900	7530	2680	2320	699	NA	NA	330	42
L24,P13	CAS	3456	NA	6180	1460	419	476	13	NA	NA	63	6.6
L24,P21	CAS	3457	NA	0	0	0	4	17	NA	NA	0.15	0.15
L26,P5	CAS	3459	NA	27	46	19	27	4	NA	NA	0.9	0.37
L26,P13	CAS	3460	NA	1350	399	315	180	141	NA	NA	18	4.6
L26,P21	CAS	3461	NA	0	4	0	0	0	NA	NA	0.029	0
L27,P1	CAS	3463	NA	0	0	0	0	0	NA	NA	0	0
L27,P9	CAS	3464	NA	4790	23100	3660	1180	462	NA	NA	560	39
L27,P17	CAS	3462	NA	11300	2380	1208	143	38	NA	NA	110	10
L29,P1	CAS	3465	NA	0	0	0	0	0	NA	NA	0	0
L29,P9	CAS	3466	NA	3840	1450	8	4	0	NA	NA	39	0.088
L29,P17	CAS	3467	NA	2570	574	123	24	8	NA	NA	24	1.1
L30,P5	CAS	3469	NA	0	0	0	0	0	NA	NA	0	0
L30,P13	CAS	3468	NA	0	0	0	M	0	NA	NA	0	0
L30,P21	CAS	3474	NA	0	0	0	0	0	NA	NA	0	0
ARC D												
016	AND	2615	21	0	0	0	0	NA	0	13	0.25	0.095
018	CAS	2629	NA	0	4	0	0	4	NA	NA	0.058	0.029
022	AND	2614	0	520	2	0	0	NA	0	0	3.8	0
024	CAS	2621	NA	0	4	0	4	25	NA	NA	0.24	0.21
028	AND	2617	29	1030	43	0	2	NA	0	43	8.4	0.33
032	CAS	2620	NA	11	4	30	4	45	NA	NA	0.69	0.58
034	AND	2608	4	4	0	4	0	NA	0	69	0.59	0.53
034	CAS	2619	NA	0	15	4	11	45	NA	NA	0.55	0.44
038	CAS	2618	NA	0	4	0	4	53	NA	NA	0.45	0.42
040	AND	2609	8	0	0	0	0	NA	4	26	0.27	0.22

TABLE 4.2 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
ARC F			dis/min, alpha								10^{-3} µg	10^{-3} µg
016	AND	2599	13	5	0	0	M	NA	2	0	0.15	0.15
018	CAS	2592	NA	0	0	0	0	0	NA	NA	0	0
022	AND	2598	8	9	0	0	0	NA	0	0	0.13	0
024	CAS	2589	NA	0	0	4	4	0	NA	NA	0.058	0.058
026	CAS	2587	NA	0	0	4	8	8	NA	NA	0.15	0.15
028	AND	2600	4	905	0	0	0	NA	0	4	6.7	0.029
032	CAS	2578	NA	4	8	0	0	0	NA	NA	0.088	0
034	AND	2596	0	0	13	9	4	NA	0	17	0.31	0.22
038	CAS	2588	NA	0	4	4	0	4	NA	NA	0.088	0.058
040	AND	2595	4	0	0	5	0	NA	5	17	0.23	0.2
MOBILE STATION NO. 1, ARC F												
Pos 1	CAS	3479	NA	0	0	0	0	0	NA	NA	0	0
Pos 2	CAS	3481	NA	0	0	0	0	0	NA	NA	0	0
Pos 3	CAS	3478	NA	0	4	0	0	0	NA	NA	0.029	0.029
Pos 4	CAS	3477	NA	0	0	0	M	0	NA	NA	0	0
Pos 5	CAS	3476	NA	0	0	0	0	0	NA	NA	0	0
Pos 6	CAS	3474	NA	0	0	0	0	0	NA	NA	0	0
Pos 7	CAS	3473	NA	0	8	0	0	0	NA	NA	0.058	0.058
Pos 8	AND	3484	4	0	0	0	9	NA	4	13	0.22	0.19
Pos 9	AND	3485	0	2	0	0	5	NA	0	0	0.051	0.037
Pos 10	AND	3486	24	22	0	0	0	NA	0	0	0.32	0
Pos 11	CAS	3472	NA	0	0	0	0	0	NA	NA	0	0
Pos 12	CAS	3475	NA	0	0	0	0	0	NA	NA	0	0
Pos 15	CAS	3480	NA	0	0	0	0	0	NA	NA	0	0
Pos 16	CAS	3471	NA	0	0	0	0	0	NA	NA	0	0
Pos 17	CAS	3483	4	0	2	0	0	NA	0	9	0.11	0.066
Pos 18	CAS	3482	77	9	9	5	5	NA	0	13	0.86	0.17
ARC H												
022	AND	3381	0	0	0	0	0	NA	0	0	0	0
024	CAS	3395	NA	0	0	0	0	0	NA	NA	0	0
028	AND	3384	45	171	0	0	0	NA	0	0	1.6	0
032	CAS	3394	NA	0	0	0	0	0	NA	NA	0	0
034	CAS	3398	NA	0	4	0	0	4	NA	NA	0.029	0.029
034	AND	3385	4	0	0	0	0	NA	0	0	0.058	
038	CAS	3396	NA	0	0	0	0	0	NA	NA	0	0
040	AND	3387	4	0	0	0	9	NA	0	0	0.095	0.066
040	CAS	3397	NA	102	0	0	0	4	NA	NA	0.74	0.029
040	AND	3386	8	5	9	0	0	NA	0	0	0.16	0
044	CAS	3402	NA	4	0	4	4	4	NA	NA	0.115	0.088

TABLE 4.2 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
ARC J			dis/min, alpha								10^{-3} µg	10^{-3} µg
022	AND	2676	12	0	7	0	5	NA	5	4	0.24	0.1
024	CAS	2663	NA	0	4	4	8	42	NA	NA	0.42	0.4
026	CAS	2656	NA	0	4	4	8	72	NA	NA	0.64	0.62
028	AND	2675	101	179	0	0	0	NA	0	0	2.0	0
032	CAS	2657	NA	53	4	0	11	78	NA	NA	1.1	0.65
034	AND	2673	160	22	4	0	0	NA	0	50	1.7	0.37
038	CAS	2658	NA	4	0	0	19	95	NA	NA	0.86	0.84
040	AND	2674	4	13	0	0	0	NA	0	4	0.145	0.029
042	CAS	2659	NA	0	0	0	0	4	NA	NA	0.029	0.029
042	AND	2684	8	0	0	0	0	NA	5	0	0.095	0.037
044	CAS	2661	NA	0	0	4	0	0	NA	NA	0.029	0.029
ARC L												
022	AND	2653	4	2	0	5	5	NA	9	4	0.21	0.17
024	CAS	2643	NA	8	0	4	4	83	NA	NA	0.73	0.67
028	AND	2654	37	157	5	0	0	NA	0	0	1.5	0
032	CAS	2632	NA	11	4	11	11	86	NA	NA	0.9	0.73
034	AND	2646	33	67	0	0	9	NA	18	9	1.0	0.26
034	CAS	2633	NA	4	4	8	0	58	NA	NA	0.54	0.48
038	CAS	2634	NA	8	0	0	0	0	NA	NA	0.058	0
040	AND	2647	25	0	0	0	0	NA	0	138	1.2	1.0
044	CAS	2645	NA	4	0	0	0	8	NA	NA	0.088	0.058
ARC N												
022	AND	3348	21	0	0	2	0	NA	5	58	0.63	0.48
024	CAS	3332	NA	0	4	4	8	80	NA	NA	0.7	0.67
026	CAS		NA	0	4	4	0	55	NA	NA	0.46	0.44
028	AND	3346	21	14	0	0	0	NA	19	71	0.9	0.66
032	CAS	3334	NA	4	4	0	20	55	NA	NA	0.61	0.55
034	AND	3347	0	0	5	5	0	NA	9	58	0.56	0.53
038	CAS	3335	NA	8	0	8	0	4	NA	NA	0.15	0.088
040	AND	3349	4	0	5	0	0	NA	10	71	0.66	0.59
044	CAS	3337	NA	8	4	0	4	NA	NA	NA	0.12	0.029
ARC P												
024	CAS	3317	NA	0	0	4	4	21	NA	NA	0.21	0.21
024	CAS	3322	NA	0	0	0	8	21	NA	NA	0.21	0.21
032	CAS	3319	NA	0	8	0	12	30	NA	NA	0.37	0.31
034	CAS	3318	NA	12	4	0	4	0	NA	NA	0.15	0.029
038	CAS	3320	NA	131	0	0	0	4	NA	NA	1.0	0.029
040	CAS	3316	NA	126	4	4	0	0	NA	NA	1.0	0.029

TABLE 4.3 IMPACTOR COUNTING DATA, CLEAN SLATE II

For Casellas, respirable dose based on Stages 2, 3, 4, and 5; all others based on Stages 3, 4, 5, 6, and 7. Abbreviations used as follows: AND, Andersen; CAS, Casella; A, swipe of Andersen Stage No. 1 inlet; M, stage missing; NA, not applicable; D, damaged.

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
GROUND ZERO			dis/min, alpha								10^{-3} μg	10^{-3} μg
BC 04	AND	3213	8	0	0	0	0	NA	0	0	0.058	0
BC 06	AND	3214	22	7	0	2	0	NA	2	NA	0.24	0.029
BC 08	AND	3215	25	41	0	0	0	NA	0	0	0.48	0
BC 10	AND	3216	12	149	2	2	2	NA	2	NA	1.2	0.044
BC 12	AND	3217	54	123	0	5	0	NA	0	0	1.3	0.037
BI-02	CAS	2301	NA	0	0	0	0	4	NA	NA	0.029	0.029
BI 00	CAS	2300	NA	0	0	0	8	0	NA	NA	0.058	0.058
BI 03	CAS	2299	NA	541	525	16	0	0	NA	NA	7.9	0.12
BI 13	CAS	2298	NA	901	48	0	0	4	NA	NA	7.0	0.029
BI 16	CAS	2297	NA	53	28	0	0	0	NA	NA	0.58	0
BI 18	CAS	2296	NA	12	0	0	0	0	NA	NA	0.088	0
BM 04	CAS	2291	NA	2680	768	949	1660	501	NA	NA	48	23
BM 06	CAS	2292	NA	3310	1170	922	81	119	NA	NA	41	8.1
BM 08	CAS	2293	NA	2000	630	513	299	35	NA	NA	45	6.2
BM 10	CAS	2294	NA	2940	303	109	20	39	NA	NA	25	1.2
BM 12	CAS	2295	NA	2530	962	521	384	NA	NA	NA		
Tower A1	CAS	2303	NA	86900	69600	3680	0	9	NA	NA	1200	27
Tower A2	CAS	2302	NA	3680	18500	3320	0	30	NA	NA	190	25
Tower B1	CAS	2304	NA	10300	149	0	0	26	NA	NA	77	0.19
Tower B2	CAS	2305	NA	11000	334	20	0	392	NA	NA	86	3.0
Pos 1	CAS	2366	NA	296	17	4	4	0	NA	NA	2.4	0.058
Pos 8	CAS	2367	NA	7100	9310	291	0	0	NA	NA	120	2.1
ARC A												
006	CAS	2290	NA	1030	171	57	49	57	NA	NA	10	1.2
018	CAS	2289	NA	2480	652	462	211	228	NA	NA	29	6.6
030	CAS	2288	NA	5390	1550	903	887	355	NA	NA	66	15
042	CAS	2287	NA	3020	652	28	599	626	NA	NA	36	9.1
054	CAS	2286	NA	2420	597	633	499	362	NA	NA	33	11
066	CAS	2285	NA	1380	324	324	239	289	NA	NA	19	6.2
078	CAS	2284	NA	1610	0	263	85	329	NA	NA	17	5.0
090	CAS	2283	NA	1180	175	187	357	230	NA	NA	16	5.7
102	CAS	2282	NA	1430	303	283	137	367	NA	NA	19	5.8
114	CAS	2281	NA	1250	344	231	146	372	NA	NA	17	5.5

TABLE 4.3 CONTINUED

Station	Sampler	Tracer-Lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
ARC B											$10^{-3}\mu g$	$10^{-3}\mu g$
020	AND	3218	935	11760	631	162	26	NA	13	D	99	1.5
022	CAS	2378	NA	2161	602	347	145	51	NA	NA	24	4.0
026	AND	3223	961	16600	512	0	11	NA	0	0	130	0.08
026	CAS	2372	NA	691	246	125	16	0	NA	NA	7.8	1.0
028	CAS	2376	NA	1680	170	133	53	23	NA	NA	15	1.5
032	CAS	2377	NA	792	125	182	311	46	NA	NA	11	4.0
034	AND	3227	362	812	374	123	32	NA	23	0	13	1.3
038	CAS	2374	NA	962	347	137	61	32	NA	NA	11	1.7
040	AND	3229	366	4040	334	89	85	NA	0	13	36	1.4
042	CAS	2381	NA	37	0	0	0	0	NA	NA	0.27	0
042	AND	3224	163	0	0	0	0	NA	0	0	1.2	0
044	CAS	2371	NA	628	147	145	131	81	NA	NA	8.3	2.6
046	AND	3226	234	1610	292	160	64	NA	27	9	18	1.9
050	CAS	2376	NA	1390	279	149	202	120	NA	NA	16	3.4
052	AND	3220	31	85	0	0	0	NA	0	0	0.85	0
054	CAS	2373	NA	1120	578	259	242	92	NA	NA	17	4.4
056	CAS	2380	NA	645	163	155	65	50	NA	NA	7.8	2.0
058	AND	3221	397	2270	394	201	63	NA	28	39	25	2.4
060	AND	3225	260	1160	534	319	100	NA	59	D	18	3.5
060	CAS	2370	NA	1290	526	290	351	131	NA	NA	19	5.7
062	CAS	2383	NA	628	265	233	180	126	NA	NA	11	3.9
064	AND	3219	128	536	329	235	108	NA	66	48	15	3.3
068	CAS	2369	NA	820	290	220	204	117	NA	NA	12	4.0
070	AND	3228	127	647	335	127	94	NA	38	D	10	1.9
074	CAS	2382	NA	1100	286	237	114	54	NA	NA	13	3.0
076	AND	3230	96	192	0	2	0	NA	0	D	2.1	0.015
078	CAS	2368	NA	1200	290	282	135	90	NA	NA	15	3.7
078	AND	3222	358	3410	756	428	144	NA	36	25	38	4.7
080	CAS	2375	NA	598	255	117	32	92	NA	NA	8	1.8
106	CAS	2384	NA	167	167	37	12	86	NA	NA	3.4	0.99
1st BALLOON ARRAY, ARC B												
L2,P5	CAS	2310	NA	0	0	0	0	4	NA	NA	0.029	0.029
L2,P13	CAS	2314	NA	2260	432	101	36	26	NA	NA	21	1.2
L2, 21	CAS	2309	NA	1200	81	73	16	18	NA	NA	10	0.78
L3,P1	CAS	2306	NA	0	0	0	0	0	NA	NA	0	0
L3,P9	CAS	2312	NA	3040	513	347	198	99	NA	NA	31	4.7
L3,P17	CAS	2307	NA	0	4	0	0	4	NA	NA	0.052	0.029
L5,P1	CAS	2322	NA	8	36	0	20	30	NA	NA	0.69	0.37
L5,P9	CAS	2313	NA	1310	16	65	97	43	NA	NA	11	1.5
L5,P17	CAS	2311	NA	0	0	0	0	0	NA	NA	0	0
L6,P5	CAS	2320	NA	4	0	0	0	0	NA	NA	0.029	0
L6,P13	CAS	2308	NA	138	71	28	0	4	NA	NA	1.8	0.23
L6,P21	CAS	2321	NA	503	89	57	37	0	NA	NA	5.0	0.69
L8,P5	CAS	2342	NA	0	4	0	0	0	NA	NA	0.029	0
L8,P13	CAS	2343	NA	24	4	4	0	0	NA	NA	0.23	0.029
L8,P21	CAS	2366	NA	0	0	0	4	4	NA	NA	0.058	0.058
L9,P1	CAS	2340	NA	0	0	0	0	0	NA	NA	0	0
L9,P9	CAS	2339	NA	0	0	0	0	4	NA	NA	0.029	0.029
L9,P17	CAS	2338	NA	4	4	4	0	0	NA	NA	0.088	0.029

TABLE 4.3 CONTINUED

Station Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
		A	1	2	3	4	5	6	7	Total	Respirable
		dis/min,alpha								$10^{-3}\mu g$	$10^{-3}\mu g$
L11,P1 CAS	2337	NA	0	0	0	0	0	NA	NA	0	0
L11,P9 CAS	2341	NA	0	0	0	0	0	NA	NA	0	0
L11,P17 CAS	2335	NA	0	0	4	0	4	NA	NA	0.058	0.058
L12,P5 CAS	2330	NA	8	0	0	0	0	NA	NA	0.058	0
L12,P13 CAS	2334	NA	16	4	4	0	0	NA	NA	0.18	0.029
L12,P21 CAS	2331	NA	0	0	4	8	4	NA	NA	0.12	0.12
L14,P5 CAS	2329	NA	0	0	0	0	9	NA	NA	0.066	0.066
L14,P13 CAS	2326	NA	20	0	0	0	0	NA	NA	0.15	0
L14,P21 CAS	2328	NA	0	4	0	4	0	NA	NA	0.058	0.029
L15,P1 CAS	2327	NA	0	0	0	0	4	NA	NA	0.029	0.029
L15,P9 CAS	2333	NA	4	0	0	0	0	NA	NA	0.029	0
L15,P17 CAS	2332	NA	4	4	0	4	0	NA	NA	0.088	0.029
L17,P1 CAS	2362	NA	0	0	0	4	0	NA	NA	0.029	0.029
L17,P9 CAS	2363	NA	0	4	0	0	4	NA	NA	0.058	0.029
L17,P17 CAS	2364	NA	4	4	0	0	4	NA	NA	0.088	0.029
L18,P5 CAS	2359	NA	0	0	0	4	0	NA	NA	0.029	0.029
L18,P13 CAS	2360	NA	36	0	0	0	4	NA	NA	0.29	0.029
L18,P21 CAS	2361	NA	0	0	0	0	4	NA	NA	0.029	0.029
L20,P5 CAS	2354	NA	8	8	4	4	0	NA	NA	0.18	0.058
L20,P13 CAS	2355	NA	17	4	4	4	4	NA	NA	0.24	0.088
L20,P21 CAS	2356	NA	0	4	0	0	0	NA	NA	0.12	0.058
L21,P9 CAS	2365	NA	0	4	0	0	0	NA	NA	0.029	0
L21,P17 CAS	2357	NA	4	4	4	0	4	NA	NA	0.12	0.058
L23,P1 CAS	2353	NA	0	0	0	4	0	NA	NA	0.029	0.029
L23,P9 CAS	2318	NA	0	0	0	0	0	NA	NA	0	0
L23,P17 CAS	2315	NA	0	0	0	0	0	NA	NA	0	0
L24,P5 CAS	2325	NA	0	0	0	0	0	NA	NA	0	0
L24,P13 CAS	2317	NA	0	0	0	M	0	NA	NA	0	0
L24,P21 CAS	2324	NA	4	0	0	0	4	NA	NA	0.058	0.029
L26,P5 CAS	2323	NA	0	0	0	0	0	NA	NA	0	0
L26,P13 CAS	2316	NA	0	0	4	4	13	NA	NA	0.15	0.15
L26,P21 CAS	2319	NA	0	0	0	0	0	NA	NA	0	0
L27,P1 CAS	2344	NA	4	8	4	0	0	NA	NA	0.12	0.029
L27,P9 CAS	2345	NA	0	4	0	0	0	NA	NA	0.029	0
L27,P17 CAS	2346	NA	0	0	0	0	4	NA	NA	0.029	0.029
L29,P1 CAS	2350	NA	0	4	83	0	3	NA	NA	0.66	0.58
L29,P9 CAS	2351	NA	8	4	8	0	0	NA	NA	0.15	0.058
L29,P17 CAS	2352	NA	8	0	0	0	4	NA	NA	0.088	0.029
L30,P5 CAS	2348	NA	0	0	0	0	0	NA	NA	0	0
L30,P13 CAS	2347	NA	0	0	0	0	0	NA	NA	0	0
L30,P21 CAS	2349	NA	0	0	0	4	13	NA	NA	0.13	0.13

TABLE 4.3 CONTINUED

Station	Sampler	Tracer-Lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
ARC D											10^{-3} μg	10^{-3} μg
006	CAS	2228	NA	0	4	0	4	39	NA	NA	0.34	0.31
020	AND	3180	241	5200	704	358	367	NA	360	38	0.53	8.2
022	CAS	2227	NA	441	122	8	0	35	NA	NA	4.4	0.32
026	AND	3181	87	330	86	9	5	NA	0	D	3.8	0.1
028	CAS	2229	NA	554	74	20	8	43	NA	NA	5.5	0.52
032	CAS	2232	NA	380	28	24	12	57	NA	NA	3.7	0.68
034	AND	3182	46	340	90	18	0	NA	0	17	3.7	0.26
034	CAS	2233	NA	23	43	12	4	48	NA	NA	0.95	0.47
038	CAS	2231	NA	385	16	25	4	23	NA	NA	3.3	0.38
040	AND	3183	46	351	18	11	2	NA	0	34	3.4	0.34
044	CAS	2230	NA	373	16	4	16	23	NA	NA	3.2	0.32
046	AND	3184	0	2	0	0	0	NA	0	0	0.015	0
050	CAS	2240	NA	390	16	51	4	48	NA	NA	3.7	0.75
052	AND	3186	4	28	19	14	0	NA	5	13	0.61	0.24
056	CAS	2238	NA	836	77	32	20	22	NA	NA	7.2	0.54
058	AND	3185	25	182	36	9	16	NA	7	30	2.2	0.46
060	TAS	4168	NA	4	0	0	0	5	NA	NA	0.066	0.037
062	CAS	2234	NA	0	4	0	0	4	NA	NA	0.058	0.029
066	TAS	4158	42	5	0	0	0	NA	0	0	0.37	0.029
068	CAS	2237	NA	0	0	4	0	4	NA	NA	0.058	0.058
070	AND	3189	166	562	97	9	9	NA	0	D	6.2	0.13
074	CAS	2235	NA	1150	195	62	12	74	NA	NA	0.11	1.1
076	AND	3188	96	520	67	45	9	NA	9	D	5.5	0.46
088	CAS	2236	NA	500	152	66	4	45	NA	NA	5.6	0.84
MOBILE STATION NO. 1 ARC D, STATION 036												
1	CAS	2277	NA	235	12	41	0	0	NA	NA	2.1	0.3
2	CAS	2279	NA	142	32	16	16	4	NA	NA	1.6	0.26
3	CAS	2274	NA	145	24	12	0	0	NA	NA	1.3	0.088
4	CAS	2278	NA	187	4	65	0	0	NA	NA	1.9	0.47
5	CAS	2275	NA	320	63	43	0	0	NA	NA	3.1	0.31
6	CAS	2280	NA	245	8	20	12	0	NA	NA	2.1	0.23
7	CAS	2276	NA	212	100	48	4	22	NA	NA	2.8	0.54
8	AND	3210	183	2910	141	27	9	NA	14	64	25	0.83
9	AND	3208	67	1800	38	34	5	NA	5	26	15	0.51
10	AND	3209	225	0	91	20	2	NA	2	60	2.9	0.61
11	CAS	2273	NA	100	356	65	8	18	NA	NA	11	0.66
12	CAS	2272	NA	587	225	24	32	9	NA	NA	6.4	0.47
15	CAS	2270	NA	1270	225	68	0	13	NA	NA	12	0.59
16	CAS	2271	NA	724	84	4	4	0	NA	NA	6.0	0.58
17	AND	3211	266	1890	49	18	M	0	2	30	17	0.37
18	AND	3212	37	359	9	0	0	NA	5	51	3.4	0.41

TABLE 4.3 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
ARC F			dis/min, alpha								10^{-3} µg	10^{-3} µg
020	AND	3152	83	735	356	18	0	NA	0	13	8.8	0.23
022	CAS	2171	NA	1260	218	158	24	51	NA	NA	13	1.7
026	AND	3154	92	1490	58	29	4	NA	7	D	12	0.29
026	CAS	2173	NA	493	85	40	8	68	NA	NA	5.0	0.84
028	CAS	2172	NA	172	84	32	12	13	NA	NA	2.3	0.42
032	CAS	2183	NA	231	36	4	4	71	NA	NA	2.5	0.58
034	AND	3155	33	55	32	9	5	NA	0	65	1.5	0.58
038	CAS	2182	NA	96	12	8	0	13	NA	NA	0.95	0.15
040	AND	3151	71	343	19	9	5	NA	0	38	3.5	0.38
042	CAS	2184	NA	299	25	29	12	78	NA	NA	3.3	0.87
042	AND	3153	75	444	46	18	5	NA	0	51	4.7	0.54
044	CAS	2195	NA	344	25	33	8	61	NA	NA	3.4	0.73
046	AND	3156	196	290	57	9	7	NA	15	61	4.7	0.67
050	CAS	2189	NA	156	68	16	4	26	NA	NA	2.0	0.32
052	AND	3144	108	325	46	14	0	NA	0	30	3.8	0.32
054	CAS	2188	NA	347	76	28	16	75	NA	NA	4.0	0.87
056	CAS	2186	NA	380	69	57	24	60	NA	NA	4.3	1.0
058	AND	3145	137	0	77	24	7	NA	4	97	2.5	0.96
060	CAS	2185	NA	178	93	40	8	22	NA	NA	2.5	0.51
060	AND	3147	150	1400	178	40	11	NA	11	M	13	0.45
062	CAS	2187	NA	432	123	16	4	26	NA	NA	4.5	0.34
064	AND	3146	54	258	60	14	9	NNA	5	72	3.5	0.73
068	CAS	2192	NA	482	123	52	24	71	NA	NA	5.5	1.1
070	AND	3148	92	323	50	20	9	NA	7	63	4.1	0.76
074	CAS	2193	NA	472	184	44	20	30	NA	NA	5.5	0.67
076	AND	3150	179	392	130	26	20	NA	9	52	5.9	0.78
078	CAS	2194	NA	552	76	36	12	26	NA	NA	5.1	0.54
078	AND	3149	171	298	138	78	23	NA	23	117	6.2	1.8
080	CAS	2191	NA	275	105	36	8	90	NA	NA	3.8	0.96
106	CAS	2190	NA	388	129	53	16	73	NA	NA	4.8	1.0
ARC H												
006	CAS	2254	NA	0	0	0	8	32	NA	NA	0.29	0.29
008	AND	3196	8	0	0	0	5	NA	0	D	0.095	0.037
010	CAS	2249	NA	0	4	4	8	65	NA	NA	0.59	0.56
014	AND	3195	4	9	0	0	0	NA	0	0	0.095	0
016	CAS	2247	NA	0	0	0	0	17	NA	NA	0.13	0.13
020	AND	3194	37	370	0	5	0	NA	0	8	3.1	0.095
022	CAS	2248	NA	156	37	25	16	23	NA	NA	1.9	0.47
026	AND	3193	62	983	349	338	351	NA	367	D	18	7.8
028	CAS	2256	NA	160	4	16	4	18	NA	NA	1.5	0.29
032	CAS	2255	NA	105	8	52	28	27	NA	NA	1.6	0.78
034	AND	3192	54	362	5	0	5	NA	0	M	3.1	0.037
034	CAS	2251	NA	28	8	0	0	4	NA	NA	0.29	0.029
038	CAS	2246	NA	174	24	0	4	26	NA	NA	1.7	0.22
040	AND	3191	63	553	24	4	2	NA	0	13	4.8	0.14
040	CAS	2253	NA	170	40	0	0	30	NA	NA	1.8	0.22
040	AND	3190	50	652	9	0	0	NA	0	44	5.5	0.32
044	CAS	2252	NA	55	20	4	4	4	NA	NA	0.64	0.088
046	AND	3202	19	22	13	7	0	NA	2	17	0.58	0.10

TABLE 4.3 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
			dis/min, alpha								10^{-3} µg	10^{-3} µg
050	CAS	2245	NA	103	16	4	8	0	NA	NA	0.95	0.088
052	AND	3199	11	31	4	9	0	NA	0	17	0.53	0.19
056	CAS	2242	NA	111	8	4	0	4	NA	NA	0.92	0.058
058	AND	3201	50	320	11	9	2	NA	7	29	3.1	0.29
058	AND	3200	25	286	36	9	5	NA	0	17	2.8	0.23
058	CAS	2243	NA	285	20	4	0	61	NA	NA	2.7	0.48
060	CAS	2244	NA	103	24	0	0	4	NA	NA	0.95	0.029
062	CAS	2250	NA	122	20	12	12	9	NA	NA	1.3	0.24
064	AND	3198	7	9	9	4	0	NA	0	17	0.34	0.15
080	CAS	2241	NA	172	57	8	4	32	NA	NA	2.0	0.32
080	AND	3197	101	481	57	18	0	NA	5	29	5.1	0.38
088	CAS	2257	NA	0	4	4	0	5	NA	NA	0.095	0.066
MOBILE ARRAY NO. 2, ARC I, STATION 040												
Pos 1	CAS	2268	NA	4	0	4	0	0	NA	NA	0.058	0.029
Pos 2	CAS	2264	NA	8	69	0	4	0	NA	NA	0.59	0.029
Pos 3	CAS	2263	NA	4	4	0	0	0	NA	NA	0.058	0
Pos 4	CAS	2262	NA	0	0	0	16	0	NA	NA	0.12	0.12
Pos 5	CAS	2266	NA	32	8	4	8	0	NA	NA	0.35	0.087
Pos 6	CAS	2269	NA	81	0	0	0	0	NA	NA	0.59	0
Pos 7	CAS	2265	NA	109	20	4	44	30	NA	NA	1.5	0.57
Pos 8	AND	3204	67	498	9	9	0	NA	0	8	4.3	0.12
Pos 9	AND	3203	112	596	4	2	0	NA	0	26	5.4	0.2
Pos 10	AND	3205	17	697	0	0	0	NA	0	M	5.2	0
Pos 11	CAS	2261	NA	166	40	16	8	4	NA	NA	1.7	0.2
Pos 12	CAS	2260	NA	222	12	4	8	30	NA	NA	2.0	0.31
Pos 13	AND	3206	108	492	7	0	0	NA	0	34	4.7	0.25
Pos 14	AND	3207	21	27	14	5	0	NA	0	17	0.6	0.16
Pos 15	CAS	2258	NA	249	4	32	8	22	NA	NA	2.3	0.45
Pos 16	CAS	2259	NA	121	12	20	12	22	NA	NA	1.4	0.39

TABLE 4.3 CONTINUED

Station	Sampler	Tracer-Lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
ARC J											$10^{-3}\mu g$	$10^{-3}\mu g$
008	AND	3157	0	2	2	2	0	NA	0	30	0.26	0.23
010	CAS	2196	NA	0	0	0	4	80	NA	NA	0.61	0.61
014	AND	3159	8	0	2	2	0	NA	0	72	0.61	0.54
016	CAS	2198	NA	0	0	4	12	58	NA	NA	0.47	0.47
020	AND	3162	17	68	5	0	5	NA	9	31	1.0	0.33
022	CAS	2197	NA	24	0	0	0	26	NA	NA	0.37	0.19
026	AND	3163	4	79	0	0	0	NA	0	0	0.61	0
026	CAS	2200	NA	225	81	8	4	17	NA	NA	2.7	0.21
028	CAS	2199	NA	125	25	8	4	82	NA	NA	1.8	0.28
032	CAS	2205	NA	8	29	2	29	100	NA	NA	1.3	0.96
034	AND	3161	29	18	9	0	0	NA	0	38	0.69	0.28
038	CAS	2203	NA	53	4	8	20	51	NA	NA	1.0	0.58
042	CAS	2204	NA	16	16	0	12	22	NA	NA	0.48	0.25
042	AND	3160	8	100	18	5	9	NA	9	D	1.1	0.17
044	CAS	2202	NA	56	8	4	0	17	NA	NA	0.62	0.15
046	AND	3165	8	24	11	2	0	NA	0	30	0.55	0.23
050	CAS	2206	NA	120	16	52	8	111	NA	NA	2.3	1.3
052	AND	3167	12	9	2	0	0	NA	7	38	0.5	0.33
054	CAS	2201	NA	100	20	0	0	53	NA	NA	1.3	0.39
056	CAS	2212	NA	168	36	16	4	142	NA	NA	1.5	1.2
058	AND	3166	25	55	18	13	2	NA	7	65	1.4	0.64
060	CAS	2208	NA	127	64	4	8	85	NA	NA	2.1	0.71
060	AND	3169	37	0	52	14	5	NA	5	25	1.0	0.37
062	CAS	2207	NA	115	46	12	8	61	NA	NA	1.8	0.59
064	AND	3154	21	90	24	9	7	NA	4	72	1.7	0.67
078	CAS	2211	NA	121	48	16	8	60	NA	NA	1.9	0.61
078	AND	3168	75	250	56	25	11	NA	16	26	3.4	0.57
080	CAS	2210	NA	195	33	8	12	87	NA	NA	2.5	0.78
106	CAS	2209	NA	271	115	44	20	67	NA	NA	3.8	0.96
ARC L												
006	CAS	2214	NA	4	4	0	4	84	NA	NA	0.7	0.64
008	AND	3177	4	0	M	M	M	NA	M	48	0.38	0.35
010	CAS	2213	NA	0	0	8	17	82	NA	NA	0.74	0.78
014	AND	3179	4	0	0	2	0	NA	0	M	0.044	0.015
016	CAS	2225	NA	0	0	0	8	13	NA	NA	0.15	0.15
020	AND	3175	0	2	0	0	0	NA	0	9	0.08	0.066
022	CAS	2217	NA	12	8	0	8	67	NA	NA	0.7	0.55
026	AND	3176	21	324	18	11	0	NA	2	17	2.9	0.22
028	CAS	2221	NA	120	68	12	12	89	NA	NA	2.2	0.83
032	CAS	2215	NA	154	77	12	4	73	NA	NA	2.4	0.64
034	AND	3178	50	190	130	51	23	NA	9	22	3.5	0.78
034	CAS	2216	NA	96	68	32	12	115	NA	NA	2.4	1.2
038	CAS	2218	NA	750	80	48	16	115	NA	NA	7.3	1.3
040	AND	3170	119	592	276	M	M	NA	50	70	8.0	0.88
044	CAS	2226	NA	987	92	72	32	125	NA	NA	9.5	1.7
046	AND	3171	7	10	0	0	5	NA	0	0	0.16	0.037
050	CAS	2224	NA	369	100	87	17	87	NA	NA	4.8	1.4
052	AND	3173	50	211	110	69	23	NA	14	40	3.4	1.1
056	CAS	2223	NA	199	75	33	12	82	NA	NA	2.9	0.93
058	AND	3174	37	349	M	164	M	NA	M	75	4.6	1.8
060	CAS	2222	NA	194	40	32	12	64	NA	NA	2.5	0.79
062	CAS	2220	NA	132	60	64	24	97	NA	NA	2.8	1.4
064	AND	3172	4	0	0	2	0	NA	0	4	0.073	0.044
088	CAS	2219	NA	4	0	0	0	9	NA	NA	0.095	0.066

TABLE 4.4 IMPACTOR COUNTING DATA, CLEAN SLATE III

For Casellas, respirable dose based on Stages 2, 3, 4, and 5; all others based on Stages 3, 4, 5, 6, and 7. Abbreviations used as follows: AND, Andersen; CAS, Casella; A, swipe of Andersen Stage No. 1 inlet; M, stage missing; NA, not applicable; D, damaged.

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
GROUND ZERO					dis/min, alpha						10^{-3} μg	10^{-3} μg
BC 04	AND	4998	58	0	0	0	0	NA	0	D	0.41	0
BC 06	AND	4997	41	76	7	4	2	NA	144	0	2.0	1.1
BC 08	AND	4990	8	0	0	0	0	NA	0	4	0.086	0.029
BC 10	AND	4992	0	0	0	0	0	NA	0	13	0.093	0.093
BC 12	AND	4991	0	27	0	0	0	NA	5	0	0.23	0.036
BI-02	CAS	4981	NA	698	86	82	4	0	NA	NA	6.2	0.62
BI 00	CAS	4971	NA	1450	177	49	41	31	NA	NA	13	0.77
BI 01	AND	4996	8	4	9	0	0	NA	4	3	0.2	0.05
BI 03	AND	5171	2500	72600	1030	238	133	NA	107	26		
BI 03	CAS	4972	NA	16500	1630	4610	2750	22	NA	NA	220	52
BI 13	AND	4993	820	5230	610	192	153	NA	76	70	51	3.5
BI 13	CAS	4983	NA	1350	228	106	90	114	NA	NA	14	2.2
BI 16	AND	4994	186	2170	82	43	30	NA	17	0	18	0.65
BI 16	CAS	4970	NA	0	0	0	0	0	NA	NA	0	0
BI 18	CAS	4969	NA	0	4	0	0	13	NA	NA	0.12	0.094
BM 04	AND	4989	79	1650	377	M	M	NA	63	160	17	16
BM 04	CAS	4968	NA	751	545	279	93	9	NA	NA	12	2.7
BM 06	CAS	4982	NA	1170	392	171	314	75	NA	NA	15	4.0
BM 06	AND	4987	232	458	108	37	17	NA	4	4	6.1	0.4
BM 08	CAS	4984	NA	952	280	107	132	49	NA	NA	11	2.0
BM 08	AND	4986	104	366	73	69	30	NA	9	16	4.8	0.9
BM 10	CAS	4973	NA	885	310	78	37	22	NA	NA	3.8	0.95
BM 12	CAS	4967	NA	1280	305	301	210	22	NA	NA	15	3.8
BM 12	AND	4988	381	M	M	M	M	NA	M	252	4.5	1.8
BM 10	AND	4985	145	204	43	56	47	NA	11	20	3.8	0.95
Tower A1	CAS	5259	NA	140000	66000	5640	226	9	NA	NA	1500	43
Tower A2	CAS	5258	NA	99000	85000	14000	619	13	NA	NA	1500	110
Tower B1	CAS	5257	NA	26000	13000	723	16	4	NA	NA	290	5.4
Tower B2	CAS	5256	NA	10000	3510	274	48	9	NA	NA	100	2.4
ARC A												
006	AND	3298	174	16700	1170	84	44	NA	51	35	29	1.5
006	CAS	4957	NA	1600	276	148	84	13	NA	NA	15	1.8
018	AND	3299	261	2840	255	121	56	NA	28	12	26	1.5
018	CAS	4962	NA	1080	253	159	175	26	NA	NA	12	2.6
030	AND	4974	99	736	94	72	45	NA	18	23	7.7	1.1
030	CAS	4963	NA	638	68	53	12	9	NA	NA	5.6	0.53
042	AND	3300	83	972	124	47	44	NA	29	12	9.4	0.94
042	CAS	4961	NA	1100	272	115	107	22	NA	NA	12	1.7
054	AND	4975	83	436	85	76	35	NA	22	26	5.5	1.1
054	CAS	4958	NA	592	149	69	20	9	NA	NA	6.0	0.7
066	AND	4978	50	165	57	42	24	NA	28	12	2.7	0.76
066	CAS	4959	NA	433	62	12	4	13	NA	NA	3.7	0.2

TABLE 4.4 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
			dis/min, alpha								$10^{-3}\mu g$	$10^{-3}\mu g$
078	AND	4979	75	60	46	56	46	NA	23	16	2.3	1.0
078	CAS	4965	NA	524	68	28	52	18	NA	NA	4.9	0.7
090	AND	4977	120	1060	159	103	73	NA	22	24	11	1.6
090	CAS	4966	NA	762	132	88	64	26	NA	NA	7.7	1.3
102	AND	4964	124	419	103	56	52	NA	26	40	5.9	0.12
102	CAS	4980	NA	848	85	113	36	22	NA	NA	8.0	1.2
114	AND	4976	75	288	116	79	70	NA	9	24	4.8	1.3
114	CAS	4960	NA	629	73	48	28	9	NA	NA	5.5	0.6
ARC B												
002	CAS	4823	NA	4	12	0	4	31	NA	NA	0.37	0.25
010	AND	3246	4	0	5	0	5	NA	0	0	0.1	0.036
014	CAS	4830	NA	0	4	4	16	26	NA	NA	0.36	0.33
022	AND	3245	161	14500	462	33	22	NA	4	0	110	0.42
026	CAS	3243	NA	1180	4	4	32	40	NA	NA	9.0	0.54
026	CAS	4820	NA	1170	335	97	8	40	NA	NA	12	1.1
026	AND	4822	66	3530	5	5	0	NA	0	0	26	0.036
034	AND	3247	21	149	0	5	0	NA	0	0	1.3	0.036
038	CAS	4828	NA	461	20	48	12	22	NA	NA	4.0	0.58
042	CAS	4831	NA	4	0	4	0	0	NA	NA	0.057	0.029
042	AND	5129	83	884	62	24	11	NA	9	0	7.8	0.32
046	AND	3244	137	216	45	32	18	NA	9	7	3.3	0.47
050	CAS	4832	NA	586	170	28	48	49	NA	NA	6.3	0.90
054	CAS	4835	NA	978	180	40	24	31	NA	NA	9.0	0.68
054	AND	5127	120	119	123	110	37	NA	23	31	4.0	1.4
058	AND	3235	72	86	63	73	28	NA	19	35	2.7	1.1
060	CAS	4829	NA	502	150	65	20	35	NA	NA	5.5	0.86
060	AND	5125	200	957	205	129	38	NA	33	48	12	1.8
062	CAS	4836	NA	832	133	61	40	44	NA	NA	8.0	1.1
070	AND	3234	36	110	78	73	46	NA	18	44	2.9	1.3
074	CAS	4826	NA	683	174	86	75	35	NA	NA	7.6	1.4
078	CAS	4827	NA	679	113	32	24	49	NNA	NA	6.4	0.75
078	AND	3233	83	144	5	5	5	NA	14	8	1.9	0.23
080	CAS	4824	NA	4	0	0	0	0	NA	NA	0.029	0
080	AND	3231	60	82	119	55	215	NA	14	39	4.2	2.3
082	AND	3240	70	125	88	69	46	NA	14	12	3.0	1.0
086	CAS	4821	NA	387	76	40	16	75	NA	NA	4.2	0.94
094	AND	3241	17	65	74	69	74	NA	14	16	2.4	1.2
098	CAS	4825	NA	214	85	53	28	40	NA	NA	3.0	0.86
106	AND	3238	32	206	59	73	123	NA	142	3	4.5	2.5
106	CAS	4833	NA	156	76	24	20	57	NA	NA	2.4	0.72
106	AND	3237	24	48	52	43	24	NA	19	17	1.6	0.74
110	CAS	4834	NA	166	43	32	32	26	NA	NA	2.2	0.64
118	AND	3239	4	5	9	14	9	NA	5	12	0.41	0.29

TABLE 4.4 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
ARC D			dis/min, alpha								10^{-3} μg	10^{-3} μg
002	CAS	4920	NA	4	8	4	12	9	NA	NA	0.26	0.18
006	CAS	5147	NA	0	0	0	0	5	NA	NA	0.036	0.036
010	AND	3283	0	5	5	9	5	NA	5	3	0.23	0.16
014	CAS	4918	NA	0	0	0	4	13	NA	NA	0.12	0.12
022	AND	3284	12	567	0	0	0	NA	4	5	4.1	0.065
026	CAS	4921	NA	210	0	32	4	4	NA	NA	1.8	0.29
034	AND	3286	75	13000	649	0	0	NA	0	D	98	0
034	CAS	4924	NA	189	4	12	83	4	NA	NA	2.1	0.7
038	CAS	4926	NA	220	12	45	53	39	NA	NA	2.7	0.97
046	AND	3287	4	31	7	7	2	NA	4	13	0.48	0.19
050	CAS	4927	NA	73	0	8	0	0	NA	NA	0.58	0.058
058	AND	3285	41	41	9	4	27	NA	9	3	0.96	0.31
060	CAS	4922	NA	202	8	12	4	0	NA	NA	1.6	0.11
062	CAS	4923	NA	250	57	0	8	4	NA	NA	2.3	0.086
070	AND	3282	21	73	9	9	5	NA	5	0	0.88	0.14
074	CAS	4925	NA	291	28	8	0	4	NA	NA	2.4	0.086
082	AND	3278	33	91	73	36	27	NA	5	13	2.0	0.56
086	CAS	4928	NA	285	65	53	24	36	NA	NA	3.3	0.82
088	CAS	4917	NA	259	61	36	8	9	NA	NA	2.7	0.38
094	AND	3281	29	69	46	119	92	NA	18	16	2.7	1.8
098	CAS	4916	NA	119	64	32	36	17	NA	NA	1.9	0.61
106	AND	3280	17	36	91	0	41	NA	18	19	1.6	0.55
110	CAS	4915	NA	98	41	24	24	36	NA	NA	1.6	0.6
118	AND	3279	17	9	9	18	14	NA	23	167	1.8	1.6
MOBILE STATION NO. 1, ARC D, STATION 074												
Pos 01	CAS	5005	NA	0	0	0	0	0	NA	NA	0	0
Pos 02	CAS	5006	NA	4	0	0	0	4	NA	NA	0.06	0.03
Pos 03	CAS	5000	NA	12	0	0	0	0	NA	NA	0.086	0
Pos 04	CAS	5002	NA	4	0	0	4	0	NA	NA	0.06	0.03
Pos 05	CAS	5004	NA	8	0	0	8	0	NA	NA	0.12	0.06
Pos 06	CAS	5007	NA	4	0	0	0	0	NA	NA	0.03	0
Pos 07	CAS	5003	NA	275	32	16	4	4	NA	NA	2.4	0.17
Pos 08	AND	5014	58	618	66	24	14	NA	9	0	5.5	0.34
Pos 09	AND	5013	75	596	79	14	9	NA	9	3	5.5	0.25
Pos 10	AND	5012	79	334	50	14	14	NA	5	5	3.6	0.27
Pos 11	CAS	5001	NA	206	54	0	0	13	NA	NA	1.9	0.09
Pos 12	CAS	5008	NA	227	49	12	4	9	NA	NA	2.2	0.18
Pos 15	CAS	4999	NA	424	101	4	0	0	NA	NA	3.7	0.03
Pos 16	CAS	5009	NA	208	82	8	0	0	NA	NA	2.1	0.06
Pos 17	AND	5015	99	388	55	9	7	NA	7	4	4.0	0.19
Pos 18	AND	5011	50	504	41	5	5	NA	0	5	4.3	0.11

TABLE 4.4 CONTINUED

Station	Sampler	Tracer-Lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
ARC F											$10^{-3}\mu g$	$10^{-3}\mu g$
002	CAS	4881	NA	0	0	0	4	18	NA	NA	0.16	0.16
010	AND	3266	4	4	0	0	0	NA	0	0	0.058	0
014	CAS	4882	NA	0	0	0	4	9	NA	NA	0.09	0.09
022	AND	3264	4	5	5	0	0	NA	0	D	0.1	0
026	CAS	4883	NA	0	0	0	16	9	NA	NA	0.18	0.18
026	CAS	4884	NA	0	4	0	4	9	NA	NA	0.12	0.09
034	AND	3265	40	2790	4	2	6	NA	6	13	20	0.19
038	CAS	4886	NA	691	75	24	67	13	NA	NA	6.2	0.75
042	CAS	4885	NA	4	0	0	0	0	NA	NA	0.029	0
046	AND	3267	0	23	5	5	0	NA	0	4	0.26	0.065
050	CAS	4891	NA	85	12	4	4	0	NA	NA	0.76	0.058
054	CAS	4889	NA	28	8	0	0	13	NA	NA	0.35	0.093
058	AND	3258	21	18	0	0	0	NA	0	4	0.31	0.029
060	CAS	4890	NA	151	12	4	4	0	NA	NA	1.2	0.058
062	CAS	4892	NA	97	32	8	12	4	NA	NA	1.1	0.17
070	AND	3259	28	203	42	30	30	NA	13	21	2.6	0.67
074	CAS	4887	NA	339	40	24	16	9	NA	NA	3.1	0.35
078	CAS	4888	NA	206	103	44	20	13	NA	NA	2.7	0.55
080	CAS	4897	NA	199	64	32	44	30	NA	NA	2.6	0.76
082	AND	3261	46	111	111	79	65	NA	9	15	3.1	1.2
086	CAS	4893	NA	210	77	44	36	35	NA	NA	2.9	0.83
094	AND	3262	0	56	67	56	48	NA	28	50	2.2	1.3
098	CAS	4894	NA	15	51	28	12	22	NA	NA	0.9	0.44
106	AND	3263	8	5	14	5	5	NA	5	13	0.39	0.2
106	CAS	4896	NA	8	4	0	0	9	NA	NA	0.15	0.065
110	CAS	4895	NA	0	0	0	4	0	NA	NA	0.029	0.029
118	AND	3260	0	5	0	0	0	NA	0	6	0.08	0.043
ARC H												
002	CAS	4864	NA	0	0	4	4	48	NA	NA	0.4	0.4
006	CAS	4865	NA	4	0	0	8	52	NA	NA	0.45	0.43
010	AND	3254	20	0	5	0	0	NA	0	5	0.22	0.036
014	CAS	4866	NA	0	0	0	0	0	NA	NA	0	0
022	AND	3257	0	2	0	7	2	NA	2	D	0.094	0.08
026	CAS	4868	NA	0	0	0	20	84	NA	NA	0.76	0.76
030	CAS	4838	NA	32	28	36	20	66	NA	NA	1.3	0.88
030	CAS	4850	NA	103	28	4	36	150	NA	NA	2.3	1.4
030	CAS	4837	NA	76	12	4	20	101	NA	NA	1.5	0.9
030	CAS	4845	NA	85	24	0	8	57	NA	NA	1.3	0.46
030	CAS	4839	NA	16	12	0	8	122	NA	NA	1.1	0.94
030	CAS	4847	NA	40	64	4	36	53	NA	NA	1.4	0.66
030	CAS	4843	NA	52	24	84	24	114	NA	NA	2.1	1.6
030	CAS	4842	NA	44	0	4	32	57	NA	NA	0.99	0.66
034	AND	3255	52	498	8	4	4	NA	8	0	4.1	0.11
034	CAS	4867	NA	4	93	0	0	0	NA	NA	0.69	0
038	CAS	4869	NA	703	141	8	24	62	NA	NA	6.7	0.67
040	CAS	4870	NA	396	8	4	44	66	NA	NA	3.7	0.83
046	AND	3256	0	111	0	0	138	NA	0	D	1.8	1.0
050	CAS	4871	NA	80	4	8	0	0	NA	NA	0.65	0.057
058	AND	3248	20	0	2	0	4	NA	2	D	0.2	0.043
058	CAS	4872	NA	0	0	0	0	0	NA	NA	0	0
060	CAS	4880	NA	36	32	0	12	49	NA	NA	0.93	0.43
060	CAS	4844	NA	77	4	0	24	79	NA	NA	1.3	0.75
060	CAS	4849	NA	48	8	0	36	74	NA	NA	1.2	0.79

TABLE 4.4 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage A	1	2	3	4	5	6	7	Pu Dose Calculated Total	Respirable
			dis/min, alpha								10^{-3} µg	10^{-3} µg
060	CAS	4852	NA	93	4	0	24	57	NA	NA	1.3	0.58
060	CAS	4841	NA	93	8	8	8	71	NA	NA	1.3	0.62
060	CAS	4840	NA	32	16	0	12	96	NA	NA	1.1	0.78
060	CAS	4851	NA	59	0	4	16	83	NA	NA	1.2	0.75
060	CAS	4853	NA	28	4	4	36	133	NA	NA	1.5	1.2
060	CAS	4858	NA	73	8	0	28	62	NA	NA	1.2	0.64
060	CAS	4848	NA	48	4	0	44	136	NA	NA	1.7	1.3
062	CAS	4873	NA	119	0	0	24	88	NA	NA	1.7	0.81
070	AND	3249	24	37	60	23	32	NA	9	44	1.7	0.78
074	CAS	4878	NA	152	84	44	16	119	NA	NA	3.0	1.3
080	CAS	4875	NA	174	36	16	40	115	NA	NA	2.7	1.2
082	AND	3250	68	41	60	55	14	NA	14	D	1.8	0.59
086	CAS	4874	NA	77	40	12	16	128	NA	NA	2.0	1.1
088	CAS	4876	NA	0	0	0	0	4	NA	NA	0.029	0.029
090	CAS	4854	NA	24	32	20	28	127	NA	NA	1.7	1.3
090	CAS	4857	NA	0	16	16	4	132	NA	NA	1.2	1.1
090	CAS	4856	NA	20	4	8	0	57	NA	NA	0.63	0.46
090	CAS	4863	NA	12	20	16	12	144	NA	NA	1.5	1.2
090	CAS	4861	NA	16	24	20	32	101	NA	NA	1.4	1.1
090	CAS	4860	NA	8	28	16	32	110	NA	NA	1.4	1.1
090	CAS	4859	NA	8	24	24	40	128	NA	NA	1.6	1.4
090	CAS	4855	NA	20	24	12	32	75	NA	NA	1.2	0.84
090	CAS	4862	NA	24	24	20	32	92	NA	NA	1.4	1.0
094	AND	3251	0	144	5	9	9	NA	9	12	1.3	0.28
098	CAS	4877	NA	0	20	8	8	57	NA	NA	0.66	0.52
106	AND	3252	4	4	6	0	4	NA	4	61	0.59	0.49
110	CAS	4879	NA	0	0	0	12	79	NA	NA	0.65	0.65
118	AND	3253	24	2	6	4	2	NA	4	35	0.55	0.32
MOBILE STATION NO. 2, ARC I, STATION 050												
Pos 01	CAS	5020	NA	163	12	4	0	9	NA	NA	1.3	0.09
Pos 02	CAS	5017	NA	0	0	0	0	0	NA	NA	0	0
Pos 03	CAS	5019	NA	0	0	0	4	0	NA	NA	0.03	0.05
Pos 04	CAS	5018	NA	4	0	0	0	4	NA	NA	0.06	0.03
Pos 05	CAS	5016	NA	0	0	0	0	0	NA	NA	0	0
Pos 06	CAS	5021	NA	4	0	0	4	0	NA	NA	0.06	0.03
Pos 07	CAS	5022	NA	0	0	0	0	4	NA	NA	0.03	0.05
Pos 08	AND	5030	0	116	0	0	5	NA	0	0	0.88	0.036
Pos 09	AND	5028	12	192	0	0	0	NA	0	0	1.5	0
Pos 10	AND	5029	8	51	5	0	0	NA	5	4	0.51	0.065
Pos 11	CAS	5023	NA	12	0	0	4	9	NA	NA	0.18	0.09
Pos 12	CAS	5024	NA	12	12	16	0	9	NA	NA	0.35	0.18
Pos 13	AND	5032	4	27	0	0	0	NA	27	13	0.50	0.29
Pos 14	AND	5027	4	2	0	0	0	NA	M	9	0.11	0.065
Pos 15	CAS	5025	NA	4	0	0	41	9	NA	NA	0.38	0.36
Pos 16	CAS	5026	NA	0	0	0	0	0	NA	NA	0	0

TABLE 4.4 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
ARC J					dis/min, alpha						10^{-3} μg	10^{-3} μg
002	CAS	4901	NA	0	0	0	0	0	NA	NA	0	0
010	AND	3268	0	0	0	0	0	NA	0	8	0.057	0.057
014	CAS	4902	NA	0	0	4	0	9	NA	NA	0.093	0.093
022	AND	3269	0	0	5	0	0	NA	5	12	0.16	0.12
026	CAS	4899	NA	4	4	8	4	0	NA	NA	0.14	0.086
026	CAS	4898	NA	8	0	0	0	0	NA	NA	0.057	0
034	AND	3270	8	23	0	0	0	NA	0	0	0.22	0
038	CAS	4903	NA	41	0	0	0	0	NA	NA	0.3	0
042	CAS	4900	NA	508	8	8	8	18	NA	NA	3.9	0.24
046	AND	3271	24	2	2	0	0	NA	4	31	0.45	0.25
050	CAS	4913	NA	89	4	4	12	4	NA	NA	0.82	0.14
054	CAS	4908	NA	37	0	0	0	0	NA	NA	0.26	0
058	AND	3272	4	4	55	4	13	NA	72	18	1.2	0.77
060	CAS	4906	NA	28	0	0	4	9	NA	NA	0.29	0.093
062	CAS	4907	NA	8	4	0	0	0	NA	NA	0.086	0
070	AND	3275	37	46	23	23	5	NA	5	3	1.0	0.26
074	CAS	4904	NA	130	43	0	0	9	NA	NA	1.3	0.064
078	CAS	4905	NA	49	29	16	16	22	NA	NA	0.95	0.38
080	CAS	4911	NA	20	49	20	8	9	NA	NA	0.77	0.26
082	AND	3277	12	11	25	41	25	NA	11	16	1.0	0.66
086	CAS	4914	NA	8	33	29	88	27	NA	NA	0.76	0.45
094	AND	3276	0	0	4	13	4	NA	13	18	0.37	0.34
098	CAS	4910	NA	0	8	4	4	35	NA	NA	0.36	0.31
106	AND	3274	4	4	4	4	0	NA	0	11	0.19	0.11
106	CAS	4912	NA	4	4	0	16	4	NA	NA	0.2	0.14
110	CAS	4909	NA	4	0	35	0	4	NA	NA	0.31	0.25
118	AND	3273	0	2	5	2	0	NA	0	4	0.094	0.043
ARC K												
008	CAS	4941	NA	4	4	4	0	18	NA	NA	0.21	0.16
016	CAS	4931	NA	0	0	0	4	40	NA	NA	0.32	0.31
024	CAS	4929	NA	0	0	4	0	4	NA	NA	0.057	0.057
032	CAS	4932	NA	222	12	0	12	13	NA	NA	1.9	0.18
040	CAS	4935	NA	614	33	4	16	13	NA	NA	4.8	0.24
048	CAS	4930	NA	52	8	0	8	26	NA	NA	0.67	0.24
056	CAS	4933	NA	20	20	8	12	13	NA	NA	0.52	0.24
064	CAS	4942	NA	44	0	0	8	35	NA	NA	0.62	0.31
072	CAS	4934	NA	93	28	20	4	35	NA	NA	1.3	0.42
080	CAS	4940	NA	24	53	16	20	27	NA	NA	1.0	0.45
088	CAS	4939	NA	8	33	24	8	27	NA	NA	0.72	0.42
096	CAS	4938	NA	4	8	8	4	57	NA	NA	0.58	0.49
104	CAS	4936	NA	0	4	4	8	13	NA	NA	0.21	0.18
112	CAS	4937	NA	0	0	0	0	4	NA	NA	0.029	0.029

TABLE 4.4 CONTINUED

Station	Sampler	Tracer-lab Number	Impactor Stage								Pu Dose Calculated	
			A	1	2	3	4	5	6	7	Total	Respirable
ARC L			dis/min, alpha								$10^{-3}\mu g$	$10^{-3}\mu g$
002	CAS	4956	NA	0	0	0	0	9	NA	NA	0.064	0.064
006	CAS	4954	NA	0	0	0	4	18	NA	NA	0.16	0.16
010	AND	3288	4	5	5	0	0	NA	5	8	0.19	0.094
014	CAS	4952	NA	8	0	4	4	13	NA	NA	0.21	0.15
022	AND	3289	12	0	0	5	5	NA	5	0	0.19	0.11
026	CAS	4953	NA	33	0	0	4	18	NA	NA	0.39	0.16
034	AND	3292	0	22	0	0	0	NA	18	0	0.29	0.13
034	CAS	4951	NA	32	0	0	0	13	NA	NA	0.32	0.094
038	CAS	4955	NA	90	86	8	0	9	NA	NA	1.4	0.12
046	AND	3290	25	147	14	0	0	NA	0	8	1.4	0.051
050	CAS	4950	NA	53	4	0	8	13	NA	NA	0.56	0.15
058	AND	3291	0	23	0	0	0	NA	0	16	0.28	0.11
060	CAS	4947	NA	0	0	0	0	4	NA	NA	0.029	0.029
062	CAS	4946	NA	M	M	M	M	9	NA	NA	0.064	
070	AND	3297	21	42	60	9	0	NA	0	12	1.0	0.15
074	CAS	4943	NA	16	12	8	0	13	NA	NA	0.35	0.15
082	AND	3296	12	5	23	37	23	NA	9	5	0.83	0.53
086	CAS	4944	NA	8	41	16	12	18	NA	NA	0.68	0.33
088	CAS	4948	NA	0	16	29	16	18	NA	NA	0.56	0.43
094	AND	3295	21	0	2	7	13	NA	4	8	0.35	0.23
098	CAS	4945	NA	0	8	8	25	40	NA	NA	0.58	0.52
106	AND	3294	8	0	5	5	0	NA	0	5	0.16	0.076
110	CAS	4949	NA	M	M	M	M	13	NA	NA	0.095	
118	AND	3293	8	0	5	0	0	NA	9	8	0.21	0.12

APPENDIX A

CASCADE IMPACTOR STAGE DIMENSIONS

TABLE A.1 DIMENSION OF STAGES 3 AND 4 OF THE CASELLA MARK II IMPACTOR

All jet width measurements made with Brinell metallurgical microscope; separation dimensions measured with depth micrometer.

Abbreviations: DT, Double Tracks; CS, Clean Slate.

Serial Number	Stage 3		Stage 4	
	Jet Width	Separation Dimension	Jet Width	Separation Dimension
	inches	inches	inches	inches
100	0.031	0.016	0.016	0.003
101	0.034	0.014	0.014	0.004
102	0.032	0.015	0.011	0.005
104	0.035	0.015	0.013	0.006
105	0.030	0.014	0.016	0.008
106	0.019	0.005	0.016	0.006
106 DT[a]	0.028	0.016	0.016	0.005
107	0.037	0.016	0.015	0.007
108	0.034	0.015	0.013	0.006
109	0.028	0.014	0.016	0.007
110	0.024	0.015	0.012	0.005
111	0.040	0.017	0.012	0.007
112	0.032	0.015	0.012	0.005
115	0.035	0.013	0.011	0.005
116	0.031	0.016	0.012	0.005
117	0.029	0.016	0.010	0.005
118	0.030	0.014	0.010	0.006
120	0.032	0.015	0.017	0.011
122	0.030	0.016	0.012	0.005
123	0.031	0.014	0.012	0.006
124	0.033	0.015	0.011	0.005
125	0.028	0.014	0.016	0.006
126	0.029	0.015	0.016	0.004
899[b]	0.029	0.015	0.016	0.005
127	0.028	0.014	0.010	0.005
128	0.030	0.016	0.011	0.006
129	0.030	0.017	0.018	0.009
130	0.030	0.017	0.016	0.007
131	0.035	0.015	0.016	0.008
132	0.030	0.016	0.016	0.005
132 DT[a]	0.031	0.014	0.020	0.007
134	0.032	0.014	0.012	0.005
135	0.033	0.015	0.016	0.006
137	0.033	0.016	0.019	0.009
138	0.028	0.016	0.016	0.007
139	0.035	0.014	0.012	0.006

TABLE A.1 CONTINUED

Serial Number	Stage 3		Stage 4	
	Jet Width	Separation Dimension	Jet Width	Separation Dimension
	inches	inches	inches	inches
141	0.031	0.015	0.012	0.005
144	0.031	0.015	0.011	0.005
146	0.027	0.016	0.014	0.007
147	0.033	0.013	0.018	0.007
151	0.036	0.016	0.012	0.005
152	0.030	0.014	0.010	0.005
153	0.032	0.018	0.015	0.006
154	0.031	0.014	0.011	0.007
156	0.036	0.015	0.012	0.006
157	0.025	0.007	0.012	0.005
158	0.031	0.015	0.012	0.007
159	0.031	0.015	0.014	0.006
161	0.031	0.016	0.012	0.007
163	0.028	0.015	0.014	0.006
165	0.031	0.014	0.010	0.004
166	0.031	0.015	0.011	0.004
167	0.033	0.015	0.012	0.005
168	0.028	0.015	0.012	0.005
170	0.031	0.014	0.016	0.007
171	0.031	0.016	0.010	0.005
172	0.028	0.014	0.015	0.005
174	0.030	0.017	0.011	0.006
174	0.030	0.014	0.014	0.006
176	0.033	0.014	0.014	0.006
177	0.031	0.014	0.015	0.006
178	0.031	0.014	0.009	0.006
181	0.033	0.015	0.011	0.006
182	0.031	0.016	0.011	0.004
183	0.032	0.014	0.012	0.005
187	0.034	0.016	0.012	0.004
189	0.033	0.016	0.018	0.007
190	0.030	0.015	0.017	0.005
191	0.034	0.014	0.016	0.006
192	0.030	0.014	0.013	0.006
193	0.032	0.017	0.017	0.008
194	0.035	0.014	0.012	0.006
195	0.030	0.014	0.012	0.005
196	0.028	0.016	0.011	0.006
197	0.030	0.014	0.012	0.005
198	0.031	0.014	0.010	0.006
199	0.030	0.014	0.012	0.005
200	0.032	0.014	0.019	0.005
201	0.028	0.015	0.016	0.007
202	0.030	0.015	0.012	0.005
203	0.035	0.014	0.016	0.006
204	0.030	0.014	0.010	0.006
205	0.032	0.012	0.011	0.007
206	0.030	0.014	0.012	0.006

TABLE A.1 CONTINUED

Serial Number	Stage 3		Stage 4	
	Jet Width	Separation Dimension	Jet Width	Separation Dimension
	inches	inches	inches	inches
207	0.030	0.015	0.012	0.007
208	0.035	0.014	0.016	0.007
209	0.028	0.015	0.020	0.007
210	0.019	0.007	0.011	0.005
213	0.036	0.013	0.022	0.006
214	0.033	0.015	0.017	0.008
215	0.030	0.015	0.012	0.008
216	0.032	0.016	0.010	0.006
216 CS III[a]	0.031	0.016	0.008	0.006
217	0.031	0.015	0.010	0.006
218	0.029	0.016	0.011	0.005
219	0.028	0.015	0.012	0.005
220	0.019	0.007	0.013	0.007
221	0.034	0.017	0.013	0.007
222	0.036	0.015	0.015	0.007
223	0.032	0.016	0.012	0.006
225	0.035	0.016	0.016	0.004
226	0.029	0.014	0.011	0.005
227	0.028	0.013	0.016	0.004
228	0.032	0.014	0.011	0.006
229	0.035	0.014	0.021	0.007
230	0.033	0.016	0.017	0.004
231	0.034	0.012	0.011	0.006
232	0.028	0.016	0.016	0.008
233	0.030	0.016	0.014	0.006
234	0.031	0.015	0.012	0.008
235	0.031	0.014	0.016	0.009
236	0.034	0.015	0.011	0.005
237	0.035	0.012	0.012	0.005
238	0.031	0.016	0.010	0.003
239	0.032	0.015	0.010	0.007
240	0.028	0.014	0.012	0.005
241	0.028	0.015	0.012	0.005
242	0.031	0.014	0.016	0.006
243	0.034	0.015	0.011	0.006
244	0.033	0.015	0.017	0.004
246	0.032	0.017	0.012	0.005
247	0.032	0.013	0.013	0.005
250	0.030	0.014	0.012	0.006
251	0.035	0.013	0.011	0.008
252	0.028	0.014	0.016	0.006
253	0.031	0.015	0.011	0.006
254	0.033	0.016	0.016	0.006
255	0.032	0.016	0.012	0.006
257	0.028	0.014	0.016	0.006
258	0.034	0.014	0.010	0.005
259	0.035	0.014	0.012	0.006
260	0.032	0.017	0.017	0.009

TABLE A.1 CONTINUED

Serial Number	Stage 3		Stage 4	
	Jet Width	Separation Dimension	Jet Width	Separation Dimension
	inches	inches	inches	inches
260 CS I[a]	0.028	0.014	0.016	0.004
262	0.039	0.014	0.012	0.005
263	0.031	0.014	0.012	0.006
265	0.033	0.015	0.012	0.006
266	0.031	0.017	0.011	0.008
268	0.032	0.015	0.014	0.005
269	0.030	0.015	0.019	0.008
271	0.036	0.016	0.014	0.005
272	0.033	0.014	0.015	0.005
274	0.032	0.014	0.011	0.005
275	0.024	0.015	0.020	0.006
276	0.028	0.014	0.012	0.006
277	0.032	0.015	0.017	0.006
278	0.034	0.015	0.012	0.005
280	0.029	0.015	0.018	0.006
281	0.028	0.014	0.010	0.006
282	0.028	0.014	0.012	0.007
283	0.030	0.016	0.012	0.005
284	0.031	0.014	0.012	0.006
285	0.032	0.015	0.019	0.007
286	0.028	0.015	0.014	0.006
287	0.034	0.016	0.016	0.006
288	0.028	0.016	0.012	0.006
292	0.035	0.015	0.012	0.005
292 CS III[a]	0.029	0.015	0.008	0.005
293	0.030	0.015	0.013	0.004
239 CS I[a]	0.028	0.014	0.012	0.006
294	0.035	0.016	0.018	0.007
295	0.029	0.012	0.012	0.005
296	0.031	0.013	0.012	0.006
298	0.028	0.015	0.012	0.007
300	0.029	0.014	0.011	0.007
301	0.034	0.014	0.012	0.006
302	0.035	0.014	0.015	0.006
303	0.025	0.006	0.021	0.007
303 DT[a]	0.016	0.007	0.014	0.006
304	0.031	0.017	0.015	0.007
305	0.032	0.015	0.012	0.006
306	0.031	0.015	0.013	0.005
307	0.028	0.014	0.016	0.006
308	0.028	0.014	0.014	0.006
309	0.037	0.015	0.014	0.006
310	0.038	0.015	0.015	0.005
311	0.030	0.016	0.013	0.007
312	0.031	0.015	0.016	0.005
314	0.036	0.013	0.012	0.005
315	0.034	0.014	0.012	0.010
316	0.031	0.017	0.011	0.006

TABLE A.1 CONTINUED

Serial Number	Stage 3		Stage 4	
	Jet Width	Separation Dimension	Jet Width	Separation Dimension
	inches	inches	inches	inches
317	0.031	0.015	0.012	0.005
320	0.028	0.015	0.012	0.007
321	0.032	0.014	0.014	0.004
326	0.039	0.014	0.020	0.009
329	0.030	0.014	0.012	0.007
330	0.031	0.013	0.016	0.005
331	0.031	0.014	0.016	0.006
332	0.037	0.014	0.015	0.006
332 CS I[a]	0.031	0.014	0.012	0.006
334	0.030	0.013	0.011	0.006
335	0.034	0.016	0.014	0.006
336	0.029	0.016	0.011	0.006
338	0.028	0.014	0.008	0.005
339	0.028	0.014	0.013	0.007
340	0.030	0.015	0.015	0.007
341	0.019	0.008	0.012	0.006
342	0.030	0.014	0.010	0.004
343	0.029	0.015	0.017	0.006
344	0.034	0.016	0.014	0.006
345	0.031	0.014	0.012	0.006
345 CS III[a]	0.028	0.014	0.012	0.006
346	0.035	0.014	0.020	0.006
347	0.036	0.014	0.012	0.006
348	0.032	0.017	0.013	0.005
349	0.033	0.015	0.011	0.006
350	0.031	0.015	0.012	0.005
351	0.035	0.016	0.016	0.006
352	0.032	0.015	0.020	0.006
354	0.031	0.015	0.017	0.006
355	0.039	0.014	0.014	0.006
358	0.033	0.015	0.013	0.005
511	0.031	0.013	0.012	0.007
898	0.028	0.014	0.012	0.006
503	0.033	0.015	0.015	0.007
801	0.033	0.015	0.013	0.008
802	0.030	0.015	0.015	0.006
803	0.034	0.015	0.016	0.006
804	0.036	0.016	0.015	0.006
805	0.034	0.015	0.013	0.006
806	0.035	0.015	0.013	0.006
807	0.036	0.015	0.014	0.006
808	0.035	0.016	0.013	0.006
809	0.033	0.015	0.015	0.007
810	0.033	0.015	0.012	0.005
811	0.032	0.017	0.014	0.006
812	0.033	0.017	0.013	0.006
813	0.037	0.015	0.015	0.005
814	0.036	0.018	0.015	0.006
815	0.035	0.015	0.016	0.006
816	0.032	0.015	0.015	0.007
817	0.037	0.016	0.017	0.006
818	0.037	0.014	0.017	0.007

TABLE A.1 CONTINUED

Serial Number	Stage 3		Stage 4	
	Jet Width	Separation Dimension	Jet Width	Separation Dimension
	inches	inches	inches	inches
819	0.036	0.014	0.016	0.006
820	0.035	0.015	0.015	0.005
821	0.036	0.014	0.015	0.005
822	0.037	0.014	0.014	0.005
823	0.034	0.015	0.014	0.006
824	0.034	0.016	0.016	0.007
824 CS III[a]	0.028	0.018	0.016	0.006
825	0.040	0.016	0.011	0.006
826	0.033	0.015	0.015	0.006
827	0.033	0.015	0.013	0.005
828	0.034	0.013	0.014	0.007
829	0.035	0.016	0.016	0.006
830	0.034	0.017	0.015	0.006
831	0.035	0.014	0.015	0.008
831 CS III[a]	0.031	0.014	0.012	0.008
832	0.032	0.015	0.017	0.008
833	0.038	0.016	0.014	0.007
834	0.036	0.016	0.015	0.008
835	0.040	0.017	0.022	0.007
836	0.040	0.015	0.017	0.006
837	0.035	0.015	0.015	0.006
800	0.032	0.015	0.016	0.007
839	0.033	0.016	0.013	0.006
840	0.036	0.015	0.015	0.007
841	0.035	0.014	0.017	0.005
842	0.038	0.014	0.017	0.005
843	0.036	0.015	0.014	0.006
844	0.038	0.015	0.015	0.006
845	0.035	0.015	0.013	0.006
846	0.035	0.017	0.016	0.006
847	0.036	0.016	0.016	0.006
848	0.034	0.017	0.015	0.006
849	0.031	0.017	0.012	0.005
850	0.033	0.014	0.014	0.007
851	0.031	0.015	0.016	0.007
873[b]	0.031	0.015	0.016	0.007
852	0.031	0.019	0.012	0.007
853	0.031	0.016	0.012	0.007
854	0.031	0.017	0.016	0.009
855	0.033	0.013	0.012	0.006
865[b]	0.033	0.013	0.012	0.006
856	0.031	0.014	0.016	0.007

TABLE A.1 CONTINUED

Serial Number	Stage 3		Stage 4	
	Jet Width	Separation Dimension	Jet Width	Separation Dimension
	inches	inches	inches	inches
857	0.031	0.012	0.012	0.006
858	0.033	0.015	0.012	0.007
859	0.031	0.014	0.014	0.005
886[b]	0.031	0.014	0.014	0.005
860	0.031	0.015	0.012	0.005
861	0.033	0.015	0.010	0.005
862	0.031	0.019	0.012	0.005
863	0.028	0.015	0.016	0.005
863 CS III[a]	0.028	0.014	0.012	0.006
866	0.031	0.015	0.014	0.007
877	0.033	0.015	0.014	0.006
877 CS III[a]	0.031	0.017	0.012	0.006
881 DT[a]	0.035	0.015	0.012	0.005
882	0.031	0.015	0.012	0.006
888[b]	0.031	0.016	0.010	0.005
890 CS III	0.035	0.015	0.014	0.006
892[b]	0.029	0.014	0.010	0.006

[a]Stages mixed during decontamination. Reassembled and remeasured prior to event indicated.

[b]Fifth stage changed due to damaged threads.

TABLE A.2 ANDERSEN CASCADE IMPACTOR STAGE DIMENSIONS

Jet width measurements made with Brinell Microscope; Separation dimensions measured with depth micrometer. All measurements recorded in millimeters.

Sampler Number	Stage 1		Stage 2		Stage 3		Stage 4		Stage 6	
	Jet	Gap	Jet	Gap	Jet	Gap	Jet	Gap	Jet	Gap
A 59	1.5	3.99	0.90	3.15	0.65	2.47	0.50	2.04	0.20	1.02
	1.5		0.90		0.65		0.50		0.20	
	1.2		0.90		0.65		0.50		0.20	
	1.15		0.90		0.65		0.50		0.20	
	1.15		0.90		0.65		0.50		0.20	
	1.15		0.90		0.65		0.50		0.20	
	1.15		0.90		0.65		0.50		0.20	
	1.15		0.90		0.65		0.50		0.20	
	1.20		0.90		0.65		0.50		0.20	
	1.10		0.90		0.65		0.50		0.20	
A 27	1.25	3.99	0.90	3.05	0.65	2.42	0.50	2.04	0.20	0.890
	1.20		0.90		0.65		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.65		0.50		0.20	
	1.25		0.90		0.70		0.50		0.20	
	1.2		0.90		0.70		0.50		0.20	
	1.2		0.90		0.70		0.50		0.20	
	1.2		0.90		0.70		0.50		0.20	
	1.2		0.90		0.70		0.50		0.20	
A 40	1.15	3.94	0.90	3.18	0.70	1.99	0.55	2.04	0.20	0.762
	1.20		0.90		0.70		0.55		0.20	
	1.20		0.90		0.70		0.55		0.20	
	1.20		0.90		0.70		0.55		0.20	
	1.20		0.90		0.70		0.55		0.20	
	1.15		0.90		0.70		0.55		0.20	
	1.15		0.90		0.70		0.55		0.20	
	1.15		0.90		0.70		0.55		0.20	
	1.20		0.90		0.70		0.55		0.20	
	1.15		0.90		0.70		0.55		0.20	
A 13	1.15	3.94	0.90	3.05	0.70	2.42	0.50	2.04	0.20	1.02
	1.15		0.90		0.70		0.55		0.20	
	1.20		0.90		0.70		0.55		0.20	
	1.15		0.90		0.70		0.55		0.20	
	1.20		0.90		0.70		0.55		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.55		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
A 76	1.20	4.12	0.90	3.18	0.70	2.54	0.50	2.04	0.20	0.890
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	

TABLE A.2 CONTINUED

Sampler Number	Stage 1		Stage 2		Stage 3		Stage 4		Stage 5	
	Jet	Gap	Jet	Gap	Jet	Gap	Jet	Gap	Jet	Gap
A 1	1.15	4.13	0.90	3.18	0.70	2.37	0.50	1.96	0.20	0.863
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.65		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.65		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
A 67	1.20	4.09	0.90	3.05	0.70	2.34	0.50	1.99	0.20	0.89
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
A 57	1.20	4.02	0.90	3.05	0.70	2.42	0.50	1.91	0.20	0.762
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
	1.20		0.90		0.70		0.50		0.20	
A 24	1.15	4.08	0.90	3.05	0.70	2.39	0.50	1.99	0.20	0.890
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.65		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	
	1.15		0.90		0.70		0.50		0.20	

APPENDIX B

INSTRUMENT AIR-FLOW DATA

TABLE B.1 VACUUM AND AIR-FLOW DATA FOR THE CASELLA MARK II IMPACTOR USED WITH THE VITRO (EGLIN) PUMP

Air flow measured with Brooks Rotameter. Vacuum measured with British Vacuum-Flow Meter. Impactors Equipped with glass disks and Gelman AM-4 Filters

Serial Number	Vacuum	Flow	Serial Number	Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
100	3.0	17.7	302	2.5	17.8
101	2.5	17.8	306	4.0	17.3
108	3.0	17.8	308	3.0	17.8
123	3.0	17.7	309	3.0	17.7
124	3.5	17.5	312	3.0	17.8
128	3.0	17.8	314	3.5	17.8
131	3.0	18.0	316	3.0	17.7
134	4.0	18.0	321	4.5	17.3
135	3.0	17.7	329	3.5	17.3
137	3.0	17.8	331	3.0	17.5
154	3.5	17.5	334	3.5	17.7
158	3.0	17.5	335	3.5	17.5
166	3.5	17.5	342	3.0	17.7
177	3.5	17.8	350	3.5	17.3
182	4.5	17.3	352	3.0	17.8
193	3.0	18.2	802	3.0	17.8
196	3.5	17.8	804	3.0	17.8
197	3.0	17.8	808	3.0	18.0
200	3.0	17.3	813	3.0	17.8
201	3.0	17.8	817	2.5	17.5
205	3.0	17.7	820	3.5	17.3
207	3.0	17.5	821	2.5	17.8
209	2.5	18.2	827	3.0	17.8
210	4.0	17.8	831	3.0	18.0
229	2.5	18.0	832	2.5	18.0
231	3.0	17.3	833	3.5	17.5
233	3.0	17.7	836	3.0	17.7
240	3.5	17.7	837	3.0	17.7
246	3.0	17.7	839	2.5	17.8
250	3.0	17.7	846	3.0	18.0
251	3.0	17.5	849	3.0	17.7
252	3.0	17.7	858	3.0	17.7
259	3.5	17.5	862	3.0	17.7
263	2.5	17.8	869	3.0	17.7
268	3.0	17.8	873	3.0	17.8
272	3.0	18.0	898	3.5	17.3
280	3.5	17.5	899	4.0	17.3
282	4.0	17.7			
284	3.5	18.0			
285	3.0	17.8			
292	3.0	17.7			
300	3.0	17.3			

TABLE B.2 VACUUM AND AIR-FLOW DATA FOR THE CASELLA MARK II IMPACTOR USED WITH THE GELMAN BANTAM PUMP

Air flow measured with Brooks Rotameter. Vacuum measured with British Vacuum-Flow Meter. Impactors equipped with glass disks and Gelman AM-4 Filters.

Serial Number	Vacuum	Flow	Serial Number	Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
100	3.0	17.8	292	3.0	17.8
101	2.5	17.8	300	3.0	17.7
108	3.0	18.0	302	2.5	18.0
123	3.0	17.8	306	4.0	17.5
124	3.0	17.5	308	3.0	18.0
128	3.0	18.0	309	3.0	17.8
131	3.0	18.0	312	3.0	17.8
134	4.0	17.3	314	3.5	17.7
135	3.0	18.2	316	3.0	17.8
137	3.0	17.8	321	4.5	17.2
154	3.5	17.5	329	3.5	17.5
158	3.0	18.0	331	3.0	17.7
166	3.5	17.7	334	3.0	17.8
177	3.5	17.5	335	3.5	17.5
182	4.0	17.2	342	3.0	17.7
193	3.0	18.0	350	3.5	17.5
196	3.5	18.0	352	2.5	18.0
197	3.0	17.8	802	3.0	17.8
200	3.0	17.7	804	3.0	18.0
201	3.0	18.0	808	3.0	18.0
205	3.0	17.8	813	3.0	17.8
207	3.0	17.7	817	2.5	17.8
209	2.5	18.2	820	3.5	17.8
210	4.0	17.8	821	2.5	18.0
229	2.5	18.2	827	3.0	18.0
231	3.0	17.7	831	3.0	18.2
233	3.0	17.8	832	2.5	18.2
240	3.5	17.7	833	3.5	17.5
246	3.0	17.8	836	3.0	18.0
250	3.0	17.8	837	3.0	17.7
251	3.0	17.8	839	2.5	18.2
252	3.0	18.0	846	3.0	17.8
259	3.5	17.7	849	3.0	17.8
263	2.5	18.0	858	3.0	17.8
268	3.0	18.0	862	3.0	17.8
272	3.0	17.8	869	3.0	17.8
280	3.5	17.7	873	3.0	18.0
282	4.0	17.8	898	3.5	17.5
284	3.5	17.8	899	4.0	17.3
285	3.0	17.8			

TABLE B.3 VACUUM AND AIR-FLOW DATA FOR THE CASELLA MARK II IMPACTOR WITH THE AUSTEN PUMP

Air flow measured with Brooks Rotameter. Vacuum measured with British Vacuum-Flow Meter. Impactors equipped with glass disks and Gelman AM-4 Filters.

Serial Number	Vacuum	Flow	Serial Number	Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
100	4.0	22.3	292	4.5	21.8
101	3.5	23.4	300	4.0	22.5
108	4.0	22.7	302	3.5	23.4
123	4.0	22.3	306	5.0	21.3
124	4.5	22.1	308	4.0	23.0
128	4.0	22.7	309	4.0	22.3
131	4.0	23.6	312	4.0	22.3
134	5.0	20.4	314	5.0	21.1
135	4.0	23.2	316	4.0	22.0
137	3.5	23.7	321	5.5	20.2
154	4.5	21.6	329	4.5	21.6
158	4.0	22.9	331	4.0	22.1
166	4.5	21.4	334	4.2	21.8
177	4.5	21.6	335	4.5	21.8
182	5.0	20.6	342	4.0	22.1
193	4.0	23.4	350	5.0	22.0
196	4.5	21.6	352	3.5	23.2
197	4.0	22.3	802	4.0	22.7
200	4.0	22.7	804	4.0	22.5
201	4.0	22.9	808	4.0	23.0
205	4+	22.9	813	4.0	22.1
207	4.5	21.8	817	4.0	21.3
209	3.5	23.9	820	4.5	21.8
210	4.0	21.1	821	3.0	24.1
229	3.0	23.9	827	4.0	23.2
231	4.0	22.3	831	4.0	23.2
233	4.0	22.3	832	3.5	23.6
240	4.5	21.6	833	4.5	23.6
246	4.0	22.3	836	3.5	23.2
250	4.0	22.5	837	4.0	22.1
251	4.0	22.7	839	3.5	23.9
252	4.0	23.2	846	4.0	22.5
259	4.5	21.4	849	4.0	22.5
263	3.5	23.9	858	4.0	22.5
268	4.0	22.7	862	4.0	22.5
272	4.0	22.1	869	4.0	22.7
280	4.5	22.1	873	4.0	23.0
282	4.0	21.8	898	4.5	21.3
284	4.0	22.3	899	5.0	21.1
285	4.0	22.7			

TABLE B.4 VACUUM AND AIR-FLOW DATA FOR THE CASELLA MARK II IMPACTOR USED WITH THE SC-6 PUMP

All measurements made with British Vacuum-Flow Meter. Impactors equipped with glass disks and Gelman AM-4 Filters.

Serial Number	Vacuum	Flow	Serial Number	Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
100	3.0	16.5	292	3.0	17.1
101	2.5	17.7	300	3.0	17.7
108	2.5	17.7	302	2.5	17.7
123	2.5	17.1	306	3.5	16.5
124	3.0	17.7	308	2.5	17.7
128	2.5	17.7	309	3.0	17.7
134	2.5	17.7	312	3.0	17.7
135	2.0	16.5	314	3.0	17.1
137	2.0	17.7	316	3.0	17.1
154	3.0	17.7	321	3.5	16.5
158	3.0	17.7	329	3.0	16.5
166	3.0	17.1	331	3.0	17.7
177	3.0	17.1	334	3.0	17.1
182	3.0	16.5	335	3.0	16.5
193	2.5	17.7	342	3.0	17.7
196	3.0	17.1	350	3.0	16.5
197	3.0	17.7	352	2.5	17.7
200	3.0	16.5	802	2.5	17.7
201	3.0	17.7	804	3.0	17.7
205	3.0	17.7	808	3.0	17.7
207	3.0	17.1	813	3.0	17.1
209	2.0	18.3	817	2.0	17.7
210	3.0	17.7	820	3.0	17.1
229	2.0	18.9	821	2.0	17.7
231	3.0	17.1	827	2.5	17.7
233	3.0	17.1	831	2.5	17.7
240	3.0	17.7	832	2.0	17.7
246	3.0	17.7	833	3.0	17.1
250	3.0	17.7	836	2.5	17.7
251	2.5	17.7	837	3.0	17.7
252	2.5	17.1	839	2.0	17.7
259	3.0	17.1	846	3.0	16.5
263	2.0	17.7	849	3.0	17.7
268	2.5	17.7	858	3.0	16.5
272	3.0	17.7	862	3.0	17.7
280	3.0	17.7	869	2.5	17.1
282	3.0	17.7	873	3.0	17.7
284	2.5	17.7	898	3.0	16.5
285	2.5	17.7	899	4.0	16.5

TABLE B.5 AIR-FLOW DATA FOR VITRO (EGLIN) VACUUM PUMP

All measurements made with Brooks Rotameter, Model 1110, Serial No. 31954. Pump loaded with Casella Impactor No. 320.

Pump Field Number	Serial Number	Critical Orifice Rated Flow*	Measured Flow*
		liters/min	liters/min
1	62	17.8	19.7
2	160	17.25	19.5
3	181	17.8	18.0
4	88	17.6	18.0
5	34	18.1	17.8
6	204	17.4	18.4
7	149	17.8	18.0
8	37	17.9	18.0
9	240	17.95	18.4
10	105	17.25	18.0
11	158		
12	31	17.8	18.4
13	3	17.95	18.4
14	26	17.8	18.0
15	16	17.6	18.0
16	42	17.95	18.0
17	246	18.1	18.0
18	44	17.8	17.7
19	109	17.8	18.4
20	91	17.8	18.2
21	60	17.8	18.4
22	56		
23	224	17.95	18.0
24	227	17.95	17.8
25	21	17.6	17.8
26	14	17.95	18.4
27	199	17.8	18.4
28	113	17.95	18.2
29	133	17.95	18.0
30	9	17.95	18.0
31	90	17.82	18.4
32	219	17.8	18.2
33	53	17.8	18.4
34	241	17.8	17.7
35	232	17.8	18.4
36	80	17.8	18.2
37	18	17.8	18.2
38	154	17.6	18.4
39	93	17.4	18.4
40	111		
41	230	17.8	18.2
42	223	17.8	18.2
43	205	17.8	17.3
44	82	17.8	18.0
45	94	16.9	18.7
46	17	17.8	18.7
47	182	17.95	18.4
48	164	17.8	18.7
49	225	17.95	18.0
50	13	17.8	18.2
51	142	17.95	18.7

TABLE B.5 CONTINUED

Pump Field Number	Serial Number	Critical Orifice Rated Flow*	Measured Flow*
		liters/min	liters/min
52	63	17.6	18.4
53	129	17.8	18.4
54	28	17.8	18.0
55	73	17.8	18.7
56	193	17.8	18.4
57	55	18.1	18.7
58	239	17.8	18.2
59	183	17.8	18.7
60	107	17.95	18.0
61	157	17.4	18.8
62	249	17.8	18.4
63	208	17.4	18.2
64	75	17.8	18.4
65	106	18.1	18.4
66	172	18.1	18.4
67	114	18.1	18.2
68	250		
69	119	17.8	18.4
70	76		
71	196	17.95	18.2
72	68	17.95	18.5
73	168	18.1	18.5
74	165	17.8	18.2
75	156	16.9	17.8
76	87	17.8	18.4
77	43	17.95	18.0
78	57	17.8	18.0
79	113	18.1	18.4
80	41	17.95	18.4
81	198	17.8	18.4
82	190	17.95	18.4
83	173		
84	59	17.6	18.2
85	33	17.8	18.2
86	101	17.6	18.0
87	131	17.95	18.4
88	174	17.6	18.4
89	64	17.95	18.7
90	134	17.8	18.4
91	40	17.8	18.4
92	52	17.8	17.7
93	194	18.1	18.4
94	108		
95	180	17.8	18.4
96	39	17.9	18.4
97	46	18.1	18.4
98	29	17.8	18.4
99	159	17.8	18.4
100	189		
101	123	17.25	18.4
102	153	17.6	18.4

TABLE B.5 CONTINUED

Pump Field Number	Serial Number	Critical Orifice Rated Flow*	Measured Flow*
		liters/min	liters/min
103	191	17.8	18.4
104	45	17.4	18.7
105	220	17.8	18.4
106	10	17.8	18.4
107	213	18.1	18.4
108	117	17.6	18.7
109	195	17.8	18.4
110	1	17.8	18.0
111	184	18.7	18.2
112	122	18.1	18.4
113	69	17.95	18.7
114	139	17.95	18.4
115	185	17.8	18.4
116	152	17.8	18.4
117	228		
118	201	17.8	18.4
119	150	18.1	18.4
120	20	17.8	18.4
121	50	17.4	18.4
122	231	17.6	18.4
123	146	18.1	18.0
124	179	17.95	18.4
125	175	17.8	18.4
126	236	17.95	18.0
127	12	17.8	18.4
128	192		
129	218	17.95	18.4
130	200	17.8	18.4
131	226	17.8	18.4
132	30	17.25	18.4
133	104	17.8	18.4
134	7	17.8	18.7
135	245	17.6	18.7
136	130	17.95	18.7
137	148	17.95	18.0
138	211	17.8	18.7
139	77	17.6	18.4
140	54	17.4	18.4
141	212	17.6	18.7
142	140	17.95	17.7
143	217	17.95	18.2
144	49	18.1	18.7
145	32	17.8	18.4
146	221	17.8	18.4
147	144	17.95	18.4
148	163		
149	128	17.8	18.4
150	100	17.95	18.4
151	6	18.1	18.7
152	132	17.8	18.4
153	11	17.8	18.7
154	202	18.1	18.4
155	112	17.95	18.7
156	242	17.8	18.7

TABLE B.5 CONTINUED

Pump Field Number	Serial Number	Critical Orifice Rated Flow*	Measured Flow*
		liters/min	liters/min
157	102	17.95	17.0
158	35	17.25	18.4
159	127	17.95	18.0
160	70	17.8	18.7
161	214	17.25	18.7
162	145	17.8	18.4
163	216	17.95	18.7
164	36	17.8	18.7
165	97	17.95	18.7
166	121	17.8	18.4
167	25	17.8	18.7
168	92	17.8	18.4
169	177	18.1	18.4
170	110	18.1	18.4
171	162	17.8	18.7
172	96		
173	23	16.9	19.0
174	171	18.1	18.7
175	136	17.8	18.4
176	66	17.6	18.4
177	116	17.8	18.4
178	229	17.8	17.7
179	120		
180	89	17.6	17.7
181	137	17.8	17.3
182	2	17.8	17.7
183	58	17.25	17.8
184	24	18.1	18.0
185	169	17.8	17.7
186	81	17.8	17.8
187	175	17.8	17.7
188	215	17.8	17.3
189	210	17.8	18.0
190	8	17.8	17.3
191	244	17.95	18.0
192	243	18.1	17.7
193	143	18.1	17.7
194	209	17.8	17.7
195	51	17.8	18.2
196	86	17.8	17.7
197	15	17.6	17.8
198	79	17.25	17.8
199	234	17.95	17.7
200	5	17.8	18.0
201	170	17.8	17.8
202	65	17.8	18.7
203	48	17.8	18.4
204	161	17.8	18.7

TABLE B.5 CONTINUED

Pump Field Number	Serial Number	Critical Orifice Rated Flow*	Measured Flow*
		liters/min	liters/min
205	67	17.8	18.7
206	4	18.1	18.4
207	247	17.95	18.4
208	155	17.8	18.0
209	207	17.8	18.2
210	96	17.8	17.0
211	206	17.25	17.7

*Where no value is given, the pump was not used; was found to be defective.

TABLE B.6 AIR-FLOW DATA FOR GELMAN BANTAM VACUUM PUMP

All measurements made with British Vacuum-Flow Meter. Pumps loaded with Casella No. 122. Pumps equipped with critical orifices rated at approximately 18 liters/min. M, Modified for use on British Balloons.

Pump Serial Number	Closed Vacuum	Flow	Serial Number	Closed Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
1	20.2	16.9	43	20.1	17.3
1 (Mod.)	19.8	20.1	44	20.0	17.9
2	20.6	17.7	45	21.0	18.3
3	21.0	17.1	46	19.1	17.1
3 (Mod.)	20.8	20.1	47	20.0	17.7
4	20.5	17.1	48	19.2	17.9
4 (Mod.)	19.8	20.3	49	20.0	16.9
5	20.5	17.1	50	20.1	17.1
5 (Mod.)	20.5	20.1	51	20.0	17.5
6	20.2	17.7	52	19.8	17.3
6 (Mod.)	20.0	19.8	53	19.8	17.5
7	20.2	17.7	54	20.8	18.1
7 (Mod.)	20.5	20.7	55	19.0	17.7
8	20.5	17.5	56	19.8	16.8
8 (Mod.)	19.5	19.5	57	20.2	17.7
9	20.0	17.7	58	17.5	16.3
9 (Mod.)	20.5	20.1	59	20.0	17.7
10	20.0	18.3	60	20.3	18.1
10 (Mod.)	19.5	20.3	61	20.0	17.4
11	19.2	17.7	62	19.0	18.2
11 (Mod.)	21.0	20.1	63	18.5	17.0
12	20.4	18.6	64	20.1	18.6
13	20.2	18.3	65	19.0	16.5
13 (Mod.)	20.0	20.4	66	20.0	18.2
14	19.8	17.7	67	20.0	17.7
14 (Mod.)	20.5	19.8	68	19.0	17.1
15	20.0	18.2	69	20.0	18.6
15 (Mod.)	19.5	20.3	70	20.5	18.2
16	20.0	18.3	71	20.2	17.4
16 (Mod.)	20.2	20.1	72	20.0	17.7
17	18.5	17.3	73	20.0	16.5
17 (Mod.)	20.8	19.8	74	20.2	17.7
18	20.4	18.4	75	20.2	17.9
18 (Mod.)	19.8	20.1	76	20.2	17.7
19	19.5	17.7	77	20.2	17.9
19 (Mod.)	20.5	20.1	78	20.1	17.7
20	20.0	17.7	79	20.2	17.7
20 (Mod.)	20.2	20.2	80	20.1	17.8
21	21.0	17.7	81	20.2	17.0
22	20.0	17.7	82	19.5	17.5
23	20.2	17.9	83	20.2	17.1
24	20.5	17.7	84	20.1	17.9
25	20.2	18.3	85	20.2	17.7
26	20.5	17.7	86	20.5	17.8
27	20.0	17.7	87	19.8	17.1
28	20.2	18.3	88	20.1	17.7
29	21.0	17.7	89	20.3	17.7
30	20.5	17.5	90	20.1	17.7

TABLE B.6 CONTINUED

Pump Serial Number	Closed Vacuum	Flow	Serial Number	Closed Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
31	20.5	18.3	91	20.1	17.7
32	19.5	17.9	92	20.2	17.5
33	20.5	18.2	93	20.1	18.3
34	21.0	17.7	94	20.1	17.6
35	20.0	18.2	95	20.2	18.3
36	19.8	17.9	96	20.0	17.7
37	21.0	17.9	97	20.0	16.7
38	20.1	18.6	98	20.2	16.9
39	19.8	17.5	99	20.1	17.1
40	20.5	17.9	100	20.1	17.5
41	20.1	17.5	101	20.3	17.9
42	20.0	17.7	102	20.2	17.7
103	20.0	17.5	144	20.2	17.5
104	20.1	17.7	145	20.8	17.7
105	20.1	17.7	146	20.1	17.7
106	20.2	17.5	147	20.5	18.3
107	20.1	18.6	148	20.0	18.3
108	20.1	17.1	149	20.5	17.9
109	20.1	17.1	150	19.5	17.5
110	20.5	18.6	151	20.5	17.5
111	20.5	18.6	152	20.2	18.3
112	20.1	18.4	153	20.3	17.7
113	21.2	18.9	154	20.8	18.[illegible]
114	20.4	17.9	155	20.5	18.4
115	20.[illegible]	17.7	156	20.0	17.7
116	20.1	18.6	157	21.2	18.9
117	21.0	17.7	158	20.5	17.7
118	19.[illegible]	17.5	159	20.8	17.9
119	20.4	18.2	160	20.8	18.6
120	20.5	18.4	161	20.5	17.1
121	21.2	17.5	162	20.5	18.6
122	20.1	17.3	163	20.2	16.8
123	20.5	17.5	164	20.4	18.2
124	20.2	18.6	165	19.8	17.0
125	20.1	17.7	166	20.5	17.5
126	20.5	17.9	167	20.0	17.5
127	20.1	18.6	168	20.1	17.7
128	20.1	17.7	169	20.3	17.1
129	21.0	18.3	170	19.5	18.5
130	19.6	17.1	171	20.2	17.0
131	20.0	17.1	172	19.6	17.0
132	20.2	17.9	173	20.0	16.8
133	20.5	18.2	174	20.5	17.9
134	20.2	17.7	175	19.8	17.7
135	20.4	18.6	176	20.2	17.9
136	20.2	18.6	177	20.2	17.7
137	20.5	18.9	178	20.5	18.2
139	21.0	18.6	179	20.8	18.6
139	20.5	17.9	180	19.8	17.7
140	20.2	17.9	181	-	-
141	20.3	17.5	182	-	-
142	20.1	18.3	183	20.8	19.8
143	19.8	17.9			

TABLE B.7 AIR-FLOW DATA FOR AUSTEN VACUUM PUMP

Air flow measured with Brooks Rotameter. Vacuum measured with British Vacuum-Flow Meter. Pumps loaded with Casella No. 320. Pump not equipped with critical orifice.

Pump Serial Number	Closed Vacuum	Flow	Serial Number	Closed Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
B332/SE	14.0	20.1	B144/SE	14.0	20.9
B312/SE	14.0	20.1	B506/SE	13.0	20.7
B507/SE	12.0	20.1	B344/SE	14.0	20.6
B164/SE	14.5	20.6	B211/SE	14.0	20.1
B342/SE	14.0	21.1	B493/SE	13.5	20.2
B525/SE	13.5	20.6	B158/SE	13.0	20.4
B212/SE	14.2	20.4	B467/SE	14.0	20.6
B225/SE	13.8	19.8	B227/SE	13.8	20.4
B167/SE	13.5	20.4	B494/SE	13.5	21.1
B230/SE	13.5	20.1	B146/SE	13.0	20.7
B159/SE	14.0	20.7	B356/SE	13.0	19.5
B184/SE	14.0	20.9	B155/SE	13.8	20.4
B180/SE	13.0	19.5	B325/SE	14.0	20.2
B214/SE	14.0	20.7	B524/SE	14.0	20.2
B479/SE	13.0	20.7	B152/SE	13.8	20.2
B172/SE	14.5	21.6	B350/SE	13.0	20.0
B141/SE	15.0	21.3	B472/SE	13.0	21.1
B203/SE	14.2	21.4	B308/SE	13.8	20.0
B148/SE	14.8	20.9	B466/SE	13.6	20.4
B473/SE	13.0	21.4	B216/SE	14.0	20.8
B147/SE	15.0	20.7	B226/SE	13.8	20.8
B336/SE	14.2	20.7	B498/SE	14.0	20.0
B166/SE	13.8	20.7	B218/SE	13.6	19.4
B461/SE	13.5	21.8	B198/SE	14.0	20.2
B205/SE	14.0	20.7	B154/SE	14.2	20.8
B193/SE	13.8	20.9	B468/SE	13.0	20.9
B460/SE	13.0	21.4	B150/SE	14.2	19.4
B318/SE	13.5	20.2	B352/SE	14.0	19.7
B204/SE	14.0	20.7	B215/SE	12.8	18.8
B321/SE	14.0	20.2	B516/SE	13.5	19.0
B197/SE	14.2	23.0	B236/SE	13.8	19.7
B309/SE	14.0	22.3	B347/SE	14.1	20.9
B491/SE	13.2	20.4	B182/SE	13.2	19.9
B168/SE	14.0	19.4	B183/SE	13.2	19.0
B314/SE	13.8	20.1	B163/SE	13.3	19.7
B348/SE	14.0	22.1	B504/SE	12.7	20.9
B143/SE	14.2	22.9	B153/SE	13.9	20.0
B160/SE	14.0	20.2	B324/SE	13.8	20.2
B346/SE	13.5	21.4	B327/SE	13.8	20.4
B487/SE	12.8	21.3	B470/SE	12.3	20.2
B175/SE	13.5	20.7	B483/SE	12.3	20.6
B331/SE	13.0	20.7	B464/SE	12.3	20.9
B322/SE	14.2	20.4	B459/SE	12.8	19.2
B231/SE	12.0	20.4	B142/SE	14.5	19.9
B510/SE	12.0	19.5	B238/SE	13.3	19.9
B457/SE	13.0	20.9	B219/SE	12.5	19.7
B313/SE	13.5	20.4	B329/SE	13.5	19.5
B139/SE	13.0	20.1	B199/SE	13.8	20.6

TABLE B.7 CONTINUED

Pump Serial Number	Closed Vacuum	Flow	Serial Number	Closed Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
B481/SE	11.0	19.0	B145/SE	12.9	20.9
B189/SE	14.5	20.7	B505/SE	13.8	19.5
B177/SE	13.8	19.7	B334/SE	13.3	20.0
B333/SE	13.8	20.7	B178/SE	13.8	20.2
B196/SE	13.2	20.2	B499/SE	12.5	20.9
B331/SE	13.8	20.9	B200/SE	14.0	20.9
B458/SE	13.0	21.1	B519/SE	12.4	20.6
B202/SE	12.2	18.0	B208/SE	14.0	20.2
B351/SE	13.8	20.9	B213/SE	13.5	19.2
B511/SE	13.2	20.6	B235/SE	12.5	19.4
B345/SE	13.8	20.6	B335/SE	13.0	19.5
B484/SE	13.8	21.1	B222/SE	12.5	20.6
B188/SE	14.8	20.6	B489/SE	12.8	20.9
B192/SE	13.5	19.9	B522/SE	12.5	20.9
B179/SE	12.8	19.5	B497/SE	13.3	20.9
B149/SE	14.0	20.0	B475/SE	13.2	20.8
B530/SE	13.0	19.7	B520/SE	12.9	20.8
B157/SE	13.5	20.6	B465/SE	13.0	20.6
B191/SE	13.9	20.0	B469/SE	12.5	20.4
B477/SE	12.8	20.9	B533/SE	12.8	21.5
B229/SE	11.0	18.7	B513/SE	12.2	19.7
B486/SE	13.0	20.6	B535/SE	12.3	20.4
B232/SE	13.5	20.4	B485/SE	12.5	20.8
B340/SE	14.3	21.1	B528/SE	13.0	20.6
B492/SE	13.0	20.2	B495/SE	13.0	20.2
B221/SE	13.7	20.0	B471/SE	11.8	19.5
B456/SE	12.9	21.1	B509/SE	12.5	20.6
B463/SE	12.5	20.2	B310/SE	13.5	20.8
B526/SE	13.0	20.6	B523/SE	12.6	20.8
B482/SE	12.8	20.9	B501/SE	12.4	20.4
B527/SE	13.3	20.2	B496/SE	13.0	20.6
B521/SE	12.5	21.1	B529/SE	12.7	19.9
B355/SE	14.8	20.0	B343/SE	13.2	20.4
B515/SE	12.5	21.1	B330/SE	13.7	20.0
B518/SE	12.5	20.8	B320/SE	13.2	19.7
B531/SE	12.2	19.9	B323/SE	13.8	20.6
B207/SE	14.5	20.8	B176/SE	13.2	20.4
B512/SE	13.0	20.6	B316/SE	14.0	20.9
B490/SE	12.9	20.0	B233/SE	13.4	19.5
B462/SE	12.7	20.2	B210/SE	13.4	19.5
B502/SE	12.5	20.2	B317/SE	13.5	20.9
B478/SE	12.7	20.0	B237/SE	13.9	19.5
B500/SE	12.0	19.9	B532/SE	14.5	20.9

TABLE B.8 AIR-FLOW DATA FOR SC-6 VACUUM PUMP

All measurements made with British Vacuum-Flow meter. Pumps loaded with Casella No. 322. Pumps not equipped with critical orifices.

Pump Serial Number	Closed Vacuum	Flow	Serial Number	Closed Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
4474	14.5	15.3	4296	17.0	18.3
4367	18.0	16.5	4454	17.0	18.9
4486	16.3	14.8	4338	17.5	17.7
4430	16.7	15.9	4337	14.5	17.7
4612	17.0	20.6	4505	18.0	19.5
4425	17.0	17.3	4347	17.5	18.9
4426	17.0	18.3	4389	17.0	18.3
4360	16.8	18.3	4457	16.0	18.3
4329	17.5	19.5	4302	17.5	19.5
4345	17.0	20.1	4403	17.5	17.7
4469	15.0	18.9	4482	16.0	17.1
4298	19.7	20.7	4294	17.0	18.3
4376	17.0	19.5	4401	17.0	18.9
4549	16.5	20.1	4357	18.0	18.9
4477	15.7	17.7	4489	17.0	18.3
4501	19.0	20.7	4517	17.0	20.1
4346	15.5	18.3	4365	16.5	18.9
4439	17.2	17.7	4383	19.0	18.9
4422	17.5	19.5	4480	17.5	18.9
4460	17.0	19.5	4382	17.5	18.3
4471	18.0	19.5	4377	16.5	18.9
4353	17.0	19.5	4414	18.0	20.1
4305	17.0	18.9	4301	17.5	20.1
4493	17.0	18.3	4340	17.0	18.9
4344	17.0	19.5	4444	17.0	20.1
4420	17.5	18.9	4306	19.0	20.1
4466	16.5	18.9	4498	17.0	18.9
4427	16.0	18.9	4320	17.5	20.1
4452	17.0	19.5	4468	16.5	18.3
4327	17.5	19.5	4361	18.0	18.9
4295	19.5	20.1	4611	17.0	19.5
4415	18.5	17.7	4479	16.0	18.3
4398	17.0	18.9	4339	16.0	18.9
4358	17.0	20.1	4485	16.0	17.7
4435	17.5	17.1	4322	17.5	18.9
4366	17.0	18.3	4348	15.5	16.5
4392	17.5	18.9	4462	17.0	19.5
4373	16.7	18.3	4328	18.0	17.1
4496	16.5	17.1	4484	18.0	19.5
4438	17.0	18.3	4321	18.5	18.8
4332	17.5	16.5	4459	15.0	17.1
4432	17.5	18.9	4380	17.0	18.3
4381	19.0	18.9	4323	17.5	18.9
4371	17.0	18.9	4396	17.0	20.1
4299	16.5	17.7	4356	19.0	19.5
4308	18.0	17.7	4492	17.0	18.9
4378	19.0	19.5	4518	19.0	21.8
4487	19.0	20.1	4312	17.5	19.5

TABLE B.8 CONTINUED

Pump Serial Number	Closed Vacuum	Flow	Serial Number	Closed Vacuum	Flow
	inches, Hg	liters/min		inches, Hg	liters/min
4334	17.5	19.5	4475	15.5	16.5
4370	16.5	19.5	4437	16.5	17.7
4502	16.5	20.1	4319	19.0	18.3
4343	16.0	18.9	4400	16.0	16.5
4519	17.5	18.9	4497	19.0	20.7
4433	13.0	20.7	4450	18.5	18.3
4494	19.5	19.5	4457	15.0	17.7
4467	16.0	20.1	4311	17.5	18.9
4506	17.0	17.7	4515	18.5	18.9
4304	17.5	17.7	4409	17.0	18.9
4472	16.0	15.9	4431	17.0	17.7
4447	16.5	18.9	4442	17.5	18.9
4507	17.0	17.7	4488	16.0	17.1
4446	17.0	17.7	4317	18.0	20.7
4491	17.5	17.7	4303	17.0	19.5
4354	18.0	20.1			

TABLE B.9 AIR-FLOW THROUGH CASELLA MARK II IMPACTORS WITHOUT BACK-UP FILTERS INSTALLED.

Air-flow measurements made with Brooks Rotameter.
Vacuum measurements made with British Vacuum-Flow Meter.

Pump Type	Sampler Number	Pump Unloaded	Pump Loaded with Casella	
		Air-Flow	Vacuum	Air-Flow
		liters/min	inches, Hg	liters/min
Eglin	246	18.7	2.5	18
Eglin	813	18.7	2.0	18
Eglin	233	18.7	2.0	18
Eglin	101	18.7	2.0	18.7
Eglin	833	18.7	3.0	17.8
Eglin	201	18.7	2.0	18
Eglin	123	18.7	2.0	18
Eglin	312	18.7	3.0	17.8
Eglin	177	18.7	3.0	18
Eglin	229	18.7	1.5	18
Austen	246	28.2	3.5	23.2
Austen	813	28.8	3.0	24.3
Austen	233	28.2	3.5	23.6
Austen	101	28.2	2.5	25.0
Austen	833	28.2	4.0	22.5
Austen	201	28.6	3.0	25.1
Austen	123	28.8	3.0	23.9
Austen	312	28.2	4.0	22.2
Austen	177	28.6	4.0	22.5
Austen	220	28.2	2.5	25.0

TABLE B.10 AIR-FLOW MEASUREMENTS MADE AT AIR-SAMPLING STATIONS LOCATED ON THE DOUBLE TRACKS ARRAY.

All measurements made with British Vacuum-Flow Meter.

Arc	Station	Sampler Type	Sampler Number	Pump Type	Pump Number	Critical Orifice Rating	Air Flow	Air Flow[a]
						liters/min	liters/min	liters/min
GZ BC	03	TAS	D 120	Eglin	1	17.8	20.7	19.7
GZ BC	04	Andersen	A 96	Eglin	2	17.8	20.1	19.5
GZ BC	05	TAS	D 122	Eglin	3	17.95	20.7	18.0
GZ BC	06	Andersen	A 94	Eglin	4	18.1	20.7	18.0
B	034	Andersen	A 91	Eglin	145	17.8	20.1	18.3
B	036	TAS	D 82	SC-6	118		20.7	
B	038	Casella	223	Austen	2		23.6+	
B	040	Andersen	A 83	Eglin	146	18.1	20.7	18.3
D	060	Casella	176	Eglin	67	17.8	18.6	18.1
D	064	Andersen	A 43	Eglin	161	17.8	20.7	18.7
F	046	Andersen	A 28	Eglin	199	17.8	20.7	17.7
H	058	Andersen	A 30	Eglin	182	17.9	20.7	17.7
N	026	Casella	315	Eglin	116	17.8	20.1	18.3
N	030	TAS II	724	SC-6	184		20.1	
N	034	Andersen	A 59	Eglin	209	17.8	20.7	18.2
N	036	TAS II	747	SC-6	185		23.0	
N	038	Casella	238	Austen	62		23.6+	
N	040	Andersen	A 58	Eglin	118	18.1	20.7	18.4

[a]Pump flow rate as measured by Brooks Rotameter in laboratory.

TABLE B.11 AIR-FLOW MEASUREMENTS MADE ON THE VITRO (EGLIN) PUMP BEFORE AND AFTER COMPLETION OF TEST OPERATIONS

All measurements made with Brooks Rotameter. **Pretest** measurements made with pumps connected to Casella Impactor No. 320; **Posttest** measurements were made with Casella No. 240.

Pump Serial Number	**Pretest** Air Flow	**Posttest** Air Flow
	liters/min	liters/min
43	18.0	17.7
31	18.4	17.7
160	19.5	18.0
204	18.4	17.8
181	18.0	18.2
88	18.0	18.7
30	18.4	18.2
200	18.4	18.8
109	18.4	19.9
230	18.0	18.0

TABLE B.12 AIR-FLOW MEASUREMENTS MADE ON THE GELMAN BANTAM PUMP BEFORE AND AFTER COMPLETION OF TEST OPERATIONS

Pretest measurements made with British Flow Meter and with pumps connected to Casella Impactor No. 227. Posttest measurements made with Brooks Rotameter and with pumps connected to Casella No. 240.

Pump Field Number	**Pretest** Air Flow	**Posttest** Air Flow
138	18.8	18.2
178	18.2	18.0
118	17.5	17.7
120	18.4	18.0
153	17.7	17.7
114	17.9	17.7
115	17.7	17.7
160	18.6	18.2
78	17.7	17.7
136	18.6	18.0

TABLE B.13 AIR-FLOW MEASUREMENTS MADE ON THE AUSTEN PUMP BEFORE AND AFTER COMPLETION OF TEST OPERATIONS

All measurements made with Brooks Rotameter. **Pretest** measurements made with pumps connected to Casella Impactor No. 320; **Posttest** measurements made with Casella No. 240.

Pump Serial Number	**Pretest** Air Flow	**Posttest** Air Flow
	liters/min	liters/min
B351/SE	20.9	22.7
B512/SE	22.3	22.9
B470/SE	20.2	22.5
B331/SE	20.7	22.0
B311/SE	20.9	22.1
B497/SE	20.9	23.0
B348/SE	22.1	22.3
B496/SE	20.6	22.7
B200/SE	20.9	22.7
B481/SE	19.0	21.8
B479/SE	20.7	22.3
B185/SE	19.0	22.0
B504/SE	20.9	22.9
B519/SE	20.6	23.0
B472/SE	21.1	22.7
B205/SE	20.7	22.7
B528/SE	20.6	23.6
B335/SE	19.5	21.5
B345/SE	20.6	22.9
B459/SE	19.2	21.6
B227/SE	20.4	22.7
B155/SE	20.4	22.3
B218/SE	19.4	21.5
B463/SE	20.2	22.5
B229/SE	18.7	22.5
B499/SE	20.9	23.2
B517/SE		22.3
B197/SE	23.0	22.7
B506/SE	20.7	22.7
B157/SE	20.6	22.3

TABLE B14 AIR-FLOW MEASUREMENTS MADE ON THE SC-6 PUMP BEFORE AND AFTER COMPLETION OF TEST OPERATIONS

All measurements made with British Flow Meter. **Pretest** measurements made with pumps connected to Casella Impactor No. 320; **Posttest** measurements made with Casella No. 240.

Pump Serial Number	**Pretest** Air Flow	**Posttest** Air Flow
	liters/min	liters/min
4489	18.3	17.7
4377	18.9	17.7
4319	18.3	17.7
4446	17.7	17.7
4322	18.9	17.7
4380	18.3	15.3
4311	18.9	17.7
4492	18.9	17.7
4507	17.7	17.7
4518	21.8	20.1
4328	17.1	17.7
4348	16.5	17.7
4517	20.1	16.5
4452	19.5	17.7
4511		17.7
4431	17.7	17.7
4454	18.9	17.7
4515	18.9	18.9
4409	18.9	17.7
4398	18.9	17.7
4344	19.5	17.7
4472		15.3
4296	18.3	16.5
4493	16.3	15.3
4502	20.1	18.9
4366	18.3	16.5
4346	18.3	16.5
4427	18.9	16.5
4373		16.5
4295	20.1	17.7

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1 AIR FORCE WEAPONS LAB. ATTN LT.COL. J.L.DICK WLP
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