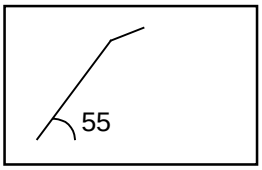
Appendix B – Test Results

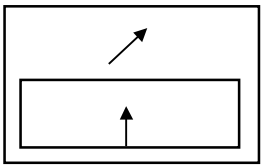
Table B.1a Snowmaking Test Results, Test 1a

TEST #:	1a	DATE(S):	2/13/99
CONDUCTED BY:	Ed Shea	TIME:	19:00 - 21:00
LOCATION:	CORTINA	DURATION (HRS):	2.0

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	60-60-60
AVE WATER PRESSURE (PSI):	190
AVE AIR PRESSURE (PSI):	110
DRY BULB TEMP (F):	13
HUMIDITY (%):	100
WET BULB TEMP (F):	13
WIND SPEED (MPH):	5 - 7
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

AVE WATER FLOW RATE (GPM):	80		
TOTAL WATER (GALS):	9,648		
AVE AIR FLOW RATE (CFM):	116		
TOTAL AIR (CF):	13,920	AIR / WATER (CFM/GPM):	1.4

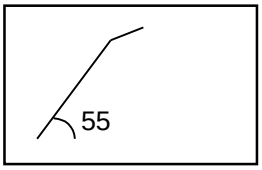
Observed a depth of 3.75 in with density of 33.3 pcf at 80 ft from tower. Natural accumulation over the test period was 0.5 in Quality 2 snow was observed at 125 ft from the tower. Quality 1 snow was observed at 165 ft from the tower. The flowmeter measured 110 psi and 110 cfm of air, and 190 psi and 72 gpm of water at the base of the tower. The system water pressure was 240 psi.

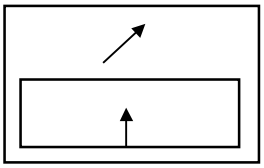
Table B.1b Snowmaking Test Results, Test 1b

TEST #:	1b	DATE(S):	2/13/99
CONDUCTED BY:	Ed Shea	TIME:	21:00 - 23:00
LOCATION:	CORTINA	DURATION (HRS):	2.0

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	60-60-X
AVE WATER PRESSURE (PSI):	210
AVE AIR PRESSURE (PSI):	106
DRY BULB TEMP (F):	13
HUMIDITY (%):	100
WET BULB TEMP (F):	13
WIND SPEED (MPH):	7 - 10
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

AVE WATER FLOW RATE (GPM):	54		
TOTAL WATER (GALS):	6,432		
AVE AIR FLOW RATE (CFM):	109		
TOTAL AIR (CF):	13,080	AIR / WATER (CFM/GPM):	2.0

No densities recorded.

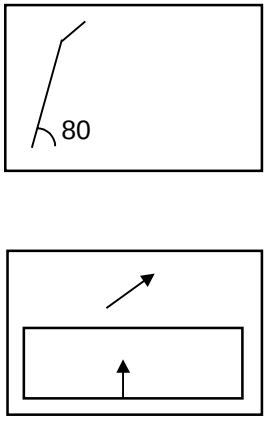
Observed a depth of 1.25 in at 80 ft from tower. Natural accumulation during test period was 0.75 in Flowmeter measured 210 psi and 53 gpm of water at the base of the tower. Air was measured at 106 psi and 110 cfm. The system water pressure was 240 psi.

Table B.2 Snowmaking Test Results, Test 2

TEST #:	2	DATE(S):	2/14/99
CONDUCTED BY:	Ed Shea	TIME:	01:45 - 04:45
LOCATION:	CHARLIE-1	DURATION (HRS):	3.0

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	40-40-40
AVE WATER PRESSURE (PSI):	240
AVE AIR PRESSURE (PSI):	110
DRY BULB TEMP (F):	14
HUMIDITY (%):	100
WET BULB TEMP (F):	14
WIND SPEED (MPH):	3 - 6
SNOMAX (LTRS/KGALS):	0.01



TEST RESULTS

% DEPOSITION AREA SAMPLED:	14		
VOLUME SNOW PRODUCED (CF):	1,751	MAX DEPTH (IN):	3.75
VOLUME SNOW PER HOUR (CF/HR):	584	MAX IN/HR:	1.3
AVE WATER FLOW RATE (GPM):	58		
TOTAL WATER (GALS):	10,512	SNOW / WATER:	1.2
AVE AIR FLOW RATE (CFM):	116		
TOTAL AIR (CF):	20,880	AIR / WATER (CFM/GPM):	2.0
# DENSITY SAMPLES:	3		
RANGE OF DENSITIES (LBS/CF):	26.7 - 28.9	AVE DENSITY (LBS/CF):	28.0

Observed quality 2 snow everywhere in the test grid. Flowmeter measured 240 psi and 58 gpm of water, 110 psi and 90 cfm of air. Temperatures of air and water in the hose between the hydrants and the tower inlet were measured with a digital thermometer as follows:

Water out of hydrant: 21F Air out of hydrant: 12F
Water into tower: 14F Air into tower: 7F

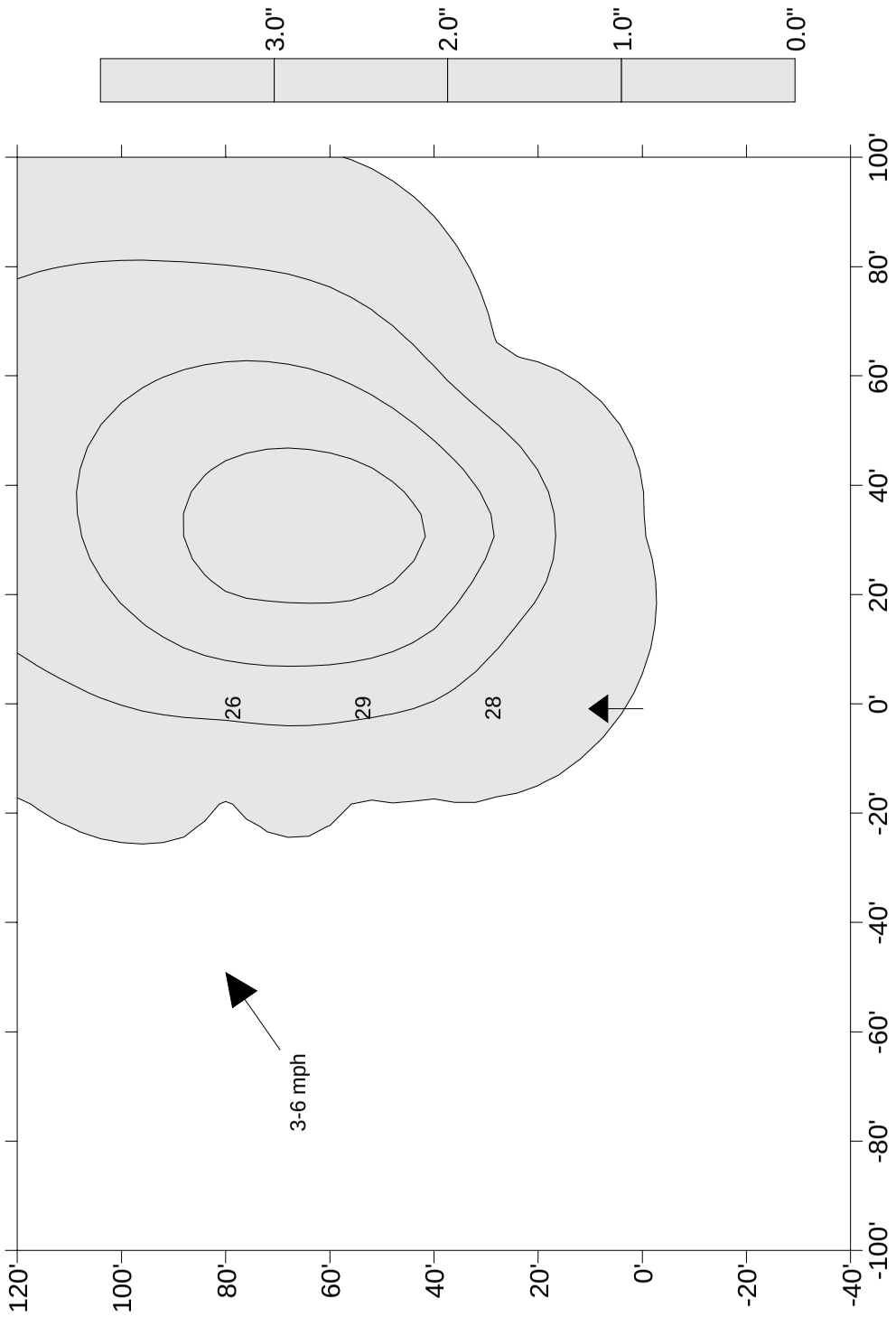


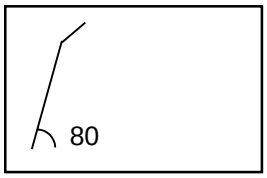
Figure B.2 Snow Production Contour Map – Test 2

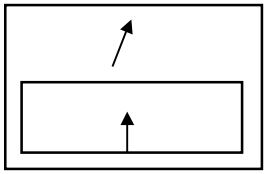
Table B.3 Snowmaking Test Results, Test 3

TEST #:	3	DATE(S):	02/15/1999
CONDUCTED	Ed Shea	TIME:	00:15 - 03:15
LOCATION:	CHARLIE-1	DURATION (HRS):	3.0

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	40-40-40
AVE WATER PRESSURE (PSI):	238
AVE AIR PRESSURE (PSI):	115
DRY BULB TEMP (F):	19 - 20
HUMIDITY (%):	73 - 77
WET BULB TEMP (F):	17 - 18
WIND SPEED (MPH):	7 - 9
SNOMAX (LTRS/KGALS):	0.01





TEST RESULTS

% DEPOSITION AREA SAMPLED:	21		
VOLUME SNOW PRODUCED (CF):	847	MAX DEPTH (IN):	4.75
VOLUME SNOW PER HOUR (CF/HR):	282	MAX IN/HR:	1.6
AVE WATER FLOW RATE (GPM):	58		
TOTAL WATER (GALS):	10,476	SNOW / WATER:	0.6
AVE AIR FLOW RATE (CFM):	124		
TOTAL AIR (CF):	22,320	AIR / WATER (CFM/GPM):	2.1

No recorded densities.

Observed quality 3 snow at 80 ft from the tower, and quality 2 snow at 120 ft Photograph of this test shows nozzle spray blowing over the test grid with very little deposition.

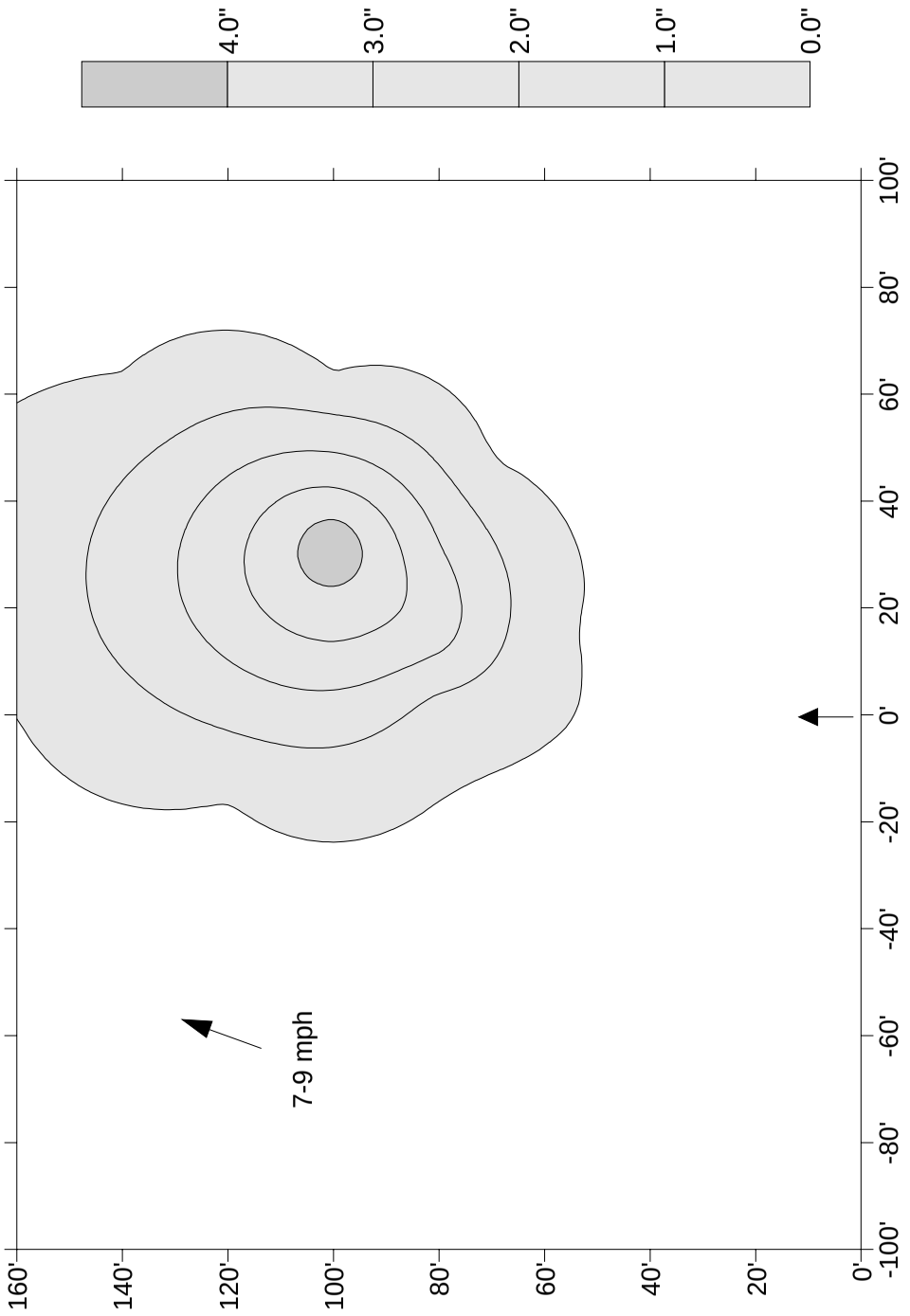


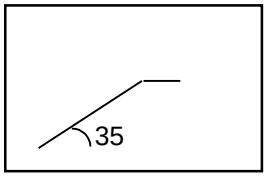
Figure B.3 Snow Production Contour Map – Test 3

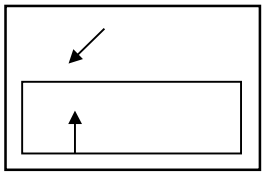
Table B.4 Snowmaking Test Results, Test 4

TEST #:	4	DATE(S):	02/24/1999
CONDUCTED BY:	Ed Shea	TIME:	18:00 - 22:40
LOCATION:	SANTA'S #10	DURATION (HRS):	4.67

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	20-40-X
AVE WATER PRESSURE (PSI):	290
AVE AIR PRESSURE (PSI):	112
DRY BULB TEMP (F):	16 - 20
HUMIDITY (%):	90
WET BULB TEMP (F):	15 - 19
WIND SPEED (MPH):	0 - 7
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	79		
VOLUME SNOW PRODUCED (CF):	2,836	MAX DEPTH (IN):	22.5
VOLUME SNOW PER HOUR (CF/HR):	607	MAX IN/HR:	4.8
AVE WATER FLOW RATE (GPM):	32		
TOTAL WATER (GALS):	8,966	SNOW / WATER:	2.4
AVE AIR FLOW RATE (CFM):	120		
TOTAL AIR (CF):	33,624	AIR / WATER (CFM/GPM):	3.8
# DENSITY SAMPLES:	6		
RANGE OF DENSITIES (LBS/CF):	23.3 - 33.6	AVE DENSITY (LBS/CF):	27.7

Observed a steady flow of precipitation between 20 and 40 ft from the tower, while from 40 to 60 ft there was precipitation only 50% of the time due to the influence of wind. This precipitation was mostly water at a height of 4 ft. Prior to the start of this test, the bottom nozzles (5060's) were used. This produced a slushy, wet coating on the applied area.

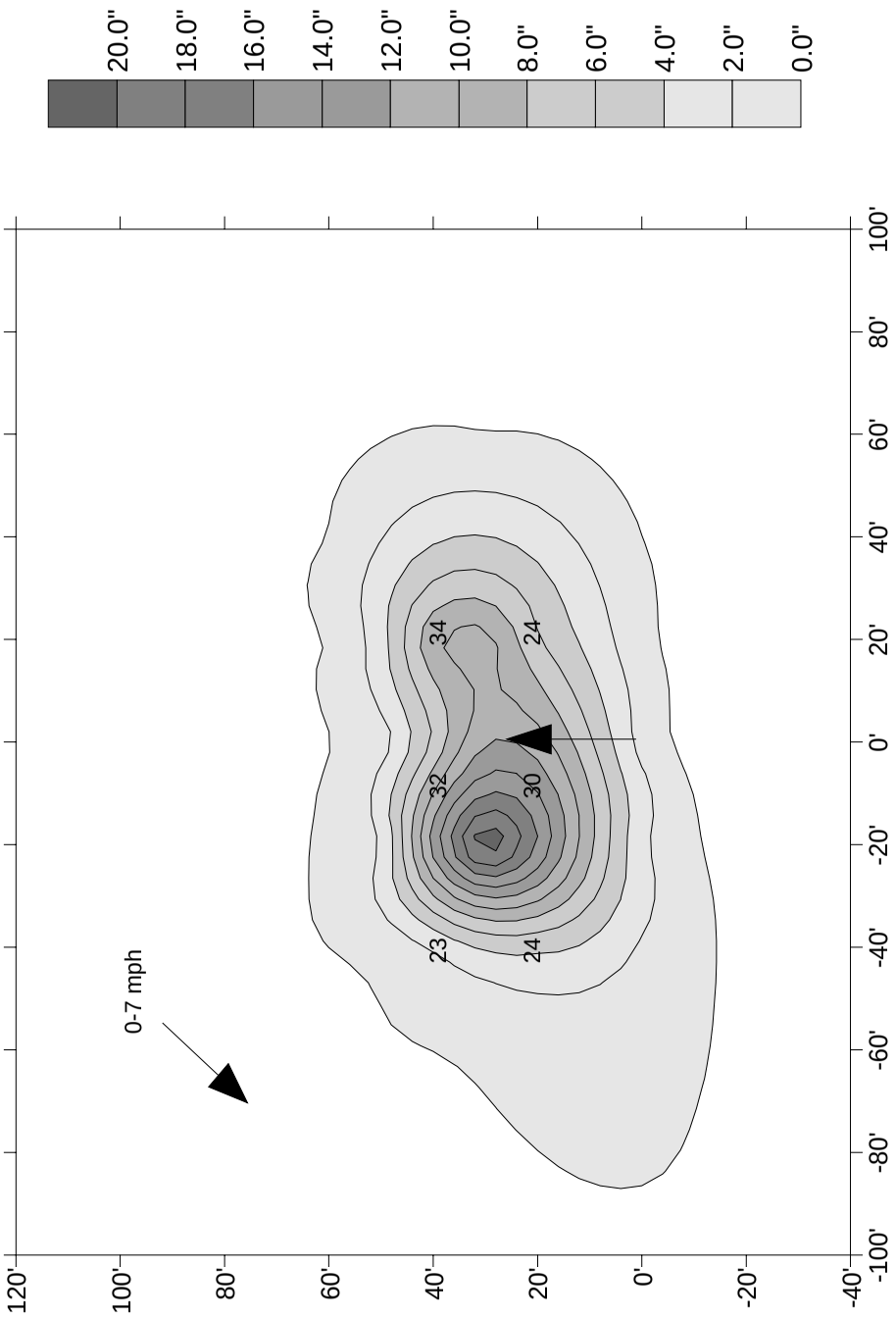


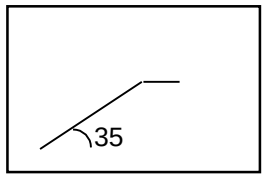
Figure B.4 Snow Production Contour Map – Test 4

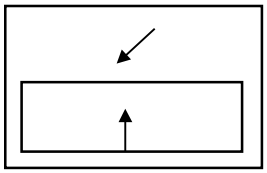
Table B.5 Snowmaking Test Results, Test 5

TEST #:	5	DATE(S):	02/25/1999
CONDUCTED BY:	Ed Shea	TIME:	10:15 - 13:30
LOCATION:	SANTA'S #10	DURATION (HRS):	3.25

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	20-40-X
AVE WATER PRESSURE (PSI):	290
AVE AIR PRESSURE (PSI):	100
DRY BULB TEMP (F):	23 - 28
HUMIDITY (%):	100
WET BULB TEMP (F):	23 - 28
WIND SPEED (MPH):	0 - 3
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	51		
VOLUME SNOW PRODUCED (CF):	1,339	MAX DEPTH (IN):	8.75
VOLUME SNOW PER HOUR (CF/HR):	412	MAX IN/HR:	2.7
AVE WATER FLOW RATE (GPM):	32		
TOTAL WATER (GALS):	6,240	SNOW / WATER:	1.6
AVE AIR FLOW RATE (CFM):	100		
TOTAL AIR (CF):	19,500	AIR / WATER (CFM/GPM):	3.1
# DENSITY SAMPLES:	9		
RANGE OF DENSITIES (LBS/CF):	19.6 - 39.2	AVE DENSITY (LBS/CF):	30.3

Observed 0.5 in of natural accumulation with density 5.4 pcf.

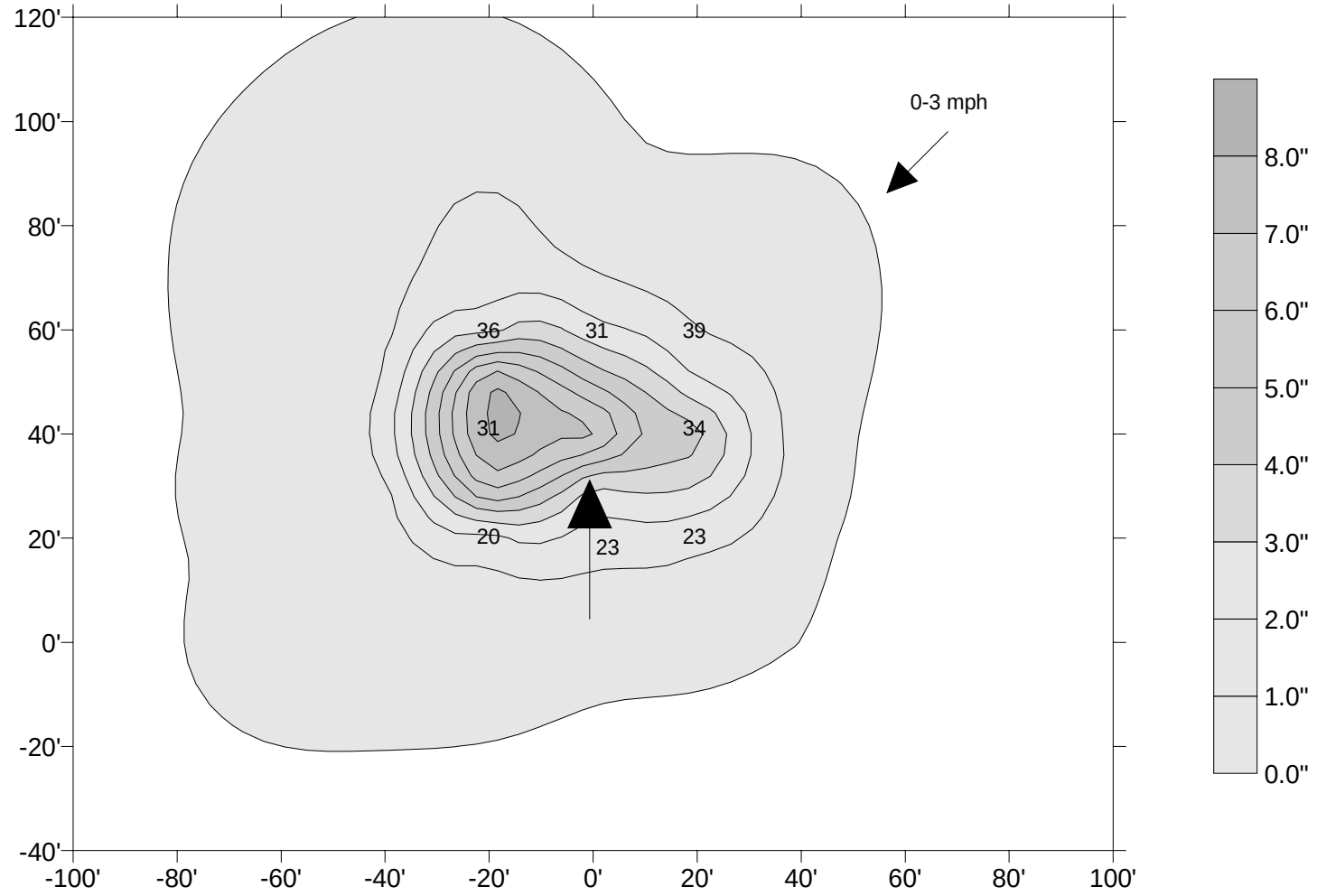


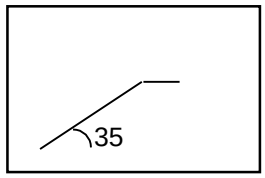
Figure B.5 Snow Production Contour Map – Test 5

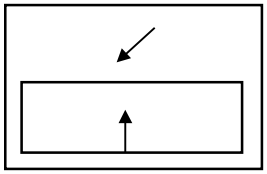
Table B.6 Snowmaking Test Results, Test 6

TEST #:	6	DATE(S):	02/25/1999
CONDUCTED BY:	Ed Shea	TIME:	15:45 - 15:55
LOCATION:	SANTA'S #10	DURATION (HRS):	0.17

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	20-40-X
WATER PRESSURE (PSI):	395
AIR PRESSURE (PSI):	100
DRY BULB TEMP (F):	30
HUMIDITY (%):	100
WET BULB TEMP (F):	30
WIND SPEED (MPH):	0-3
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

VOLUME SNOW PRODUCED (CF):	0	MAX DEPTH (IN):	0
VOLUME SNOW PER HOUR (CF/HR):	0	MAX IN/HR:	0.0
AVE WATER FLOW RATE (GPM):	38		
TOTAL WATER (GALS):	388	SNOW / WATER:	0.0
AVE. AIR FLOW RATE (CFM):	100		
TOTAL AIR (CF):	1,020	AIR / WATER (CFM/GPM):	2.6

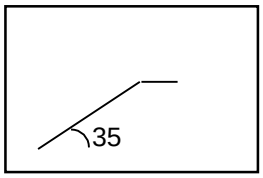
Made rain for 10 minutes. The flowmeter measured 40 gpm of water at 395 psi, and 110 cfm of air at 100 psi.

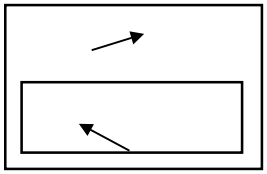
Table B.7 Snowmaking Test Results, Test 7

TEST #:	7	DATE(S):	02/25/1999
CONDUCTED BY:	Ed Shea	TIME:	22:05 - 03:05
LOCATION:	SANTA'S #10	DURATION (HRS):	5.0

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	20-40-X
AVE WATER PRESSURE (PSI):	400
AVE AIR PRESSURE (PSI):	110
DRY BULB TEMP (F):	22
HUMIDITY (%):	100
WET BULB TEMP (F):	22
WIND SPEED (MPH):	3 - 5
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	34		
VOLUME SNOW PRODUCED (CF):	2,863	MAX DEPTH (IN):	7.5
VOLUME SNOW PER HOUR (CF/HR):	573	MAX IN/HR:	1.5
AVE WATER FLOW RATE (GPM):	38		
TOTAL WATER (GALS):	11,340	SNOW / WATER:	1.9
AVE AIR FLOW RATE (CFM):	116		
TOTAL AIR (CF):	34,800	AIR / WATER (CFM/GPM):	3.1
# DENSITY SAMPLES:	8		
RANGE OF DENSITIES (LBS/CF):	25.6 - 35.9	AVE DENSITY (LBS/CF):	32.0

May have reported depths up to 0.5" too high at the deeper locations.

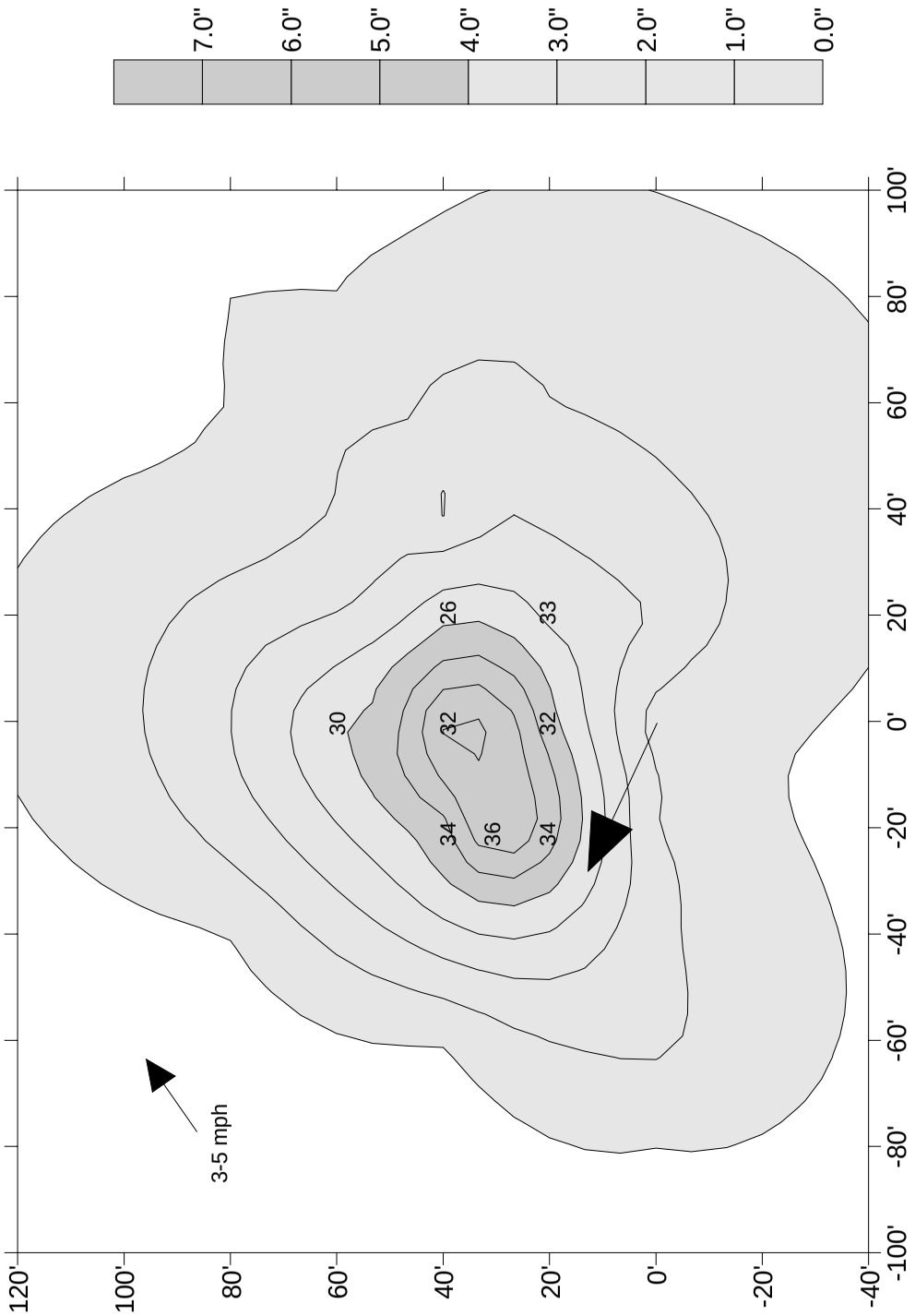


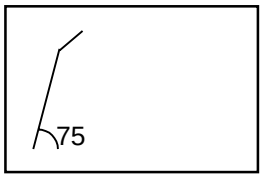
Figure B.7 Snow Production Contour map – Test 7

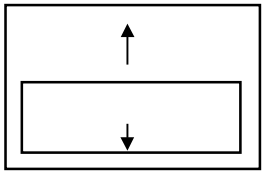
Table B.8 Snowmaking Test Results, Test 8

TEST #:	8	DATE(S):	02/26/1999
CONDUCTED BY:	Ed Shea	TIME:	01:55 - 04:55
LOCATION:	SANTA'S #10	DURATION (HRS):	3.0

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	60-40-20
AVE WATER PRESSURE (PSI):	250
AVE AIR PRESSURE (PSI):	119
DRY BULB TEMP (F):	23
HUMIDITY (%):	100
WET BULB TEMP (F):	23
WIND SPEED (MPH):	2 - 4
SNOMAX (LTRS/KGALS):	0.01





TEST RESULTS

% DEPOSITION AREA SAMPLED:	18		
VOLUME SNOW PRODUCED (CF):	1,716	MAX DEPTH (IN):	4.5
VOLUME SNOW PER HOUR (CF/HR):	572	MAX IN/HR:	1.5
AVE WATER FLOW RATE (GPM):	60		
TOTAL WATER (GALS):	10,800	SNOW / WATER:	1.2
AVE AIR FLOW RATE (CFM):	130		
TOTAL AIR (CF):	23,400	AIR / WATER (CFM/GPM):	2.2
# DENSITY SAMPLES:	3		
RANGE OF DENSITIES (LBS/CF):	28.5 - 32.4	AVE DENSITY (LBS/CF):	30.8

Observed crusty layer on top, and wet below.

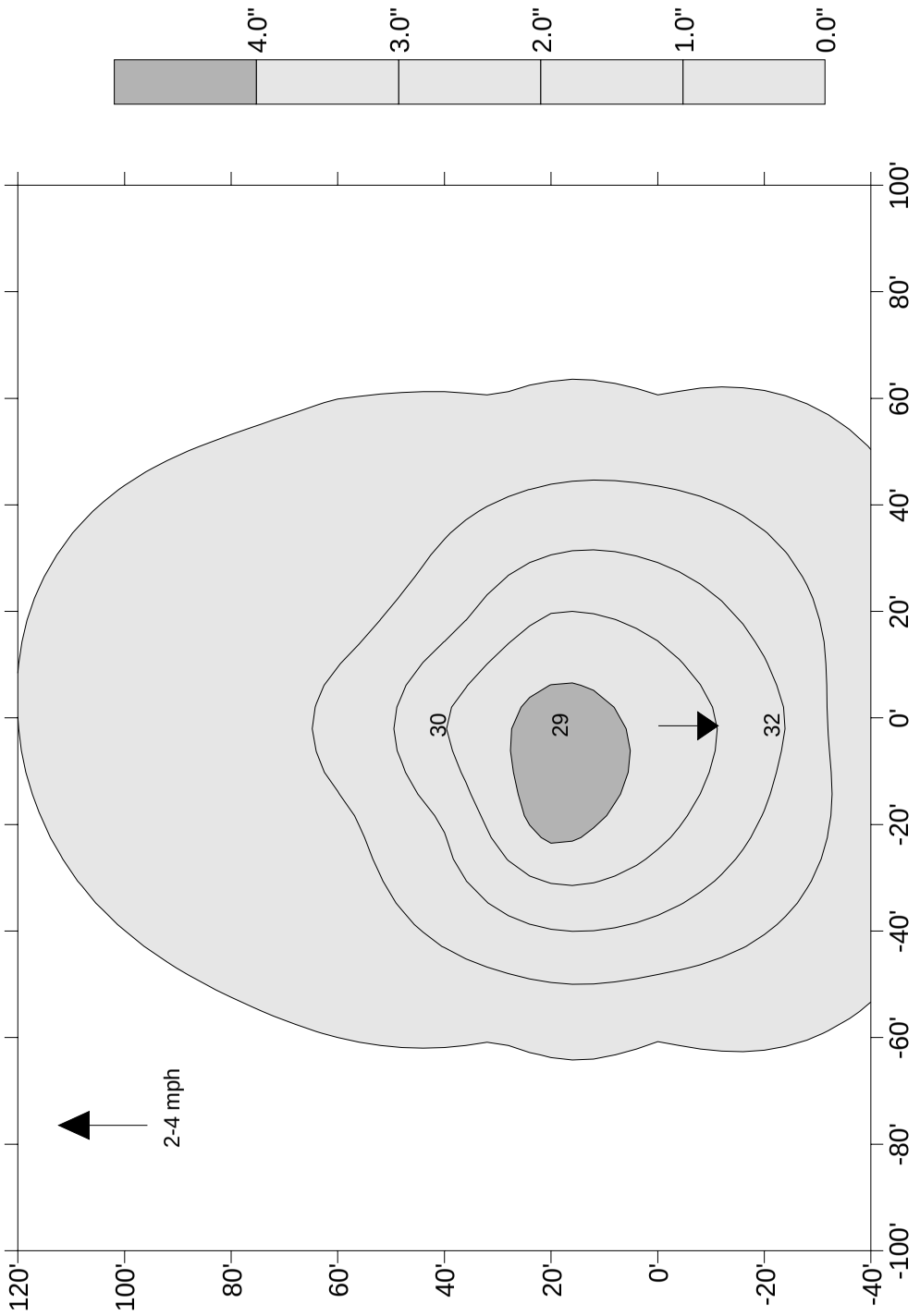


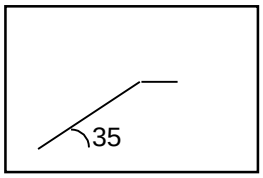
Figure B.8 Snow Production Contour Map – Test 8

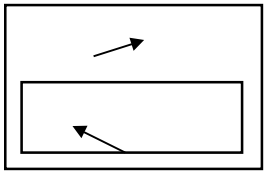
Table B.9 Snowmaking Test Results, Test 9

TEST #:	9	DATE(S):	02/26/1999
CONDUCTED BY:	Ed Shea	TIME:	04:35 - 11:30
LOCATION:	SANTA'S #10	DURATION (HRS):	6.92

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	20-40-X
AVE WATER PRESSURE (PSI):	204
AVE AIR PRESSURE (PSI):	105
DRY BULB TEMP (F):	22 - 33
HUMIDITY (%):	74 - 100
WET BULB TEMP (F):	22 - 31
WIND SPEED (MPH):	0 - 5
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	51		
VOLUME SNOW PRODUCED (CF):	2,270	MAX DEPTH (IN):	8.25
VOLUME SNOW PER HOUR (CF/HR):	328	MAX IN/HR:	1.2
AVE WATER FLOW RATE (GPM):	27		
TOTAL WATER (GALS):	11,210	SNOW / WATER:	1.5
AVE AIR FLOW RATE (CFM):	108		
TOTAL AIR (CF):	44,842	AIR / WATER (CFM/GPM):	4.0
# DENSITY SAMPLES:	10		
RANGE OF DENSITIES (LBS/CF):	24.0 - 36.3	AVE DENSITY (LBS/CF):	29.9

Density samples were taken an average of 1.5 hrs after the end of the test.

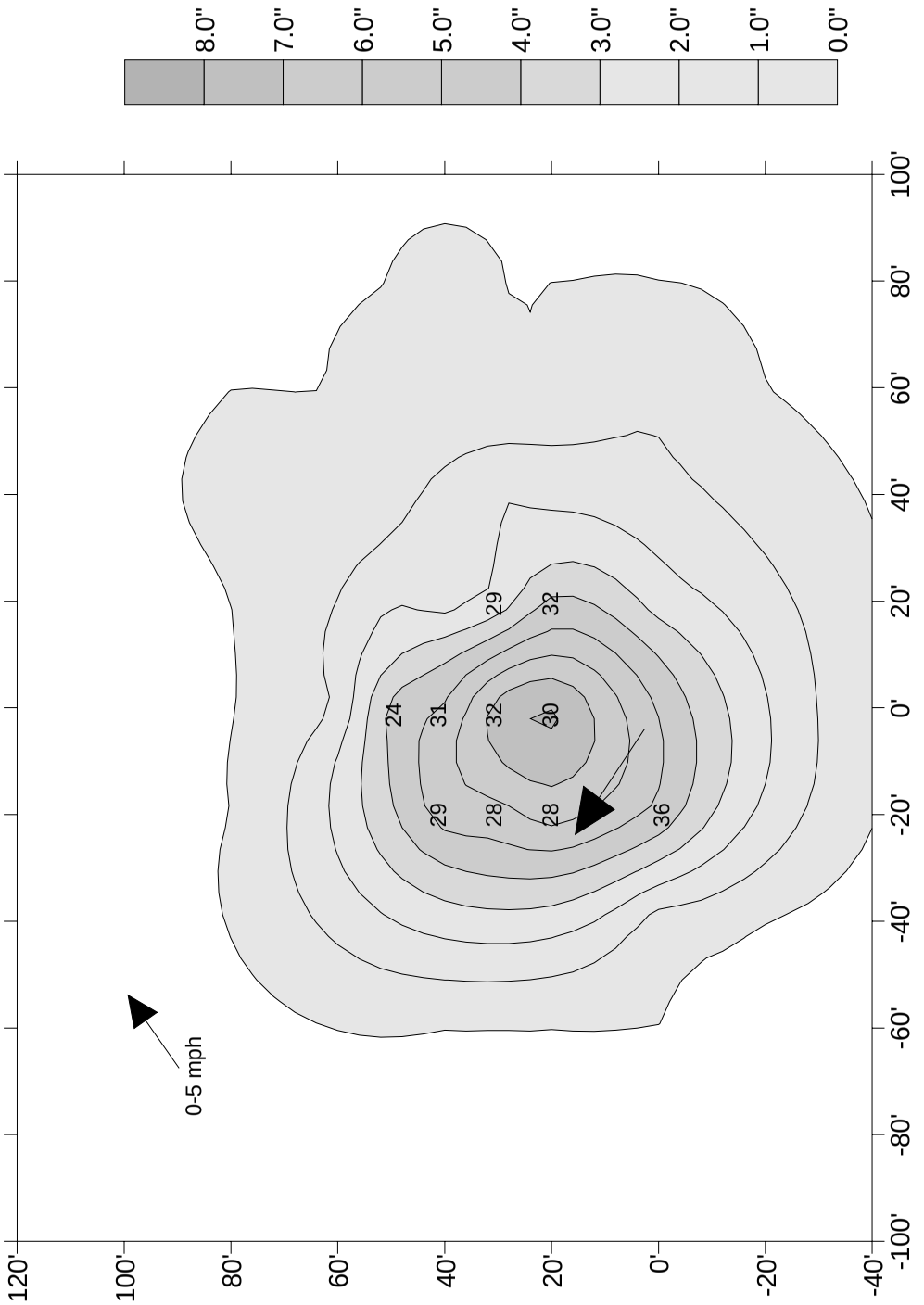


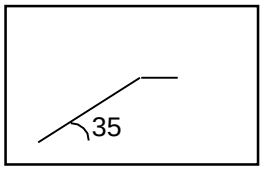
Figure B.9 Snow Production Contour Map – Test 9

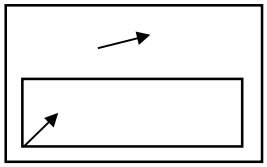
Table B.10 Snowmaking Test Results, Test 10

TEST #:	10	DATE(S):	3/7/99
CONDUCTED BY:	Ed Shea	TIME:	14:10 - 23:00
LOCATION:	SANTA'S #10	DURATION (HRS):	8.83

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	20-40-60
AVE WATER PRESSURE (PSI):	300
AVE AIR PRESSURE (PSI):	125
DRY BULB TEMP (F):	7 - 16
HUMIDITY (%):	58 - 77
WET BULB TEMP (F):	7 - 14
WIND SPEED (MPH):	0 - 3
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	93		
VOLUME SNOW PRODUCED (CF):	5,258	MAX DEPTH (IN):	31.5
VOLUME SNOW PER HOUR (CF/HR):	595	MAX IN/HR:	3.6
AVE WATER FLOW RATE (GPM):	66		
TOTAL WATER (GALS):	34,861	SNOW / WATER:	1.1
AVE AIR FLOW RATE (CFM):	140		
TOTAL AIR (CF):	74,172	AIR / WATER (CFM/GPM):	2.1
# DENSITY SAMPLES:	8		
RANGE OF DENSITIES (LBS/CF):	27.0 - 33.1	AVE. DENSITY (LBS/CF):	30.4

Observed a 1 in frozen layer with more watery quality 3 and 4 snow below within 40 ft of the tower. Observed quality 1 and 2 snow at 100+ ft from the tower. The water flowmeter failed during this test, while the air flowmeter measured air pressure to be 125 psi with 160 cfm.

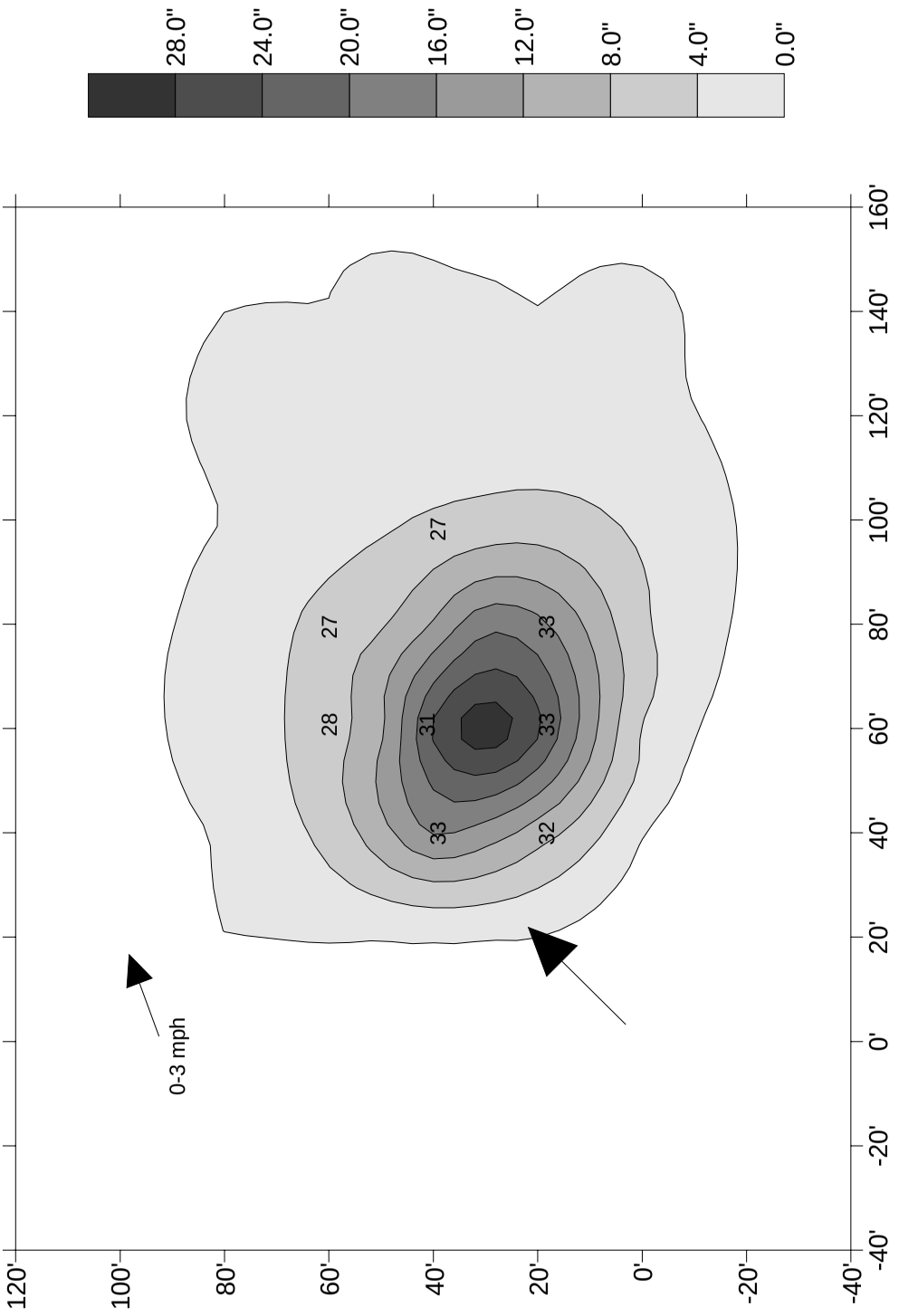


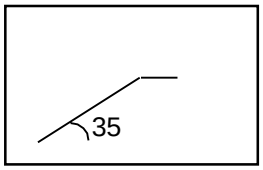
Figure B.10 Snow Production Contour Map – Test 10

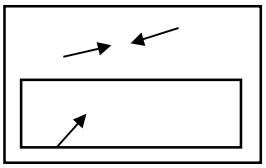
Table B.11 Snowmaking Test Results, Test 11

TEST #:	11	DATE(S):	3/8/99
CONDUCTED BY:	Ed Shea	TIME:	01:45 - 10:30
LOCATION:	SANTA'S #10	DURATION (HRS):	8.75

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	20-40-60
AVE WATER PRESSURE (PSI):	300
AVE AIR PRESSURE (PSI):	0
DRY BULB TEMP (F):	-5 - 17
HUMIDITY (%):	40 - 93
WET BULB TEMP (F):	-5 - 13
WIND SPEED (MPH):	0 - 3
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	91		
VOLUME SNOW PRODUCED (CF):	5,590	MAX DEPTH (IN):	30.5
VOLUME SNOW PER HOUR (CF/HR):	639	MAX IN/HR:	3.5
AVE WATER FLOW RATE (GPM):	66		
TOTAL WATER (GALS):	34,650	SNOW / WATER:	1.2
AVE AIR FLOW RATE (CFM):	0		
TOTAL AIR (CF):	0	AIR / WATER (CFM/GPM):	0.0
# DENSITY SAMPLES:	15		
RANGE OF DENSITIES (LBS/CF):	19.7 - 42.8	AVE DENSITY (LBS/CF):	32.7*

Observed 0.5 in layer of slush over grid at the end of the test. This layer was frozen in most areas away from the tower. Sampled densities from the top 8 in and the next 8 in. Observed quality 3 snow on top and quality 2 below in most cases, quality 3 below in some areas.

* Average densities similar for upper and lower sample groups.

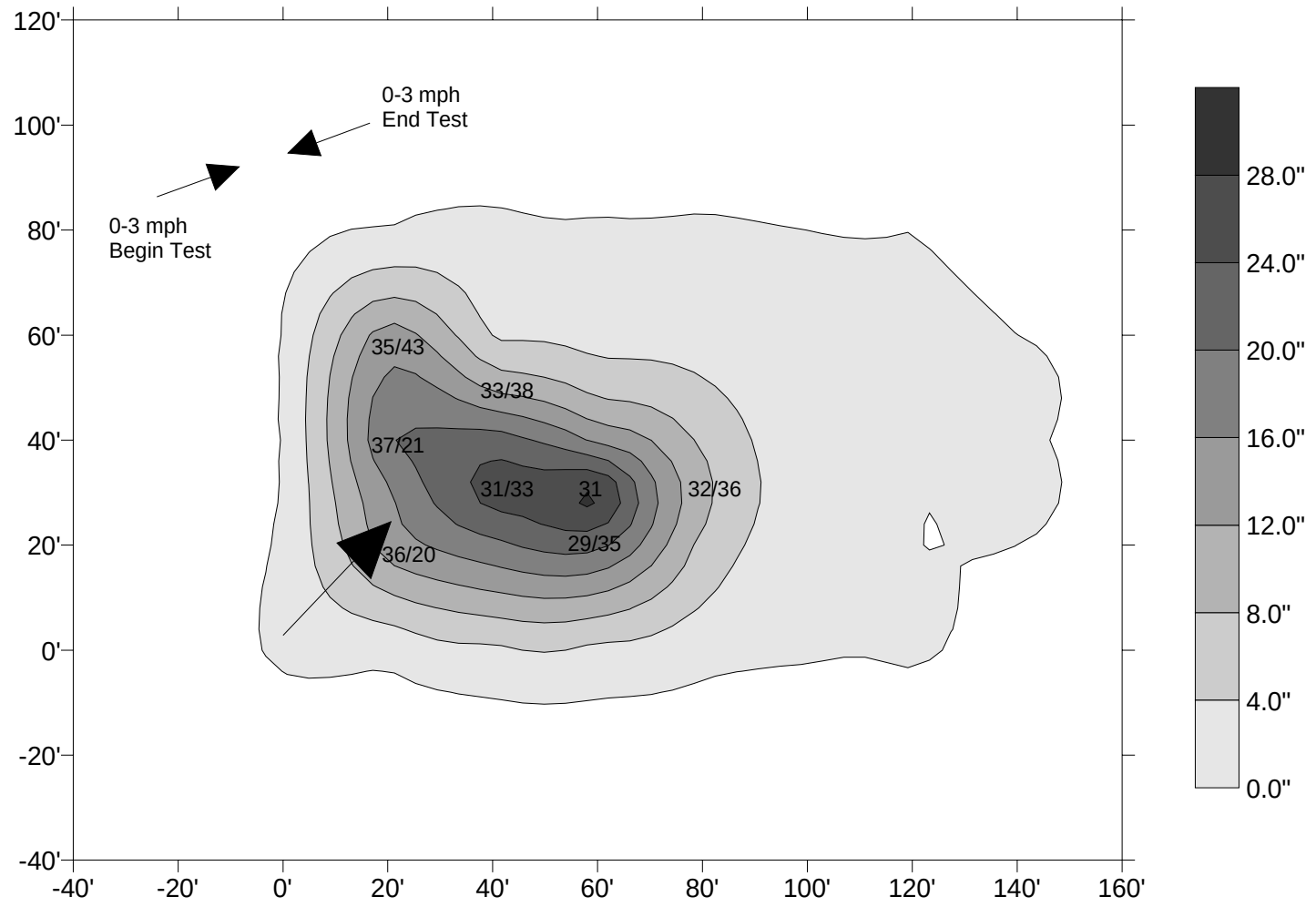


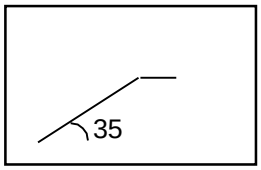
Figure B.11 Snow Production Contour Map – Test 11

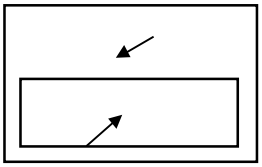
Table B.12 Snowmaking Test Results, Test 12

TEST #:	12	DATE(S):	3/8/99
CONDUCTED BY:	Ed Shea	TIME:	14:25 - 20:25
LOCATION:	SANTA'S #11	DURATION (HRS):	6

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	20-10-X
AVE WATER PRESSURE (PSI):	190
AVE AIR PRESSURE (PSI):	90
DRY BULB TEMP (F):	18 - 24
HUMIDITY (%):	40 - 45
WET BULB TEMP (F):	14 - 19
WIND SPEED (MPH):	0 - 3
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	61		
VOLUME SNOW PRODUCED (CF):	644	MAX DEPTH (IN):	5.0
VOLUME SNOW PER HOUR (CF/HR):	107	MAX IN/HR:	0.8
AVE WATER FLOW RATE (GPM):	13		
TOTAL WATER (GALS):	4,680	SNOW / WATER:	1.0
AVE AIR FLOW RATE (CFM):	88		
TOTAL AIR (CF):	31,680	AIR / WATER (CFM/GPM):	6.8
# DENSITY SAMPLES:	4		
RANGE OF DENSITIES (LBS/CF):	23.0 - 31.5	AVE DENSITY (LBS/CF):	27.9

Additional compressor turned on between 15:30 and 18:00, raising the air pressure from 80 to 95 psi. Observed quality 2 everywhere except near the tower, where I observed quality 3 snow.

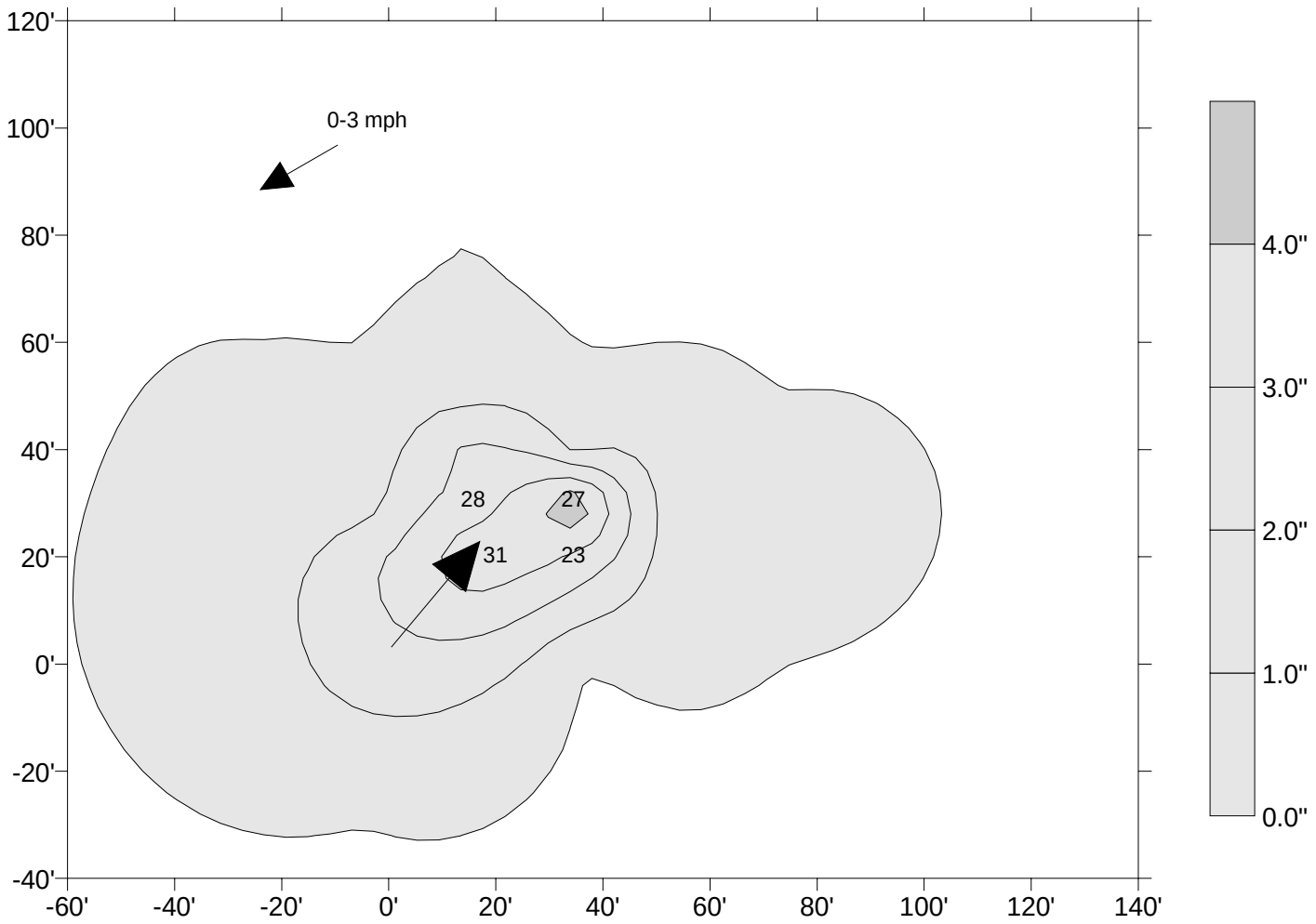


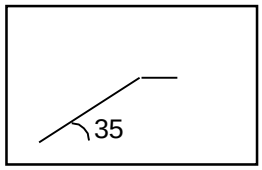
Figure B.12 Snow Production Contour Map – Test 12

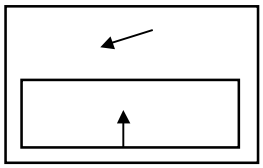
Table B.13 Snowmaking Test Results, Test 13

TEST #:	13	DATE(S):	3/8/99
CONDUCTED BY:	Ed Shea	TIME:	15:15 - 21:05
LOCATION:	SANTA'S #10	DURATION (HRS):	5.83

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	10-40-X
AVE WATER PRESSURE (PSI):	190
AVE AIR PRESSURE (PSI):	92
DRY BULB TEMP (F):	18 - 23
HUMIDITY (%):	40 - 45
WET BULB TEMP (F):	14 - 18
WIND SPEED (MPH):	0 - 3
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	53		
VOLUME SNOW PRODUCED (CF):	2,164	MAX DEPTH (IN):	11.0
VOLUME SNOW PER HOUR (CF/HR):	371	MAX IN/HR:	1.9
AVE WATER FLOW RATE (GPM):	22		
TOTAL WATER (GALS):	7,696	SNOW / WATER:	2.1
AVE AIR FLOW RATE (CFM):	90		
TOTAL AIR (CF):	31,482	AIR / WATER (CFM/GPM):	4.1
# DENSITY SAMPLES:	12		
RANGE OF DENSITIES (LBS/CF):	21.9 - 31.2	AVE DENSITY (LBS/CF):	26.1

Additional compressor turned on between 15:30 and 18:00, changing the pressure from 80 to 95 psi.

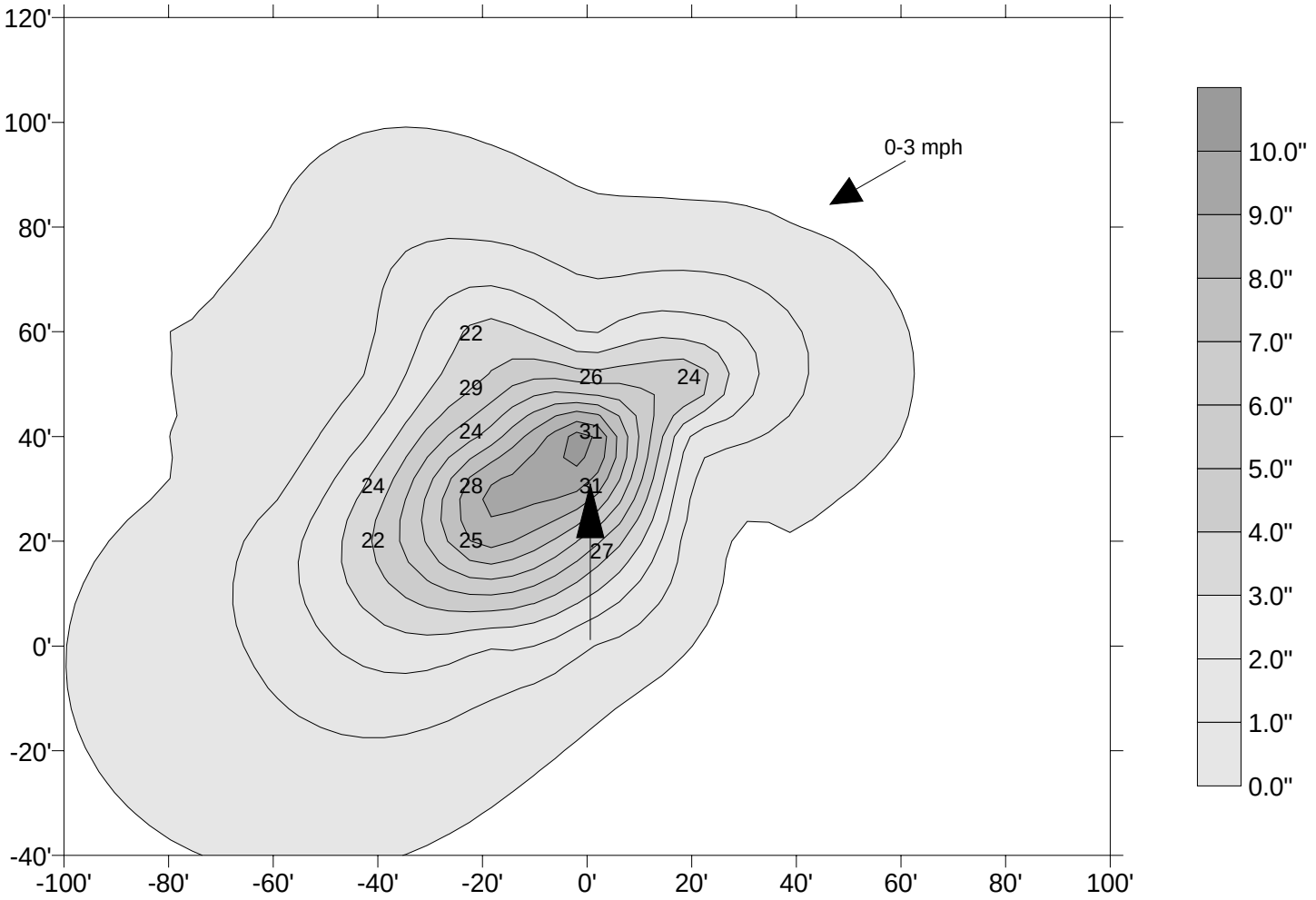


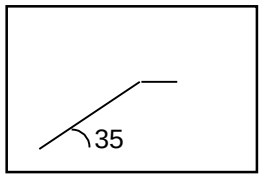
Figure B.13 Snow Production Contour Map – Test 13

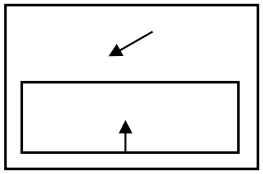
Table B.14 Snowmaking Test Results, Test 14

TEST #:	14	DATE(S):	3/8-9/1999
CONDUCTED BY:	Ed Shea	TIME:	22:45 - 09:00
LOCATION:	SANTA'S #10	DURATION (HRS):	10.25

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	10-40-20
AVE WATER PRESSURE (PSI):	190
AVE AIR PRESSURE (PSI):	99
DRY BULB TEMP (F):	14 - 18
HUMIDITY (%):	55 - 100
WET BULB TEMP (F):	14 - 16
WIND SPEED (MPH):	0 - 20
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	0		
VOLUME SNOW PRODUCED (CF):	8,748	MAX DEPTH (IN):	21.5
VOLUME SNOW PER HOUR (CF/HR):	853	MAX IN/HR:	2.1
AVE WATER FLOW RATE (GPM):	31		
TOTAL WATER (GALS):	19,065	SNOW / WATER:	3.4
AVE AIR FLOW RATE (CFM):	99		
TOTAL AIR (CF):	60,885	AIR / WATER (CFM/GPM):	3.2
# DENSITY SAMPLES:	11		
RANGE OF DENSITIES (LBS/CF):	22.5 - 33.0	AVE DENSITY (LBS/CF):	26.8

Results include a natural accumulation of 2 in during test period. Observed drifiting snow, which caused a loss of depth in some areas of the test grid. Observed frozen material within 20 ft of the tower, with quality 3 snow at 40 ft from the tower, and quality 1 snow at 60 ft from the tower.

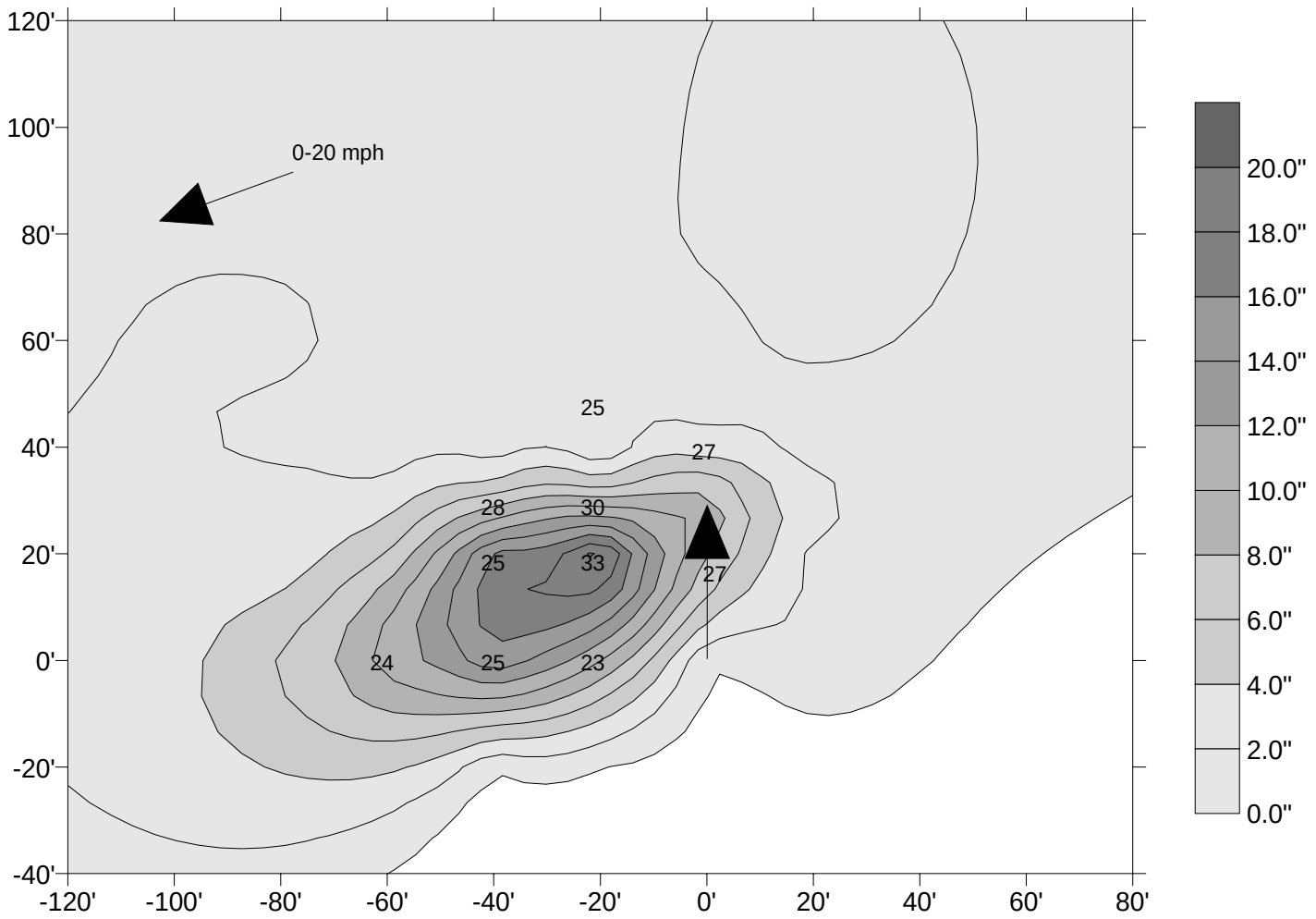


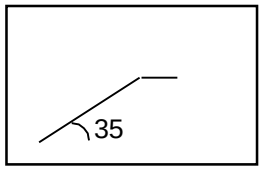
Figure B.14 Snow Production Contour Map – Test 14

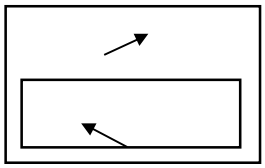
Table B.15 Snowmaking Test Results, Test 15

TEST #:	15	DATE(S):	3/10/99
CONDUCTED BY:	Ed Shea	TIME:	12:25 - 19:50
LOCATION:	SANTA'S #10	DURATION (HRS):	7.42

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	10-40-X
AVE WATER PRESSURE (PSI):	280
AVE AIR PRESSURE (PSI):	111
DRY BULB TEMP (F):	17 - 28
HUMIDITY (%):	80 - 86
WET BULB TEMP (F):	16 - 27
WIND SPEED (MPH):	0 - 3
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	61		
VOLUME SNOW PRODUCED (CF):	3,137	MAX DEPTH (IN):	14.75
VOLUME SNOW PER HOUR (CF/HR):	423	MAX IN/HR:	2.0
AVE WATER FLOW RATE (GPM):	26		
TOTAL WATER (GALS):	11,575	SNOW / WATER:	2.0
AVE AIR FLOW RATE (CFM):	117		
TOTAL AIR (CF):	52,088	AIR / WATER (CFM/GPM):	4.5
# DENSITY SAMPLES:	14		
RANGE OF DENSITIES (LBS/CF):	19.9 - 31.1	AVE DENSITY (LBS/CF):	25.2

Observed a crusty layer over most of test grid, made of quality 1 snow. Below the top layer the snow was of quality 2 at 20 to 40 ft downwind of the tower and quality 3 near the tower.

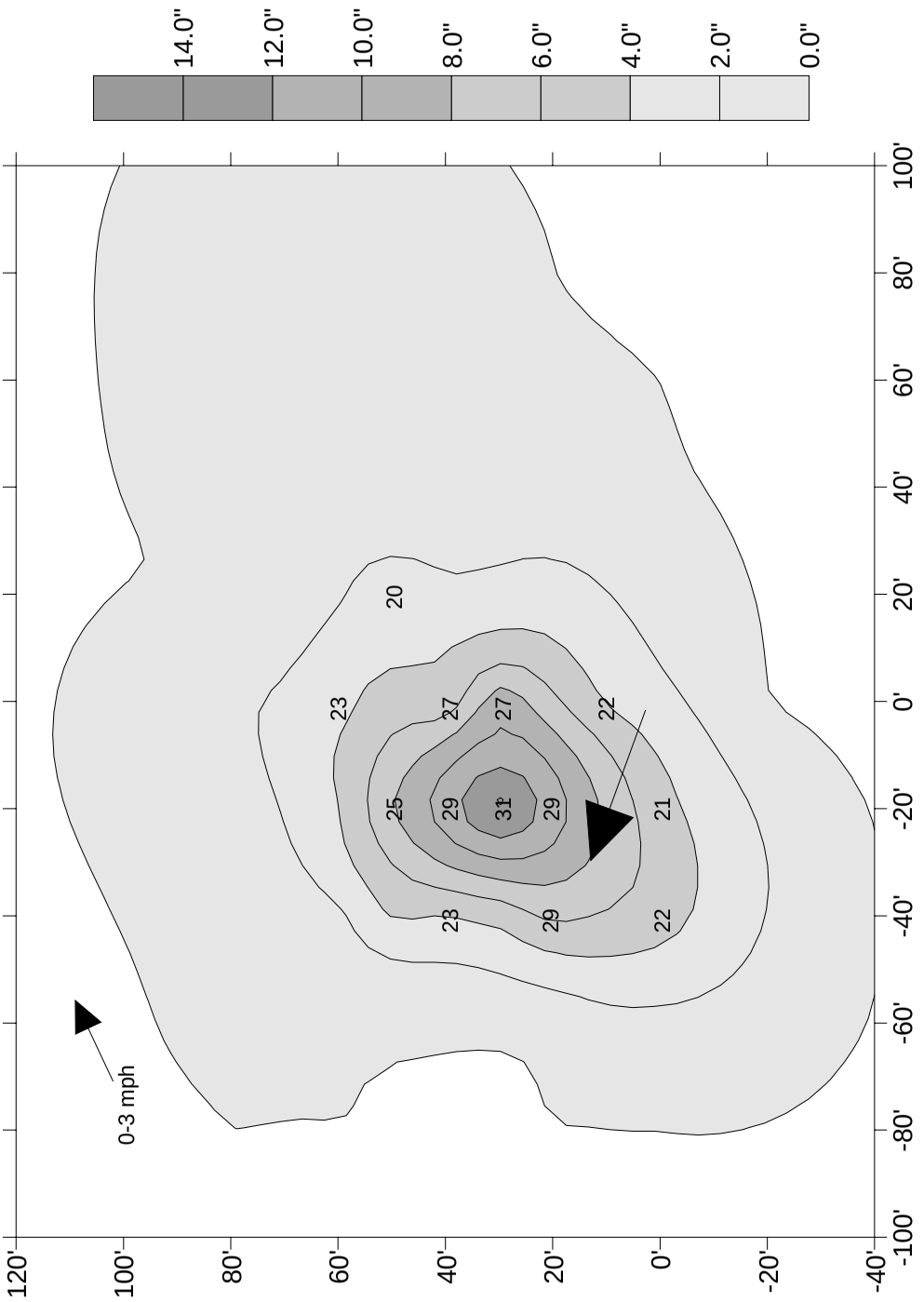


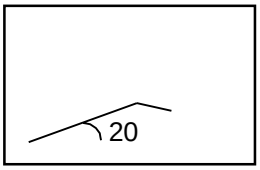
Figure B.15 Snow Production Contour Map – Test 15

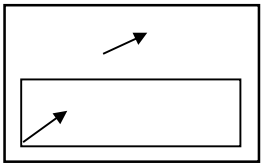
Table B.16 Snowmaking Test Results, Test 16

TEST #:	16	DATE(S):	3/11/99
CONDUCTED BY:	Ed Shea	TIME:	10:10 - 1:10
LOCATION:	SANTA'S #10	DURATION (HRS):	3.0

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	10-40-20
AVE WATER PRESSURE (PSI):	280
AVE AIR PRESSURE (PSI):	110
DRY BULB TEMP (F):	23 - 28
HUMIDITY (%):	72 - 76
WET BULB TEMP (F):	21 - 25
WIND SPEED (MPH):	0 - 5
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	70		
VOLUME SNOW PRODUCED (CF):	1,239	MAX DEPTH (IN):	5.25
VOLUME SNOW PER HOUR (CF/HR):	413	MAX IN/HR:	1.8
AVE WATER FLOW RATE (GPM):	37		
TOTAL WATER (GALS):	6,660	SNOW / WATER:	1.4
AVE AIR FLOW RATE (CFM):	116		
TOTAL AIR (CF):	20,880	AIR / WATER (CFM/GPM):	3.1
# DENSITY SAMPLES:	9		
RANGE OF DENSITIES (LBS/CF):	25.3 - 30.8	AVE DENSITY (LBS/CF):	29.0

Observed quality 4 snow within 40 ft of the tower, and quality 3 snow at 60 and 80 ft Before the test began, the tower was positioned at an 80 degree vertical angle, resulting in very little control over the placement of snow.

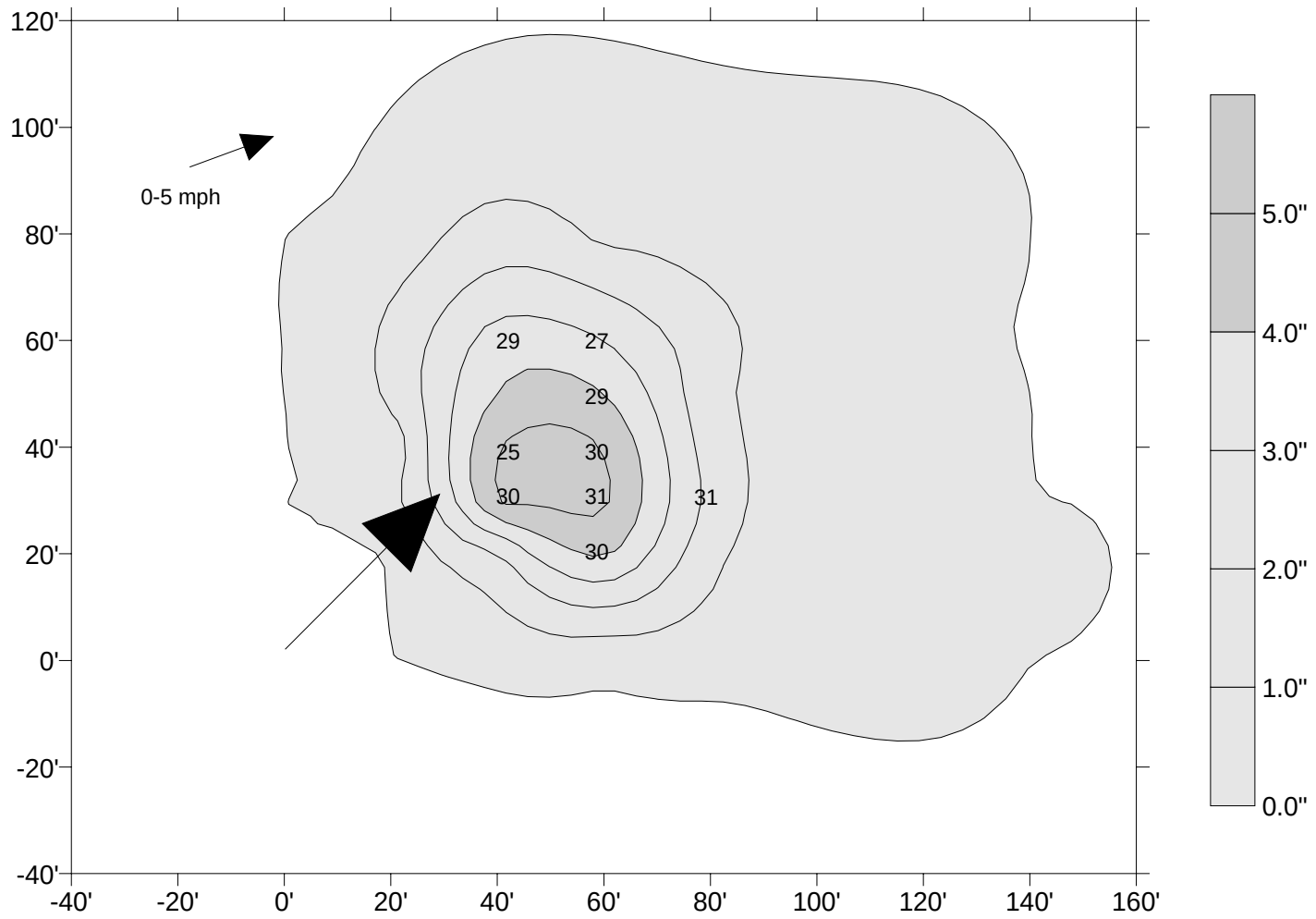


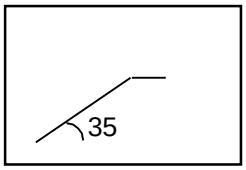
Figure B.16 Snow Production Contour Map – Test 16

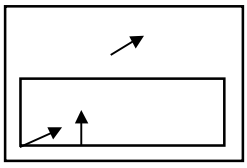
Table B.17 Snowmaking Test Results, Test 17

TEST #:	17	DATE(S):	3/11-12/1999
CONDUCTED BY:	Ed Shea	TIME:	19:20 - 07:20
LOCATION:	SANTA'S #10 and #11	DURATION (HRS):	12.0

TEST CONDITIONS

NOZZLE CONFIGURATION (T-M-B):	20-40-20
AVE WATER PRESSURE (PSI):	287
AVE AIR PRESSURE (PSI):	113
DRY BULB TEMP (F):	15 - 19
HUMIDITY %:	77 - 100
WET BULB TEMP (F):	15 - 17
WIND SPEED (MPH):	0 - 10
SNOMAX (LTRS/KGALS):	0





TEST RESULTS

% DEPOSITION AREA SAMPLED:	46		
VOLUME SNOW PRODUCED (CF):	7978.2	MAX DEPTH (IN):	22.25
VOLUME SNOW PER HOUR (CF/HR):	664.8	MAX IN/HR:	1.9
AVE WATER FLOW RATE (GPM):	56 *		
TOTAL WATER (GALS):	5389.7	SNOW / WATER:	1.5
AVE AIR FLOW RATE (CFM):	119		
TOTAL AIR (CF):	85680	AIR / WATER (CFM/GPM):	2.1
# DENSITY SAMPLES:	14		
RANGE OF DENSITIES (LBS/CF):	24.4 - 32.7	AVE DENSITY (LBS/CF):	28.0

* Observed icicle forming on tower head and turned off #10 at 21:20. This reduced the total flow of water from 84 gpm (2 towers) to 42 gpm (one tower).

Figure B.17 Snow Production Contour Map – Test 17

Table B.18 Quality of Natural Snow

Type of Snow	Temperature	Quality	Density (lbs/cf)
Natural accumulation on grass	13F	1	6.4
Natural accumulation on grass	23F - 28F		5.4
Plowed snow on gravel	20's	3	10.7
Natural accumulation on driveway	30F - 33F	3	16.4
Natural accumulation on driveway	33F	4 (1/2" layer of slush at base of accumulation)	>19.9 (lost some of sample prior to weighing)

Table B.19 Wind Conditions on the Smart Road

Location	Wind (speed in mph, (gusts), direction)		
	Day 1	Day 2	Day 3
110+60	15-20 (30)	5-7	0-3
112+80	20-25 (30)	4-6	0-3
113+55	20-25 (35)	5-7	0-3
114+30	20-25 (35)	8-10	0-3
115+00	20-25 (30)	8-10	0-3
115+75	25-30 (40)	8-10	0-3
116+50	25-30 (40)	5-7	0-3
117+25	20-25 (35)	4-6	0-3
118+00	10-15 (25)	4-6	0-3
118+75	10-15 (23)	4-6	0-3
119+50	5-8 (15)	4-6	0-3

Table B.20 Compressed Air and Water Temperature Profiles (Mann, 1999)

	Air Delivery Pipe		Snowmaking Tower				
	Air In	Air Out	Water In	Water Pre-exit	Air In	Air Pre-exit	Air Out
With Aftercooling to 37F							
Low Demand	190.0 F	50.0 F	40.0 F	40.1 F	50.0 F	41.9 F	-318.0 F
Medium Demand	190.0 F	50.0 F	40.0 F	40.1 F	50.0 F	41.9 F	-318.0 F
High Demand	190.0 F	50.0 F	40.0 F	40.0 F	50.0 F	41.8 F	-318.0 F
Condensation	NO	NO	N/A	N/A	NO	NO	N/A
Without Aftercooling							
All Demands	190.0 F	50.0 F	40.0 F	40.8 F	190.0 F	42.6 F	-318.0 F
Condensation	YES	YES	N/A	N/A	YES	YES	N/A

Table B.21 Resultant Accumulation Factors

Test #	Max Intensity	Every Tower Operating				Every Other Tower Operating			
		Min RI	RAR	Max RI	RAR	Min RI	RAR	Max RI	RAR
4	4.8	1.5	0.3	5.4	1.1	0.3	0.1	4.8	1.0
5	2.7	1.4	0.5	3.3	1.2	0.8	0.3	2.8	1.0
7	1.5	1.4	0.9	3	2.0	0.6	0.4	1.8	1.2
9	1.2	1.2	1.0	1.9	1.6	0.5	0.4	1.2	1.0
10	3.6	2.2	0.6	4.9	1.4	0.5	0.1	3.8	1.1
12	0.8	0.4	0.5	1.4	1.8	0.1	0.1	1	1.3
13	1.9	1	0.5	3.8	2.0	0.4	0.2	2.2	1.2
15	2	1.4	0.7	3.2	1.6	0.5	0.3	2.2	1.1
Average			0.6		1.6		0.2		1.1
RAF			0.5		2.0		0.2		1.2