

**NBS-GCR-85-484**

**BLOWOUT FIRE SIMULATION TESTS,  
FINAL REPORT FOR**

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**D.B. Pfenning**

**Energy Analysts, Inc.  
2001 Priestley Ave.  
P.O. Box 1508  
Norman, OK 73069**

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### Notice

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FINAL REPORT  
FOR  
BLOWOUT FIRE SIMULATION TESTS  
(Solicitation No. SB83NBS0080)

Prepared For

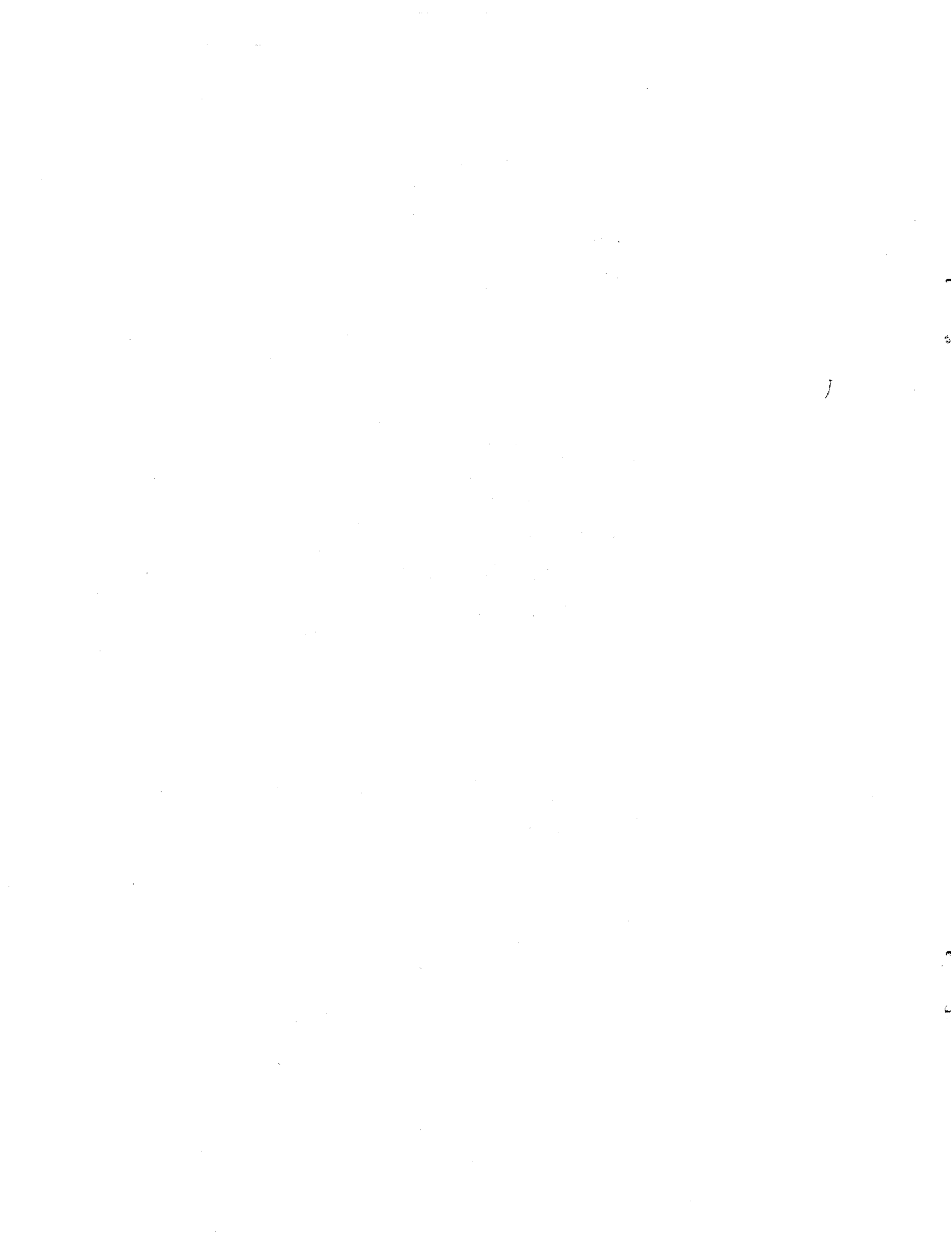
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Prepared By

Dwight B. Pfenning  
ENERGY ANALYSTS, INC.  
2001 PRIESTLEY AVENUE  
POST OFFICE BOX 1508  
NORMAN, OKLAHOMA 73069  
(405) 321-5778

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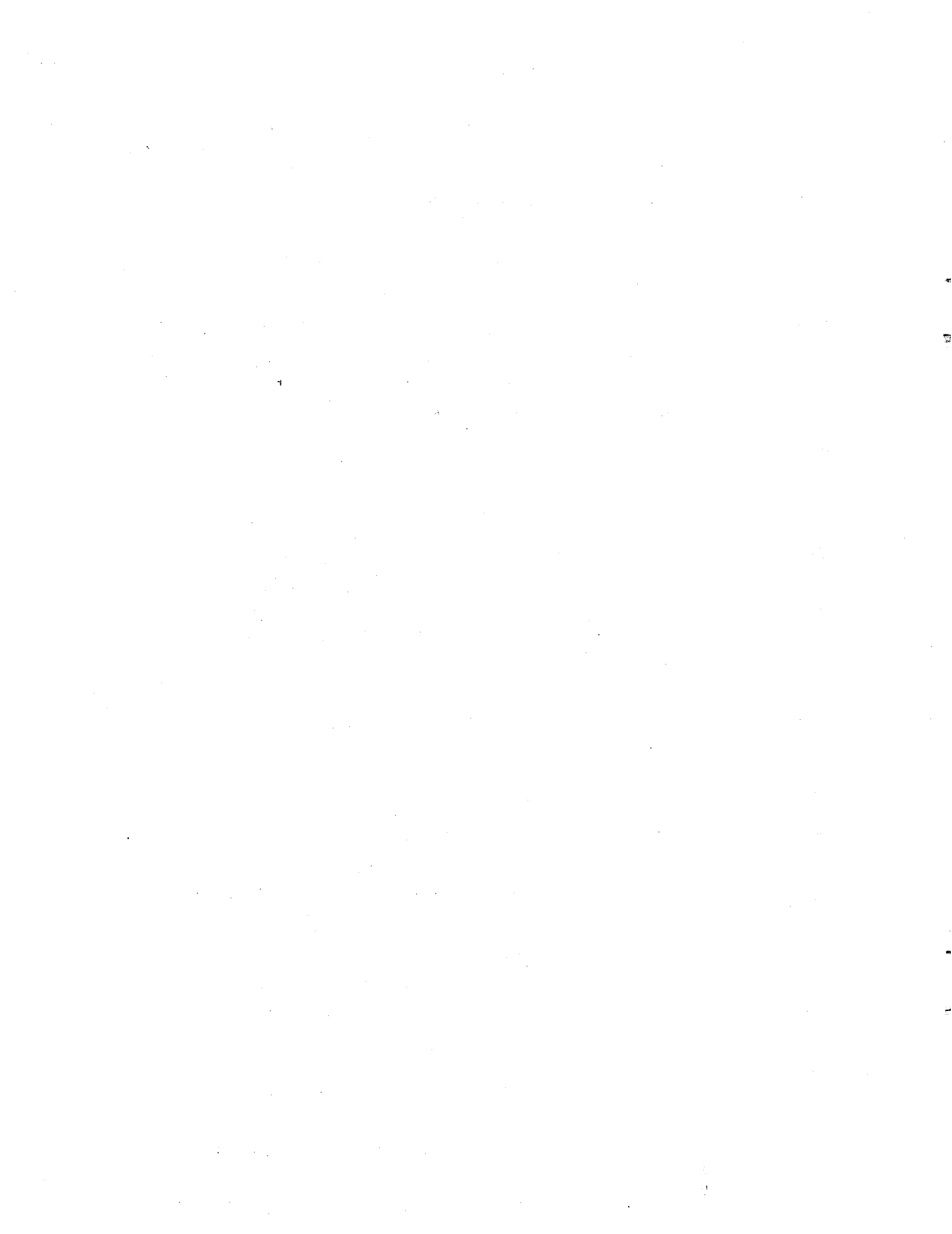
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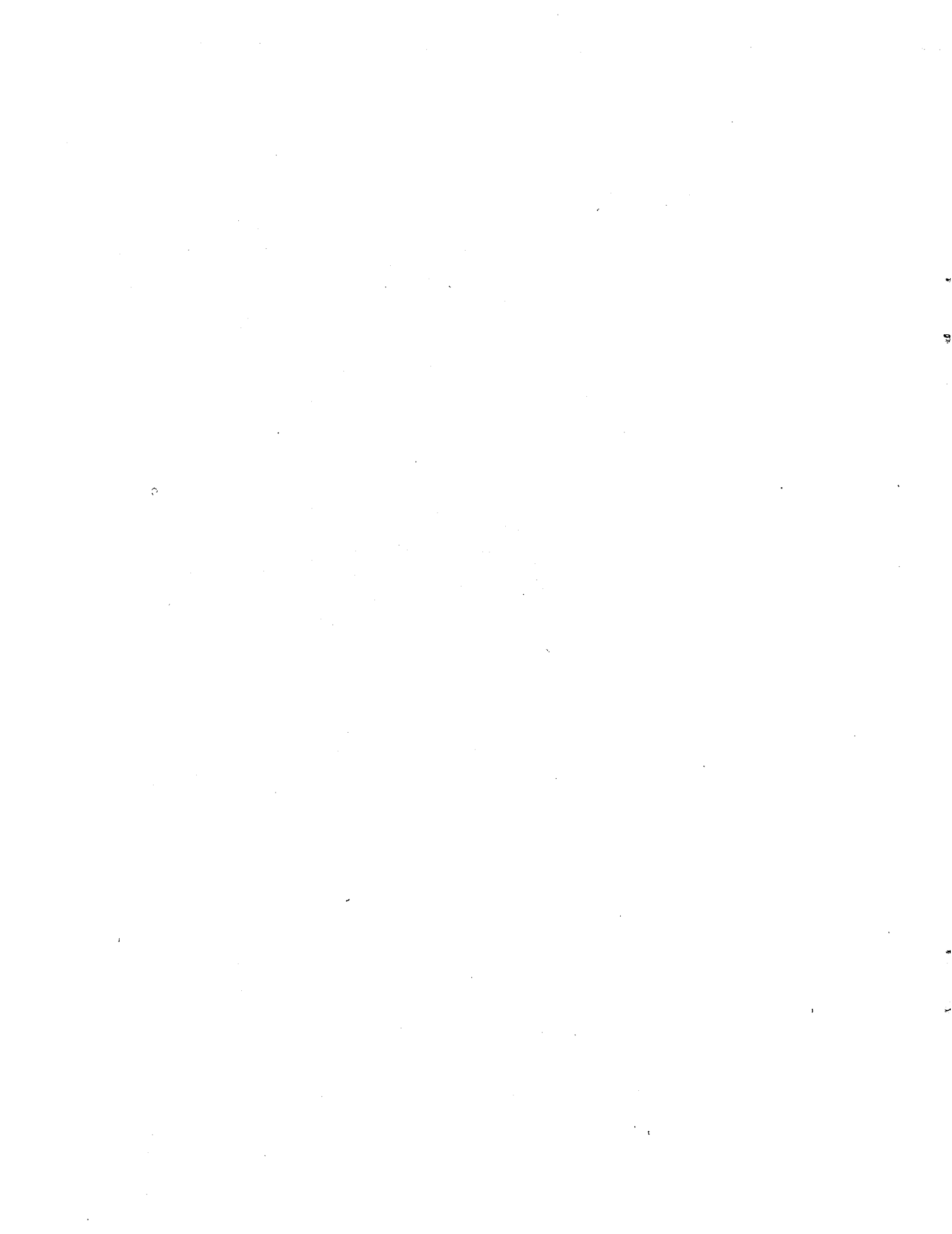
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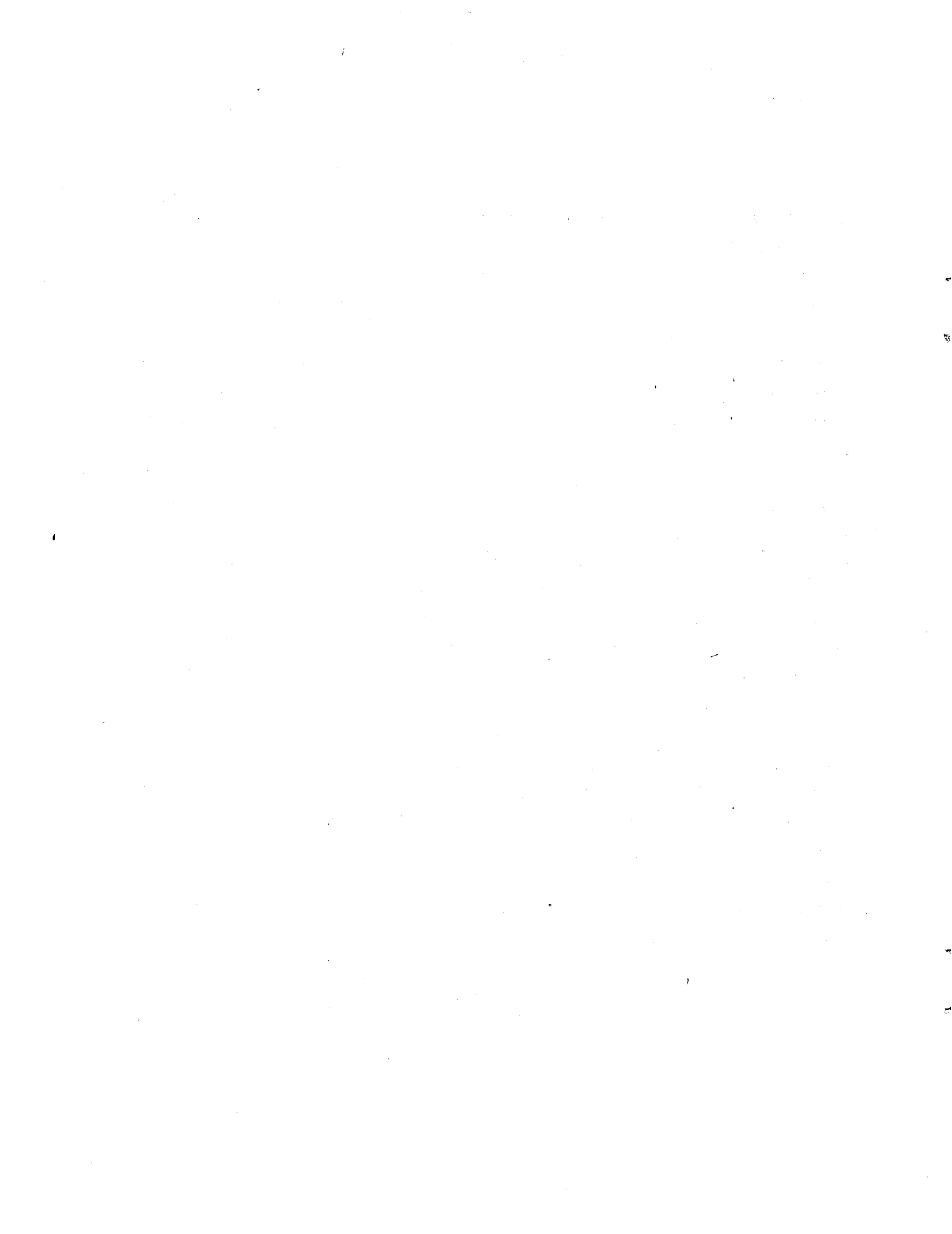
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The blowout of oil and gas wells during drilling, production, and workover presents a serious hazard to personnel, the environment, and equipment. The only practical method to control a well fire subsequent to a blowout is to shut in the hydrocarbon at the well. Well blowout fires normally create large heat radiation hazard zones both to personnel and equipment. Consequently, it is extremely hazardous for personnel to approach these fires in the fire control process. Also, the heat radiation load on key equipment can be so severe that well control equipment is damaged and control functions cannot be achieved with normal well head control procedures.

Little quantitative data are available that describe the size (height and diameter) of full scale well fires, the temperature profiles within the fire zone, and the heat radiation hazard zones adjacent to a fire [1]. Further, although some individuals have effectively used water to mitigate well fire hazards, the quantitative effect of water sprayed into the fire zone is not known. To design effective oil and gas well blowout fire control systems, both the hazards associated with the fire and the efficiency of water to control fire hazards must be quantitatively understood [2].

The Center for Fire Research (CFR) of the National Bureau of Standards has been contracted by the Department of the Interior to evaluate the effectiveness of water spray to control and extinguish fires resulting from gas well blowouts. Laboratory scale tests have been performed by the CFR on 0.01-10 megawatt fires to study the effects of water injection on the combustion of high velocity methane jets. This report presents the results of two 100 megawatt and five 200 megawatt fire tests performed to measure the effects of water spray on fires from large velocity gas discharges characteristic of natural gas well blowouts.



The test methodology includes test facilities, test procedure, tests, and data reduction.

## 2.1 FACILITIES

### 2.1.1 Test Site

The tests were performed at Energy Analysts' test site located approximately fifteen miles south of the Oklahoma City Airport (20 miles from Energy Analysts' offices). The site is in the flood plain of the South Canadian River and has a clear area around the site, with the closest inhabitants three-fourths of a mile from the site. The site has been approved for hydrocarbon fire testing by the State Environmental Agency. The tests were performed on the southwest corner of the site. A layout of the test facilities is presented in Figure 2-1.

A water well was available on-site, and some equipment used for this test program was already in place. The test site had no ready supply of high pressure gas; however, Energy Analysts obtained gas at the site via high pressure over-the-road tank trucks.

### 2.1.2 Gas System

At the test site, gas was supplied via high pressure over-the-road tank trucks operated by Production Services, Inc. (PSI). Each natural gas tank truck is designed to transport 200 MSCF of gas at 2500 psig. Appendix A contains additional information about the natural gas transportation service.

The gas was obtained from Phillips Petroleum Company from their Kingfisher cryogenic gas treatment plant. An analysis of the gas showed the methane content on a weight basis to be 93 percent. The analysis is presented in Appendix B.

The gas flowed from the ten gas cylinders into a manifold, from the manifold to an unloading skid, and from the unloading skid into the gas line for the tests. The tank truck and unloading platform were connected

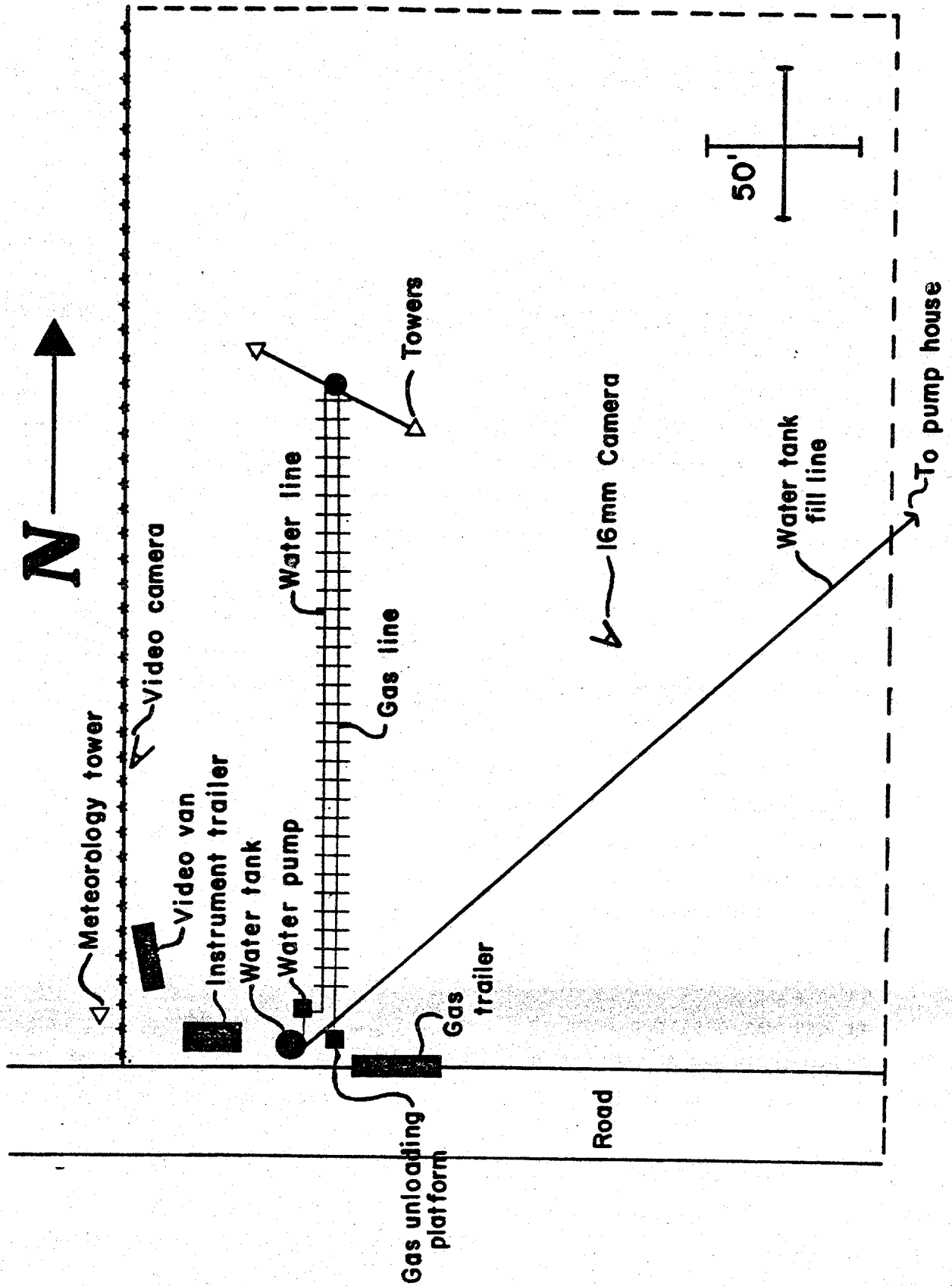


FIGURE 2-1: PLAN VIEW OF TEST AREA



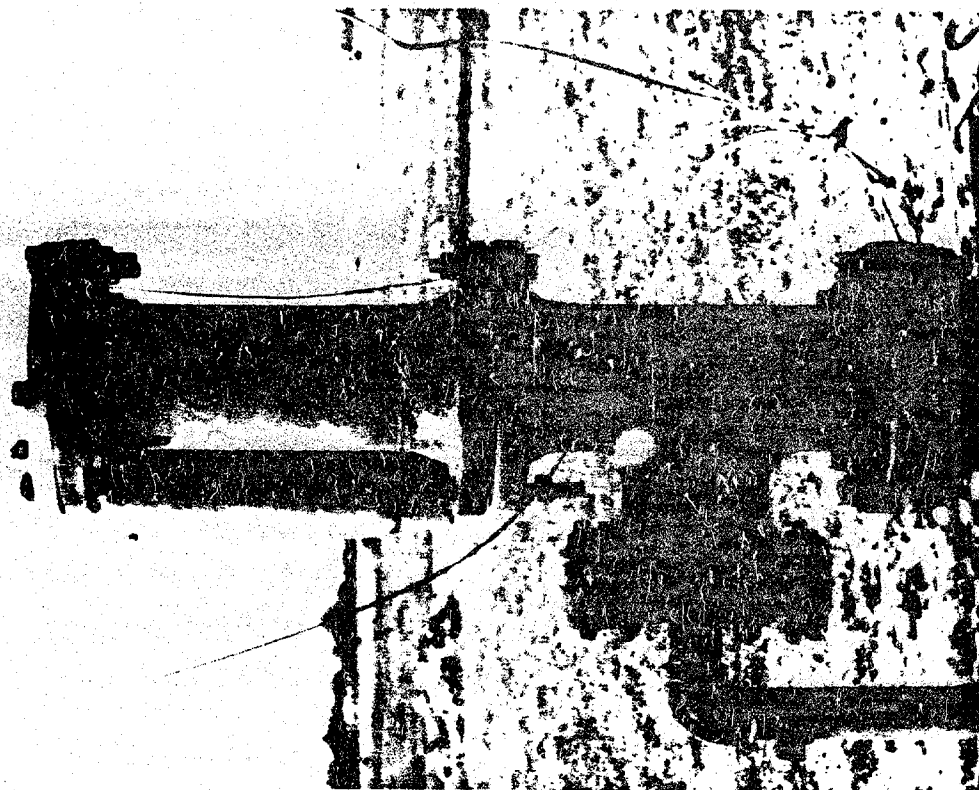
Two types of spray headers were used for the tests. The first type header discharged water from a nozzle inside the gas discharge (see Figure 2-3). The nozzle was centered in the pipe approximately 2 inches below the bottom of the restriction orifice plate at the gas discharge. The alternate spray header consisted of four nozzles placed around the gas discharge (see Figures 2-4 and 2-5). Distance from the center of the gas discharge to the center of the nozzle was 9 inches. All nozzles were fitted on 2-inch threaded pipe. The water piping was anchored at a concrete pad supporting both the gas and water outlet piping.

Control of the water flow was accomplished by observing the differential pressure drop across the orifice plate and adjusting the hand control valve and the pump motor speed. A recorder identical to the ones used on the gas system was utilized to record the water flow orifice pressure and the pressure in the water line at the nozzle discharge header. Figure 2-2 shows the schematics of the water system.

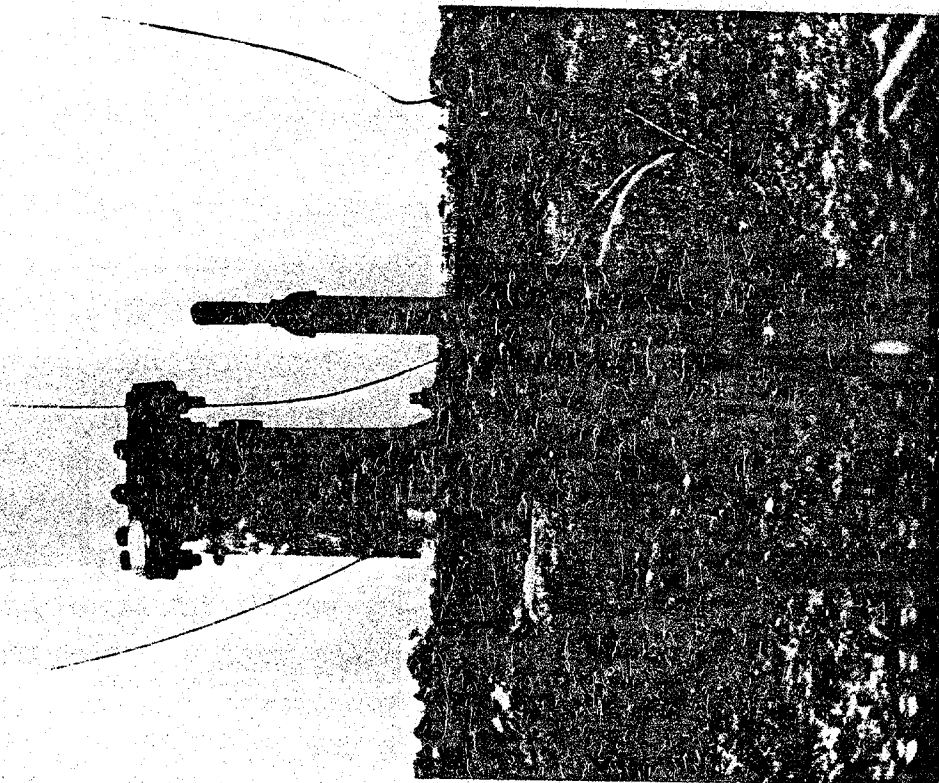
#### 2.1.4 Instrumentation

##### Thermocouples:

An array of 20 thermocouples was used to measure the temperature profile of the flame, both vertically and horizontally. Two 80 foot towers were erected at the site (see Figure 2-6) for supports for the array. The towers were 50 feet apart, with the gas outlet pipe located halfway between the towers. A system of pulleys and the take-up reels were attached to the towers such that three stainless steel cables were used to raise and position the array above the gas outlet. The array was laid out as an inverted triangle, with the apex of the triangle fastened to the piping just below the gas outlet. The triangular array had a vertical row of thermocouples directly above the gas outlet and three horizontal rows of thermocouples. The horizontal rows were 25, 43, and 67 feet above the gas outlet. The three take-up cables on each tower were fastened to the triangular array at the heights of the horizontal rows. The cabling and take-up arrangement permitted the array to be positioned at fixed locations by removing any slack in the array cables and positioning the center cable of the array vertically over the gas outlet.



FINAL CONFIGURATION



NOZZLE INSTALLED

FIGURE 2-3. INTERNAL WATER INJECTION CONFIGURATION.



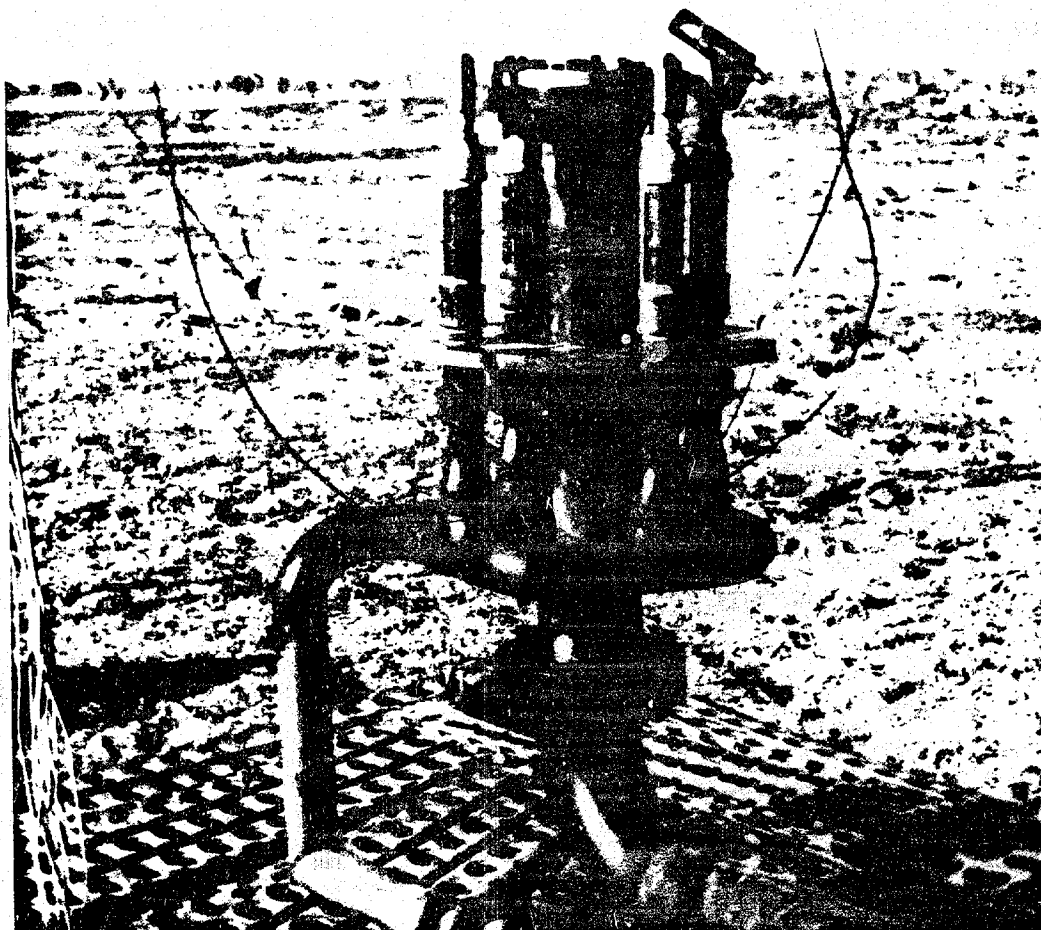


FIGURE 2-4. EXTERNAL WATER INJECTION CONFIGURATION.

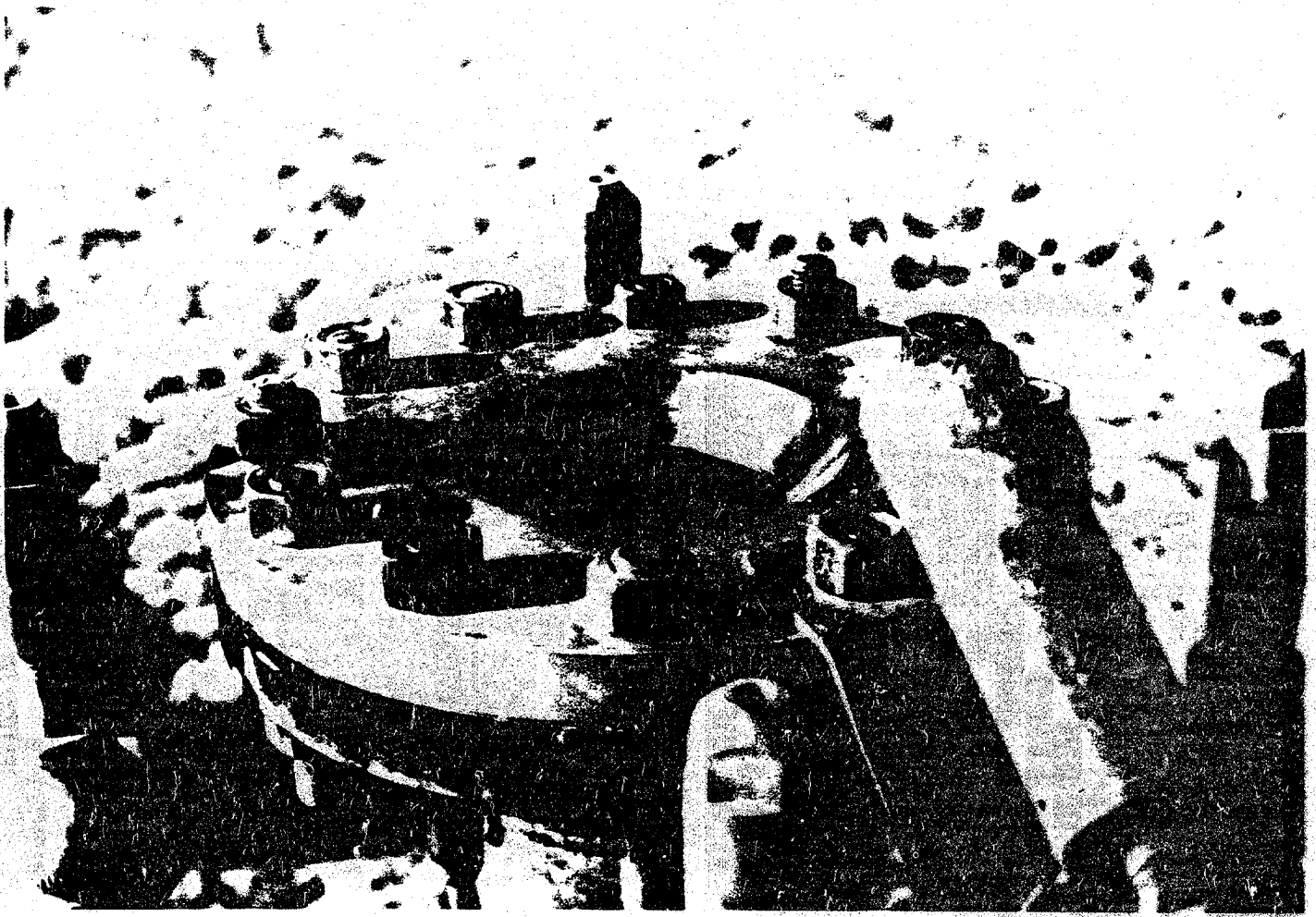


FIGURE 2-5. EXTERNAL WATER INJECTION CONFIGURATION WITH RESTRICTION ORIFICE.

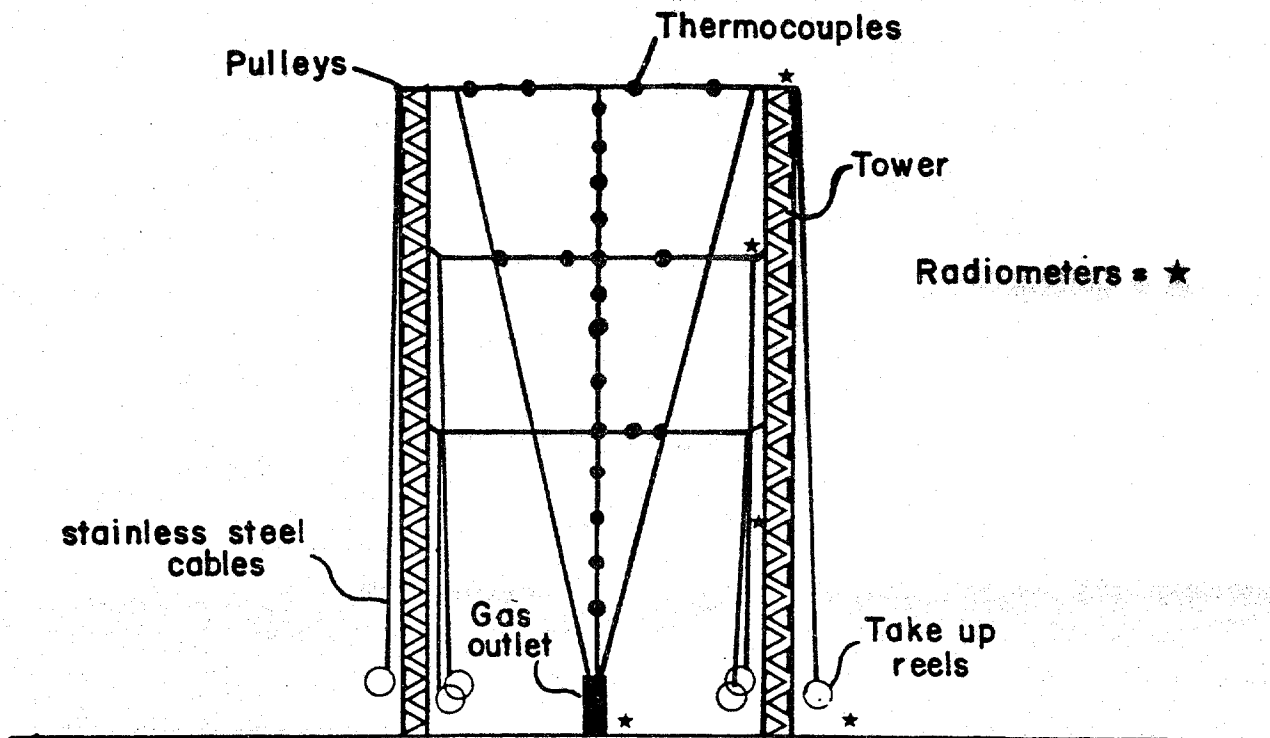
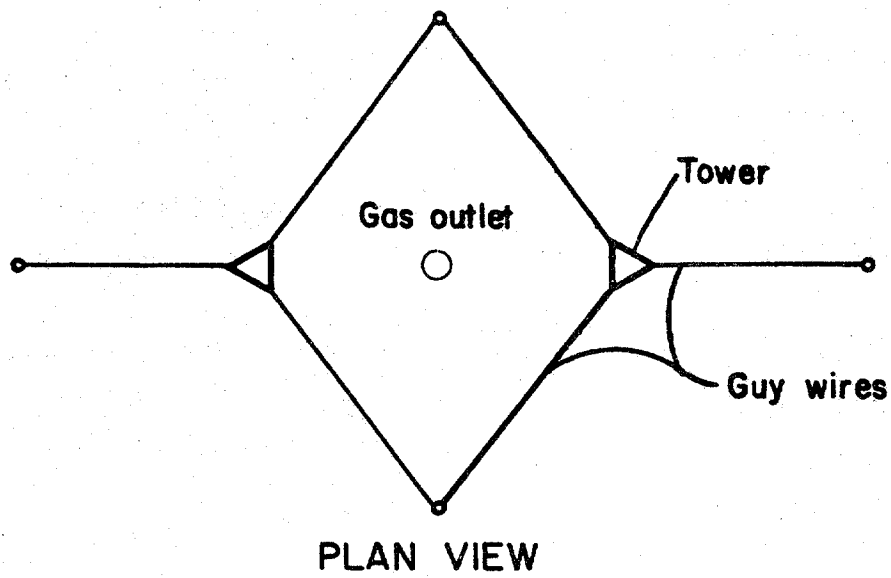


FIGURE 2-6: DIAGRAM OF TOWERS  
AND THERMOCOUPLE SUSPENSION SYSTEM

Chromel/alumel (type K) thermocouples with a 0.020 inch bead size were connected to chromel/alumel wires protected by Nextel ceramic insulation. This insulation was suitable for continuous operation at 2300°F, with intermittent exposure to 2600°F. The thermocouple lead wire was connected to a copper terminal strip buried near the gas outlet. Copper lead wire with shielded, twisted pairs was then run to the multiplexer of the data acquisition system. A chromel/alumel thermocouple with a battery powered reference junction was placed at the terminal strip.

In addition to the thermocouple array, a chromel/alumel thermocouple was used to measure the temperature of the exiting gas stream. Also, copper/constantan thermocouples (type T) were used to measure the temperatures of the gas and water streams at the orifice plates. Shielded, twisted pair copper lead wires were used to connect the copper/constantan thermocouples to the data acquisition system. The temperature of the junctions was measured using a copper/constantan thermocouple and a reference junction.

#### Radiometers:

Five Medtherm Series 64 heat flux transducers with sapphire windows were used to measure the heat flux. The radiometers generated a 0-10 mv signal which was nearly directly proportional to the incident heat flux of 0-2 Btu/sec-ft<sup>2</sup>. Each radiometer was calibrated with sapphire windows and the calibration curve of heat flux versus mv was obtained from each radiometer for use in data reduction.

Water cooling was provided for all radiometers by using a prepressurized water tank plumbed to each radiometer. The cooling water flowed through the radiometers with no recirculation, thus keeping all radiometer bodies cooled to the same temperature. Sapphire windows with 150° view angles were used to protect the circular foil sensing elements and to block out any convective radiation. The sapphire windows pass almost all wave lengths of the flame spectrum and are more rugged and less affected by humidity than are other window types. The heat flux range for the radiometers was chosen, based on heat fluxes predicted by our flare radiation model.

The radiometers were placed at the locations indicated in Figure 2-7. Radiometer R1 had a narrow angle (7° viewing cone) and was used to obtain a value for the effective surface flux of the flame. With the exception of radiometer R3, the radiometers were focused in the plane formed by the towers. Radiometers R1, R3, and R4 were focused on the intersection of the middle vertical and middle horizontal cables. Radiometer R3 was placed just out of the tower plane such that the 150° viewing angle just missed the tower.

#### Meteorological Instruments:

Wind speed, wind direction, and wet bulb and dry bulb temperatures were measured at a 30 foot height. The meteorological tower and translator was a Climet Model 060 Data System. The Climet 011-1 Wind Speed Indicator Transmitter used a 3-cup anemometer assembly and light beam chopper to produce an amplified pulsed electrical output whose frequency was exactly proportional to the wind speed. The Climet Model 012-10 Wind Direction Transmitter delivered a DC voltage signal proportional to the horizontal wind direction. The wind direction output was from 0° to 540° measured from north increasing to east, and converted to modulo 360°. A regulated power supply in the transmitter provided precise voltages to the sensing potentiometer. The wet bulb and dry bulb thermistors were contained in a motor aspirated temperature shield that limited radiation errors to less than 0.2°F at maximum solar radiation. The wet bulb thermistor was covered with a wick that extended in a water reservoir. The instrument output was fed into a Climet 060-B Translator via shielded, twisted pairs. The translator was a rack mounted module that accepted a variety of conditioning printed circuit boards. Signals from the sensors were wired into the back plane of the translator and the signals from the sensors were presented on the output terminal of the back plane. The output signals were connected to the multiplexer of the data acquisition system via shielded, twisted pairs.

#### Data Acquisition System:

An Intersystems DDS-1 microcomputer data acquisition system consisted of an S-100 buss microcomputer with an analog to digital (A/D) converter



card, floppy disk storage, and a multiplexer. The computer sent a set of parallel signals to the multiplexer to select the proper channel and signal conditioning. The multiplexer was expandable in groups of 32 differential channels and was capable of switching channels and signal conditioning in one microsecond. For these tests, the only signal conditioning that was required was done by the gain selection on the A/D converter card. The multiplexer switched all signals in a differential mode, and the differential signal was fed to the differential inputs on the A/D converter card via a shielded, twisted pair. The A/D converter had 12 bit resolution and programmable gain.

The full scale range was  $\pm 5$  volts; with full gain, the millivolt range was  $\pm 5$  millivolts. The range span was 10 millivolts and the span was divided in 4096 sections (12 bit resolution), giving a minimum resolution of 0.00244 millivolts. The gain was set for each channel to maximize the resolution and not overrange the input ( $\pm 5$  volts). For signals outside the  $\pm 5$  millivolt range, the resolution became  $\pm 0.024$  percent of the signal.

After each scan of the designated set of channels, the data was written to the floppy disk. Each record on the floppy disk contained the time, date, channel number, channel voltage, and channel gain setting. Operating in the above manner, the system had a capability of recording 200 channels per second. Table 2-1 shows the associated channel for each sensor that was recorded with the data acquisition system.

#### Video Recording and Cinematography:

Video recording of the tests was done by Prime Time Offline, a subcontractor that has video taped numerous fire tests for Energy Analysts. A studio quality color camera and 3/4 inch recorder were used. A time and date generator was used during the tests so that a real-time clock was recorded as part of the video taping.

A color movie was taken of each test with a Beaulieu 16 mm movie camera. Copies of this film were made by Southwestern Film Service, Inc., Edmond, Oklahoma.

Several 35 mm cameras were used to take slides of the tests to aid in recording of test arrangement, flame size, instrumentation placement, etc., for each test.

TABLE 2-1

## NBS BOFST CHANNEL ASSIGNMENT

Channel	Acronym	Description	Location
0	WS	Wind Speed	Met Tower (10 m)
1	WD	Wind Direction	Met Tower (10 m)
2	WB	Wet Bulb	Met Tower (10 m)
3	DB	Dry Bulb	Met Tower (10 m)
4	KT	K Thermocouple	Cable Array (#1)
5	KT	K Thermocouple	Cable Array (#2)
6	KT	K Thermocouple	Cable Array (#3)
7	KT	K Thermocouple	Cable Array (#4)
8	KT	K Thermocouple	Cable Array (#5)
9	KT	K Thermocouple	Cable Array (#6)
10	KT	K Thermocouple	Cable Array (#7)
11	KT	K Thermocouple	Cable Array (#8)
12	KT	K Thermocouple	Cable Array (#9)
13	KT	K Thermocouple	Cable Array (#10)
14	KT	K Thermocouple	Cable Array (#11)
15	KT	K Thermocouple	Cable Array (#12)
16	KT	K Thermocouple	Cable Array (#13)
17	KT	K Thermocouple	Cable Array (#14)
18	KT	K Thermocouple	Cable Array (#15)
19	KT	K Thermocouple	Cable Array (#16)
20	KT	K Thermocouple	Cable Array (#17)
21	KT	K Thermocouple	Cable Array (#18)
22	KT	K Thermocouple	Cable Array (#19)
23	KT	K Thermocouple	Cable Array (#20)
24	KR	K Reference Thermocouple	Junctions for K Thermocouples
25	KT	K Thermocouple	Gas Outlet
26	R1	Radiometer (7°)	Radiometer Array (#1)
27	R2	Radiometer (150°)	Radiometer Array (#2)
28	R3	Radiometer (150°)	Radiometer Array (#3)
29	R4	Radiometer (150°)	Radiometer Array (#4)
30	R5	Radiometer (150°)	Radiometer Array (#5)
34	TT	T Thermocouple	Gas Line
35	TT	T Thermocouple	Water Line
36	TR	T Reference Thermocouple	Junctions for T Thermocouples



## 2.2 TEST PROCEDURE

The tests were of short duration; therefore, it was important that all equipment functioned properly and that each piece of equipment was manned prior to start-up. For the tests, we had eleven (11) people manning various systems. The following list describes the assignments.

- (1) Test coordinator
- (2) Two gas system operators
- (3) Water system operator
- (4) Video camera operator and helper
- (5) 16 mm camera operator
- (6) Data acquisition operator
- (7) Circular and strip chart operator
- (8) 35 mm camera operator
- (9) Igniter and radiometer system operator

Before starting any test, a list of items was checked to insure that we were prepared to conduct the test.

### Prestart-up Check List:

- (1) Power up the computer and data acquisition system and determine that all channels are recording properly. (On first start-up, ring out all channels.)
- (2) Start all recorders and determine that all pens are inking and indicating properly.
- (3) Make certain that the pilot light is burning.
- (4) Make certain that there is fuel in the pump fuel tank.
- (5) Close the 4-inch valve in the water line and open the 2-inch bypass valve in the water system.
- (6) Record the ambient conditions on the data log sheet.
  - a. Wind speed (note: wind speed has to be less than 3 mph)
  - b. Wind direction
  - c. Dry bulb temperature
  - d. Wet bulb temperature

- e. Test number
- f. Time and date
- (7) Inform water and gas system operators of desired control settings.
- (8) Issue warning about sound in order for personnel to use ear plugs.

As soon as the check list was satisfied, the test was started.

#### Start-up Procedure:

- (1) Start the water pump and establish flow through the bypass line.
- (2) Start the water flow to the radiometers.
- (3) Start the data acquisition system, movie camera, and video recorder.
- (4) Open the valve from the gas trailer and adjust the PSI regulator to provide the desired pressure at the restriction orifice. As soon as a large fire occurred, turn off the pilot.
- (5) After the gas flow was stabilized, increase the pump speed to give 125 psig at the pump discharge while bypassing.
- (6) After 20 seconds of stable gas flow, begin water flow through the spray nozzles.
  - a. Open the 4-inch valve in the water line and increase the pump speed until the desired flow is established.
  - b. Maintain the flow for a period of 20 seconds.

After the test, the systems were shut down, charts were saved, and preparations were made for the next test.

#### Shutdown and Next Test Preparation:

- (1) Stop the gas flow at the regulator.
- (2) Stop the water flow by closing the 4-inch water valve and stopping the water pump.
- (3) Complete the data log and collect the charts.
- (4) Verify data acquisition.
- (5) Repair any damaged sensors.
- (6) Check range of instruments and change, if necessary.

- (7) Review test and make any changes for next test, i.e., change orifice plates and nozzles.

### 2.3 TESTS

Seven (7) tests were performed in this series. Two (2) of the tests were in the 100 megawatt range and five (5) were approximately 200 megawatt fires.

Tests number 1 and number 2 were approximately 100 megawatt fires. Both tests were configured with the water discharge nozzle inside the gas pipe and below the restriction orifice at the gas discharge. In test number 1, we attempted to control the water flow, holding a constant pressure in the water line just before the nozzle. In this test, no flow rate data was obtained due to an improperly sized orifice plate in the water line. Also, the pressure upstream of the nozzle could not be used to determine the flow rate for the nozzle performance curves because the curves are for discharges into atmospheric pressure. The water flow rate was estimated by using the data from test number 3 which had a similar differential pressure drop across the nozzle. Using the nozzle performance curves of the nozzle used in test number 3, and knowing the calculated flow rate across the orifice plate, a correction factor was calculated for the nozzle performance curves. After applying the correction factor, the flow rate was estimated for test number 1. Also, the restriction orifice at the gas discharge created a differential pressure that exceeded the original calibrated range. The range was extended and the transmitter was recalibrated after this series of tests.

After test number 1, the water control was modified so that the water system operator controlled the water flow based on a predetermined value of differential pressure across the water orifice plate. Test number 7 was to have been a repetition of test number 1. The operator of the water system had an indication of higher than desired differential pressure across the water orifice plate (1.25 inch opening), but the differential pressure recording and the thermocouple recordings showed no water was flowing for test number 7.

Tests number 2 and number 3 were conducted at higher gas flow rates, in excess of 200 megawatts. The restriction orifice at the gas discharge

was changed from a 3-inch to a 4-inch opening. These tests had the water discharge inside the gas discharge pipe and used the 1.25 inch open orifice plate. On test number 2, the differential pressure across the gas orifice barely exceeded the scale. The scale was expanded and the transmitter recalibrated after the series of tests. Since the differential pressure did approach full scale, the gas flow rate was estimated from the full scale calibration value. The water orifice plate had a 1.25 inch opening for these tests.

Tests number 4, number 5, and number 6 were conducted at gas flow rates approaching 200 megawatts. Higher flow rates of water were used, causing a replacement of the water orifice (2.25 inch opening). The water was injected in the outside of the flame by four nozzles equally spaced around the gas discharge. The distance from the center of the gas discharge to the center of the nozzles was 9 inches.

#### 2.4 DATA REDUCTION

For all tests, the gas flow rates were computed for the gas flow at the time of water injection. Using the average temperature and pressure immediately downstream of the orifice, and the gas composition and differential pressure across the orifice, the gas flow rates were computed using the orifice meter calculations, as shown in Appendix D. Also shown in Appendix D is an example of the sample water flow rate calculations. The orifice calculations for the water flow rate required only a correction for the Reynolds number. In the range of flow for this series of tests, the correction was a constant. The differential pressure across the water orifice plate was selected at the point immediately after stabilized water flow. In addition to the water and gas flow rates, the millivolt signals from the thermocouples and radiometers were converted to temperatures and heat fluxes, respectively. Also, the wind speed, wind direction, wet bulb temperature, and dry bulb temperature sensor output were converted into engineering units. Appendices E through K contain the converted data for tests number 1 through 7, respectively.

The summary of test results is shown in Table 3-1. For water injection internal to the gas stream, the mass ratio (water/gas) ranged from 0.50 to 0.920. For the external injection of water into the flame, the mass ratio varied from 1.56 to 4.26. The gas flow rates for the larger fires (approximately 200 megawatts) varied from 4.2 to 3.47 kg/sec. The decrease in gas flow rate was attributable to the decrease in the pressure of the storage reservoir.

For tests number 2, number 3, and number 6 (which did not extinguish), Table 3-2 shows the reduction in the radiometer readings at times of stabilized flow before and after water injection. Also, Figures 3-1 through 3-10 show the temperature profiles of the flame during the tests. The following is the correspondence of tests and figures.

<u>Test Number</u>	<u>Water Injection</u>	<u>Figure</u>
1	Before	3-1
2	Before	3-2
2	After	3-3
3	Before	3-4
3	After	3-5
4	Before	3-6
5	Before	3-7
6	Before	3-8
6	After	3-9
7	Before	3-10

Times for the contours in Figures 3-1 through 3-10 were selected for periods of stabilized flow. Comparison of the temperature profiles of Figures 3-2 and 3-3 for test number 2 show the typical reduction in temperature and the reshaping of the temperature fields.

The results show that the mass ratio (water/gas) necessary to extinguish the flame depends on the size of the flame and the method of injecting the water. For the lower gas rate and the internal water injection, a

TABLE 3-1. GAS AND WATER FLOW RATES

Rates	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7
Injection location of water	internal	internal	internal	external	external	external	internal
Gas temperature at time of water injection (°F)	6.0	-11.0	1.0	30.0	14.0	-5.0	-24.0
Pressure at restriction orifice (psig)	46	34	33.5	31	27.5	25	45
Pressure at gas orifice (psig)	49	not readable	42.5	37.5	35	31	50.5
Pressure at water orifice (psig)	100	37	86	100	74	31	32
P at restriction orifice (inches water)	off scale	930	917	814	748	673	862
P at gas orifice (inches water)	80	210 full scale	206	205	197	177	86
P at water orifice (inches water)	under scale	42	136	234	58	26	---
Gas flow rate (kg/sec) (SCF/sec)	2.69 138	4.2* 220	4.14 212	3.83 196	3.74 192	3.47 178	2.93 150
Water flow rate (kg/sec) (GPM)	1.6* 25.4	2.10 33.3	3.24 51.4	16.3 258	8.12 129	5.43 86.1	---
Water flow rate/gas flow rate mass ratio	0.59	0.50	0.920	4.26	2.17	1.56	---
Extinguished	yes	no	no	yes	yes	no	no

\* Approximation

TABLE 3-2  
RADIOMETER READINGS

Test	Water/Gas Mass Ratio	Time Before water injection After water injection	Radiometer Readings (Btu/sec-ft <sup>2</sup> )				
			1	2	3	4	5
2	0.50	14:10:45	0.38	1.01	0.77	0.69	4.15*
		14:10:55	-0.55*	0.09	0.51	0.35	4.15*
3	0.92	15:10:50	-0.79*	0.47	0.69	0.61	0.47
		15:11:00	-1.08*	0.05	0.59	0.23	0.23
6	1.56	17:17:12	-0.17*	0.42	0.27	0.39	0.29
		17:17:20	-0.37*	0.12	0.04	0.09	0.08

\* Instrument malfunction





TEST NO. 2 14.10.46

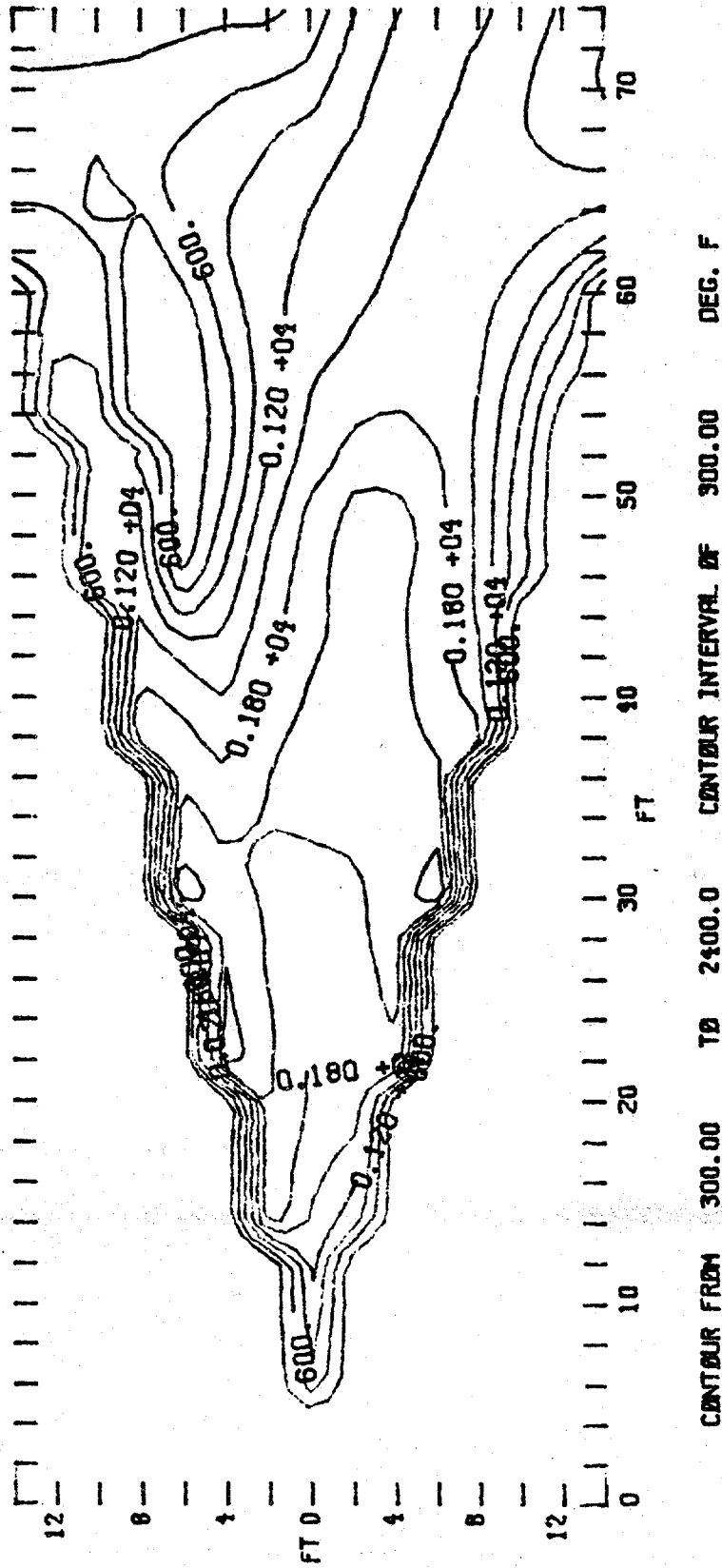


FIGURE 3-2  
TEMPERATURE PROFILES FOR TEST NUMBER 2 BEFORE WATER INJECTION

TEST NO. 2 14.10.52

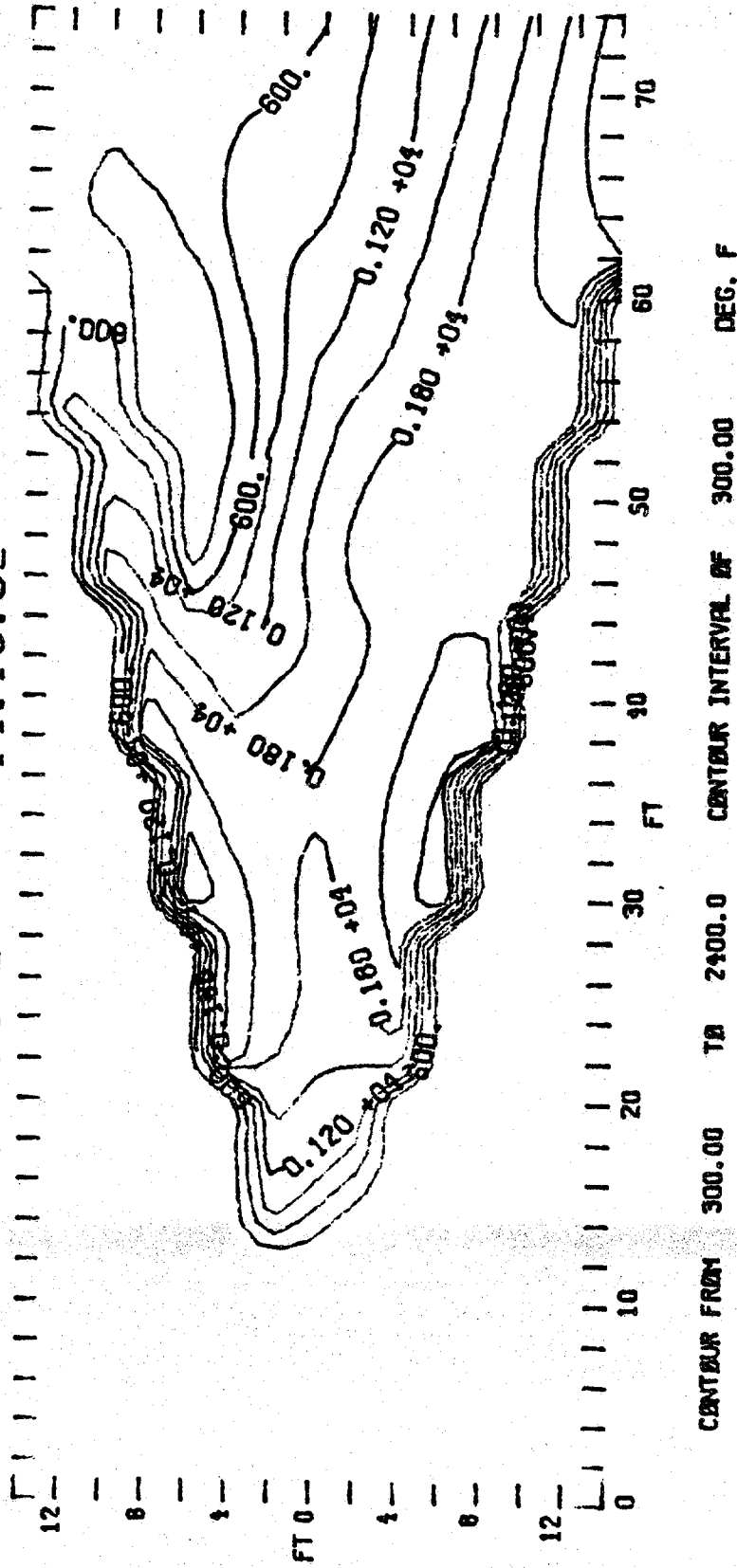
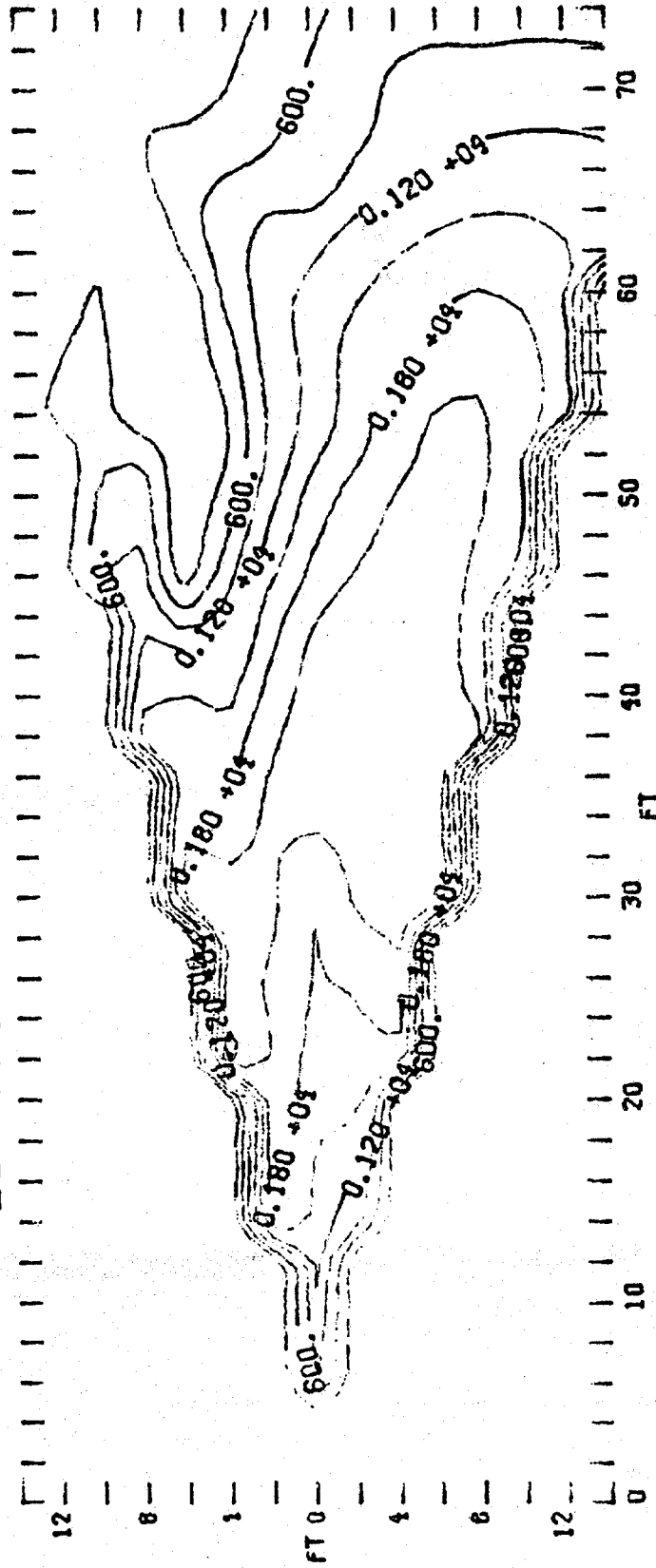


FIGURE 3-3

TEMPERATURE PROFILES FOR TEST NUMBER 2 AFTER WATER INJECTION



TEST NO. 3 15.10.26



CONTOUR FROM 300.00 TO 2400.0 CONTOUR INTERVAL OF 300.00 DEG. F

FIGURE 3-4

TEMPERATURE PROFILES FOR TEST NUMBER 3 BEFORE WATER INJECTION

TEST NO. 3 15.10.38

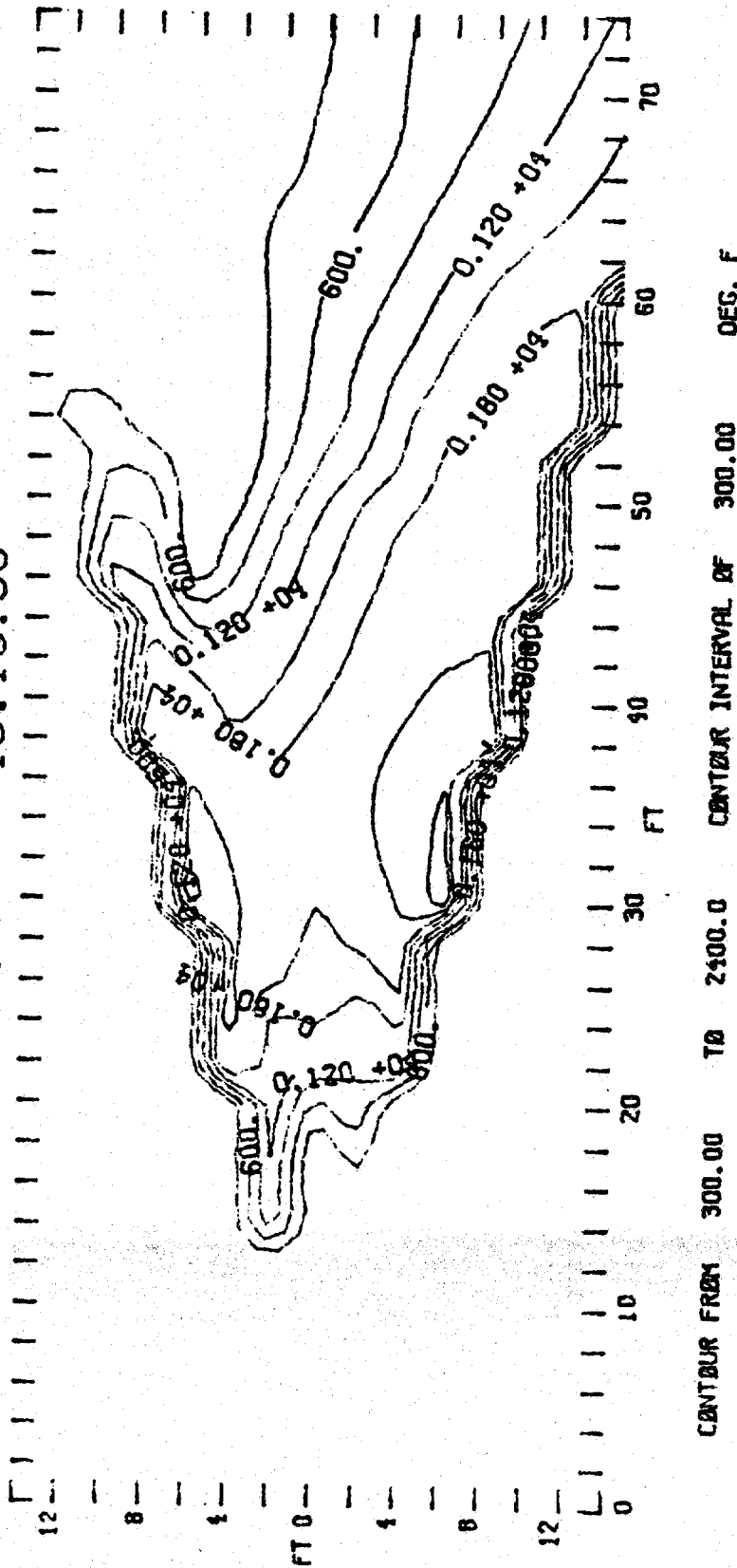


FIGURE 3-5

TEMPERATURE PROFILES FOR TEST NUMBER 3 AFTER WATER INJECTION



TEST NO. 4 16.38.42

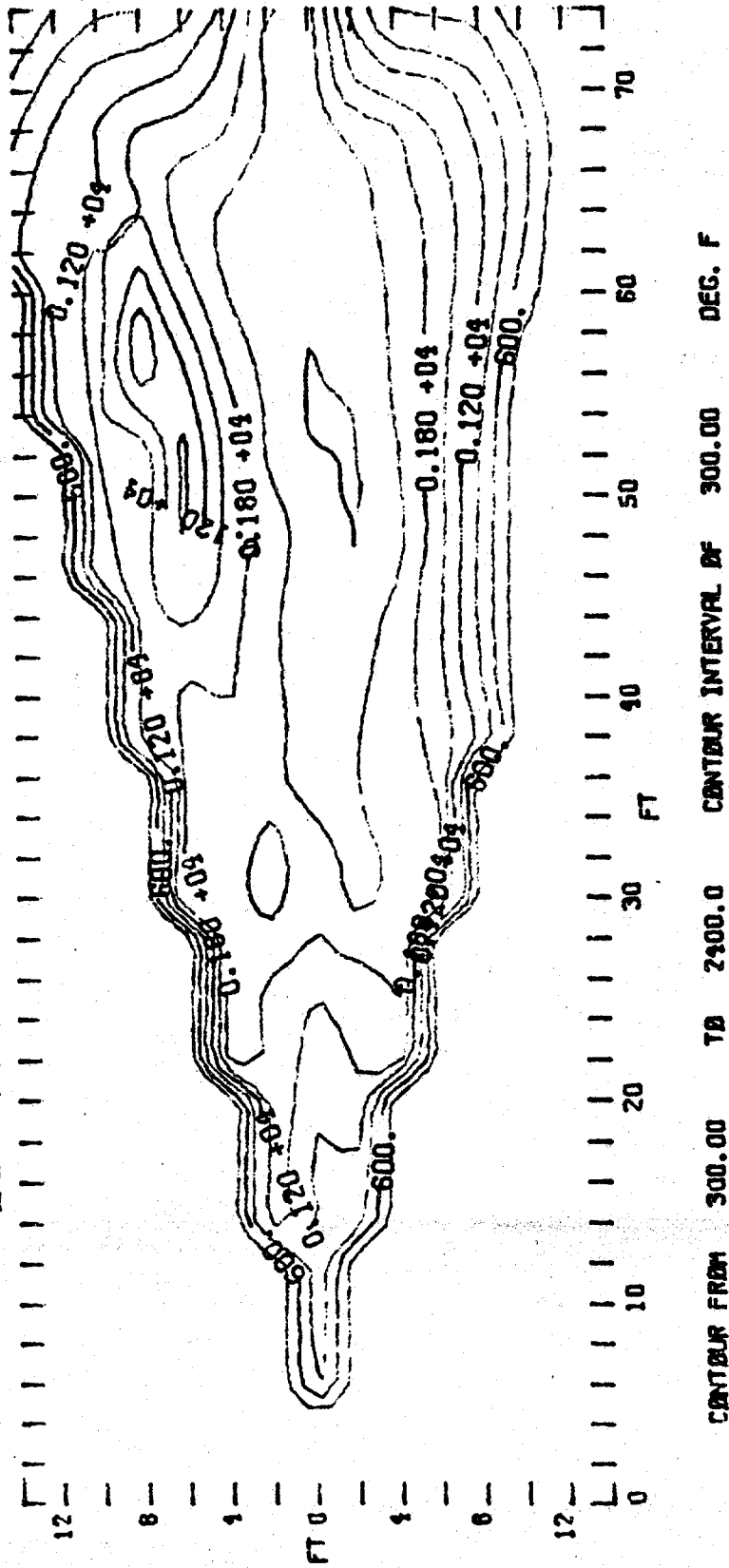
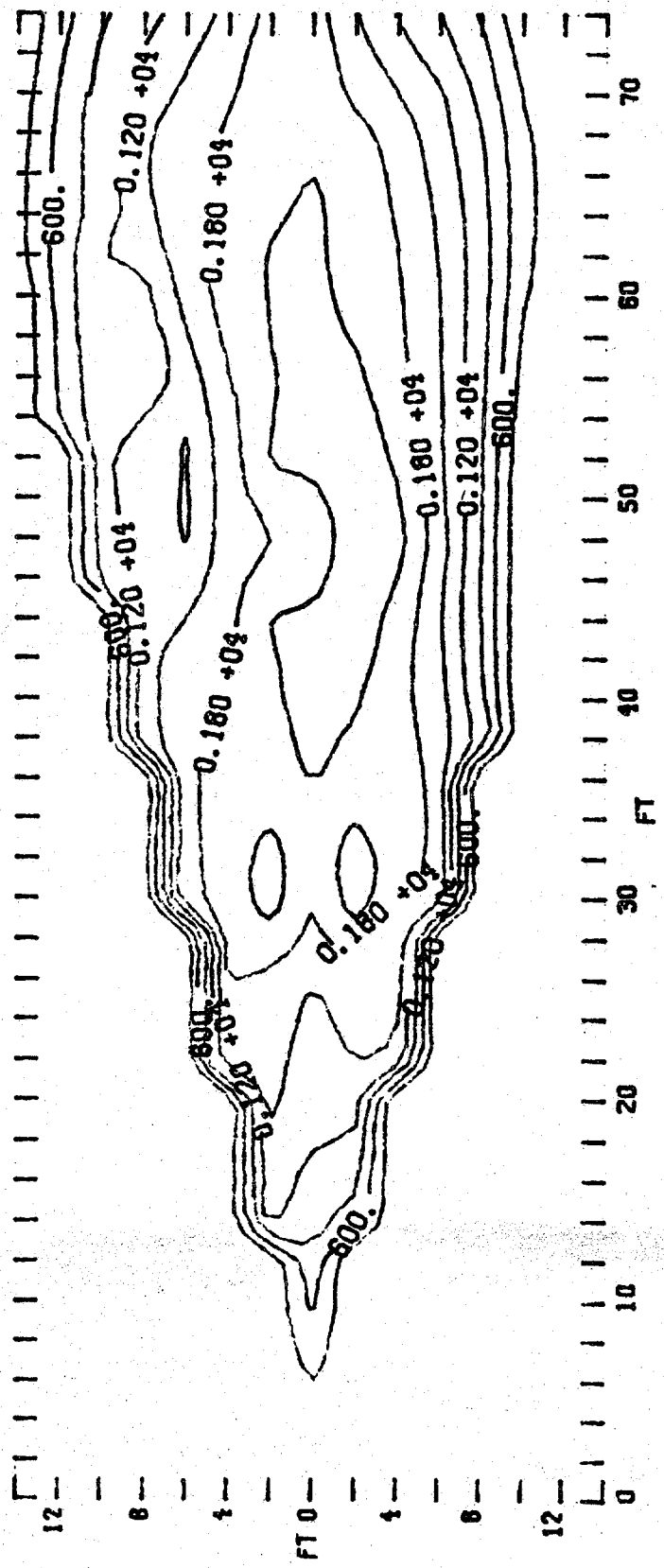


FIGURE 3-6

TEMPERATURE PROFILES FOR TEST NUMBER 4 BEFORE WATER INJECTION

TEST NO. 5 17.01.20



CONTOUR FROM 300.00 TO 2400.0 CONTOUR INTERVAL OF 300.00 DEG. F

FIGURE 3-7

TEMPERATURE PROFILES FOR TEST NUMBER 5 BEFORE WATER INJECTION



TEST NO. 6 17.16.44

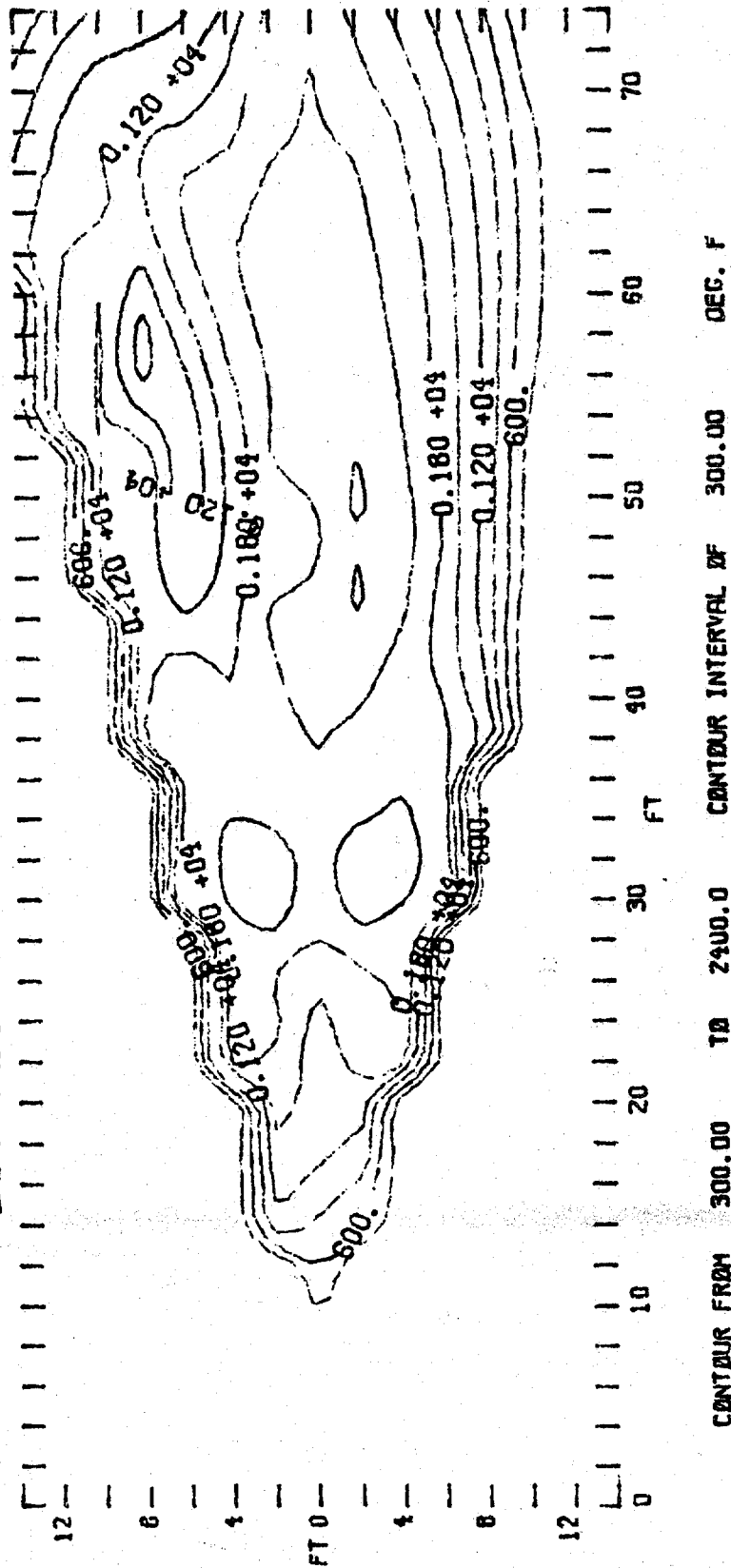


FIGURE 3-8

TEMPERATURE PROFILES FOR TEST NUMBER 6 BEFORE WATER INJECTION



TEST NO. 6 17.16.54

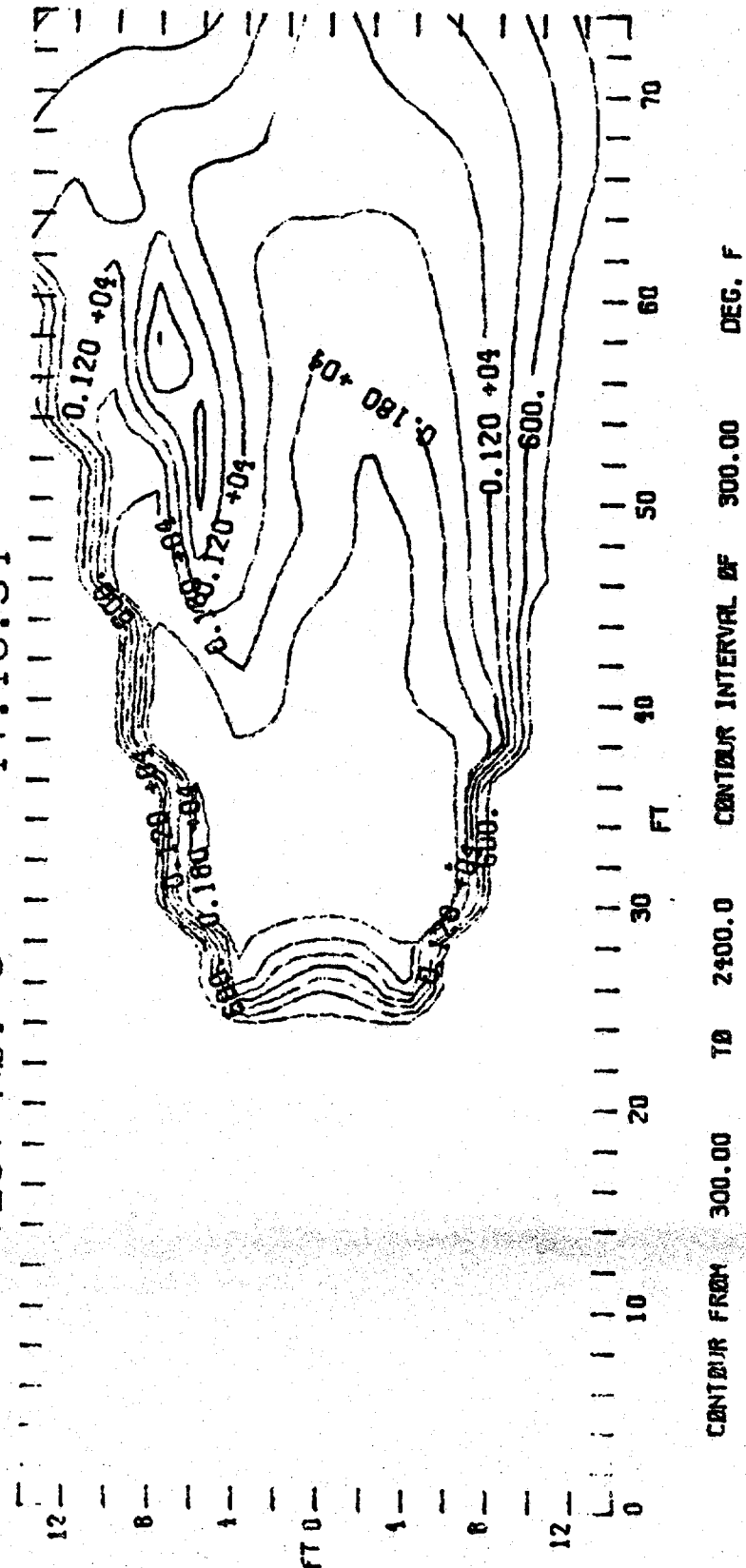


FIGURE 3-9  
TEMPERATURE PROFILES FOR TEST NUMBER 6 AFTER WATER INJECTION





TEST NO. 7 17.55.02

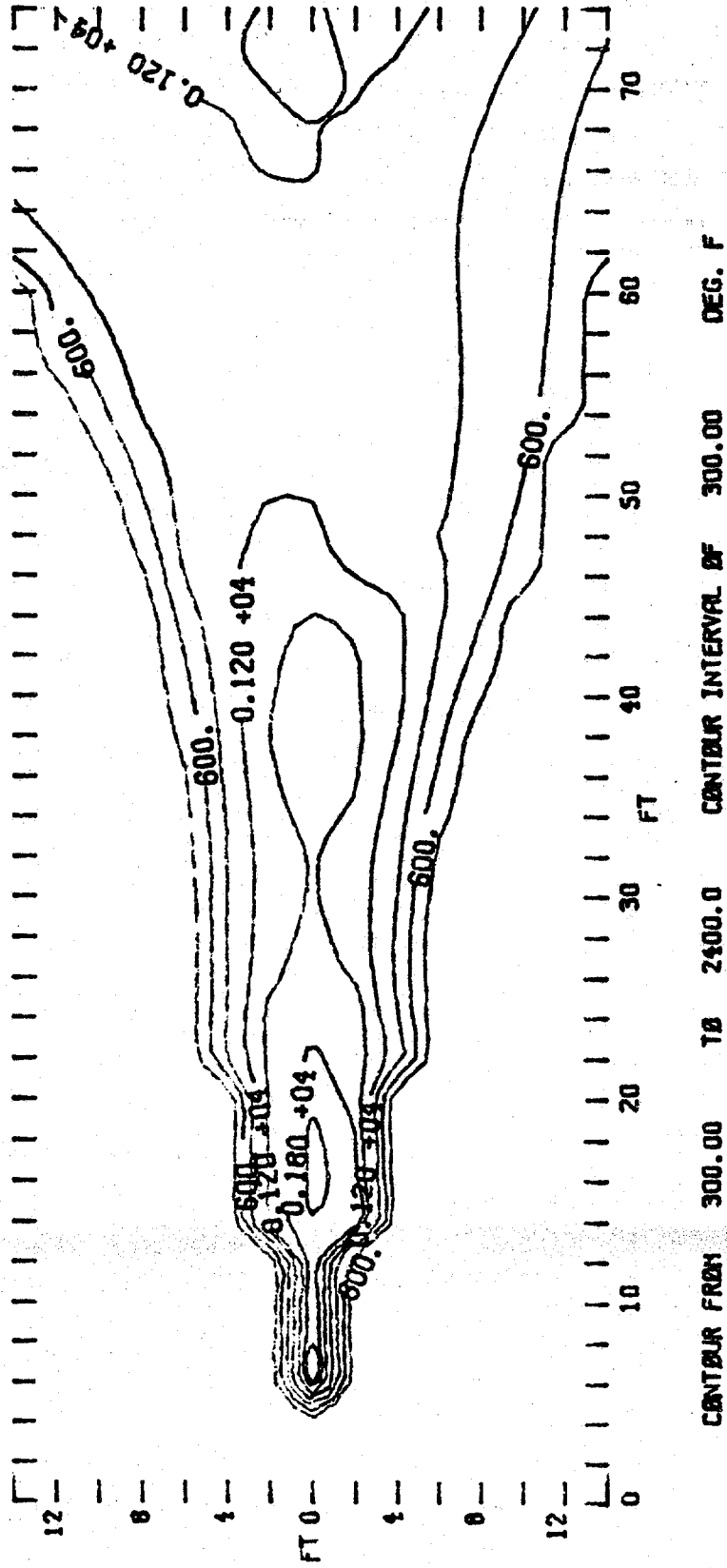


FIGURE 3-10  
TEMPERATURE PROFILES FOR TEST NUMBER 7 BEFORE WATER INJECTION

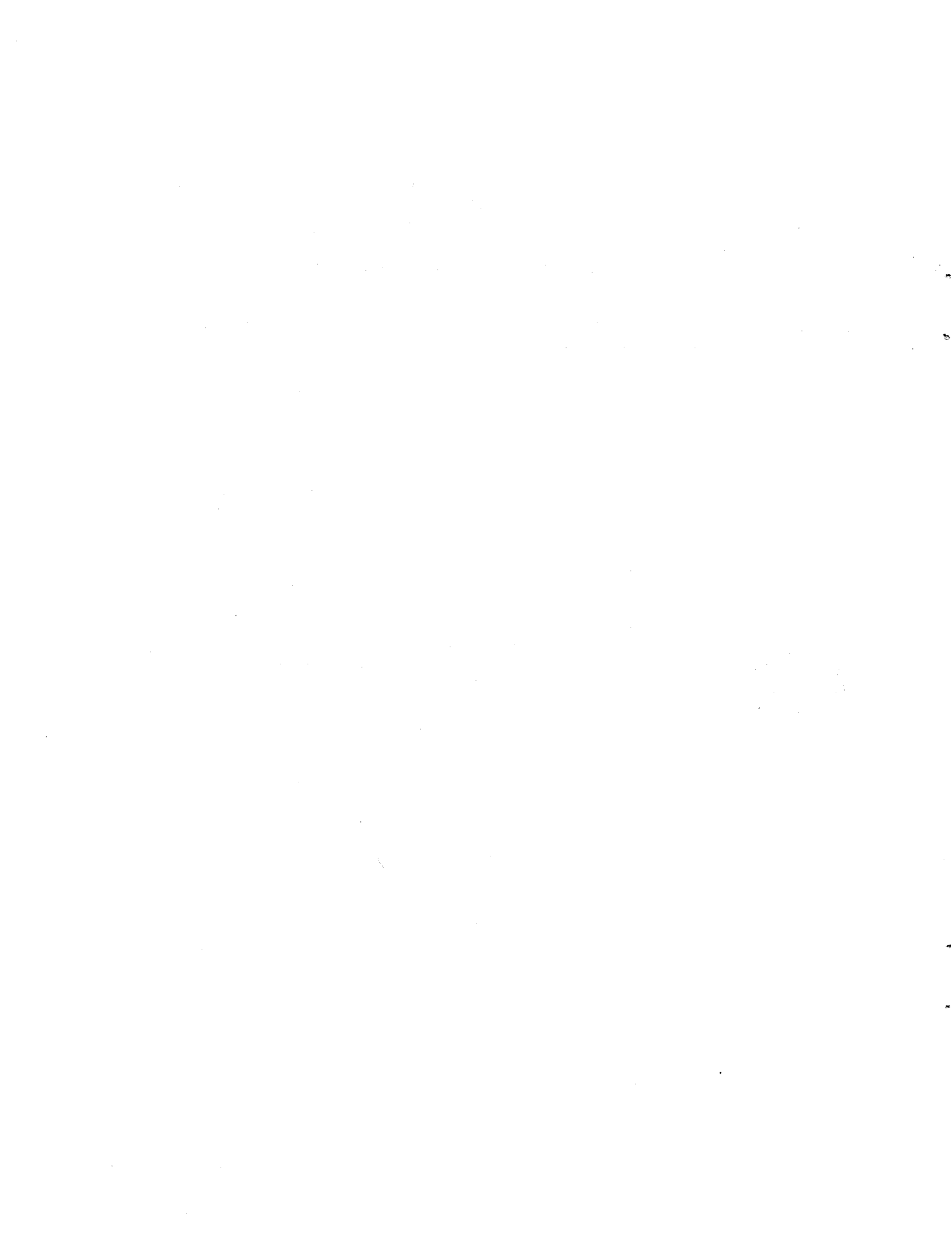
mass ratio of 0.59 extinguished the flame; for a gas rate of approximately 1.5 times, a mass ratio of 0.920 was not sufficient to extinguish the flame. In the case of external injection of water, test number 6 was run at a mass ratio of nearly twice the mass ratio of the internal injection rate and the flame was not extinguished. At all other ratios that were tried for the external injection of water (2.17 and 4.26), the flame was extinguished.

## REFERENCES

1. Brzustowski, T. A., "A Model for Predicting the Shapes and Lengths of Turbulent Diffusion Flames over Elevated Industrial Flares." Twenty-second Canadian Chemical Conference, Toronto, Canada (1972).
2. American Petroleum Institute, "Guide for Pressure Relief and Depressuring Systems." API RP 521.
3. The Orifice Meter for Measurement of Flow of Gases and Liquids, Rockwell Manufacturing Company, Pittsburgh, Pennsylvania.

## ACKNOWLEDGEMENTS

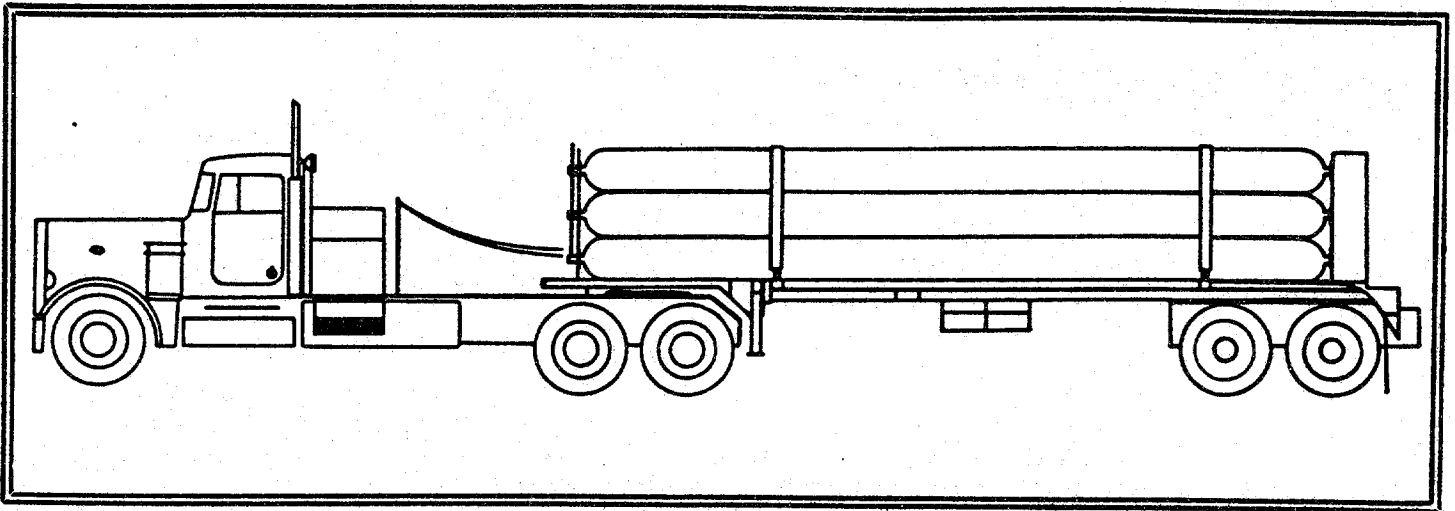
We wish to thank Phillips Petroleum Company for supplying the high methane content natural gas for this project. In particular, we thank Mr. Ken Dickson, Process Engineer for the Phillips Kingfisher Gas Plant, for his patience and supervision while we were at the gas plant.



APPENDIX A

NATURAL GAS TRANSPORTATION





## NATURAL GAS TRANSPORTATION SERVICE

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The standards and specifications summarized here refer to the specialized equipment used in the processing and transportation of natural gas from a producing gas well to the pipeline, during the initial completion and testing phase. A review of the technology of the procedure, or an analysis of its application to a specific situation can be obtained from your PSI representative.

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### OPERATOR

Production Services, Incorporated has been granted the status of "Party" to DOT-E 8009, in accordance with 49 CFR 107.111 of Department of Transportation Hazardous Materials Regulations.

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### LOAD/UNLOAD STATIONS

Each load/unload facility utilized in PSI gas transportation is capable of handling a maximum of 3 million standard cubic feet of gas per day, at a top working pressure of 3000 pounds per square inch, with pressure for normal operations estimated at 2400 pounds.

The station is equipped with a Roylyn pressure gauge (1/4% accuracy, check valve ASA 1500 class, 3600 PSI WP), a system pressure monitor for diaphragm motor valves, a regulator pressure monitor and ASA flanges (raised face, 1500 class).

The system incorporates a fail-safe automatic shut-in and cannot be opened to flow without being fully connected.

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## NATURAL GAS TRANSPORTATION SERVICE

### DEHYDRATORS

#### 12" Tri-Sorb Glycol Dehydrator

Capacity for inlet gas per unit, as follows:

Rate: 2.5 million standard cubic feet of gas per day  
Temperature: 80 degrees fahrenheit  
Pressure: 1000 PSIG

Glycol rate: 14 GPH  
Reboiler temperature: 400 degrees fahrenheit  
Reboiler fuel gas pressure: 7 PSIG (for 1100 BTU/SCF fuel gas)  
Approximate initial glycol charge: 75 gallons

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### COMPRESSORS

Compressors WBJ-12 (677 RPM, weight 30,000, skid-mounted)  
maximum capacity per unit 2 million standard cubic feet of gas per day.

Inlet PSI 700 to 900 pounds

Outlet PSI 2400 to 2800 pounds

Engine F-1197G4 (165 BHP, 100 degrees fahrenheit, 1500' elevation,  
vertical exhaust fan, air-cooled)

First phase 3<sup>3</sup>/<sub>4</sub>" cylinder

Second phase 2<sup>3</sup>/<sub>4</sub>" cylinder-4000 maximum PSI

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### TRAILORS

10-tube trailers maximum capacity is 200,000 standard cubic feet of gas at a maximum pressure when transporting not to exceed 2500 PSI (measured in accordance with the American Gas Association standards). Cylinders are constructed of 4130X steel, ultimate tensile strength in accordance with 49 CFR 178.37-16 may not exceed 126,000 pounds, yield strength to ultimate strength ratio may not exceed 86%.

Natural gas must be from a producing well with a known composition, rather than from a storage well, and may not contain any liquified gases or more than 0.5 pounds of water per MCF at standard temperature and pressure (60 degrees fahrenheit, 30" mercury) or more than 3% by volume of carbon dioxide. Hydrogen sulfide content cannot exceed 1/4 grain per hundred cubic feet of gas at standard temperature and pressure as determined by ASTM D 2385-76 test for H<sub>2</sub>S.

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**APPENDIX B**

**GAS ANALYSIS**



**ENERGY ANALYSTS, INC.**

LABORATORY REPORT NO. 23503

January 31, 1984

Energy Analysts Inc.

Sampled January 27, 1984

Gas analysis from PSI Trailer

2 - Dwight Pfenning - Norman



PETROLEUM LABORATORY  
AND GAS ENGINEERING  
401 N. E. 46th Oklahoma City, Ok. 73105  
(405) 528-8255

LABORATORY REPORT NO. 23503  
GAS ANALYSIS

ENERGY ANALYSTS INC.

SAMPLE FROM PSI TRAILER

DATE SAMPLED 01-27-84  
DATE RUN 01-30-84

COMPONENT	MOL %	GPM *
OXYGEN	0.00	0.000
NITROGEN	1.39	0.000
CARBON DIOXIDE	0.26	0.000
METHANE	96.35	16.241
ETHANE	1.58	0.420
PROPANE	0.28	0.077
ISO-BUTANE	0.03	0.009
N-BUTANE	0.07	0.021
ISO-PENTANE	0.01	0.005
N-PENTANE	0.01	0.005
HEXANES PLUS	0.02	0.009
TOTAL	100.00	

\* AT 14.65 PSIA AND 60 DEG.F.

IDEAL SPECIFIC GRAVITY (AIR=1.00) 0.5750

GPM 14# GASOLINE	0.021	GPM PENTANES PLUS	0.019
GPM 26# GASOLINE	0.029	GPM BUTANES PLUS	0.049
		GPM PROPANE PLUS	0.126
COMPRESSIBILITY (Z) FACTOR	0.9980		

IDEAL TOTAL HEAT VALUE (BTU/CUFT) AT 60 DEG.F.

	30 IN. HG.	14.65 PSIA
DRY	1016	1010
WET	998	992

SAMPLING DATA

SAMPLED BY: E.A.  
LOCATION:  
PRESSURE, PSI:

TEMPERATURE, DEG.F:

## GAS COMPOSITION

Components	Mole Percent	Weight (Wt <sub>i</sub> ) (Basis = one mole)	Weight Percent $\frac{Wt_i}{\Sigma Wt_i} \times 100$
N <sub>2</sub>	1.39	0.3892	2.4
CO <sub>2</sub>	0.26	0.1144	0.7
C <sub>1</sub>	96.30	15.4080	93.0
C <sub>2</sub>	1.58	0.4740	2.9
C <sub>3</sub>	0.28	0.1232	0.7
C <sub>4</sub>	0.03	0.0174	0.1
C <sub>5</sub>	0.07	<u>0.0406</u>	0.2
		$\Sigma Wt_i$ 16.5670	

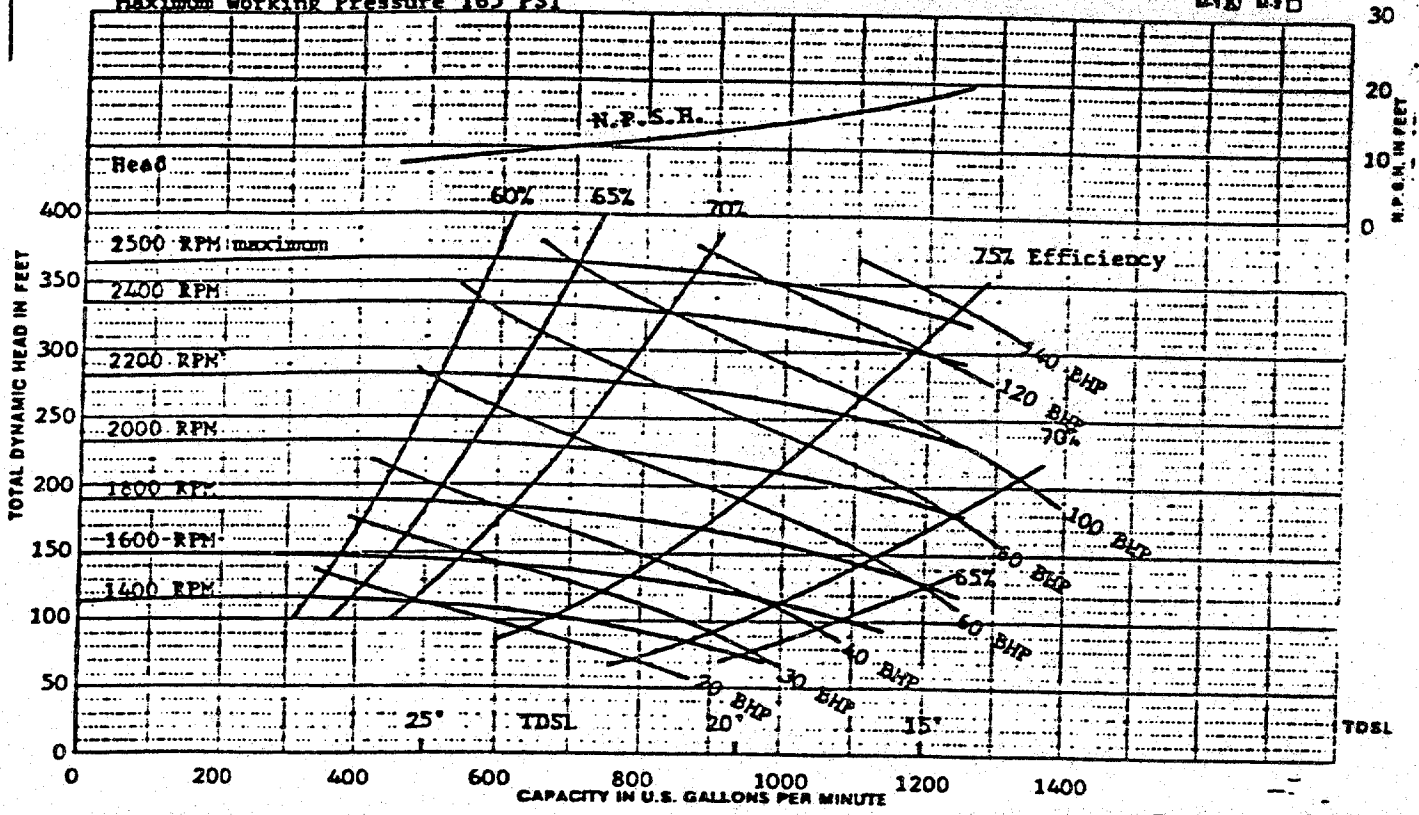


**APPENDIX C**

**WATER PUMP PERFORMANCE CURVE**



Case: Material C.I. Part No. H-809 Mach. No. H-809 Various R.P.M. - Cycles  
 Impeller: Material C.I. Part No. L-2413 Mach. No. L-2406 Dia. 13-1/4" x 13-1/2" full  
 Maximum Working Pressure 165 PSI  
 T.D.S.L. for fresh water at sea level 80° F. max. 14-1 14-2



C-8594 Based on T-3790, T-3729 ~~Standard~~ C-2586 Dated 10-21-75 Date 7-17-80 MODEL **B4JQBM**

WATER PUMP PERFORMANCE CURVE

APPENDIX D

SAMPLE CALCULATIONS FOR GAS AND WATER FLOW RATES



### Sample Gas Flow Rate Calculation:

The flow rates through the orifice meters were calculated using a standard technique (reference).

$$Q = C' \sqrt{h_w P_f}$$

where:

- Q = flow rate (SCFH)
- $h_w$  =  $\Delta P$  (inches of water)
- P = pressure (psia)
- $C'$  =  $F_b F_r Y F_{pb} F_{tb} F_{tf} F_g F_{pv}$
- $F_b$  = basic orifice flow factor
- $F_r$  = Reynolds number correction
- Y = expansion factor
- $F_{pb}$  = pressure base factor
- $F_{tb}$  = temperature base factor
- $F_{tf}$  = flowing temperature factor
- $F_g$  = specific gravity factor
- $F_{pv}$  = supercompressibility factor

Using test number 3 as an example:

- $h_w$  = 206 inches of water
- P = 57.2 psia
- $F_b$  = 5013.1 (from Table II; 4.5 inch orifice in 6-inch pipe)
- $F_r$  = 1.0005 (from Table III:  $\sqrt{h_w P_f} = 108$ )
- Y = 1.016 (from Table VI;  $D_2/D_1 = 0.74$ )
- $F_{pb}$  = 0.9829 ( $F_{pb} = 14.4/\text{pressure base} = 14.61/14.65$ )
- $F_{tb}$  = 1.00 (base temperature = 60°F)
- $F_{tf}$  = 1.062 (from Table XIII;  $F_{tf} = \sqrt{520/\text{gas temperature}} = \sqrt{520/461}$ )
- $F_g$  = 1.32 (from Table XIV;  $F_g = \sqrt{1/\text{specific gravity}} = \sqrt{1/0.575}$ )
- $F_{pv}$  = 1.005 (from Figure XIV)
- $C'$  = 5013.1 x 1.0005 x 1.016 x 0.9829 x 1.00 x 1.062 x 1.32 x 1.00  
= 7057



$$\begin{aligned}
Q &= 7057 \sqrt{206 \times 57.2} \\
&= 766000 \text{ SCF/hr} \times \frac{\text{hr}}{3600 \text{ sec}} \times \frac{16.3 \text{ lb/lb-mole}}{379 \text{ SCF/lb-mole}} \times 0.4536 \text{ kg/lb} \\
&= 4.14 \text{ kg/sec}
\end{aligned}$$

Sample Water Flow Calculation:

$$\begin{aligned}
Q &= N F_b F_m F_D F_E R_F \sqrt{h_w} \\
Q &= \text{flow rate (gal/minute)} \\
N &= \text{conversion factor} \\
F_b &= \text{basic orifice factor} \\
F_m &= \text{manometer factor} \\
F_D &= \text{density variation factor} \\
F_E &= \text{specific gravity factor} \\
R_F &= \text{Reynolds number factor} \\
h_w &= \Delta P \text{ (inches of water)}
\end{aligned}$$

Using test number 3 as an example:

$$\begin{aligned}
N &= 0.01594 \text{ (from Table XXIII; conversion factor)} \\
F_b &= 321.93 \text{ (from Table II; 1.25 inch orifice in 6-inch pipe)} \\
F_m &= 1.00 \\
F_D &= 1.00 \\
F_E &= 1.00 \\
R_F &= 1.01 \text{ (from Figure XXXII; high Reynolds number)} \\
h_w &= 136 \text{ inches of water} \\
Q &= 0.01594 \times 321.93 \times 1.00 \times 1.00 \times 1.00 \times 1.01 \times \sqrt{136} \\
&= 60.4 \text{ gal/min} \times \frac{3.785 \text{ kg/gal}}{60 \text{ sec/min}} = 3.81 \text{ kg/sec}
\end{aligned}$$

Reference: The Orifice Meter for Measurement of Flow of Gases and Liquids,  
Rockwell Manufacturing Company, Pittsburgh, Pennsylvania.



The first part of the course covers the basic concepts of algebra and geometry. This includes the study of numbers, operations, and the properties of shapes.

In the second part, we explore the more advanced topics of calculus and statistics. These subjects are essential for understanding the behavior of functions and data.

The final section of the course focuses on the application of mathematical concepts in real-world scenarios. This involves solving problems that require critical thinking and problem-solving skills.

Throughout the course, students are encouraged to engage in active learning and to seek out additional resources to deepen their understanding of the material.

The course is designed to provide a solid foundation in mathematics, preparing students for further study and professional careers.

By the end of the course, students should be able to apply mathematical principles to solve complex problems and to communicate their solutions effectively.

The course is a challenging but rewarding experience that will equip students with the skills and knowledge they need to succeed in a competitive world.

For more information about the course, please contact the instructor or visit the course website.

The course is open to all students who are interested in learning more about mathematics and its applications.

Students are encouraged to bring their own calculators and textbooks to class.

The course is held on Tuesdays and Thursdays from 9:00 AM to 11:00 AM.

For more information, please contact the instructor at [email address].

The course is a great opportunity for students to learn from an experienced instructor and to work with a supportive class.

Students are encouraged to participate in class discussions and to ask questions when needed.

The course is a valuable experience that will help students develop their mathematical skills and their ability to think critically.

For more information, please contact the instructor at [email address].

APPENDIX E

TEST NUMBER 1

DATA ACQUISITION RECORDINGS AND PRESSURE READINGS



NBS BOFST CHANNEL ASSIGNMENT

Channel	Acronym	Description	Units	Location
0	WS	Wind Speed	mph	Met Tower (10 m)
1	WD	Wind Direction	° from N	Met Tower (10 m)
2	WB	Wet Bulb	°C	Met Tower (10 m)
3	DB	Dry Bulb	°C	Met Tower (10 m)
4	KT	K Thermocouple	°C	Cable Array (#1)
5	KT	K Thermocouple	°C	Cable Array (#2)
6	KT	K Thermocouple	°C	Cable Array (#3)
7	KT	K Thermocouple	°C	Cable Array (#4)
8	KT	K Thermocouple	°C	Cable Array (#5)
9	KT	K Thermocouple	°C	Cable Array (#6)
10	KT	K Thermocouple	°C	Cable Array (#7)
11	KT	K Thermocouple	°C	Cable Array (#8)
12	KT	K Thermocouple	°C	Cable Array (#9)
13	KT	K Thermocouple	°C	Cable Array (#10)
14	KT	K Thermocouple	°C	Cable Array (#11)
15	KT	K Thermocouple	°C	Cable Array (#12)
16	KT	K Thermocouple	°C	Cable Array (#13)
17	KT	K Thermocouple	°C	Cable Array (#14)
18	KT	K Thermocouple	°C	Cable Array (#15)
19	KT	K Thermocouple	°C	Cable Array (#16)
20	KT	K Thermocouple	°C	Cable Array (#17)
21	KT	K Thermocouple	°C	Cable Array (#18)
22	KT	K Thermocouple	°C	Cable Array (#19)
23	KT	K Thermocouple	°C	Cable Array (#20)
24	KR	K Reference Thermocouple	°C	Junctions for K Thermocouples
25	KT	K Thermocouple	°C	Gas Outlet
26	R1	Radiometer (7°)	kW/m <sup>2</sup>	Radiometer Array (#1)
27	R2	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#2)
28	R3	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#3)
29	R4	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#4)
30	R5	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#5)
34	TT	T Thermocouple	°C	Gas Line
35	TT	T Thermocouple	°C	Water Line
36	TR	T Reference Thermocouple	°C	Junctions for T Thermocouples



1/25/84

34 channels per scan

16:57:06

0 WS	2.3	1 WD	185.	2 WB	9.0	3 DB	11.4
24 RK	12.7	4 TK	23.5	5 TK	22.5	6 TK	21.6
7 TK	22.5	8 TK	14.0	9 TK	21.6	10 TK	25.3
11 TK	23.5	12 TK	20.6	13 TK	23.5	14 TK	20.6
15 TK	20.6	16 TK	27.2	17 TK	25.3	18 TK	22.5
19 TK	21.6	20 TK	23.5	21 TK	21.6	22 TK	23.5
23 TK	27.2	25 TK	46.8	26 R1	3.49	27 R2	0.44
28 R5	0.71	29 R4	0.48	30 R3	0.40	36 RT	8.7
34 TT	17.9	35 TT	16.3				

16:57:07

0 WS	2.4	1 WD	190.	2 WB	9.5	3 DB	11.7
24 RK	13.7	4 TK	21.6	5 TK	21.6	6 TK	21.6
7 TK	22.5	8 TK	17.8	9 TK	23.5	10 TK	26.3
11 TK	25.3	12 TK	20.6	13 TK	21.6	14 TK	22.5
15 TK	23.5	16 TK	24.4	17 TK	26.3	18 TK	28.2
19 TK	23.5	20 TK	23.5	21 TK	22.5	22 TK	24.4
23 TK	26.3	25 TK	49.6	26 R1	3.04	27 R2	0.59
28 R5	0.48	29 R4	0.48	30 R3	0.49	36 RT	7.8
34 TT	15.6	35 TT	16.6				

16:57:08

0 WS	2.4	1 WD	187.	2 WB	9.4	3 DB	11.8
24 RK	12.7	4 TK	22.5	5 TK	23.5	6 TK	22.5
7 TK	24.4	8 TK	15.9	9 TK	20.6	10 TK	21.6
11 TK	20.6	12 TK	25.3	13 TK	24.4	14 TK	23.5
15 TK	20.6	16 TK	25.3	17 TK	22.5	18 TK	21.6
19 TK	20.6	20 TK	23.5	21 TK	27.2	22 TK	21.6
23 TK	22.5	25 TK	45.9	26 R1	3.40	27 R2	0.96
28 R5	0.62	29 R4	0.54	30 R3	0.32	36 RT	9.5
34 TT	16.4	35 TT	17.3				

16:57:09

0 WS	3.2	1 WD	187.	2 WB	9.4	3 DB	11.7
24 RK	13.7	4 TK	20.6	5 TK	21.6	6 TK	22.5
7 TK	25.3	8 TK	15.9	9 TK	23.5	10 TK	21.6
11 TK	21.6	12 TK	26.3	13 TK	23.5	14 TK	23.5
15 TK	21.6	16 TK	26.3	17 TK	27.2	18 TK	21.6
19 TK	23.5	20 TK	25.3	21 TK	28.2	22 TK	26.3
23 TK	25.3	25 TK	46.8	26 R1	0.75	27 R2	0.37
28 R5	0.74	29 R4	0.67	30 R3	0.87	36 RT	8.6
34 TT	15.7	35 TT	15.9				

16:57:10

0 WS	3.3	1 WD	193.	2 WB	9.2	3 DB	11.7
24 RK	13.7	4 TK	20.6	5 TK	22.5	6 TK	23.5
7 TK	21.6	8 TK	15.9	9 TK	22.5	10 TK	25.3
11 TK	21.6	12 TK	22.5	13 TK	22.5	14 TK	25.3
15 TK	23.5	16 TK	23.5	17 TK	25.3	18 TK	24.4
19 TK	25.3	20 TK	23.5	21 TK	21.6	22 TK	26.3
23 TK	25.3	25 TK	48.7	26 R1	1.39	27 R2	0.48
28 R5	0.85	29 R4	0.50	30 R3	0.32	36 RT	9.2
34 TT	18.2	35 TT	18.8				



## 16:57:11

0 WS	3.1	1 WD	195.	2 WB	9.5	3 DB	11.5
24 RK	11.8	4 TK	21.6	5 TK	18.7	6 TK	20.6
7 TK	19.7	8 TK	15.9	9 TK	20.6	10 TK	20.6
11 TK	23.5	12 TK	20.6	13 TK	21.6	14 TK	23.5
15 TK	19.7	16 TK	20.6	17 TK	19.7	18 TK	24.4
19 TK	23.5	20 TK	23.5	21 TK	21.6	22 TK	20.6
23 TK	24.4	25 TK	45.0	26 R1	3.49	27 R2	0.35
28 R5	0.67	29 R4	0.72	30 R3	0.36	36 RT	9.8
34 TT	18.2	35 TT	17.9				

## 16:57:12

0 WS	3.1	1 WD	195.	2 WB	9.3	3 DB	11.7
24 RK	11.8	4 TK	21.6	5 TK	19.7	6 TK	20.6
7 TK	19.7	8 TK	14.0	9 TK	20.6	10 TK	20.6
11 TK	19.7	12 TK	21.6	13 TK	20.6	14 TK	24.4
15 TK	20.6	16 TK	22.5	17 TK	20.6	18 TK	20.6
19 TK	21.6	20 TK	26.3	21 TK	23.5	22 TK	23.5
23 TK	21.6	25 TK	44.1	26 R1	2.76	27 R2	0.72
28 R5	0.83	29 R4	0.30	30 R3	0.31	36 RT	9.4
34 TT	18.4	35 TT	17.3				

## 16:57:13

0 WS	3.6	1 WD	189.	2 WB	9.4	3 DB	11.3
24 RK	10.8	4 TK	21.6	5 TK	21.6	6 TK	18.7
7 TK	17.8	8 TK	12.1	9 TK	20.6	10 TK	18.7
11 TK	20.6	12 TK	22.5	13 TK	22.5	14 TK	21.6
15 TK	19.7	16 TK	19.7	17 TK	22.5	18 TK	22.5
19 TK	21.6	20 TK	21.6	21 TK	23.5	22 TK	19.7
23 TK	19.7	25 TK	43.1	26 R1	2.21	27 R2	0.79
28 R5	0.78	29 R4	0.74	30 R3	0.29	36 RT	12.1
34 TT	18.2	35 TT	19.4				

## 16:57:14

0 WS	4.2	1 WD	187.	2 WB	9.1	3 DB	11.6
24 RK	8.9	4 TK	16.8	5 TK	17.8	6 TK	19.7
7 TK	19.7	8 TK	10.2	9 TK	17.8	10 TK	17.8
11 TK	16.8	12 TK	20.6	13 TK	20.6	14 TK	19.7
15 TK	16.8	16 TK	16.8	17 TK	22.5	18 TK	25.3
19 TK	18.7	20 TK	19.7	21 TK	15.9	22 TK	17.8
23 TK	20.6	25 TK	45.9	26 R1	1.94	27 R2	0.50
28 R5	0.60	29 R4	0.35	30 R3	0.60	36 RT	8.7
34 TT	16.2	35 TT	17.2				

## 16:57:15

0 WS	4.0	1 WD	182.	2 WB	9.4	3 DB	11.7
24 RK	13.7	4 TK	24.4	5 TK	25.3	6 TK	21.6
7 TK	21.6	8 TK	14.9	9 TK	25.3	10 TK	25.3
11 TK	21.6	12 TK	23.5	13 TK	22.5	14 TK	22.5
15 TK	26.3	16 TK	24.4	17 TK	24.4	18 TK	25.3
19 TK	21.6	20 TK	22.5	21 TK	27.2	22 TK	25.3
23 TK	27.2	25 TK	45.9	26 R1	0.66	27 R2	0.37
28 R5	1.17	29 R4	0.85	30 R3	0.70	36 RT	8.5
34 TT	14.8	35 TT	16.2				



## 16:57:16

0 WS	4.0	1 WD	193.	2 WB	9.5	3 DB	11.3
24 RK	8.9	4 TK	19.7	5 TK	17.8	6 TK	17.8
7 TK	19.7	8 TK	13.0	9 TK	18.7	10 TK	16.8
11 TK	17.8	12 TK	17.8	13 TK	16.8	14 TK	21.6
15 TK	20.6	16 TK	18.7	17 TK	17.8	18 TK	17.8
19 TK	19.7	20 TK	18.7	21 TK	24.4	22 TK	18.7
23 TK	38.5	25 TK	36.6	26 R1	1.48	27 R2	1.20
28 R5	1.42	29 R4	0.93	30 R3	2.84	36 RT	8.6
34 TT	15.7	35 TT	16.6				

## 16:57:17

0 WS	3.7	1 WD	191.	2 WB	9.3	3 DB	11.4
24 RK	13.7	4 TK	21.6	5 TK	23.5	6 TK	21.6
7 TK	23.5	8 TK	16.8	9 TK	24.4	10 TK	24.4
11 TK	21.6	12 TK	23.5	13 TK	25.3	14 TK	24.4
15 TK	25.3	16 TK	23.5	17 TK	25.3	18 TK	23.5
19 TK	26.3	20 TK	29.1	21 TK	25.3	22 TK	29.1
23 TK	38.5	25 TK	37.5	26 R1	3.04	27 R2	0.48
28 R5	1.59	29 R4	1.37	30 R3	4.07	36 RT	11.4
34 TT	18.5	35 TT	20.0				

## 16:57:18

0 WS	3.6	1 WD	182.	2 WB	9.3	3 DB	11.7
24 RK	14.6	4 TK	25.3	5 TK	23.5	6 TK	22.5
7 TK	24.4	8 TK	17.8	9 TK	24.4	10 TK	25.3
11 TK	23.5	12 TK	26.3	13 TK	22.5	14 TK	23.5
15 TK	25.3	16 TK	26.3	17 TK	29.1	18 TK	25.3
19 TK	24.4	20 TK	27.2	21 TK	27.2	22 TK	30.0
23 TK	39.4	25 TK	38.5	26 R1	3.49	27 R2	0.44
28 R5	1.29	29 R4	1.26	30 R3	4.86	36 RT	9.7
34 TT	17.9	35 TT	17.6				

## 16:57:19

0 WS	3.7	1 WD	194.	2 WB	9.1	3 DB	11.6
24 RK	11.8	4 TK	19.7	5 TK	22.5	6 TK	21.6
7 TK	20.6	8 TK	13.0	9 TK	20.6	10 TK	21.6
11 TK	21.6	12 TK	23.5	13 TK	24.4	14 TK	20.6
15 TK	20.6	16 TK	23.5	17 TK	21.6	18 TK	26.3
19 TK	29.1	20 TK	25.3	21 TK	23.5	22 TK	28.2
23 TK	90.2	25 TK	29.1	26 R1	2.40	27 R2	0.77
28 R5	1.88	29 R4	1.67	30 R3	5.26	36 RT	13.5
34 TT	20.1	35 TT	22.0				

## 16:57:20

0 WS	3.6	1 WD	206.	2 WB	9.5	3 DB	11.2
24 RK	9.9	4 TK	16.8	5 TK	18.7	6 TK	19.7
7 TK	20.6	8 TK	12.1	9 TK	17.8	10 TK	19.7
11 TK	21.6	12 TK	22.5	13 TK	19.7	14 TK	19.7
15 TK	19.7	16 TK	23.5	17 TK	25.3	18 TK	22.5
19 TK	23.5	20 TK	21.6	21 TK	30.0	22 TK	33.8
23 TK	192.8	25 TK	24.4	26 R1	1.75	27 R2	1.00
28 R5	2.32	29 R4	2.32	30 R3	5.55	36 RT	14.7
34 TT	23.7	35 TT	23.0				



## 16:57:21

0 WS	3.2	1 WD	241.	2 WB	9.5	3 DB	11.4
24 RK	9.9	4 TK	17.8	5 TK	20.6	6 TK	21.6
7 TK	19.7	8 TK	11.1	9 TK	18.7	10 TK	19.7
11 TK	20.6	12 TK	21.6	13 TK	19.7	14 TK	19.7
15 TK	20.6	16 TK	24.4	17 TK	24.4	18 TK	23.5
19 TK	25.3	20 TK	26.3	21 TK	34.7	22 TK	75.4
23 TK	230.9	25 TK	22.5	26 R1	1.85	27 R2	0.66
28 R5	2.18	29 R4	2.17	30 R3	5.46	36 RT	13.0
34 TT	21.7	35 TT	21.7				

## 16:57:22

0 WS	2.9	1 WD	240.	2 WB	9.2	3 DB	11.6
24 RK	11.8	4 TK	21.6	5 TK	23.5	6 TK	20.6
7 TK	20.6	8 TK	14.0	9 TK	22.5	10 TK	22.5
11 TK	21.6	12 TK	21.6	13 TK	23.5	14 TK	26.3
15 TK	23.5	16 TK	23.5	17 TK	27.2	18 TK	27.2
19 TK	34.7	20 TK	28.2	21 TK	49.6	22 TK	128.2
23 TK	287.0	25 TK	24.4	26 R1	1.39	27 R2	1.00
28 R5	2.34	29 R4	2.54	30 R3	5.64	36 RT	11.2
34 TT	16.8	35 TT	19.3				

## 16:57:23

0 WS	2.3	1 WD	219.	2 WB	8.9	3 DB	11.5
24 RK	17.5	4 TK	27.2	5 TK	27.2	6 TK	26.3
7 TK	26.3	8 TK	20.6	9 TK	29.1	10 TK	29.1
11 TK	28.2	12 TK	27.2	13 TK	28.2	14 TK	30.0
15 TK	30.0	16 TK	30.0	17 TK	32.9	18 TK	35.7
19 TK	38.5	20 TK	40.3	21 TK	131.9	22 TK	222.4
23 TK	353.9	25 TK	26.3	26 R1	1.30	27 R2	0.96
28 R5	2.39	29 R4	2.56	30 R3	5.62	36 RT	8.5
34 TT	14.7	35 TT	18.6				

## 16:57:24

0 WS	2.1	1 WD	191.	2 WB	9.3	3 DB	11.7
24 RK	12.7	4 TK	21.6	5 TK	22.5	6 TK	25.3
7 TK	22.5	8 TK	14.0	9 TK	23.5	10 TK	23.5
11 TK	23.5	12 TK	23.5	13 TK	27.2	14 TK	28.2
15 TK	24.4	16 TK	28.2	17 TK	32.9	18 TK	34.7
19 TK	37.5	20 TK	31.9	21 TK	206.2	22 TK	279.6
23 TK	392.0	25 TK	21.6	26 R1	1.02	27 R2	0.61
28 R5	2.83	29 R4	2.91	30 R3	5.73	36 RT	7.8
34 TT	13.6	35 TT	18.1				

## 16:57:25

0 WS	2.1	1 WD	211.	2 WB	9.6	3 DB	11.7
24 RK	8.9	4 TK	19.7	5 TK	21.6	6 TK	18.7
7 TK	19.7	8 TK	11.1	9 TK	21.6	10 TK	18.7
11 TK	18.7	12 TK	21.6	13 TK	24.4	14 TK	22.5
15 TK	24.4	16 TK	21.6	17 TK	31.0	18 TK	33.8
19 TK	39.4	20 TK	34.7	21 TK	211.9	22 TK	337.5
23 TK	429.1	25 TK	16.8	26 R1	0.84	27 R2	0.63
28 R5	2.80	29 R4	3.45	30 R3	5.67	36 RT	8.7
34 TT	10.9	35 TT	19.4				





## 16:57:26

0 WS	2.1	1 WD	207.	2 WB	9.5	3 DB	11.1
24 RK	12.7	4 TK	22.5	5 TK	22.5	6 TK	24.4
7 TK	24.4	8 TK	14.0	9 TK	22.5	10 TK	22.5
11 TK	27.2	12 TK	27.2	13 TK	25.3	14 TK	27.2
15 TK	24.4	16 TK	26.3	17 TK	36.6	18 TK	46.8
19 TK	47.8	20 TK	39.4	21 TK	276.8	22 TK	415.5
23 TK	451.6	25 TK	18.7	26 R1	0.93	27 R2	1.07
28 R5	2.96	29 R4	3.04	30 R3	6.04	36 RT	8.3
34 TT	10.4	35 TT	17.5				

## 16:57:27

0 WS	2.2	1 WD	206.	2 WB	9.6	3 DB	11.5
24 RK	15.6	4 TK	23.5	5 TK	25.3	6 TK	25.3
7 TK	27.2	8 TK	17.8	9 TK	25.3	10 TK	27.2
11 TK	27.2	12 TK	32.9	13 TK	31.0	14 TK	31.0
15 TK	29.1	16 TK	35.7	17 TK	98.5	18 TK	132.9
19 TK	73.6	20 TK	58.9	21 TK	351.2	22 TK	490.2
23 TK	469.5	25 TK	21.6	26 R1	1.66	27 R2	0.87
28 R5	3.28	29 R4	3.47	30 R3	5.89	36 RT	7.5
34 TT	11.1	35 TT	19.2				

## 16:57:28

0 WS	2.5	1 WD	199.	2 WB	9.6	3 DB	11.7
24 RK	10.8	4 TK	20.6	5 TK	21.6	6 TK	21.6
7 TK	21.6	8 TK	13.0	9 TK	20.6	10 TK	21.6
11 TK	22.5	12 TK	26.3	13 TK	26.3	14 TK	23.5
15 TK	27.2	16 TK	35.7	17 TK	177.5	18 TK	120.7
19 TK	90.2	20 TK	147.0	21 TK	402.9	22 TK	517.1
23 TK	482.1	25 TK	18.7	26 R1	1.48	27 R2	0.83
28 R5	2.87	29 R4	3.38	30 R3	6.07	36 RT	8.9
34 TT	11.4	35 TT	22.1				

## 16:57:29

0 WS	2.8	1 WD	221.	2 WB	9.5	3 DB	11.7
24 RK	11.8	4 TK	21.6	5 TK	22.5	6 TK	20.6
7 TK	21.6	8 TK	15.9	9 TK	23.5	10 TK	23.5
11 TK	22.5	12 TK	28.2	13 TK	27.2	14 TK	29.1
15 TK	25.3	16 TK	37.5	17 TK	192.8	18 TK	195.7
19 TK	181.3	20 TK	191.9	21 TK	476.7	22 TK	568.1
23 TK	479.4	25 TK	17.8	26 R1	3.68	27 R2	1.33
28 R5	3.01	29 R4	3.47	30 R3	5.64	36 RT	9.8
34 TT	11.3	35 TT	21.9				

## 16:57:30

0 WS	2.7	1 WD	216.	2 WB	9.6	3 DB	11.2
24 RK	14.6	4 TK	24.4	5 TK	25.3	6 TK	22.5
7 TK	24.4	8 TK	15.9	9 TK	25.3	10 TK	29.1
11 TK	28.2	12 TK	31.9	13 TK	31.9	14 TK	31.9
15 TK	31.0	16 TK	45.0	17 TK	254.4	18 TK	173.7
19 TK	190.9	20 TK	205.2	21 TK	563.6	22 TK	606.7
23 TK	482.1	25 TK	18.7	26 R1	2.85	27 R2	1.16
28 R5	3.10	29 R4	3.67	30 R3	5.62	36 RT	11.0
34 TT	10.2	35 TT	24.7				

## 16:57:31

0 WS	2.5	1 WD	214.	2 WB	9.5	3 DB	11.7
24 RK	11.8	4 TK	21.6	5 TK	25.3	6 TK	20.6
7 TK	20.6	8 TK	13.0	9 TK	23.5	10 TK	26.3
11 TK	25.3	12 TK	30.0	13 TK	31.0	14 TK	30.0
15 TK	29.1	16 TK	92.0	17 TK	531.4	18 TK	313.7
19 TK	514.4	20 TK	503.6	21 TK	577.1	22 TK	634.6
23 TK	491.1	25 TK	18.7	26 R1	0.75	27 R2	1.64
28 R5	3.26	29 R4	4.03	30 R3	6.34	36 RT	8.1
34 TT	5.8	35 TT	20.8				

## 16:57:32

0 WS	3.1	1 WD	200.	2 WB	9.6	3 DB	11.4
24 RK	14.6	4 TK	25.3	5 TK	26.3	6 TK	22.5
7 TK	25.3	8 TK	15.9	9 TK	30.0	10 TK	31.0
11 TK	65.3	12 TK	37.5	13 TK	145.1	14 TK	60.7
15 TK	131.0	16 TK	314.6	17 TK	729.0	18 TK	261.0
19 TK	576.2	20 TK	527.8	21 TK	624.7	22 TK	669.8
23 TK	483.9	25 TK	18.7	26 R1	1.21	27 R2	1.70
28 R5	3.79	29 R4	4.47	30 R3	6.45	36 RT	7.0
34 TT	3.4	35 TT	21.3				

## 16:57:33

0 WS	3.5	1 WD	203.	2 WB	9.5	3 DB	11.5
24 RK	11.8	4 TK	21.6	5 TK	24.4	6 TK	20.6
7 TK	23.5	8 TK	14.0	9 TK	31.0	10 TK	27.2
11 TK	58.0	12 TK	36.6	13 TK	322.8	14 TK	57.0
15 TK	109.5	16 TK	462.3	17 TK	938.5	18 TK	545.7
19 TK	738.2	20 TK	654.4	21 TK	658.9	22 TK	694.3
23 TK	474.9	25 TK	15.9	26 R1	1.75	27 R2	1.70
28 R5	3.77	29 R4	4.62	30 R3	6.67	36 RT	9.2
34 TT	4.7	35 TT	25.8				

## 16:57:34

0 WS	4.1	1 WD	209.	2 WB	9.5	3 DB	11.5
24 RK	11.8	4 TK	23.5	5 TK	24.4	6 TK	21.6
7 TK	24.4	8 TK	14.0	9 TK	31.9	10 TK	31.0
11 TK	78.2	12 TK	84.6	13 TK	465.0	14 TK	200.5
15 TK	210.0	16 TK	580.7	17 TK	929.8	18 TK	573.5
19 TK	768.6	20 TK	739.1	21 TK	693.4	22 TK	715.3
23 TK	470.4	25 TK	17.8	26 R1	1.94	27 R2	1.81
28 R5	3.86	29 R4	4.86	30 R3	6.92	36 RT	6.8
34 TT	1.7	35 TT	23.7				

## 16:57:35

0 WS	4.4	1 WD	205.	2 WB	9.5	3 DB	11.7
24 RK	11.8	4 TK	23.5	5 TK	24.4	6 TK	21.6
7 TK	27.2	8 TK	13.0	9 TK	32.9	10 TK	34.7
11 TK	72.7	12 TK	74.5	13 TK	511.7	14 TK	192.8
15 TK	271.2	16 TK	718.9	17 TK	980.2	18 TK	586.0
19 TK	885.8	20 TK	756.5	21 TK	727.2	22 TK	732.7
23 TK	464.1	25 TK	14.9	26 R1	2.40	27 R2	2.06
28 R5	3.95	29 R4	4.82	30 R3	6.94	36 RT	9.2
34 TT	2.8	35 TT	27.5				



## 16:57:36

0 WS	4.3	1 WD	201.	2 WB	9.6	3 DB	11.4
24 RK	8.9	4 TK	21.6	5 TK	23.5	6 TK	20.6
7 TK	26.3	8 TK	11.1	9 TK	95.7	10 TK	166.0
11 TK	242.2	12 TK	64.4	13 TK	637.3	14 TK	198.6
15 TK	385.7	16 TK	852.6	17 TK	1174.9	18 TK	718.0
19 TK	996.9	20 TK	903.9	21 TK	758.4	22 TK	742.8
23 TK	455.2	25 TK	11.1	26 R1	3.95	27 R2	2.47
28 R5	4.78	29 R4	5.57	30 R3	7.55	36 RT	8.7
34 TT	0.9	35 TT	26.7				

## 16:57:37

0 WS	4.1	1 WD	201.	2 WB	9.6	3 DB	11.2
24 RK	13.7	4 TK	147.0	5 TK	29.1	6 TK	44.1
7 TK	43.1	8 TK	15.9	9 TK	131.0	10 TK	137.6
11 TK	229.0	12 TK	63.5	13 TK	601.3	14 TK	276.8
15 TK	437.2	16 TK	953.0	17 TK	1161.4	18 TK	697.9
19 TK	965.6	20 TK	932.7	21 TK	791.7	22 TK	763.0
23 TK	457.0	25 TK	18.7	26 R1	3.77	27 R2	2.73
28 R5	4.46	29 R4	5.53	30 R3	8.04	36 RT	7.8
34 TT	-0.7	35 TT	25.9				

## 16:57:38

0 WS	4.0	1 WD	207.	2 WB	9.3	3 DB	11.3
24 RK	11.8	4 TK	110.5	5 TK	27.2	6 TK	40.3
7 TK	35.7	8 TK	14.0	9 TK	106.8	10 TK	144.2
11 TK	282.3	12 TK	108.6	13 TK	687.0	14 TK	266.6
15 TK	426.4	16 TK	833.8	17 TK	1182.1	18 TK	802.9
19 TK	941.4	20 TK	993.9	21 TK	808.5	22 TK	763.9
23 TK	449.8	25 TK	13.0	26 R1	3.68	27 R2	2.86
28 R5	4.55	29 R4	5.90	30 R3	8.10	36 RT	8.9
34 TT	-0.9	35 TT	28.9				

## 16:57:39

0 WS	4.1	1 WD	208.	2 WB	9.4	3 DB	11.7
24 RK	8.9	4 TK	97.5	5 TK	27.2	6 TK	56.1
7 TK	30.0	8 TK	11.1	9 TK	87.4	10 TK	160.3
11 TK	356.6	12 TK	88.3	13 TK	676.1	14 TK	312.8
15 TK	490.2	16 TK	870.6	17 TK	1127.6	18 TK	814.1
19 TK	943.3	20 TK	902.0	21 TK	833.8	22 TK	769.5
23 TK	440.8	25 TK	11.1	26 R1	3.04	27 R2	2.73
28 R5	4.46	29 R4	5.70	30 R3	8.30	36 RT	8.7
34 TT	-2.2	35 TT	27.8				

## 16:57:40

0 WS	3.9	1 WD	209.	2 WB	9.4	3 DB	11.8
24 RK	12.7	4 TK	76.4	5 TK	31.9	6 TK	52.4
7 TK	31.9	8 TK	14.9	9 TK	74.5	10 TK	178.5
11 TK	392.0	12 TK	96.6	13 TK	601.3	14 TK	392.0
15 TK	519.7	16 TK	892.5	17 TK	1120.5	18 TK	812.2
19 TK	979.3	20 TK	915.4	21 TK	863.0	22 TK	778.7
23 TK	445.3	25 TK	14.0	26 R1	2.58	27 R2	2.67
28 R5	4.32	29 R4	5.49	30 R3	7.95	36 RT	9.5
34 TT	-2.2	35 TT	28.0				

16:57:41

0 WS	3.8	1 WD	203.	2 WB	9.5	3 DB	11.3
24 RK	15.6	4 TK	66.2	5 TK	32.9	6 TK	55.2
7 TK	32.9	8 TK	18.7	9 TK	64.4	10 TK	136.6
11 TK	301.7	12 TK	83.7	13 TK	556.5	14 TK	368.5
15 TK	468.6	16 TK	873.4	17 TK	1088.2	18 TK	880.1
19 TK	990.0	20 TK	914.5	21 TK	881.0	22 TK	788.0
23 TK	438.1	25 TK	18.7	26 R1	2.67	27 R2	2.36
28 R5	4.27	29 R4	5.44	30 R3	7.70	36 RT	9.7
34 TT	-2.5	35 TT	28.1				

16:57:42

0 WS	3.8	1 WD	203.	2 WB	9.3	3 DB	11.6
24 RK	12.7	4 TK	50.6	5 TK	33.8	6 TK	40.3
7 TK	27.2	8 TK	14.0	9 TK	50.6	10 TK	104.9
11 TK	348.4	12 TK	69.0	13 TK	577.1	14 TK	288.8
15 TK	479.4	16 TK	864.9	17 TK	1151.2	18 TK	733.6
19 TK	938.5	20 TK	884.8	21 TK	894.4	22 TK	788.9
23 TK	433.6	25 TK	13.0	26 R1	3.49	27 R2	2.36
28 R5	4.20	29 R4	5.36	30 R3	6.69	36 RT	14.5
34 TT	1.2	35 TT	31.6				

16:57:43

0 WS	3.8	1 WD	207.	2 WB	9.5	3 DB	11.9
24 RK	16.5	4 TK	48.7	5 TK	35.7	6 TK	39.4
7 TK	30.0	8 TK	17.8	9 TK	46.8	10 TK	96.6
11 TK	274.0	12 TK	65.3	13 TK	480.3	14 TK	222.4
15 TK	357.5	16 TK	661.7	17 TK	1040.3	18 TK	816.0
19 TK	960.8	20 TK	972.4	21 TK	909.7	22 TK	797.3
23 TK	433.6	25 TK	19.7	26 R1	3.04	27 R2	2.23
28 R5	4.39	29 R4	4.75	30 R3	6.45	36 RT	8.9
34 TT	-3.1	35 TT	25.8				

16:57:44

0 WS	3.6	1 WD	196.	2 WB	9.4	3 DB	11.8
24 RK	13.7	4 TK	37.5	5 TK	32.9	6 TK	31.9
7 TK	25.3	8 TK	14.9	9 TK	43.1	10 TK	189.0
11 TK	396.6	12 TK	58.9	13 TK	352.1	14 TK	296.2
15 TK	409.2	16 TK	586.0	17 TK	940.4	18 TK	695.2
19 TK	848.8	20 TK	953.0	21 TK	936.6	22 TK	800.1
23 TK	435.4	25 TK	14.0	26 R1	1.75	27 R2	1.97
28 R5	4.16	29 R4	5.01	30 R3	7.16	36 RT	12.0
34 TT	-0.1	35 TT	28.6				

16:57:45

0 WS	3.7	1 WD	208.	2 WB	9.5	3 DB	11.5
24 RK	9.9	4 TK	29.1	5 TK	29.1	6 TK	27.2
7 TK	23.5	8 TK	11.1	9 TK	62.6	10 TK	150.8
11 TK	355.7	12 TK	47.8	13 TK	285.1	14 TK	226.2
15 TK	417.3	16 TK	764.9	17 TK	880.1	18 TK	546.6
19 TK	698.9	20 TK	938.5	21 TK	948.2	22 TK	803.8
23 TK	437.2	25 TK	9.2	26 R1	0.84	27 R2	1.81
28 R5	4.20	29 R4	5.25	30 R3	7.41	36 RT	13.6
34 TT	4.0	35 TT	31.6				



16:57:46

0 WS	3.6	1 WD	208.	2 WB	9.3	3 DB	11.5
24 RK	9.9	4 TK	29.1	5 TK	30.0	6 TK	25.3
7 TK	22.5	8 TK	11.1	9 TK	58.9	10 TK	141.3
11 TK	386.6	12 TK	45.0	13 TK	232.8	14 TK	171.8
15 TK	481.2	16 TK	740.0	17 TK	1049.2	18 TK	602.2
19 TK	977.3	20 TK	1031.3	21 TK	963.7	22 TK	812.2
23 TK	430.0	25 TK	10.2	26 R1	1.85	27 R2	2.25
28 R5	4.34	29 R4	5.25	30 R3	7.90	36 RT	9.3
34 TT	-3.9	35 TT	24.1				

16:57:47

0 WS	3.6	1 WD	207.	2 WB	9.1	3 DB	11.8
24 RK	17.5	4 TK	36.6	5 TK	39.4	6 TK	31.0
7 TK	33.8	8 TK	19.7	9 TK	57.0	10 TK	158.4
11 TK	348.4	12 TK	55.2	13 TK	343.0	14 TK	179.4
15 TK	487.5	16 TK	759.3	17 TK	1100.3	18 TK	762.1
19 TK	1079.1	20 TK	1011.6	21 TK	983.2	22 TK	825.3
23 TK	439.0	25 TK	19.7	26 R1	3.04	27 R2	2.29
28 R5	4.36	29 R4	5.44	30 R3	7.97	36 RT	10.8
34 TT	-1.6	35 TT	26.6				

16:57:48

0 WS	3.7	1 WD	203.	2 WB	9.4	3 DB	11.4
24 RK	13.7	4 TK	29.1	5 TK	35.7	6 TK	27.2
7 TK	30.0	8 TK	14.9	9 TK	51.5	10 TK	202.4
11 TK	411.0	12 TK	49.6	13 TK	428.2	14 TK	278.6
15 TK	604.9	16 TK	863.0	17 TK	1094.2	18 TK	814.1
19 TK	984.2	20 TK	1013.6	21 TK	981.2	22 TK	807.6
23 TK	437.2	25 TK	12.1	26 R1	1.57	27 R2	2.56
28 R5	4.55	29 R4	5.75	30 R3	8.64	36 RT	8.7
34 TT	-6.0	35 TT	26.1				

16:57:49

0 WS	3.8	1 WD	221.	2 WB	9.4	3 DB	11.5
24 RK	10.8	4 TK	25.3	5 TK	36.6	6 TK	24.4
7 TK	30.0	8 TK	11.1	9 TK	43.1	10 TK	148.9
11 TK	304.5	12 TK	48.7	13 TK	363.9	14 TK	268.4
15 TK	507.2	16 TK	803.8	17 TK	1081.2	18 TK	898.2
19 TK	941.4	20 TK	1026.4	21 TK	989.0	22 TK	933.7
23 TK	439.9	25 TK	13.0	26 R1	3.86	27 R2	3.02
28 R5	4.48	29 R4	5.53	30 R3	8.57	36 RT	8.5
34 TT	-5.8	35 TT	24.1				

16:57:50

0 WS	3.6	1 WD	215.	2 WB	9.3	3 DB	11.8
24 RK	9.9	4 TK	21.6	5 TK	32.9	6 TK	24.4
7 TK	28.2	8 TK	13.0	9 TK	88.3	10 TK	220.5
11 TK	422.8	12 TK	141.3	13 TK	537.6	14 TK	429.1
15 TK	647.2	16 TK	816.0	17 TK	1122.6	18 TK	824.4
19 TK	1005.7	20 TK	1021.5	21 TK	992.0	22 TK	814.1
23 TK	448.0	25 TK	4.4	26 R1	2.03	27 R2	3.39
28 R5	4.98	29 R4	5.70	30 R3	8.46	36 RT	7.6
34 TT	-7.1	35 TT	23.4				



## 16:57:51

0 WS	3.6	1 WD	221.	2 WB	9.4	3 DB	11.6
24 RK	8.0	4 TK	21.6	5 TK	31.9	6 TK	38.5
7 TK	28.2	8 TK	9.2	9 TK	103.1	10 TK	282.3
11 TK	382.1	12 TK	118.8	13 TK	586.9	14 TK	328.3
15 TK	593.2	16 TK	821.6	17 TK	1098.3	18 TK	845.1
19 TK	1037.3	20 TK	1066.1	21 TK	995.9	22 TK	1197.8
23 TK	451.6	25 TK	6.3	26 R1	1.75	27 R2	3.02
28 R5	4.55	29 R4	5.73	30 R3	8.71	36 RT	10.5
34 TT	-7.0	35 TT	24.1				

## 16:57:52

0 WS	3.6	1 WD	213.	2 WB	9.3	3 DB	11.2
24 RK	8.9	4 TK	22.5	5 TK	31.0	6 TK	29.1
7 TK	16.8	8 TK	10.2	9 TK	76.4	10 TK	261.9
11 TK	469.5	12 TK	198.6	13 TK	518.8	14 TK	445.3
15 TK	641.8	16 TK	874.4	17 TK	1130.7	18 TK	793.6
19 TK	1004.7	20 TK	1077.1	21 TK	997.9	22 TK	813.2
23 TK	450.7	25 TK	7.3	26 R1	2.58	27 R2	2.65
28 R5	5.28	29 R4	6.36	30 R3	8.24	36 RT	8.5
34 TT	-10.0	35 TT	21.2				

## 16:57:53

0 WS	3.6	1 WD	212.	2 WB	9.2	3 DB	11.7
24 RK	11.8	4 TK	27.2	5 TK	32.9	6 TK	31.0
7 TK	21.6	8 TK	14.9	9 TK	79.1	10 TK	281.4
11 TK	432.7	12 TK	163.2	13 TK	447.1	14 TK	378.4
15 TK	636.4	16 TK	954.0	17 TK	1161.4	18 TK	915.4
19 TK	1141.9	20 TK	1131.7	21 TK	1003.8	22 TK	865.9
23 TK	448.0	25 TK	9.2	26 R1	2.30	27 R2	3.32
28 R5	4.82	29 R4	5.83	30 R3	8.17	36 RT	7.0
34 TT	-10.7	35 TT	21.4				

## 16:57:54

0 WS	3.4	1 WD	209.	2 WB	9.4	3 DB	11.7
24 RK	9.9	4 TK	25.3	5 TK	36.6	6 TK	38.5
7 TK	29.1	8 TK	12.1	9 TK	96.6	10 TK	319.2
11 TK	522.4	12 TK	128.2	13 TK	418.2	14 TK	534.1
15 TK	762.1	16 TK	959.8	17 TK	1176.9	18 TK	1004.7
19 TK	1245.3	20 TK	1186.3	21 TK	1002.8	22 TK	941.4
23 TK	455.2	25 TK	9.2	26 R1	2.49	27 R2	3.26
28 R5	4.69	29 R4	6.01	30 R3	8.24	36 RT	10.3
34 TT	-9.4	35 TT	24.0				

## 16:57:55

0 WS	3.2	1 WD	211.	2 WB	9.2	3 DB	11.7
24 RK	13.7	4 TK	36.6	5 TK	53.3	6 TK	64.4
7 TK	58.9	8 TK	14.9	9 TK	104.9	10 TK	313.7
11 TK	476.7	12 TK	110.5	13 TK	408.3	14 TK	468.6
15 TK	651.7	16 TK	974.4	17 TK	1165.6	18 TK	1046.2
19 TK	1132.7	20 TK	1186.3	21 TK	1018.5	22 TK	890.5
23 TK	461.5	25 TK	9.2	26 R1	1.57	27 R2	3.06
28 R5	4.71	29 R4	6.03	30 R3	8.40	36 RT	8.3
34 TT	-9.7	35 TT	20.5				



## 16:57:56

0 WS	2.9	1 WD	203.	2 WB	9.0	3 DB	11.8
24 RK	11.8	4 TK	37.5	5 TK	44.1	6 TK	58.9
7 TK	40.3	8 TK	13.0	9 TK	81.0	10 TK	319.2
11 TK	586.9	12 TK	307.2	13 TK	370.3	14 TK	556.5
15 TK	776.9	16 TK	1045.2	17 TK	1208.2	18 TK	1004.7
19 TK	1200.9	20 TK	1185.3	21 TK	1010.6	22 TK	923.1
23 TK	461.5	25 TK	7.3	26 R1	2.94	27 R2	3.06
28 R5	4.59	29 R4	5.94	30 R3	8.11	36 RT	11.1
34 TT	-8.0	35 TT	22.7				

## 16:57:57

0 WS	2.9	1 WD	207.	2 WB	9.4	3 DB	11.3
24 RK	12.7	4 TK	30.0	5 TK	52.4	6 TK	45.9
7 TK	114.2	8 TK	15.9	9 TK	147.0	10 TK	341.1
11 TK	525.1	12 TK	456.1	13 TK	467.7	14 TK	588.7
15 TK	715.3	16 TK	880.1	17 TK	1067.1	18 TK	1093.2
19 TK	1233.6	20 TK	1122.6	21 TK	1012.6	22 TK	808.5
23 TK	475.8	25 TK	11.1	26 R1	4.96	27 R2	3.24
28 R5	4.46	29 R4	5.77	30 R3	8.60	36 RT	9.4
34 TT	-10.9	35 TT	21.3				

## 16:57:58

0 WS	3.2	1 WD	208.	2 WB	9.3	3 DB	11.2
24 RK	14.6	4 TK	29.1	5 TK	45.0	6 TK	38.5
7 TK	90.2	8 TK	16.8	9 TK	162.2	10 TK	332.0
11 TK	577.1	12 TK	404.7	13 TK	492.0	14 TK	552.9
15 TK	707.1	16 TK	882.9	17 TK	1238.9	18 TK	927.9
19 TK	1149.1	20 TK	1207.2	21 TK	1010.6	22 TK	949.2
23 TK	469.5	25 TK	9.2	26 R1	3.13	27 R2	3.69
28 R5	4.89	29 R4	6.01	30 R3	7.74	36 RT	10.0
34 TT	-11.2	35 TT	21.6				

## 16:57:59

0 WS	3.6	1 WD	210.	2 WB	9.4	3 DB	11.4
24 RK	13.7	4 TK	31.9	5 TK	45.9	6 TK	44.1
7 TK	69.0	8 TK	16.8	9 TK	141.3	10 TK	363.0
11 TK	662.6	12 TK	359.4	13 TK	555.6	14 TK	560.0
15 TK	759.3	16 TK	922.1	17 TK	1204.0	18 TK	960.8
19 TK	1073.1	20 TK	1150.1	21 TK	1010.6	22 TK	983.2
23 TK	474.9	25 TK	7.3	26 R1	4.77	27 R2	3.65
28 R5	4.50	29 R4	5.83	30 R3	8.44	36 RT	11.7
34 TT	-10.2	35 TT	24.1				

## 16:58:00

0 WS	3.5	1 WD	208.	2 WB	9.4	3 DB	11.1
24 RK	10.8	4 TK	52.4	5 TK	76.4	6 TK	76.4
7 TK	119.8	8 TK	12.1	9 TK	151.8	10 TK	429.1
11 TK	640.0	12 TK	330.2	13 TK	572.6	14 TK	606.7
15 TK	713.4	16 TK	1033.3	17 TK	1279.7	18 TK	958.8
19 TK	1055.2	20 TK	1278.6	21 TK	1009.6	22 TK	-572.7
23 TK	481.2	25 TK	9.2	26 R1	4.59	27 R2	3.47
28 R5	4.52	29 R4	5.88	30 R3	8.19	36 RT	8.6
34 TT	-11.3	35 TT	19.4				

## 16:58:01

0 WS	3.5	1 WD	215.	2 WB	9.4	3 DB	11.3
24 RK	13.7	4 TK	55.2	5 TK	72.7	6 TK	71.8
7 TK	123.5	8 TK	14.0	9 TK	170.8	10 TK	503.6
11 TK	709.8	12 TK	349.3	13 TK	541.2	14 TK	739.1
15 TK	765.8	16 TK	1131.7	17 TK	1290.6	18 TK	958.8
19 TK	1118.5	20 TK	1269.9	21 TK	1001.8	22 TK	822.5
23 TK	492.9	25 TK	9.2	26 R1	3.58	27 R2	3.87
28 R5	4.82	29 R4	5.73	30 R3	6.83	36 RT	8.8
34 TT	-12.6	35 TT	21.3				

## 16:58:02

0 WS	3.3	1 WD	209.	2 WB	9.1	3 DB	11.7
24 RK	9.9	4 TK	42.2	5 TK	82.8	6 TK	49.6
7 TK	183.2	8 TK	13.0	9 TK	244.1	10 TK	481.2
11 TK	599.5	12 TK	263.8	13 TK	618.4	14 TK	625.6
15 TK	741.8	16 TK	976.3	17 TK	1192.5	18 TK	967.6
19 TK	1149.1	20 TK	-572.7	21 TK	1040.3	22 TK	1148.1
23 TK	418.2	25 TK	6.3	26 R1	4.41	27 R2	2.64
28 R5	5.05	29 R4	5.79	30 R3	6.74	36 RT	13.4
34 TT	-9.0	35 TT	26.4				

## 16:58:03

0 WS	3.3	1 WD	205.	2 WB	9.0	3 DB	11.6
24 RK	10.8	4 TK	43.1	5 TK	76.4	6 TK	57.0
7 TK	132.9	8 TK	13.0	9 TK	199.5	10 TK	364.8
11 TK	507.2	12 TK	206.2	13 TK	520.6	14 TK	458.8
15 TK	595.0	16 TK	890.5	17 TK	1124.6	18 TK	878.2
19 TK	1129.7	20 TK	-572.7	21 TK	1041.2	22 TK	992.0
23 TK	313.7	25 TK	6.3	26 R1	1.39	27 R2	2.53
28 R5	4.71	29 R4	5.40	30 R3	5.51	36 RT	10.3
34 TT	-12.8	35 TT	23.0				

## 16:58:04

0 WS	3.4	1 WD	199.	2 WB	9.0	3 DB	11.6
24 RK	11.8	4 TK	69.9	5 TK	117.0	6 TK	78.2
7 TK	186.1	8 TK	13.0	9 TK	256.3	10 TK	332.0
11 TK	506.3	12 TK	226.2	13 TK	441.7	14 TK	568.1
15 TK	579.8	16 TK	678.0	17 TK	1046.2	18 TK	793.6
19 TK	1013.6	20 TK	1309.2	21 TK	956.9	22 TK	-572.7
23 TK	143.2	25 TK	7.3	26 R1	2.21	27 R2	2.17
28 R5	3.19	29 R4	3.54	30 R3	2.78	36 RT	8.5
34 TT	-13.5	35 TT	21.4				

## 16:58:05

0 WS	3.5	1 WD	197.	2 WB	9.1	3 DB	11.6
24 RK	13.7	4 TK	59.8	5 TK	94.8	6 TK	63.5
7 TK	120.7	8 TK	16.8	9 TK	211.0	10 TK	228.1
11 TK	362.1	12 TK	166.0	13 TK	303.6	14 TK	411.9
15 TK	417.3	16 TK	445.3	17 TK	631.0	18 TK	421.9
19 TK	458.8	20 TK	-572.7	21 TK	851.7	22 TK	689.8
23 TK	82.8	25 TK	10.2	26 R1	-0.34	27 R2	1.70
28 R5	2.00	29 R4	1.74	30 R3	1.41	36 RT	8.0
34 TT	-15.5	35 TT	18.2				





16:58:06

0 WS	3.6	1 WD	201.	2 WB	9.4	3 DB	11.2
24 RK	14.6	4 TK	44.1	5 TK	73.6	6 TK	45.9
7 TK	84.6	8 TK	16.8	9 TK	154.6	10 TK	152.7
11 TK	251.6	12 TK	122.6	13 TK	218.6	14 TK	299.0
15 TK	304.5	16 TK	275.9	17 TK	310.9	18 TK	249.7
19 TK	229.0	20 TK	-572.7	21 TK	786.2	22 TK	681.6
23 TK	49.6	25 TK	10.2	26 R1	0.47	27 R2	1.00
28 R5	1.26	29 R4	1.52	30 R3	0.83	36 RT	12.6
34 TT	-11.7	35 TT	23.2				

16:58:07

0 WS	3.4	1 WD	206.	2 WB	9.3	3 DB	11.6
24 RK	15.6	4 TK	32.9	5 TK	55.2	6 TK	32.9
7 TK	53.3	8 TK	17.8	9 TK	108.6	10 TK	105.8
11 TK	173.7	12 TK	95.7	13 TK	149.9	14 TK	224.3
15 TK	207.1	16 TK	134.7	17 TK	93.8	18 TK	71.8
19 TK	62.6	20 TK	-572.7	21 TK	747.4	22 TK	571.7
23 TK	30.0	25 TK	11.1	26 R1	0.57	27 R2	0.61
28 R5	1.19	29 R4	1.24	30 R3	0.89	36 RT	10.3
34 TT	-14.9	35 TT	19.9				

16:58:08

0 WS	3.4	1 WD	207.	2 WB	9.4	3 DB	11.6
24 RK	15.6	4 TK	25.3	5 TK	45.0	6 TK	25.3
7 TK	39.4	8 TK	18.7	9 TK	77.3	10 TK	76.4
11 TK	113.3	12 TK	71.8	13 TK	107.7	14 TK	144.2
15 TK	153.7	16 TK	69.9	17 TK	36.6	18 TK	33.8
19 TK	28.2	20 TK	-572.7	21 TK	679.8	22 TK	514.4
23 TK	7.3	25 TK	8.3	26 R1	1.02	27 R2	1.09
28 R5	1.06	29 R4	0.80	30 R3	0.85	36 RT	9.4
34 TT	-16.7	35 TT	19.2				

16:58:09

0 WS	3.7	1 WD	207.	2 WB	9.3	3 DB	11.6
24 RK	12.7	4 TK	19.7	5 TK	39.4	6 TK	21.6
7 TK	29.1	8 TK	14.0	9 TK	55.2	10 TK	54.3
11 TK	78.2	12 TK	50.6	13 TK	80.0	14 TK	93.8
15 TK	117.9	16 TK	41.3	17 TK	27.2	18 TK	27.2
19 TK	23.5	20 TK	103.1	21 TK	650.8	22 TK	449.8
23 TK	0.6	25 TK	10.2	26 R1	0.57	27 R2	0.66
28 R5	0.64	29 R4	0.39	30 R3	0.78	36 RT	10.5
34 TT	-14.1	35 TT	20.3				

16:58:10

0 WS	3.7	1 WD	215.	2 WB	9.4	3 DB	11.5
24 RK	11.8	4 TK	17.8	5 TK	38.5	6 TK	21.6
7 TK	28.2	8 TK	14.0	9 TK	43.1	10 TK	42.2
11 TK	55.2	12 TK	40.3	13 TK	60.7	14 TK	68.1
15 TK	89.2	16 TK	28.2	17 TK	27.2	18 TK	21.6
19 TK	18.7	20 TK	678.9	21 TK	606.7	22 TK	368.5
23 TK	-18.0	25 TK	7.3	26 R1	0.75	27 R2	0.57
28 R5	0.71	29 R4	0.33	30 R3	0.43	36 RT	8.8
34 TT	-18.7	35 TT	19.1				



## 16:58:11

0 WS	3.6	1 WD	213.	2 WB	9.2	3 DB	11.6
24 RK	9.9	4 TK	14.9	5 TK	32.9	6 TK	16.8
7 TK	21.6	8 TK	11.1	9 TK	36.6	10 TK	35.7
11 TK	44.1	12 TK	35.7	13 TK	45.9	14 TK	55.2
15 TK	77.3	16 TK	23.5	17 TK	23.5	18 TK	16.8
19 TK	17.8	20 TK	101.2	21 TK	578.0	22 TK	85.6
23 TK	-10.1	25 TK	-2.3	26 R1	1.02	27 R2	0.87
28 R5	0.76	29 R4	0.37	30 R3	0.34	36 RT	11.1
34 TT	-16.4	35 TT	22.4				

## 16:58:12

0 WS	3.4	1 WD	205.	2 WB	9.0	3 DB	11.6
24 RK	8.0	4 TK	12.1	5 TK	31.0	6 TK	15.9
7 TK	18.7	8 TK	10.2	9 TK	31.0	10 TK	28.2
11 TK	34.7	12 TK	26.3	13 TK	37.5	14 TK	39.4
15 TK	66.2	16 TK	18.7	17 TK	21.6	18 TK	18.7
19 TK	19.7	20 TK	75.4	21 TK	832.8	22 TK	57.0
23 TK	4.4	25 TK	-5.2	26 R1	-0.52	27 R2	0.74
28 R5	0.94	29 R4	0.46	30 R3	0.65	36 RT	12.3
34 TT	-17.6	35 TT	23.3				

## 16:58:13

0 WS	3.2	1 WD	205.	2 WB	9.0	3 DB	11.6
24 RK	11.8	4 TK	16.8	5 TK	34.7	6 TK	17.8
7 TK	21.6	8 TK	13.0	9 TK	29.1	10 TK	28.2
11 TK	31.0	12 TK	27.2	13 TK	35.7	14 TK	37.5
15 TK	65.3	16 TK	20.6	17 TK	24.4	18 TK	23.5
19 TK	24.4	20 TK	76.4	21 TK	492.0	22 TK	63.5
23 TK	17.8	25 TK	0.6	26 R1	-1.25	27 R2	0.44
28 R5	0.64	29 R4	0.48	30 R3	0.32	36 RT	8.0
34 TT	-23.7	35 TT	18.4				

## 16:58:14

0 WS	3.0	1 WD	204.	2 WB	9.3	3 DB	11.6
24 RK	16.5	4 TK	21.6	5 TK	37.5	6 TK	24.4
7 TK	25.3	8 TK	16.8	9 TK	31.9	10 TK	30.0
11 TK	31.0	12 TK	30.0	13 TK	38.5	14 TK	33.8
15 TK	61.6	16 TK	26.3	17 TK	27.2	18 TK	25.3
19 TK	29.1	20 TK	92.0	21 TK	457.9	22 TK	55.2
23 TK	24.4	25 TK	2.5	26 R1	-0.61	27 R2	0.63
28 R5	0.57	29 R4	0.69	30 R3	0.67	36 RT	18.2
34 TT	-13.5	35 TT	27.9				

## 16:58:15

0 WS	3.5	1 WD	211.	2 WB	9.1	3 DB	11.6
24 RK	9.9	4 TK	15.9	5 TK	31.9	6 TK	14.9
7 TK	18.7	8 TK	14.9	9 TK	23.5	10 TK	20.6
11 TK	23.5	12 TK	21.6	13 TK	24.4	14 TK	27.2
15 TK	50.6	16 TK	20.6	17 TK	21.6	18 TK	20.6
19 TK	20.6	20 TK	-572.7	21 TK	447.1	22 TK	45.9
23 TK	12.1	25 TK	-5.2	26 R1	1.85	27 R2	0.79
28 R5	0.60	29 R4	0.54	30 R3	0.72	36 RT	9.2
34 TT	-23.5	35 TT	20.1				



16:58:16

0 WS	3.8	1 WD	212.	2 WB	9.3	3 DB	11.4
24 RK	10.8	4 TK	16.8	5 TK	31.0	6 TK	14.9
7 TK	20.6	8 TK	14.9	9 TK	22.5	10 TK	19.7
11 TK	24.4	12 TK	22.5	13 TK	23.5	14 TK	24.4
15 TK	46.8	16 TK	18.7	17 TK	27.2	18 TK	25.3
19 TK	16.8	20 TK	-572.7	21 TK	438.1	22 TK	35.7
23 TK	6.3	25 TK	2.5	26 R1	-1.07	27 R2	0.41
28 R5	1.03	29 R4	0.37	30 R3	0.23	36 RT	9.3
34 TT	-23.4	35 TT	19.3				

16:58:17

0 WS	3.8	1 WD	214.	2 WB	9.1	3 DB	11.6
24 RK	14.6	4 TK	19.7	5 TK	36.6	6 TK	22.5
7 TK	23.5	8 TK	15.9	9 TK	30.0	10 TK	24.4
11 TK	24.4	12 TK	28.2	13 TK	26.3	14 TK	25.3
15 TK	53.3	16 TK	21.6	17 TK	22.5	18 TK	29.1
19 TK	26.3	20 TK	-84.5	21 TK	432.7	22 TK	41.3
23 TK	9.2	25 TK	0.6	26 R1	1.02	27 R2	0.53
28 R5	0.67	29 R4	0.93	30 R3	0.58	36 RT	9.7
34 TT	-21.3	35 TT	21.2				



## NBS BOFST PRESSURE RECORDINGS

Acronym	Description	Units
GO	Gas Orifice	psig
WO	Water Orifice	psig
RO	Restriction Orifice	psig
WP	Water Line (near nozzle(s))	psig
GΔP	Gas Differential Pressure	inches of water
WΔP	Water Differential Pressure	inches of water
RΔP	Restriction Orifice Differential Pressure	inches of water

First  is at time of ignition.

Second  is at time of water injection.

Time corresponds to times of data acquisition system.



TEST 1

Time	GO	WO	RO	WP	GAP	WAP	RAP
16:57:19	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16:57:20	0.5	0.0	0.0	0.0	8.4	0.0	6.3
16:57:21	5.0	1.0	0.5	0.0	10.0	0.0	8.4
16:57:22	6.0	2.0	5.5	0.0	12.0	0.0	13.0
16:57:23	7.5	3.0	6.5	0.0	15.0	0.0	20.0
16:57:24	9.0	4.5	8.0	0.0	20.0	0.0	27.0
16:57:25	12.5	5.5	9.5	1.0	25.0	0.0	34.0
16:57:26	15.0	7.0	11.0	1.5	27.0	0.0	42.0
16:57:27	17.0	8.5	12.5	3.0	29.0	0.0	50.0
16:57:28	20.0	10.0	14.5	4.0	33.0	0.0	58.0
16:57:29	24.0	12.0	16.5	5.5	39.0	0.0	66.0
16:57:30	28.0	14.0	20.0	7.5	50.0	0.0	74.0
16:57:31	31.0	16.5	25.0	10.0	60.0	0.0	82.0
16:57:32	36.0	19.0	28.0	12.5	63.0	0.0	90.0
16:57:33	40.0	23.0	30.0	17.5	70.0	0.0	97.0
16:57:34	45.0	28.0	34.0	27.0	78.0	0.0	105.0
16:57:35	47.0	34.0	36.0	31.0	82.0	0.0	112.0
16:57:36	47.5	38.0	34.0	38.0	82.0	0.0	119.0
16:57:37	39.0	40.0	42.5	40.0	81.0	0.0	125.0
16:57:38	34.0	42.0	42.0	40.5	75.0	0.0	131.0
16:57:39	33.0	43.0	38.5	37.0	68.0	0.0	136.0
16:57:40	31.0	38.0	33.0	35.0	61.0	0.0	141.0
16:57:41	31.0	34.0	31.5	32.0	55.0	0.0	146.0
16:57:42	31.5	31.0	30.5	29.0	54.0	0.0	151.0
16:57:43	38.0	29.0	29.0	28.0	55.0	0.0	157.0
16:57:44	41.0	21.5	30.0	27.5	62.0	0.0	163.0
16:57:45	44.0	31.0	34.0	29.0	69.0	0.0	169.0
16:57:46	45.5	33.0	37.0	36.0	76.0	0.0	175.0
16:57:47	47.0	37.0	39.5	38.0	77.0	0.0	181.0
16:57:48	47.5	40.0	42.5	40.0	78.0	0.0	187.0
16:57:49	48.0	41.0	43.5	41.0	80.0	0.0	193.0
16:57:50	47.5	42.0	44.0	41.0	81.0	0.0	199.0
16:57:51	48.0	41.0	44.0	41.0	82.0	0.0	205.0
16:57:52	48.0	37.0	44.0	36.5	82.0	0.0	*
16:57:53	48.0	40.0	44.0	41.0	81.0	0.0	
16:57:54	48.0	43.0	44.0	41.0	80.0	0.0	
16:57:55	48.0	43.0	44.0	41.0	80.0	0.0	
16:57:56	48.0	43.5	44.0	42.0	79.0	0.0	
16:57:57	47.5	43.5	44.0	42.0	78.0	0.0	
16:57:58	47.5	43.5	44.0	42.5	78.0	0.0	
16:57:59	47.5	49.0	43.5	43.0	77.0	0.0	
16:58:00	48.5	58.0	43.5	86.0	76.0	0.0	

\* Above range.



TEST 1  
(Continued)

Time	GO	WO	RO	WP	GAP	WAP	RAP
16:58:01	49.0	63.0	43.5	146.0	73.0	0.0	
16:58:02	49.0	70.0	45.0	71.0	71.0	0.0	
16:58:03	48.5	79.0	45.5	117.0	71.0	0.0	
16:58:04	49.0	91.0	46.0	89.0	71.0	0.0	
16:58:05	49.0	100.0	46.0	101.0	70.0	0.0	
16:58:06	49.0	88.0	46.0	89.0	70.0	0.0	
16:58:07	48.5	84.0	45.0	101.0	70.0	0.0	
16:58:08	35.0	91.0	33.0	106.0	60.0	0.0	



**APPENDIX F**

**TEST NUMBER 2**

**DATA ACQUISITION RECORDINGS AND PRESSURE READINGS**



NBS BOFST CHANNEL ASSIGNMENT

Channel	Acronym	Description	Units	Location
0	WS	Wind Speed	mph	Met Tower (10 m)
1	WD	Wind Direction	° from N	Met Tower (10 m)
2	WB	Wet Bulb	°C	Met Tower (10 m)
3	DB	Dry Bulb	°C	Met Tower (10 m)
4	KT	K Thermocouple	°C	Cable Array (#1)
5	KT	K Thermocouple	°C	Cable Array (#2)
6	KT	K Thermocouple	°C	Cable Array (#3)
7	KT	K Thermocouple	°C	Cable Array (#4)
8	KT	K Thermocouple	°C	Cable Array (#5)
9	KT	K Thermocouple	°C	Cable Array (#6)
10	KT	K Thermocouple	°C	Cable Array (#7)
11	KT	K Thermocouple	°C	Cable Array (#8)
12	KT	K Thermocouple	°C	Cable Array (#9)
13	KT	K Thermocouple	°C	Cable Array (#10)
14	KT	K Thermocouple	°C	Cable Array (#11)
15	KT	K Thermocouple	°C	Cable Array (#12)
16	KT	K Thermocouple	°C	Cable Array (#13)
17	KT	K Thermocouple	°C	Cable Array (#14)
18	KT	K Thermocouple	°C	Cable Array (#15)
19	KT	K Thermocouple	°C	Cable Array (#16)
20	KT	K Thermocouple	°C	Cable Array (#17)
21	KT	K Thermocouple	°C	Cable Array (#18)
22	KT	K Thermocouple	°C	Cable Array (#19)
23	KT	K Thermocouple	°C	Cable Array (#20)
24	KR	K Reference Thermocouple	°C	Junctions for K Thermocouples
25	KT	K Thermocouple	°C	Gas Outlet
26	R1	Radiometer (7°)	kW/m <sup>2</sup>	Radiometer Array (#1)
27	R2	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#2)
28	R3	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#3)
29	R4	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#4)
30	R5	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#5)
34	TT	T Thermocouple	°C	Gas Line
35	TT	T Thermocouple	°C	Water Line
36	TR	T Reference Thermocouple	°C	Junctions for T Thermocouples





nbs blowout fire simulation, test 2

1/27/84

34 channels per scan

14:09:58

0 WS	2.3	1 WD	341.	2 WB	4.8	3 DB	4.8
24 RK	11.8	4 TK	11.1	5 TK	14.0	6 TK	14.9
7 TK	13.0	8 TK	12.1	9 TK	13.0	10 TK	13.0
11 TK	12.1	12 TK	12.1	13 TK	11.1	14 TK	12.1
15 TK	14.0	16 TK	15.9	17 TK	14.9	18 TK	12.1
19 TK	15.9	20 TK	16.8	21 TK	13.0	22 TK	11.1
23 TK	16.8	25 TK	21.6	26 R1	2.21	27 R2	0.41
28 R3	0.74	29 R4	0.46	30 R5	47.12	36 RT	31.1
34 TT	35.0	35 TT	31.5				

14:09:59

0 WS	2.5	1 WD	341.	2 WB	4.5	3 DB	4.8
24 RK	8.9	4 TK	8.3	5 TK	13.0	6 TK	9.2
7 TK	11.1	8 TK	9.2	9 TK	12.1	10 TK	10.2
11 TK	10.2	12 TK	9.2	13 TK	10.2	14 TK	9.2
15 TK	11.1	16 TK	9.2	17 TK	11.1	18 TK	10.2
19 TK	12.1	20 TK	12.1	21 TK	11.1	22 TK	9.2
23 TK	14.9	25 TK	17.8	26 R1	1.39	27 R2	0.79
28 R3	0.85	29 R4	0.48	30 R5	47.12	36 RT	26.5
34 TT	30.9	35 TT	25.1				

14:10:00

0 WS	2.7	1 WD	346.	2 WB	4.8	3 DB	4.2
24 RK	11.8	4 TK	11.1	5 TK	14.9	6 TK	14.0
7 TK	14.0	8 TK	11.1	9 TK	14.0	10 TK	13.0
11 TK	18.7	12 TK	15.9	13 TK	15.9	14 TK	11.1
15 TK	12.1	16 TK	14.0	17 TK	14.9	18 TK	12.1
19 TK	13.0	20 TK	14.0	21 TK	12.1	22 TK	14.0
23 TK	15.9	25 TK	19.7	26 R1	1.75	27 R2	0.44
28 R3	0.65	29 R4	1.19	30 R5	47.12	36 RT	32.5
34 TT	39.3	35 TT	30.9				

14:10:01

0 WS	2.8	1 WD	350.	2 WB	4.7	3 DB	4.8
24 RK	8.9	4 TK	9.2	5 TK	14.0	6 TK	9.2
7 TK	8.3	8 TK	11.1	9 TK	13.0	10 TK	9.2
11 TK	10.2	12 TK	9.2	13 TK	11.1	14 TK	11.1
15 TK	10.2	16 TK	14.0	17 TK	9.2	18 TK	11.1
19 TK	11.1	20 TK	12.1	21 TK	14.9	22 TK	8.3
23 TK	18.7	25 TK	15.9	26 R1	1.02	27 R2	0.33
28 R3	1.05	29 R4	0.85	30 R5	47.12	36 RT	26.9
34 TT	28.4	35 TT	26.5				

14:10:02

0 WS	2.7	1 WD	356.	2 WB	4.9	3 DB	4.9
24 RK	12.7	4 TK	14.9	5 TK	17.8	6 TK	13.0
7 TK	13.0	8 TK	13.0	9 TK	14.9	10 TK	16.8
11 TK	14.9	12 TK	13.0	13 TK	15.9	14 TK	12.1
15 TK	14.9	16 TK	13.0	17 TK	14.0	18 TK	15.9
19 TK	15.9	20 TK	14.9	21 TK	15.9	22 TK	13.0
23 TK	16.8	25 TK	21.6	26 R1	1.39	27 R2	0.48
28 R3	1.07	29 R4	0.52	30 R5	47.12	36 RT	28.4
34 TT	31.1	35 TT	28.8				



## 14:10:03

0 WS	2.6	1 WD	340.	2 WB	4.9	3 DB	4.5
24 RK	12.7	4 TK	13.0	5 TK	19.7	6 TK	15.9
7 TK	14.9	8 TK	13.0	9 TK	14.9	10 TK	13.0
11 TK	14.9	12 TK	13.0	13 TK	13.0	14 TK	13.0
15 TK	13.0	16 TK	13.0	17 TK	14.9	18 TK	14.9
19 TK	14.9	20 TK	18.7	21 TK	17.8	22 TK	14.0
23 TK	16.8	25 TK	24.4	26 R1	3.40	27 R2	0.41
28 R3	0.81	29 R4	0.98	30 R5	47.12	36 RT	25.4
34 TT	29.8	35 TT	23.1				

## 14:10:04

0 WS	2.6	1 WD	344.	2 WB	4.7	3 DB	4.8
24 RK	11.8	4 TK	11.1	5 TK	17.8	6 TK	13.0
7 TK	14.9	8 TK	12.1	9 TK	14.0	10 TK	15.9
11 TK	14.0	12 TK	13.0	13 TK	13.0	14 TK	13.0
15 TK	14.9	16 TK	11.1	17 TK	13.0	18 TK	37.5
19 TK	37.5	20 TK	19.7	21 TK	85.6	22 TK	380.3
23 TK	375.7	25 TK	20.6	26 R1	1.85	27 R2	0.22
28 R3	2.62	29 R4	1.65	30 R5	47.12	36 RT	25.1
34 TT	30.8	35 TT	25.2				

## 14:10:05

0 WS	2.6	1 WD	332.	2 WB	4.4	3 DB	4.5
24 RK	9.9	4 TK	14.0	5 TK	14.0	6 TK	14.0
7 TK	13.0	8 TK	14.0	9 TK	13.0	10 TK	12.1
11 TK	13.0	12 TK	161.3	13 TK	15.9	14 TK	84.6
15 TK	67.2	16 TK	57.0	17 TK	281.4	18 TK	814.1
19 TK	991.0	20 TK	329.2	21 TK	666.2	22 TK	786.2
23 TK	428.2	25 TK	20.6	26 R1	4.41	27 R2	1.01
28 R3	5.75	29 R4	3.69	30 R5	47.12	36 RT	28.3
34 TT	34.0	35 TT	29.3				

## 14:10:06

0 WS	2.6	1 WD	339.	2 WB	4.3	3 DB	4.8
24 RK	11.8	4 TK	21.6	5 TK	4.4	6 TK	21.6
7 TK	63.5	8 TK	28.2	9 TK	125.4	10 TK	305.4
11 TK	608.5	12 TK	612.1	13 TK	30.0	14 TK	866.8
15 TK	530.5	16 TK	848.8	17 TK	1007.7	18 TK	1067.1
19 TK	1211.4	20 TK	479.4	21 TK	785.2	22 TK	678.0
23 TK	298.0	25 TK	23.5	26 R1	6.97	27 R2	5.97
28 R3	6.74	29 R4	5.44	30 R5	47.12	36 RT	41.0
34 TT	39.5	35 TT	39.1				

## 14:10:07

0 WS	2.8	1 WD	328.	2 WB	4.7	3 DB	4.4
24 RK	10.8	4 TK	37.5	5 TK	81.0	6 TK	29.1
7 TK	352.1	8 TK	223.3	9 TK	347.5	10 TK	578.9
11 TK	870.6	12 TK	663.5	13 TK	67.2	14 TK	1162.5
15 TK	760.2	16 TK	1109.4	17 TK	1182.1	18 TK	1199.9
19 TK	1215.6	20 TK	376.6	21 TK	766.7	22 TK	627.4
23 TK	227.1	25 TK	22.5	26 R1	2.40	27 R2	7.95
28 R3	7.72	29 R4	6.31	30 R5	47.12	36 RT	24.2
34 TT	18.6	35 TT	24.8				



## 14:10:08

0 WS	2.7	1 WD	336.	2 WB	4.3	3 DB	4.7
24 RK	11.8	4 TK	49.6	5 TK	206.2	6 TK	68.1
7 TK	884.8	8 TK	597.7	9 TK	754.7	10 TK	965.6
11 TK	1187.3	12 TK	647.2	13 TK	161.3	14 TK	1325.7
15 TK	1036.3	16 TK	1233.6	17 TK	1213.5	18 TK	1228.3
19 TK	1189.4	20 TK	415.5	21 TK	779.7	22 TK	619.3
23 TK	222.4	25 TK	16.8	26 R1	-0.52	27 R2	9.38
28 R3	7.90	29 R4	7.16	30 R5	47.12	36 RT	21.7
34 TT	9.7	35 TT	20.8				

## 14:10:09

0 WS	2.7	1 WD	323.	2 WB	4.9	3 DB	4.9
24 RK	8.0	4 TK	46.8	5 TK	373.0	6 TK	142.3
7 TK	1102.3	8 TK	768.6	9 TK	856.4	10 TK	1099.3
11 TK	1250.6	12 TK	754.7	13 TK	272.1	14 TK	1316.9
15 TK	1107.3	16 TK	1264.6	17 TK	1203.0	18 TK	1290.6
19 TK	1171.8	20 TK	456.1	21 TK	753.8	22 TK	582.4
23 TK	206.2	25 TK	14.9	26 R1	1.75	27 R2	12.19
28 R3	8.19	29 R4	6.96	30 R5	47.12	36 RT	24.3
34 TT	9.8	35 TT	24.3				

## 14:10:10

0 WS	2.4	1 WD	330.	2 WB	4.2	3 DB	4.7
24 RK	8.0	4 TK	35.7	5 TK	517.1	6 TK	174.6
7 TK	961.8	8 TK	589.6	9 TK	781.5	10 TK	1146.0
11 TK	1238.9	12 TK	577.1	13 TK	230.9	14 TK	1309.2
15 TK	1147.0	16 TK	1296.0	17 TK	1190.5	18 TK	1273.2
19 TK	1196.7	20 TK	500.9	21 TK	781.5	22 TK	638.2
23 TK	217.6	25 TK	14.9	26 R1	4.22	27 R2	12.37
28 R3	8.01	29 R4	7.35	30 R5	47.12	36 RT	24.3
34 TT	6.3	35 TT	23.7				

## 14:10:11

0 WS	2.4	1 WD	330.	2 WB	4.7	3 DB	4.9
24 RK	11.8	4 TK	35.7	5 TK	573.5	6 TK	142.3
7 TK	1011.6	8 TK	665.3	9 TK	853.5	10 TK	1129.7
11 TK	1238.9	12 TK	725.3	13 TK	355.7	14 TK	1313.6
15 TK	1165.6	16 TK	1314.7	17 TK	1216.6	18 TK	1272.1
19 TK	1199.9	20 TK	550.2	21 TK	796.4	22 TK	693.4
23 TK	268.4	25 TK	13.0	26 R1	6.15	27 R2	11.34
28 R3	8.31	29 R4	6.70	30 R5	47.12	36 RT	26.8
34 TT	8.6	35 TT	24.6				

## 14:10:12

0 WS	2.5	1 WD	333.	2 WB	4.9	3 DB	4.4
24 RK	9.9	4 TK	31.9	5 TK	607.6	6 TK	108.6
7 TK	924.1	8 TK	638.2	9 TK	798.2	10 TK	1049.2
11 TK	1119.5	12 TK	688.8	13 TK	319.2	14 TK	1301.5
15 TK	1138.9	16 TK	1281.9	17 TK	1264.6	18 TK	1253.8
19 TK	1235.7	20 TK	596.8	21 TK	820.7	22 TK	722.6
23 TK	304.5	25 TK	12.1	26 R1	5.69	27 R2	9.53
28 R3	7.57	29 R4	6.90	30 R5	47.12	36 RT	27.6
34 TT	6.3	35 TT	30.3				



## 14:10:13

0 WS	2.8	1 WD	328.	2 WB	4.8	3 DB	4.9
24 RK	12.7	4 TK	31.9	5 TK	622.9	6 TK	101.2
7 TK	821.6	8 TK	622.9	9 TK	766.7	10 TK	950.1
11 TK	1150.1	12 TK	604.0	13 TK	291.6	14 TK	1288.4
15 TK	1144.0	16 TK	1320.2	17 TK	1259.2	18 TK	1183.2
19 TK	1272.1	20 TK	656.2	21 TK	877.2	22 TK	821.6
23 TK	366.6	25 TK	17.8	26 R1	6.51	27 R2	8.07
28 R3	7.03	29 R4	6.27	30 R5	47.12	36 RT	25.8
34 TT	7.9	35 TT	26.7				

## 14:10:14

0 WS	3.0	1 WD	330.	2 WB	4.9	3 DB	4.7
24 RK	10.8	4 TK	30.0	5 TK	640.9	6 TK	83.7
7 TK	738.2	8 TK	543.9	9 TK	713.4	10 TK	895.3
11 TK	1026.4	12 TK	544.8	13 TK	302.6	14 TK	1263.5
15 TK	1118.5	16 TK	1277.5	17 TK	1233.6	18 TK	1190.5
19 TK	1242.1	20 TK	703.4	21 TK	853.5	22 TK	785.2
23 TK	368.5	25 TK	14.0	26 R1	3.95	27 R2	7.39
28 R3	7.88	29 R4	6.53	30 R5	47.12	36 RT	28.1
34 TT	8.4	35 TT	27.1				

## 14:10:15

0 WS	2.9	1 WD	329.	2 WB	4.9	3 DB	4.5
24 RK	10.8	4 TK	31.0	5 TK	630.1	6 TK	131.9
7 TK	860.2	8 TK	684.3	9 TK	879.1	10 TK	1042.2
11 TK	1145.0	12 TK	666.2	13 TK	450.7	14 TK	1228.3
15 TK	1102.3	16 TK	1213.5	17 TK	1171.8	18 TK	1233.6
19 TK	1182.1	20 TK	729.0	21 TK	809.4	22 TK	804.8
23 TK	392.9	25 TK	22.5	26 R1	5.60	27 R2	9.53
28 R3	8.04	29 R4	6.96	30 R5	47.12	36 RT	23.6
34 TT	3.1	35 TT	23.3				

## 14:10:16

0 WS	2.7	1 WD	309.	2 WB	4.3	3 DB	4.8
24 RK	8.9	4 TK	29.1	5 TK	631.9	6 TK	123.5
7 TK	1005.7	8 TK	736.3	9 TK	867.7	10 TK	1032.3
11 TK	1173.8	12 TK	494.6	13 TK	408.3	14 TK	1287.3
15 TK	1144.0	16 TK	1263.5	17 TK	1178.0	18 TK	1229.3
19 TK	1204.0	20 TK	754.7	21 TK	822.5	22 TK	855.4
23 TK	441.7	25 TK	6.3	26 R1	4.77	27 R2	11.02
28 R3	8.02	29 R4	7.46	30 R5	47.12	36 RT	30.0
34 TT	12.9	35 TT	29.3				

## 14:10:17

0 WS	2.8	1 WD	303.	2 WB	4.7	3 DB	4.9
24 RK	13.7	4 TK	34.7	5 TK	692.5	6 TK	107.7
7 TK	986.1	8 TK	689.8	9 TK	944.3	10 TK	1145.0
11 TK	1204.0	12 TK	450.7	13 TK	370.3	14 TK	1205.1
15 TK	1434.8	16 TK	1215.6	17 TK	1197.8	18 TK	1226.1
19 TK	1217.7	20 TK	776.9	21 TK	780.6	22 TK	823.5
23 TK	423.7	25 TK	16.8	26 R1	4.59	27 R2	11.36
28 R3	8.26	29 R4	7.07	30 R5	47.12	36 RT	27.0
34 TT	2.9	35 TT	25.3				



## 14:10:18

0 WS	3.3	1 WD	290.	2 WB	4.5	3 DB	4.8
24 RK	11.8	4 TK	29.1	5 TK	692.5	6 TK	85.6
7 TK	955.0	8 TK	631.9	9 TK	911.6	10 TK	1159.4
11 TK	1223.0	12 TK	443.5	13 TK	560.0	14 TK	1237.8
15 TK	1178.0	16 TK	1254.9	17 TK	1183.2	18 TK	1200.9
19 TK	1196.7	20 TK	795.5	21 TK	824.4	22 TK	889.6
23 TK	496.4	25 TK	14.0	26 R1	5.69	27 R2	12.19
28 R3	8.21	29 R4	7.76	30 R5	47.12	36 RT	28.9
34 TT	6.3	35 TT	27.7				

## 14:10:19

0 WS	3.7	1 WD	294.	2 WB	4.9	3 DB	4.5
24 RK	8.9	4 TK	26.3	5 TK	689.8	6 TK	85.6
7 TK	997.9	8 TK	708.9	9 TK	908.7	10 TK	1166.6
11 TK	1243.1	12 TK	421.0	13 TK	440.8	14 TK	1248.5
15 TK	1186.3	16 TK	1257.0	17 TK	1172.8	18 TK	1265.6
19 TK	1182.1	20 TK	808.5	21 TK	886.7	22 TK	940.4
23 TK	508.1	25 TK	14.0	26 R1	5.05	27 R2	11.82
28 R3	8.02	29 R4	7.79	30 R5	18.40	36 RT	24.1
34 TT	-0.7	35 TT	22.9				

## 14:10:20

0 WS	3.7	1 WD	300.	2 WB	4.9	3 DB	4.9
24 RK	8.9	4 TK	29.1	5 TK	702.5	6 TK	78.2
7 TK	1018.5	8 TK	739.1	9 TK	952.1	10 TK	1141.9
11 TK	1228.3	12 TK	486.6	13 TK	407.4	14 TK	1266.7
15 TK	1180.1	16 TK	1311.4	17 TK	1245.3	18 TK	1258.1
19 TK	1148.1	20 TK	831.0	21 TK	926.0	22 TK	1038.3
23 TK	595.9	25 TK	9.2	26 R1	7.88	27 R2	11.85
28 R3	8.06	29 R4	7.35	30 R5	-46.91	36 RT	22.4
34 TT	-0.6	35 TT	21.4				

## 14:10:21

0 WS	4.0	1 WD	304.	2 WB	4.9	3 DB	4.6
24 RK	9.9	4 TK	26.3	5 TK	731.7	6 TK	67.2
7 TK	946.2	8 TK	652.6	9 TK	943.3	10 TK	1149.1
11 TK	1242.1	12 TK	433.6	13 TK	362.1	14 TK	1247.4
15 TK	1167.6	16 TK	1293.8	17 TK	1215.6	18 TK	1197.8
19 TK	1195.7	20 TK	856.4	21 TK	897.2	22 TK	935.6
23 TK	598.6	25 TK	7.3	26 R1	6.15	27 R2	12.24
28 R3	7.88	29 R4	7.20	30 R5	-46.91	36 RT	24.1
34 TT	-2.3	35 TT	22.0				

## 14:10:22

0 WS	3.8	1 WD	292.	2 WB	4.9	3 DB	4.5
24 RK	15.6	4 TK	30.0	5 TK	749.2	6 TK	61.6
7 TK	907.8	8 TK	626.5	9 TK	879.1	10 TK	1125.6
11 TK	1146.0	12 TK	509.0	13 TK	332.0	14 TK	1252.8
15 TK	1158.4	16 TK	1261.3	17 TK	1178.0	18 TK	1251.7
19 TK	1212.4	20 TK	881.0	21 TK	827.2	22 TK	886.7
23 TK	585.1	25 TK	15.9	26 R1	7.15	27 R2	12.74
28 R3	8.15	29 R4	7.66	30 R5	-46.91	36 RT	20.0
34 TT	-8.4	35 TT	22.0				



## 14:10:23

0 WS	3.5	1 WD	308.	2 WB	4.8	3 DB	4.7
24 RK	14.6	4 TK	17.8	5 TK	773.2	6 TK	62.6
7 TK	1062.1	8 TK	623.8	9 TK	871.5	10 TK	1134.8
11 TK	1263.5	12 TK	472.2	13 TK	409.2	14 TK	1271.0
15 TK	1207.2	16 TK	1304.8	17 TK	1200.9	18 TK	1285.1
19 TK	1172.8	20 TK	896.3	21 TK	982.2	22 TK	1069.1
23 TK	603.1	25 TK	5.4	26 R1	5.69	27 R2	13.22
28 R3	8.06	29 R4	7.55	30 R5	-46.91	36 RT	22.6
34 TT	-4.3	35 TT	25.4				

## 14:10:24

0 WS	3.6	1 WD	287.	2 WB	4.9	3 DB	4.9
24 RK	10.8	4 TK	20.6	5 TK	805.7	6 TK	69.9
7 TK	1026.4	8 TK	595.0	9 TK	835.7	10 TK	1118.5
11 TK	1214.5	12 TK	594.1	13 TK	383.9	14 TK	1286.2
15 TK	1224.0	16 TK	1288.4	17 TK	1232.5	18 TK	1244.2
19 TK	1210.3	20 TK	906.8	21 TK	976.3	22 TK	745.5
23 TK	479.4	25 TK	12.1	26 R1	5.87	27 R2	13.25
28 R3	8.19	29 R4	7.59	30 R5	-46.91	36 RT	18.2
34 TT	-11.4	35 TT	16.0				

## 14:10:25

0 WS	3.6	1 WD	285.	2 WB	4.8	3 DB	4.9
24 RK	14.6	4 TK	24.4	5 TK	789.9	6 TK	69.0
7 TK	884.8	8 TK	502.7	9 TK	809.4	10 TK	1124.6
11 TK	1235.7	12 TK	495.5	13 TK	448.0	14 TK	1233.6
15 TK	1207.2	16 TK	1265.6	17 TK	1214.5	18 TK	1251.7
19 TK	1187.3	20 TK	934.7	21 TK	1103.3	22 TK	1120.5
23 TK	614.8	25 TK	7.3	26 R1	6.24	27 R2	12.48
28 R3	8.13	29 R4	7.31	30 R5	-46.91	36 RT	17.1
34 TT	-15.4	35 TT	16.7				

## 14:10:26

0 WS	3.7	1 WD	286.	2 WB	4.5	3 DB	4.9
24 RK	12.7	4 TK	25.3	5 TK	772.3	6 TK	61.6
7 TK	845.1	8 TK	506.3	9 TK	801.0	10 TK	1020.5
11 TK	1140.9	12 TK	471.3	13 TK	341.1	14 TK	1233.6
15 TK	1169.7	16 TK	1251.7	17 TK	1169.7	18 TK	1241.0
19 TK	1190.5	20 TK	944.3	21 TK	1121.5	22 TK	1158.4
23 TK	669.8	25 TK	7.3	26 R1	6.79	27 R2	12.65
28 R3	8.48	29 R4	7.24	30 R5	25.19	36 RT	22.1
34 TT	-6.0	35 TT	23.3				

## 14:10:27

0 WS	3.4	1 WD	291.	2 WB	4.9	3 DB	5.0
24 RK	11.8	4 TK	44.1	5 TK	747.4	6 TK	78.2
7 TK	804.8	8 TK	495.5	9 TK	800.1	10 TK	1028.4
11 TK	1208.2	12 TK	425.5	13 TK	321.0	14 TK	1282.9
15 TK	1243.1	16 TK	1287.3	17 TK	1199.9	18 TK	1246.3
19 TK	1204.0	20 TK	948.2	21 TK	1149.1	22 TK	1161.4
23 TK	779.7	25 TK	7.3	26 R1	5.32	27 R2	13.11
28 R3	8.48	29 R4	7.35	30 R5	34.88	36 RT	18.3
34 TT	-14.2	35 TT	17.6				



14:10:28

0 WS	3.2	1 WD	293.	2 WB	4.9	3 DB	4.7
24 RK	14.6	4 TK	44.1	5 TK	728.1	6 TK	72.7
7 TK	804.8	8 TK	518.8	9 TK	739.1	10 TK	1033.3
11 TK	1178.0	12 TK	592.3	13 TK	239.4	14 TK	1289.5
15 TK	1226.1	16 TK	1269.9	17 TK	1200.9	18 TK	1120.5
19 TK	1237.8	20 TK	954.0	21 TK	1078.1	22 TK	1104.3
23 TK	836.6	25 TK	8.3	26 R1	5.23	27 R2	12.65
28 R3	8.66	29 R4	7.66	30 R5	36.54	36 RT	26.2
34 TT	-5.9	35 TT	27.2				

14:10:29

0 WS	3.1	1 WD	284.	2 WB	4.7	3 DB	5.0
24 RK	9.9	4 TK	68.1	5 TK	790.8	6 TK	99.4
7 TK	835.7	8 TK	583.3	9 TK	695.2	10 TK	950.1
11 TK	1161.4	12 TK	545.7	13 TK	190.9	14 TK	1280.8
15 TK	1188.4	16 TK	1272.1	17 TK	1229.3	18 TK	1183.2
19 TK	1228.3	20 TK	957.9	21 TK	1103.3	22 TK	1196.7
23 TK	899.1	25 TK	3.5	26 R1	6.51	27 R2	12.90
28 R3	8.48	29 R4	7.55	30 R5	31.16	36 RT	22.6
34 TT	-9.7	35 TT	22.5				

14:10:30

0 WS	3.3	1 WD	284.	2 WB	4.7	3 DB	4.9
24 RK	8.9	4 TK	58.9	5 TK	846.9	6 TK	99.4
7 TK	844.1	8 TK	559.1	9 TK	721.7	10 TK	1011.6
11 TK	1220.9	12 TK	612.1	13 TK	191.9	14 TK	1354.6
15 TK	1199.9	16 TK	1277.5	17 TK	1195.7	18 TK	1187.3
19 TK	1205.1	20 TK	961.8	21 TK	1035.3	22 TK	1131.7
23 TK	831.0	25 TK	1.5	26 R1	4.68	27 R2	12.74
28 R3	8.86	29 R4	7.37	30 R5	47.12	36 RT	20.4
34 TT	-14.9	35 TT	19.2				

14:10:31

0 WS	3.5	1 WD	298.	2 WB	4.9	3 DB	4.7
24 RK	9.9	4 TK	1.5	5 TK	806.6	6 TK	36.6
7 TK	789.9	8 TK	436.3	9 TK	680.7	10 TK	1027.4
11 TK	1184.2	12 TK	509.0	13 TK	139.5	14 TK	1261.3
15 TK	1185.3	16 TK	1258.1	17 TK	1193.6	18 TK	1209.3
19 TK	1188.4	20 TK	971.5	21 TK	1065.1	22 TK	992.0
23 TK	752.9	25 TK	-1.3	26 R1	5.41	27 R2	12.78
28 R3	8.08	29 R4	7.55	30 R5	47.12	36 RT	21.6
34 TT	-12.7	35 TT	21.2				

14:10:32

0 WS	3.8	1 WD	296.	2 WB	4.9	3 DB	4.9
24 RK	10.8	4 TK	83.7	5 TK	916.4	6 TK	111.4
7 TK	953.0	8 TK	473.1	9 TK	806.6	10 TK	1104.3
11 TK	1241.0	12 TK	526.0	13 TK	166.0	14 TK	-572.7
15 TK	1259.2	16 TK	1297.1	17 TK	1217.7	18 TK	1264.6
19 TK	1152.2	20 TK	977.3	21 TK	1023.4	22 TK	963.7
23 TK	771.3	25 TK	1.5	26 R1	7.15	27 R2	13.27
28 R3	7.90	29 R4	7.44	30 R5	47.12	36 RT	26.2
34 TT	-10.0	35 TT	26.6				



14:10:33

0 WS	4.1	1 WD	306.	2 WB	4.8	3 DB	5.1
24 RK	9.9	4 TK	8.3	5 TK	814.1	6 TK	46.8
7 TK	857.3	8 TK	449.8	9 TK	709.8	10 TK	867.7
11 TK	1145.0	12 TK	377.5	13 TK	144.2	14 TK	1234.6
15 TK	1180.1	16 TK	1241.0	17 TK	1154.2	18 TK	1300.4
19 TK	1178.0	20 TK	981.2	21 TK	954.0	22 TK	1043.2
23 TK	696.1	25 TK	0.6	26 R1	4.68	27 R2	13.18
28 R3	7.99	29 R4	7.20	30 R5	47.12	36 RT	24.0
34 TT	-11.1	35 TT	24.8				

14:10:34

0 WS	4.1	1 WD	300.	2 WB	4.6	3 DB	5.0
24 RK	11.8	4 TK	51.5	5 TK	892.5	6 TK	140.4
7 TK	975.4	8 TK	699.8	9 TK	922.1	10 TK	1093.2
11 TK	1309.2	12 TK	462.3	13 TK	178.5	14 TK	1252.8
15 TK	1226.1	16 TK	1278.6	17 TK	1226.1	18 TK	1281.9
19 TK	1141.9	20 TK	989.0	21 TK	950.1	22 TK	928.9
23 TK	609.4	25 TK	0.6	26 R1	5.69	27 R2	13.73
28 R3	8.02	29 R4	6.94	30 R5	47.12	36 RT	22.4
34 TT	-13.3	35 TT	21.9				

14:10:35

0 WS	4.0	1 WD	308.	2 WB	4.9	3 DB	4.9
24 RK	10.8	4 TK	47.8	5 TK	846.0	6 TK	107.7
7 TK	864.9	8 TK	569.9	9 TK	853.5	10 TK	1048.2
11 TK	1122.6	12 TK	540.3	13 TK	148.9	14 TK	1256.0
15 TK	1199.9	16 TK	1299.3	17 TK	1187.3	18 TK	1248.5
19 TK	1160.4	20 TK	993.9	21 TK	1005.7	22 TK	866.8
23 TK	666.2	25 TK	4.4	26 R1	4.77	27 R2	14.56
28 R3	8.19	29 R4	7.24	30 R5	47.12	36 RT	24.1
34 TT	-12.4	35 TT	23.2				

14:10:36

0 WS	4.6	1 WD	304.	2 WB	4.8	3 DB	5.0
24 RK	11.8	4 TK	86.5	5 TK	839.4	6 TK	147.0
7 TK	962.7	8 TK	647.2	9 TK	801.0	10 TK	1075.1
11 TK	1217.7	12 TK	505.4	13 TK	116.0	14 TK	1254.9
15 TK	1200.9	16 TK	1294.9	17 TK	1239.9	18 TK	1259.2
19 TK	1166.6	20 TK	996.9	21 TK	1118.5	22 TK	1088.2
23 TK	690.7	25 TK	3.5	26 R1	6.60	27 R2	15.23
28 R3	8.01	29 R4	7.35	30 R5	47.12	36 RT	20.2
34 TT	-19.0	35 TT	20.0				

14:10:37

0 WS	4.4	1 WD	316.	2 WB	4.9	3 DB	4.7
24 RK	8.0	4 TK	145.1	5 TK	972.4	6 TK	213.8
7 TK	1147.0	8 TK	634.6	9 TK	836.6	10 TK	1120.5
11 TK	1229.3	12 TK	733.6	13 TK	180.4	14 TK	1344.6
15 TK	1243.1	16 TK	1300.4	17 TK	1227.2	18 TK	1258.1
19 TK	1161.4	20 TK	1001.8	21 TK	1070.1	22 TK	1066.1
23 TK	741.8	25 TK	-4.2	26 R1	4.22	27 R2	15.25
28 R3	8.22	29 R4	7.53	30 R5	47.12	36 RT	30.6
34 TT	-8.1	35 TT	30.3				





14:10:38

0 WS	4.0	1 WD	310.	2 WB	4.9	3 DB	4.7
24 RK	11.8	4 TK	138.5	5 TK	983.2	6 TK	174.6
7 TK	953.0	8 TK	583.3	9 TK	874.4	10 TK	1076.1
11 TK	1087.2	12 TK	775.0	13 TK	152.7	14 TK	1363.6
15 TK	1214.5	16 TK	1237.8	17 TK	1233.6	18 TK	1230.4
19 TK	1155.3	20 TK	1014.6	21 TK	940.4	22 TK	1025.4
23 TK	790.8	25 TK	-0.3	26 R1	5.78	27 R2	13.40
28 R3	8.31	29 R4	7.55	30 R5	47.12	36 RT	21.0
34 TT	-18.3	35 TT	19.5				

14:10:39

0 WS	4.1	1 WD	312.	2 WB	4.4	3 DB	5.0
24 RK	10.8	4 TK	71.8	5 TK	872.5	6 TK	94.8
7 TK	607.6	8 TK	414.6	9 TK	691.6	10 TK	945.3
11 TK	986.1	12 TK	649.0	13 TK	141.3	14 TK	1209.3
15 TK	1175.9	16 TK	1309.2	17 TK	1271.0	18 TK	1233.6
19 TK	1197.8	20 TK	1021.5	21 TK	974.4	22 TK	1038.3
23 TK	742.8	25 TK	-1.3	26 R1	3.58	27 R2	13.07
28 R3	8.46	29 R4	7.37	30 R5	47.12	36 RT	19.6
34 TT	-20.9	35 TT	16.8				

14:10:40

0 WS	4.0	1 WD	305.	2 WB	4.9	3 DB	4.7
24 RK	9.9	4 TK	82.8	5 TK	927.9	6 TK	113.3
7 TK	992.0	8 TK	537.6	9 TK	819.7	10 TK	976.3
11 TK	1135.8	12 TK	655.3	13 TK	207.1	14 TK	1310.3
15 TK	1205.1	16 TK	1324.6	17 TK	1225.1	18 TK	1186.3
19 TK	1199.9	20 TK	1022.5	21 TK	954.0	22 TK	949.2
23 TK	752.9	25 TK	-1.3	26 R1	5.69	27 R2	12.70
28 R3	8.24	29 R4	7.98	30 R5	47.12	36 RT	29.2
34 TT	-11.2	35 TT	28.5				

14:10:41

0 WS	4.0	1 WD	306.	2 WB	4.9	3 DB	4.7
24 RK	8.9	4 TK	84.6	5 TK	835.7	6 TK	132.9
7 TK	758.4	8 TK	461.5	9 TK	682.5	10 TK	928.9
11 TK	1118.5	12 TK	535.9	13 TK	151.8	14 TK	1202.0
15 TK	1184.2	16 TK	1262.4	17 TK	1186.3	18 TK	1203.0
19 TK	1150.1	20 TK	1016.5	21 TK	932.7	22 TK	870.6
23 TK	830.0	25 TK	-4.2	26 R1	3.31	27 R2	13.64
28 R3	7.90	29 R4	7.40	30 R5	47.12	36 RT	22.9
34 TT	-19.6	35 TT	19.4				

14:10:42

0 WS	3.8	1 WD	295.	2 WB	4.9	3 DB	4.8
24 RK	11.8	4 TK	173.7	5 TK	941.4	6 TK	182.3
7 TK	819.7	8 TK	535.9	9 TK	681.6	10 TK	962.7
11 TK	986.1	12 TK	738.2	13 TK	111.4	14 TK	1300.4
15 TK	1097.2	16 TK	1197.8	17 TK	1242.1	18 TK	-1212.4
19 TK	1134.8	20 TK	1044.2	21 TK	923.1	22 TK	971.5
23 TK	807.6	25 TK	0.6	26 R1	2.30	27 R2	13.05
28 R3	8.42	29 R4	7.40	30 R5	47.12	36 RT	20.3
34 TT	-16.8	35 TT	19.8				



## 14:10:43

0 WS	3.9	1 WD	298.	2 WB	4.9	3 DB	4.7
24 RK	10.8	4 TK	38.5	5 TK	802.0	6 TK	81.9
7 TK	828.1	8 TK	452.5	9 TK	682.5	10 TK	954.0
11 TK	938.5	12 TK	599.5	13 TK	175.6	14 TK	1204.0
15 TK	1145.0	16 TK	1281.9	17 TK	1237.8	18 TK	1239.9
19 TK	1139.9	20 TK	1057.2	21 TK	945.3	22 TK	1041.2
23 TK	805.7	25 TK	2.5	26 R1	3.95	27 R2	11.61
28 R3	8.37	29 R4	7.85	30 R5	47.12	36 RT	21.0
34 TT	-19.9	35 TT	20.0				

## 14:10:44

0 WS	3.8	1 WD	298.	2 WB	4.6	3 DB	4.9
24 RK	8.9	4 TK	117.0	5 TK	921.2	6 TK	143.2
7 TK	762.1	8 TK	444.4	9 TK	740.9	10 TK	882.9
11 TK	1010.6	12 TK	678.0	13 TK	193.8	14 TK	1264.6
15 TK	1174.9	16 TK	1172.8	17 TK	1191.5	18 TK	1264.6
19 TK	1128.7	20 TK	1051.2	21 TK	945.3	22 TK	891.5
23 TK	736.3	25 TK	-6.2	26 R1	4.41	27 R2	13.22
28 R3	8.49	29 R4	7.48	30 R5	47.12	36 RT	27.8
34 TT	-11.8	35 TT	25.3				

## 14:10:45

0 WS	3.5	1 WD	298.	2 WB	4.9	3 DB	4.5
24 RK	8.9	4 TK	181.3	5 TK	915.4	6 TK	203.3
7 TK	757.5	8 TK	410.1	9 TK	750.1	10 TK	896.3
11 TK	1049.2	12 TK	771.3	13 TK	213.8	14 TK	1310.3
15 TK	1133.8	16 TK	1225.1	17 TK	1267.8	18 TK	1200.9
19 TK	1116.5	20 TK	1071.1	21 TK	933.7	22 TK	1292.7
23 TK	644.5	25 TK	-1.3	26 R1	4.32	27 R2	11.45
28 R3	8.71	29 R4	7.85	30 R5	47.12	36 RT	24.8
34 TT	-17.2	35 TT	21.9				

## 14:10:46

0 WS	3.2	1 WD	294.	2 WB	4.9	3 DB	4.5
24 RK	9.9	4 TK	122.6	5 TK	876.3	6 TK	170.8
7 TK	625.6	8 TK	300.8	9 TK	604.9	10 TK	706.1
11 TK	838.5	12 TK	776.0	13 TK	184.2	14 TK	1247.4
15 TK	1049.2	16 TK	1134.8	17 TK	1221.9	18 TK	1230.4
19 TK	1119.5	20 TK	1071.1	21 TK	978.3	22 TK	917.3
23 TK	696.1	25 TK	-4.2	26 R1	4.68	27 R2	10.86
28 R3	8.91	29 R4	8.29	30 R5	9.58	36 RT	22.0
34 TT	-20.7	35 TT	21.3				

## 14:10:47

0 WS	3.1	1 WD	309.	2 WB	4.5	3 DB	4.8
24 RK	8.9	4 TK	168.9	5 TK	943.3	6 TK	181.3
7 TK	641.8	8 TK	285.1	9 TK	582.4	10 TK	771.3
11 TK	955.0	12 TK	895.3	13 TK	159.4	14 TK	1250.6
15 TK	1070.1	16 TK	1125.6	17 TK	1196.7	18 TK	1244.2
19 TK	1071.1	20 TK	1077.1	21 TK	977.3	22 TK	1067.1
23 TK	788.9	25 TK	-7.1	26 R1	0.84	27 R2	10.80
28 R3	8.62	29 R4	7.70	30 R5	-46.91	36 RT	23.1
34 TT	-23.0	35 TT	20.5				



14:10:48

0 WS	3.3	1 WD	308.	2 WB	4.9	3 DB	4.9
24 RK	12.7	4 TK	218.6	5 TK	914.5	6 TK	225.2
7 TK	682.5	8 TK	410.1	9 TK	509.0	10 TK	642.7
11 TK	834.7	12 TK	1001.8	13 TK	151.8	14 TK	1331.2
15 TK	1090.2	16 TK	1168.7	17 TK	1198.8	18 TK	1227.2
19 TK	1080.1	20 TK	1086.2	21 TK	1003.8	22 TK	1030.3
23 TK	1044.2	25 TK	-6.2	26 R1	0.66	27 R2	11.74
28 R3	8.84	29 R4	7.81	30 R5	-46.91	36 RT	22.1
34 TT	-22.6	35 TT	18.6				

14:10:49

0 WS	3.5	1 WD	304.	2 WB	4.4	3 DB	4.9
24 RK	10.8	4 TK	220.5	5 TK	903.0	6 TK	251.6
7 TK	594.1	8 TK	367.5	9 TK	449.8	10 TK	558.3
11 TK	825.3	12 TK	1033.3	13 TK	163.2	14 TK	1275.3
15 TK	1059.2	16 TK	1153.2	17 TK	1215.6	18 TK	1251.7
19 TK	1130.7	20 TK	1082.2	21 TK	1079.1	22 TK	1120.5
23 TK	-572.7	25 TK	-8.1	26 R1	2.58	27 R2	10.36
28 R3	8.10	29 R4	7.55	30 R5	47.12	36 RT	19.5
34 TT	-21.7	35 TT	16.7				

14:10:50

0 WS	3.5	1 WD	308.	2 WB	4.6	3 DB	4.6
24 RK	15.6	4 TK	178.5	5 TK	925.0	6 TK	192.8
7 TK	538.5	8 TK	287.0	9 TK	477.6	10 TK	582.4
11 TK	828.1	12 TK	1073.1	13 TK	177.5	14 TK	1186.3
15 TK	1008.7	16 TK	961.8	17 TK	1173.8	18 TK	1278.6
19 TK	1116.5	20 TK	1189.4	21 TK	1024.4	22 TK	1000.8
23 TK	1187.3	25 TK	-3.2	26 R1	-1.62	27 R2	8.02
28 R3	8.21	29 R4	7.44	30 R5	47.12	36 RT	25.6
34 TT	-19.4	35 TT	23.4				

14:10:51

0 WS	3.4	1 WD	308.	2 WB	4.5	3 DB	4.7
24 RK	10.8	4 TK	194.7	5 TK	919.3	6 TK	216.7
7 TK	494.6	8 TK	343.9	9 TK	424.6	10 TK	559.1
11 TK	859.2	12 TK	1032.3	13 TK	139.5	14 TK	1155.3
15 TK	970.5	16 TK	1022.5	17 TK	1136.8	18 TK	1223.0
19 TK	1097.2	20 TK	1072.1	21 TK	959.8	22 TK	1244.2
23 TK	-572.7	25 TK	-5.2	26 R1	-4.27	27 R2	7.04
28 R3	7.70	29 R4	6.88	30 R5	47.12	36 RT	22.0
34 TT	-23.5	35 TT	18.5				

14:10:52

0 WS	3.3	1 WD	304.	2 WB	4.5	3 DB	4.6
24 RK	10.8	4 TK	237.5	5 TK	964.7	6 TK	263.8
7 TK	555.6	8 TK	343.9	9 TK	431.8	10 TK	576.2
11 TK	752.0	12 TK	1117.5	13 TK	167.9	14 TK	1082.2
15 TK	891.5	16 TK	856.4	17 TK	-997.9	18 TK	1208.2
19 TK	1074.1	20 TK	904.9	21 TK	908.7	22 TK	664.4
23 TK	-572.7	25 TK	-9.1	26 R1	-4.27	27 R2	5.59
28 R3	6.94	29 R4	5.92	30 R5	47.12	36 RT	25.8
34 TT	-21.2	35 TT	21.8				



14:10:53

0 WS	3.4	1 WD	305.	2 WB	4.8	3 DB	4.9
24 RK	9.9	4 TK	216.7	5 TK	932.7	6 TK	244.1
7 TK	430.0	8 TK	290.7	9 TK	342.0	10 TK	481.2
11 TK	579.8	12 TK	985.1	13 TK	137.6	14 TK	933.7
15 TK	762.1	16 TK	697.0	17 TK	837.5	18 TK	1149.1
19 TK	1093.2	20 TK	995.9	21 TK	985.1	22 TK	968.6
23 TK	-572.7	25 TK	-7.1	26 R1	-4.00	27 R2	3.28
28 R3	6.72	29 R4	5.88	30 R5	47.12	36 RT	30.2
34 TT	-13.7	35 TT	29.9				

14:10:54

0 WS	3.3	1 WD	304.	2 WB	4.7	3 DB	4.9
24 RK	13.7	4 TK	187.1	5 TK	854.5	6 TK	216.7
7 TK	336.6	8 TK	247.9	9 TK	266.6	10 TK	401.1
11 TK	432.7	12 TK	810.4	13 TK	107.7	14 TK	743.7
15 TK	621.1	16 TK	525.1	17 TK	661.7	18 TK	1072.1
19 TK	1028.4	20 TK	790.8	21 TK	926.0	22 TK	-572.7
23 TK	-572.7	25 TK	-4.2	26 R1	-6.19	27 R2	2.27
28 R3	6.11	29 R4	4.49	30 R5	47.12	36 RT	29.0
34 TT	-17.3	35 TT	25.3				

14:10:55

0 WS	3.4	1 WD	298.	2 WB	4.8	3 DB	4.8
24 RK	8.9	4 TK	141.3	5 TK	764.9	6 TK	173.7
7 TK	226.2	8 TK	189.0	9 TK	183.2	10 TK	322.8
11 TK	310.9	12 TK	658.9	13 TK	73.6	14 TK	612.1
15 TK	526.0	16 TK	403.8	17 TK	551.1	18 TK	993.0
19 TK	875.3	20 TK	770.4	21 TK	753.8	22 TK	-572.7
23 TK	-572.7	25 TK	-8.1	26 R1	-6.19	27 R2	1.09
28 R3	5.77	29 R4	4.01	30 R5	47.12	36 RT	25.4
34 TT	-18.5	35 TT	21.4				

14:10:56

0 WS	3.6	1 WD	300.	2 WB	4.8	3 DB	4.4
24 RK	13.7	4 TK	76.4	5 TK	690.7	6 TK	101.2
7 TK	159.4	8 TK	122.6	9 TK	131.9	10 TK	237.5
11 TK	230.0	12 TK	584.2	13 TK	56.1	14 TK	438.1
15 TK	442.6	16 TK	303.6	17 TK	437.2	18 TK	973.4
19 TK	799.2	20 TK	815.0	21 TK	676.1	22 TK	-572.7
23 TK	-572.7	25 TK	-1.3	26 R1	-7.56	27 R2	0.83
28 R3	5.49	29 R4	3.47	30 R5	47.12	36 RT	25.1
34 TT	-18.2	35 TT	23.1				

14:10:57

0 WS	3.6	1 WD	295.	2 WB	4.7	3 DB	4.8
24 RK	9.9	4 TK	36.6	5 TK	625.6	6 TK	59.8
7 TK	100.3	8 TK	73.6	9 TK	83.7	10 TK	160.3
11 TK	155.6	12 TK	433.6	13 TK	37.5	14 TK	299.0
15 TK	383.0	16 TK	227.1	17 TK	328.3	18 TK	874.4
19 TK	666.2	20 TK	874.4	21 TK	555.6	22 TK	-572.7
23 TK	-572.7	25 TK	-8.1	26 R1	-8.84	27 R2	0.44
28 R3	5.86	29 R4	3.60	30 R5	47.12	36 RT	27.1
34 TT	-15.4	35 TT	25.2				



14:10:58

0 WS	3.5	1 WD	294.	2 WB	4.6	3 DB	4.9
24 RK	13.7	4 TK	30.0	5 TK	577.1	6 TK	48.7
7 TK	72.7	8 TK	59.8	9 TK	61.6	10 TK	123.5
11 TK	114.2	12 TK	342.0	13 TK	29.1	14 TK	216.7
15 TK	333.8	16 TK	185.2	17 TK	257.2	18 TK	861.1
19 TK	639.1	20 TK	916.4	21 TK	498.2	22 TK	-572.7
23 TK	-572.7	25 TK	1.5	26 R1	-9.48	27 R2	0.15
28 R3	5.71	29 R4	3.21	30 R5	47.12	36 RT	28.1
34 TT	-11.3	35 TT	24.7				

14:10:59

0 WS	3.7	1 WD	296.	2 WB	4.5	3 DB	4.8
24 RK	12.7	4 TK	21.6	5 TK	530.5	6 TK	33.8
7 TK	53.3	8 TK	40.3	9 TK	45.0	10 TK	90.2
11 TK	81.0	12 TK	268.4	13 TK	20.6	14 TK	152.7
15 TK	298.0	16 TK	143.2	17 TK	191.9	18 TK	832.8
19 TK	584.2	20 TK	931.8	21 TK	415.5	22 TK	-572.7
23 TK	1068.1	25 TK	-3.2	26 R1	-11.50	27 R2	0.31
28 R3	5.33	29 R4	2.71	30 R5	47.12	36 RT	27.1
34 TT	-12.7	35 TT	23.9				

14:11:00

0 WS	3.9	1 WD	302.	2 WB	4.8	3 DB	4.6
24 RK	10.8	4 TK	14.0	5 TK	487.5	6 TK	17.8
7 TK	37.5	8 TK	22.5	9 TK	32.9	10 TK	62.6
11 TK	58.0	12 TK	203.3	13 TK	19.7	14 TK	102.1
15 TK	263.8	16 TK	109.5	17 TK	141.3	18 TK	597.7
19 TK	418.2	20 TK	926.0	21 TK	336.6	22 TK	-572.7
23 TK	1098.3	25 TK	0.6	26 R1	-14.06	27 R2	0.29
28 R3	5.22	29 R4	2.32	30 R5	47.12	36 RT	26.1
34 TT	-14.1	35 TT	23.8				

14:11:01

0 WS	3.8	1 WD	302.	2 WB	4.9	3 DB	4.3
24 RK	8.9	4 TK	8.3	5 TK	448.0	6 TK	10.2
7 TK	27.2	8 TK	11.1	9 TK	22.5	10 TK	51.5
11 TK	43.1	12 TK	155.6	13 TK	14.9	14 TK	67.2
15 TK	236.6	16 TK	82.8	17 TK	104.0	18 TK	433.6
19 TK	304.5	20 TK	899.1	21 TK	275.9	22 TK	-572.7
23 TK	1130.7	25 TK	-5.2	26 R1	-14.24	27 R2	0.24
28 R3	5.42	29 R4	2.65	30 R5	47.12	36 RT	29.2
34 TT	-8.9	35 TT	27.4				

14:11:02

0 WS	4.0	1 WD	301.	2 WB	4.9	3 DB	4.5
24 RK	14.6	4 TK	13.0	5 TK	421.0	6 TK	15.9
7 TK	34.7	8 TK	17.8	9 TK	23.5	10 TK	50.6
11 TK	40.3	12 TK	119.8	13 TK	19.7	14 TK	58.0
15 TK	242.2	16 TK	70.9	17 TK	87.4	18 TK	321.9
19 TK	227.1	20 TK	874.4	21 TK	228.1	22 TK	-572.7
23 TK	720.8	25 TK	3.5	26 R1	-13.42	27 R2	0.70
28 R3	5.71	29 R4	2.54	30 R5	47.12	36 RT	31.3
34 TT	-8.0	35 TT	28.8				



14:11:03

0 WS	4.3	1 WD	309.	2 WB	4.4	3 DB	4.8
24 RK	12.7	4 TK	11.1	5 TK	389.3	6 TK	12.1
7 TK	39.4	8 TK	16.8	9 TK	20.6	10 TK	38.5
11 TK	31.9	12 TK	92.9	13 TK	12.1	14 TK	47.8
15 TK	227.1	16 TK	58.9	17 TK	67.2	18 TK	240.3
19 TK	162.2	20 TK	836.6	21 TK	186.1	22 TK	-572.7
23 TK	348.4	25 TK	0.6	26 R1	-11.41	27 R2	0.09
28 R3	6.22	29 R4	2.00	30 R5	47.12	36 RT	26.9
34 TT	-12.4	35 TT	23.3				

14:11:04

0 WS	4.5	1 WD	305.	2 WB	4.6	3 DB	4.8
24 RK	8.9	4 TK	7.3	5 TK	356.6	6 TK	9.2
7 TK	31.0	8 TK	10.2	9 TK	13.0	10 TK	30.0
11 TK	24.4	12 TK	71.8	13 TK	12.1	14 TK	42.2
15 TK	223.3	16 TK	45.0	17 TK	56.1	18 TK	182.3
19 TK	117.9	20 TK	796.4	21 TK	155.6	22 TK	-572.7
23 TK	188.0	25 TK	-4.2	26 R1	-7.56	27 R2	0.09
28 R3	6.94	29 R4	1.78	30 R5	47.12	36 RT	25.4
34 TT	-11.2	35 TT	21.3				

14:11:05

0 WS	4.7	1 WD	302.	2 WB	4.7	3 DB	4.7
24 RK	12.7	4 TK	14.0	5 TK	329.2	6 TK	11.1
7 TK	32.9	8 TK	13.0	9 TK	15.9	10 TK	32.9
11 TK	28.2	12 TK	58.0	13 TK	15.9	14 TK	39.4
15 TK	227.1	16 TK	43.1	17 TK	45.9	18 TK	145.1
19 TK	102.1	20 TK	771.3	21 TK	131.9	22 TK	-572.7
23 TK	-31.1	25 TK	-1.3	26 R1	-8.48	27 R2	0.37
28 R3	6.38	29 R4	1.95	30 R5	47.12	36 RT	24.6
34 TT	-16.3	35 TT	20.8				

14:11:06

0 WS	4.5	1 WD	310.	2 WB	4.8	3 DB	4.8
24 RK	8.0	4 TK	6.3	5 TK	299.0	6 TK	9.2
7 TK	26.3	8 TK	10.2	9 TK	9.2	10 TK	22.5
11 TK	20.6	12 TK	45.0	13 TK	6.3	14 TK	32.9
15 TK	219.5	16 TK	37.5	17 TK	34.7	18 TK	108.6
19 TK	80.0	20 TK	733.6	21 TK	106.8	22 TK	-572.7
23 TK	-572.7	25 TK	-6.2	26 R1	-6.10	27 R2	0.26
28 R3	2.69	29 R4	0.93	30 R5	47.12	36 RT	26.4
34 TT	-11.9	35 TT	24.1				

14:11:07

0 WS	4.8	1 WD	312.	2 WB	4.5	3 DB	4.8
24 RK	13.7	4 TK	14.0	5 TK	275.9	6 TK	15.9
7 TK	31.0	8 TK	17.8	9 TK	14.9	10 TK	28.2
11 TK	27.2	12 TK	44.1	13 TK	13.0	14 TK	36.6
15 TK	221.4	16 TK	35.7	17 TK	33.8	18 TK	88.3
19 TK	81.0	20 TK	714.4	21 TK	92.0	22 TK	-572.7
23 TK	-572.7	25 TK	2.5	26 R1	-6.47	27 R2	0.20
28 R3	1.88	29 R4	1.06	30 R5	47.12	36 RT	26.1
34 TT	-14.9	35 TT	22.4				



14:11:08

0	WS	5.0	1	WD	310.	2	WB	4.9	3	DB	4.7
24	RK	10.8	4	TK	12.1	5	TK	261.9	6	TK	13.0
7	TK	25.3	8	TK	13.0	9	TK	13.0	10	TK	25.3
11	TK	21.6	12	TK	37.5	13	TK	9.2	14	TK	34.7
15	TK	213.8	16	TK	31.9	17	TK	29.1	18	TK	76.4
19	TK	75.4	20	TK	697.9	21	TK	81.0	22	TK	-572.7
23	TK	-572.7	25	TK	-1.3	26	R1	-4.45	27	R2	0.29
28	R3	1.35	29	R4	0.87	30	R5	47.12	36	RT	18.9
34	TT	-22.2	35	TT	16.6						



NBS BOFST PRESSURE RECORDINGS

Acronym	Description	Units
GO	Gas Orifice	psig
WO	Water Orifice	psig
RO	Restriction Orifice	psig
WP	Water Line (near nozzle(s))	psig
GΔP	Gas Differential Pressure	inches of water
WΔP	Water Differential Pressure	inches of water
RΔP	Restriction Orifice Differential Pressure	inches of water

First  is at time of ignition.

Second  is at time of water injection.

Time corresponds to times of data acquisition system.





TEST 2

Time	GO	WO	RO	WP	GAP	WAP	RAP
14:10:04	*	*	0.5	0.0	0.0	0.0	0.0
14:10:05			1.5	0.0	0.0	0.0	0.0
14:10:06			4.5	0.5	0.0	0.0	0.0
14:10:07			9.0	3.5	0.0	0.0	0.0
14:10:08			22.0	4.0	8.0	0.0	37.0
14:10:09			25.5	11.0	63.0	0.0	279.0
14:10:10			31.5	17.0	113.0	0.0	502.0
14:10:11			38.0	25.5	168.0	0.0	744.0
14:10:12			36.0	28.5	188.0	0.0	798.0
14:10:13			35.0	26.0	203.0	0.0	844.0
14:10:14			23.5	22.0	210.0	0.0	876.0
14:10:15			22.0	26.0	210.0	0.0	898.0
14:10:16			28.0	32.0	210.0	0.0	922.0
14:10:17			34.5	36.0	210.0	0.0	926.0
14:10:18			37.0	37.0	210.0	0.0	930.0
14:10:19			38.0	37.0	210.0	0.0	930.0
14:10:20			37.5	36.5	210.0	0.0	930.0
14:10:21			37.5	36.5	210.0	0.0	930.0
14:10:22			37.0	36.0	210.0	0.0	930.0
14:10:23			37.0	36.0	210.0	0.0	930.0
14:10:24			36.5	35.5	210.0	0.0	930.0
14:10:25			36.5	35.0	210.0	0.0	930.0
14:10:26			36.0	35.0	210.0	0.0	930.0
14:10:27			36.0	34.5	210.0	0.0	930.0
14:10:28			36.0	34.5	210.0	0.0	930.0
14:10:29			35.5	34.5	210.0	0.0	930.0
14:10:30			35.5	34.0	210.0	0.0	930.0
14:10:31			35.5	34.0	210.0	0.0	928.0
14:10:32			35.0	34.0	210.0	0.0	925.0
14:10:33			35.0	34.5	210.0	0.0	920.0
14:10:34			35.0	36.0	210.0	0.0	914.0
14:10:35			34.5	33.5	210.0	0.0	905.0
14:10:36			34.5	33.5	210.0	0.0	893.0
14:10:37			34.5	33.0	210.0	0.0	886.0
14:10:38			34.0	33.0	210.0	0.0	880.0
14:10:39			34.0	33.0	210.0	0.0	874.0
14:10:40			34.0	33.0	210.0	0.0	868.0
14:10:41			34.0	33.0	206.0	0.0	860.0
14:10:42			34.0	37.0	200.0	40.0	842.0
14:10:43			34.0	33.0	185.0	42.0	820.0
14:10:44			33.5	32.5	150.0	5.0	663.0
14:10:45			33.5	33.0	110.0	0.0	486.0

\* Chart did not move properly.



TEST 2  
(Continued)

Time	GO	WO	RO	WP	GAP	WAP	RAP
14:10:46			33.5	33.0	70.0	0.0	309.0
14:10:47			33.0	32.5	45.0	0.0	200.0
14:10:48			33.0	32.0	25.0	0.0	112.0
14:10:49			32.5	31.0	10.0	0.0	46.0
14:10:50			29.0	29.5	0.0	0.0	0.0



APPENDIX G

TEST NUMBER 3

DATA ACQUISITION RECORDINGS AND PRESSURE READINGS



NBS BOFST CHANNEL ASSIGNMENT

Channel	Acronym	Description	Units	Location
0	WS	Wind Speed	mph	Met Tower (10 m)
1	WD	Wind Direction	° from N	Met Tower (10 m)
2	WB	Wet Bulb	°C	Met Tower (10 m)
3	DB	Dry Bulb	°C	Met Tower (10 m)
4	KT	K Thermocouple	°C	Cable Array (#1)
5	KT	K Thermocouple	°C	Cable Array (#2)
6	KT	K Thermocouple	°C	Cable Array (#3)
7	KT	K Thermocouple	°C	Cable Array (#4)
8	KT	K Thermocouple	°C	Cable Array (#5)
9	KT	K Thermocouple	°C	Cable Array (#6)
10	KT	K Thermocouple	°C	Cable Array (#7)
11	KT	K Thermocouple	°C	Cable Array (#8)
12	KT	K Thermocouple	°C	Cable Array (#9)
13	KT	K Thermocouple	°C	Cable Array (#10)
14	KT	K Thermocouple	°C	Cable Array (#11)
15	KT	K Thermocouple	°C	Cable Array (#12)
16	KT	K Thermocouple	°C	Cable Array (#13)
17	KT	K Thermocouple	°C	Cable Array (#14)
18	KT	K Thermocouple	°C	Cable Array (#15)
19	KT	K Thermocouple	°C	Cable Array (#16)
20	KT	K Thermocouple	°C	Cable Array (#17)
21	KT	K Thermocouple	°C	Cable Array (#18)
22	KT	K Thermocouple	°C	Cable Array (#19)
23	KT	K Thermocouple	°C	Cable Array (#20)
24	KR	K Reference Thermocouple	°C	Junctions for K Thermocouples
25	KT	K Thermocouple	°C	Gas Outlet
26	R1	Radiometer (7°)	kW/m <sup>2</sup>	Radiometer Array (#1)
27	R2	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#2)
28	R3	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#3)
29	R4	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#4)
30	R5	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#5)
34	TT	T Thermocouple	°C	Gas Line
35	TT	T Thermocouple	°C	Water Line
36	TR	T Reference Thermocouple	°C	Junctions for T Thermocouples



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34 channels per scan

15:10:04

0 WS	2.2	1 WD	350.	2 WB	5.3	3 DB	5.6
24 RK	7.0	4 TK	11.1	5 TK	14.9	6 TK	10.2
7 TK	10.2	8 TK	10.2	9 TK	10.2	10 TK	14.0
11 TK	15.9	12 TK	8.3	13 TK	13.0	14 TK	12.1
15 TK	11.1	16 TK	9.2	17 TK	9.2	18 TK	17.8
19 TK	12.1	20 TK	14.9	21 TK	15.9	22 TK	11.1
23 TK	10.2	25 TK	21.6	26 R1	3.31	27 R2	1.00
28 R3	0.74	29 R4	0.80	30 R5	1.17	36 RT	21.1
34 TT	23.0	35 TT	23.7				

15:10:05

0 WS	2.9	1 WD	356.	2 WB	5.1	3 DB	5.5
24 RK	8.9	4 TK	14.0	5 TK	14.9	6 TK	11.1
7 TK	14.0	8 TK	15.9	9 TK	11.1	10 TK	11.1
11 TK	12.1	12 TK	13.0	13 TK	12.1	14 TK	15.9
15 TK	14.0	16 TK	16.8	17 TK	12.1	18 TK	12.1
19 TK	12.1	20 TK	14.0	21 TK	12.1	22 TK	15.9
23 TK	14.9	25 TK	25.3	26 R1	1.75	27 R2	0.17
28 R3	0.51	29 R4	0.95	30 R5	0.80	36 RT	21.5
34 TT	26.4	35 TT	27.8				

15:10:06

0 WS	3.1	1 WD	18.	2 WB	5.2	3 DB	5.5
24 RK	8.9	4 TK	12.1	5 TK	14.0	6 TK	12.1
7 TK	14.0	8 TK	13.0	9 TK	14.9	10 TK	12.1
11 TK	11.1	12 TK	13.0	13 TK	13.0	14 TK	16.8
15 TK	12.1	16 TK	14.9	17 TK	15.9	18 TK	13.0
19 TK	12.1	20 TK	13.0	21 TK	19.7	22 TK	14.9
23 TK	15.9	25 TK	21.6	26 R1	0.75	27 R2	0.31
28 R3	0.54	29 R4	0.98	30 R5	0.69	36 RT	23.1
34 TT	27.3	35 TT	26.6				

15:10:07

0 WS	3.2	1 WD	15.	2 WB	5.1	3 DB	5.5
24 RK	13.7	4 TK	17.8	5 TK	19.7	6 TK	15.9
7 TK	17.8	8 TK	15.9	9 TK	17.8	10 TK	18.7
11 TK	20.6	12 TK	17.8	13 TK	16.8	14 TK	19.7
15 TK	18.7	16 TK	18.7	17 TK	19.7	18 TK	19.7
19 TK	18.7	20 TK	17.8	21 TK	17.8	22 TK	18.7
23 TK	17.8	25 TK	26.3	26 R1	2.76	27 R2	0.61
28 R3	0.69	29 R4	0.59	30 R5	0.74	36 RT	17.7
34 TT	20.7	35 TT	21.8				

15:10:08

0 WS	3.4	1 WD	8.	2 WB	4.8	3 DB	5.3
24 RK	9.9	4 TK	14.0	5 TK	19.7	6 TK	14.9
7 TK	16.8	8 TK	12.1	9 TK	11.1	10 TK	13.0
11 TK	13.0	12 TK	15.9	13 TK	14.0	14 TK	42.2
15 TK	14.9	16 TK	12.1	17 TK	13.0	18 TK	13.0
19 TK	23.5	20 TK	15.9	21 TK	13.0	22 TK	17.8
23 TK	38.5	25 TK	19.7	26 R1	1.02	27 R2	0.57
28 R3	2.20	29 R4	0.82	30 R5	0.92	36 RT	28.7
34 TT	31.8	35 TT	32.1				



15:10:09

0 WS	3.5	1 WD	2.	2 WB	4.8	3 DB	5.3
24 RK	10.8	4 TK	19.7	5 TK	18.7	6 TK	14.0
7 TK	14.9	8 TK	14.0	9 TK	14.9	10 TK	16.8
11 TK	14.9	12 TK	16.8	13 TK	18.7	14 TK	76.4
15 TK	13.0	16 TK	15.9	17 TK	17.8	18 TK	20.6
19 TK	21.6	20 TK	24.4	21 TK	18.7	22 TK	26.3
23 TK	131.0	25 TK	26.3	26 R1	2.21	27 R2	0.63
28 R3	4.77	29 R4	1.82	30 R5	2.07	36 RT	18.8
34 TT	24.4	35 TT	21.1				

15:10:10

0 WS	3.5	1 WD	358.	2 WB	4.9	3 DB	5.3
24 RK	8.9	4 TK	16.8	5 TK	14.9	6 TK	15.9
7 TK	14.9	8 TK	16.8	9 TK	13.0	10 TK	15.9
11 TK	14.9	12 TK	18.7	13 TK	14.0	14 TK	49.6
15 TK	14.9	16 TK	18.7	17 TK	16.8	18 TK	272.1
19 TK	223.3	20 TK	31.0	21 TK	132.9	22 TK	307.2
23 TK	552.9	25 TK	25.3	26 R1	1.11	27 R2	0.59
28 R3	7.54	29 R4	4.27	30 R5	3.33	36 RT	20.0
34 TT	23.8	35 TT	24.3				

15:10:11

0 WS	3.4	1 WD	342.	2 WB	5.0	3 DB	5.2
24 RK	8.0	4 TK	23.5	5 TK	14.9	6 TK	15.9
7 TK	15.9	8 TK	15.9	9 TK	11.1	10 TK	22.5
11 TK	15.9	12 TK	27.2	13 TK	16.8	14 TK	45.9
15 TK	16.8	16 TK	133.8	17 TK	299.0	18 TK	1010.6
19 TK	944.3	20 TK	531.4	21 TK	487.5	22 TK	841.3
23 TK	668.0	25 TK	27.2	26 R1	4.13	27 R2	0.87
28 R3	7.88	29 R4	5.27	30 R5	4.07	36 RT	16.2
34 TT	21.0	35 TT	18.8				

15:10:12

0 WS	3.5	1 WD	7.	2 WB	5.2	3 DB	5.0
24 RK	8.0	4 TK	30.0	5 TK	13.0	6 TK	19.7
7 TK	19.7	8 TK	20.6	9 TK	14.9	10 TK	91.1
11 TK	35.7	12 TK	432.7	13 TK	25.3	14 TK	400.2
15 TK	283.3	16 TK	572.6	17 TK	772.3	18 TK	1190.5
19 TK	1127.6	20 TK	940.4	21 TK	896.3	22 TK	864.0
23 TK	502.7	25 TK	28.2	26 R1	2.21	27 R2	2.06
28 R3	8.26	29 R4	6.25	30 R5	4.55	36 RT	18.5
34 TT	20.8	35 TT	22.4				

15:10:13

0 WS	3.4	1 WD	354.	2 WB	5.1	3 DB	5.5
24 RK	13.7	4 TK	44.1	5 TK	-44.5	6 TK	27.2
7 TK	37.5	8 TK	31.9	9 TK	26.3	10 TK	189.0
11 TK	62.6	12 TK	1075.1	13 TK	34.7	14 TK	867.7
15 TK	407.4	16 TK	990.0	17 TK	1093.2	18 TK	1232.5
19 TK	1145.0	20 TK	988.1	21 TK	1049.2	22 TK	837.5
23 TK	444.4	25 TK	27.2	26 R1	0.66	27 R2	5.92
28 R3	8.60	29 R4	7.27	30 R5	5.14	36 RT	20.3
34 TT	11.3	35 TT	26.5				



## 15:10:14

0 WS	3.4	1 WD	2.	2 WB	4.7	3 DB	5.3
24 RK	8.9	4 TK	31.9	5 TK	-9.1	6 TK	22.5
7 TK	111.4	8 TK	26.3	9 TK	31.0	10 TK	229.0
11 TK	332.9	12 TK	1187.3	13 TK	42.2	14 TK	1183.2
15 TK	711.6	16 TK	1078.1	17 TK	1118.5	18 TK	1244.2
19 TK	1148.1	20 TK	935.6	21 TK	1049.2	22 TK	766.7
23 TK	362.1	25 TK	14.9	26 R1	-0.43	27 R2	8.65
28 R3	9.13	29 R4	7.29	30 R5	6.06	36 RT	26.0
34 TT	14.9	35 TT	29.9				

## 15:10:15

0 WS	3.3	1 WD	0.	2 WB	5.2	3 DB	4.9
24 RK	16.5	4 TK	38.5	5 TK	78.2	6 TK	31.0
7 TK	160.3	8 TK	32.9	9 TK	101.2	10 TK	381.2
11 TK	668.0	12 TK	1160.4	13 TK	54.3	14 TK	1238.9
15 TK	908.7	16 TK	1187.3	17 TK	1224.0	18 TK	1239.9
19 TK	1202.0	20 TK	826.3	21 TK	1046.2	22 TK	777.8
23 TK	385.7	25 TK	21.6	26 R1	1.11	27 R2	6.73
28 R3	8.95	29 R4	8.22	30 R5	5.97	36 RT	23.0
34 TT	9.2	35 TT	28.5				

## 15:10:16

0 WS	3.2	1 WD	2.	2 WB	4.9	3 DB	5.4
24 RK	14.6	4 TK	39.4	5 TK	116.0	6 TK	31.9
7 TK	420.1	8 TK	215.7	9 TK	311.8	10 TK	480.3
11 TK	776.0	12 TK	1097.2	13 TK	58.9	14 TK	1249.5
15 TK	966.6	16 TK	1185.3	17 TK	1184.2	18 TK	1216.6
19 TK	1182.1	20 TK	792.7	21 TK	1032.3	22 TK	781.5
23 TK	383.9	25 TK	14.9	26 R1	1.39	27 R2	7.96
28 R3	9.13	29 R4	8.16	30 R5	6.61	36 RT	16.6
34 TT	-0.3	35 TT	21.0				

## 15:10:17

0 WS	3.3	1 WD	348.	2 WB	5.2	3 DB	5.4
24 RK	14.6	4 TK	39.4	5 TK	198.6	6 TK	32.9
7 TK	520.6	8 TK	327.4	9 TK	374.8	10 TK	523.3
11 TK	735.4	12 TK	1149.1	13 TK	67.2	14 TK	1278.6
15 TK	968.6	16 TK	1174.9	17 TK	1169.7	18 TK	1203.0
19 TK	1179.0	20 TK	787.1	21 TK	1002.8	22 TK	722.6
23 TK	402.0	25 TK	19.7	26 R1	-1.44	27 R2	8.46
28 R3	8.87	29 R4	7.61	30 R5	6.25	36 RT	19.7
34 TT	6.0	35 TT	25.0				

## 15:10:18

0 WS	3.0	1 WD	339.	2 WB	5.2	3 DB	5.2
24 RK	13.7	4 TK	35.7	5 TK	312.8	6 TK	35.7
7 TK	504.5	8 TK	299.0	9 TK	334.7	10 TK	569.9
11 TK	754.7	12 TK	1184.2	13 TK	66.2	14 TK	1227.2
15 TK	931.8	16 TK	1198.8	17 TK	1239.9	18 TK	1254.9
19 TK	1151.2	20 TK	846.9	21 TK	997.9	22 TK	724.4
23 TK	392.9	25 TK	22.5	26 R1	-3.91	27 R2	7.91
28 R3	9.02	29 R4	7.85	30 R5	5.90	36 RT	17.1
34 TT	2.9	35 TT	24.5				



## 15:10:19

0 WS	2.9	1 WD	331.	2 WB	4.9	3 DB	5.5
24 RK	8.9	4 TK	31.9	5 TK	396.6	6 TK	28.2
7 TK	503.6	8 TK	323.8	9 TK	358.4	10 TK	481.2
11 TK	583.3	12 TK	1155.3	13 TK	59.8	14 TK	1229.3
15 TK	951.1	16 TK	1188.4	17 TK	1207.2	18 TK	1264.6
19 TK	1145.0	20 TK	876.3	21 TK	1011.6	22 TK	788.0
23 TK	410.1	25 TK	11.1	26 R1	-6.38	27 R2	8.46
28 R3	8.91	29 R4	7.42	30 R5	6.48	36 RT	16.2
34 TT	-3.4	35 TT	21.0				

## 15:10:20

0 WS	3.0	1 WD	328.	2 WB	4.8	3 DB	5.1
24 RK	11.8	4 TK	36.6	5 TK	435.4	6 TK	32.9
7 TK	363.0	8 TK	251.6	9 TK	298.0	10 TK	456.1
11 TK	897.2	12 TK	1121.5	13 TK	71.8	14 TK	1205.1
15 TK	989.0	16 TK	1186.3	17 TK	1174.9	18 TK	1214.5
19 TK	1189.4	20 TK	898.2	21 TK	1019.5	22 TK	777.8
23 TK	424.6	25 TK	16.8	26 R1	-8.57	27 R2	8.48
28 R3	9.67	29 R4	7.79	30 R5	6.50	36 RT	33.1
34 TT	13.8	35 TT	36.8				

## 15:10:21

0 WS	3.3	1 WD	336.	2 WB	5.0	3 DB	5.5
24 RK	8.9	4 TK	31.0	5 TK	455.2	6 TK	32.9
7 TK	412.8	8 TK	195.7	9 TK	236.6	10 TK	509.0
11 TK	846.9	12 TK	1165.6	13 TK	64.4	14 TK	1164.5
15 TK	926.9	16 TK	1200.9	17 TK	1206.1	18 TK	1208.2
19 TK	1203.0	20 TK	891.5	21 TK	999.8	22 TK	796.4
23 TK	526.0	25 TK	16.8	26 R1	-7.47	27 R2	7.43
28 R3	9.49	29 R4	8.78	30 R5	6.75	36 RT	16.9
34 TT	-4.3	35 TT	19.9				

## 15:10:22

0 WS	3.3	1 WD	344.	2 WB	4.9	3 DB	5.3
24 RK	12.7	4 TK	35.7	5 TK	489.3	6 TK	34.7
7 TK	313.7	8 TK	154.6	9 TK	262.8	10 TK	613.9
11 TK	844.1	12 TK	1125.6	13 TK	69.0	14 TK	1227.2
15 TK	963.7	16 TK	1220.9	17 TK	1189.4	18 TK	1187.3
19 TK	1219.8	20 TK	907.8	21 TK	996.9	22 TK	881.0
23 TK	519.7	25 TK	10.2	26 R1	-9.30	27 R2	8.31
28 R3	9.34	29 R4	8.26	30 R5	6.04	36 RT	18.1
34 TT	1.1	35 TT	21.0				

## 15:10:23

0 WS	3.2	1 WD	356.	2 WB	4.7	3 DB	5.2
24 RK	10.8	4 TK	36.6	5 TK	498.2	6 TK	31.9
7 TK	273.1	8 TK	116.0	9 TK	241.3	10 TK	684.3
11 TK	895.3	12 TK	1150.1	13 TK	69.0	14 TK	1192.5
15 TK	1005.7	16 TK	1190.5	17 TK	1210.3	18 TK	1154.2
19 TK	1120.5	20 TK	936.6	21 TK	894.4	22 TK	736.3
23 TK	535.0	25 TK	11.1	26 R1	-12.05	27 R2	9.46
28 R3	9.07	29 R4	8.46	30 R5	6.64	36 RT	16.3
34 TT	-7.3	35 TT	20.5				





## 15:10:24

0 WS	3.1	1 WD	339.	2 WB	5.0	3 DB	5.2
24 RK	10.8	4 TK	35.7	5 TK	477.6	6 TK	31.9
7 TK	303.6	8 TK	90.2	9 TK	253.5	10 TK	657.1
11 TK	904.9	12 TK	1170.7	13 TK	84.6	14 TK	1218.8
15 TK	970.5	16 TK	1191.5	17 TK	1180.1	18 TK	1134.8
19 TK	1114.4	20 TK	929.8	21 TK	886.7	22 TK	743.7
23 TK	543.0	25 TK	14.0	26 R1	-15.16	27 R2	8.33
28 R3	8.80	29 R4	7.70	30 R5	6.41	36 RT	22.3
34 TT	5.2	35 TT	27.8				

## 15:10:25

0 WS	3.8	1 WD	3.	2 WB	5.2	3 DB	5.0
24 RK	10.8	4 TK	31.9	5 TK	492.0	6 TK	31.9
7 TK	341.1	8 TK	165.1	9 TK	239.4	10 TK	632.8
11 TK	850.7	12 TK	1179.0	13 TK	83.7	14 TK	1228.3
15 TK	956.9	16 TK	1171.8	17 TK	1232.5	18 TK	1150.1
19 TK	1182.1	20 TK	956.9	21 TK	917.3	22 TK	785.2
23 TK	573.5	25 TK	12.1	26 R1	-20.92	27 R2	10.86
28 R3	9.14	29 R4	8.20	30 R5	5.90	36 RT	17.5
34 TT	-3.8	35 TT	23.6				

## 15:10:26

0 WS	4.0	1 WD	3.	2 WB	5.1	3 DB	5.5
24 RK	8.9	4 TK	29.1	5 TK	492.9	6 TK	27.2
7 TK	450.7	8 TK	308.2	9 TK	410.1	10 TK	691.6
11 TK	706.1	12 TK	1141.9	13 TK	79.1	14 TK	1155.3
15 TK	948.2	16 TK	1191.5	17 TK	1253.8	18 TK	1193.6
19 TK	1178.0	20 TK	989.0	21 TK	946.2	22 TK	829.1
23 TK	697.0	25 TK	13.0	26 R1	-22.93	27 R2	10.25
28 R3	9.34	29 R4	7.74	30 R5	6.48	36 RT	25.8
34 TT	4.1	35 TT	29.6				

## 15:10:27

0 WS	3.8	1 WD	354.	2 WB	5.1	3 DB	5.5
24 RK	15.6	4 TK	32.9	5 TK	497.3	6 TK	34.7
7 TK	470.4	8 TK	326.5	9 TK	406.5	10 TK	581.5
11 TK	822.5	12 TK	1152.2	13 TK	78.2	14 TK	1192.5
15 TK	979.3	16 TK	1181.1	17 TK	1223.0	18 TK	1168.7
19 TK	1110.4	20 TK	969.5	21 TK	864.0	22 TK	690.7
23 TK	435.4	25 TK	19.7	26 R1	-24.85	27 R2	8.37
28 R3	8.35	29 R4	7.61	30 R5	6.59	36 RT	26.1
34 TT	5.6	35 TT	29.2				

## 15:10:28

0 WS	3.6	1 WD	4.	2 WB	5.0	3 DB	5.2
24 RK	11.8	4 TK	30.0	5 TK	525.1	6 TK	28.2
7 TK	359.4	8 TK	249.7	9 TK	381.2	10 TK	618.4
11 TK	818.8	12 TK	1108.4	13 TK	69.0	14 TK	1160.4
15 TK	973.4	16 TK	1165.6	17 TK	1185.3	18 TK	1209.3
19 TK	1202.0	20 TK	994.9	21 TK	794.5	22 TK	633.7
23 TK	485.7	25 TK	14.9	26 R1	-26.68	27 R2	9.31
28 R3	9.11	29 R4	7.68	30 R5	5.93	36 RT	17.2
34 TT	-8.5	35 TT	24.0				



## 15:10:29

0 WS	3.2	1 WD	341.	2 WB	5.0	3 DB	5.5
24 RK	11.8	4 TK	39.4	5 TK	539.4	6 TK	32.9
7 TK	257.2	8 TK	185.2	9 TK	310.9	10 TK	529.6
11 TK	731.7	12 TK	1131.7	13 TK	67.2	14 TK	1111.4
15 TK	891.5	16 TK	1118.5	17 TK	1120.5	18 TK	1149.1
19 TK	1018.5	20 TK	968.6	21 TK	790.8	22 TK	838.5
23 TK	370.3	25 TK	8.3	26 R1	-28.51	27 R2	9.86
28 R3	7.83	29 R4	7.55	30 R5	5.79	36 RT	27.4
34 TT	2.2	35 TT	28.9				

## 15:10:30

0 WS	3.0	1 WD	352.	2 WB	5.1	3 DB	5.0
24 RK	15.6	4 TK	42.2	5 TK	544.8	6 TK	35.7
7 TK	267.5	8 TK	148.0	9 TK	272.1	10 TK	640.0
11 TK	818.8	12 TK	1091.2	13 TK	157.5	14 TK	1043.2
15 TK	944.3	16 TK	1082.2	17 TK	1059.2	18 TK	1182.1
19 TK	959.8	20 TK	961.8	21 TK	763.9	22 TK	576.2
23 TK	309.1	25 TK	20.6	26 R1	-24.03	27 R2	8.24
28 R3	7.50	29 R4	7.18	30 R5	6.16	36 RT	16.5
34 TT	-11.7	35 TT	18.8				

## 15:10:31

0 WS	2.7	1 WD	0.	2 WB	4.6	3 DB	5.4
24 RK	15.6	4 TK	37.5	5 TK	518.0	6 TK	38.5
7 TK	340.2	8 TK	140.4	9 TK	257.2	10 TK	613.9
11 TK	754.7	12 TK	975.4	13 TK	132.9	14 TK	1093.2
15 TK	939.5	16 TK	1105.3	17 TK	1098.3	18 TK	1144.0
19 TK	941.4	20 TK	959.8	21 TK	659.9	22 TK	529.6
23 TK	20.6	25 TK	16.8	26 R1	-16.80	27 R2	6.16
28 R3	6.89	29 R4	6.85	30 R5	5.33	36 RT	23.9
34 TT	-4.4	35 TT	28.1				

## 15:10:32

0 WS	2.6	1 WD	6.	2 WB	4.7	3 DB	5.5
24 RK	12.7	4 TK	22.5	5 TK	488.4	6 TK	24.4
7 TK	477.6	8 TK	307.2	9 TK	340.2	10 TK	559.1
11 TK	642.7	12 TK	1061.1	13 TK	111.4	14 TK	1012.6
15 TK	849.8	16 TK	985.1	17 TK	1028.4	18 TK	1231.4
19 TK	1163.5	20 TK	992.0	21 TK	795.5	22 TK	687.0
23 TK	4.4	25 TK	10.2	26 R1	-16.16	27 R2	6.01
28 R3	6.89	29 R4	8.22	30 R5	6.57	36 RT	37.7
34 TT	8.8	35 TT	38.3				

## 15:10:33

0 WS	2.9	1 WD	1.	2 WB	4.9	3 DB	5.6
24 RK	8.0	4 TK	23.5	5 TK	483.0	6 TK	24.4
7 TK	399.3	8 TK	275.9	9 TK	314.6	10 TK	467.7
11 TK	564.5	12 TK	1015.6	13 TK	89.2	14 TK	1033.3
15 TK	736.3	16 TK	1049.2	17 TK	1083.2	18 TK	1204.0
19 TK	987.1	20 TK	872.5	21 TK	723.5	22 TK	394.7
23 TK	23.5	25 TK	6.3	26 R1	-17.26	27 R2	7.69
28 R3	6.16	29 R4	7.29	30 R5	5.67	36 RT	17.8
34 TT	-13.1	35 TT	18.1				



## 15:10:34

0 WS	3.1	1 WD	6.	2 WB	4.8	3 DB	5.4
24 RK	10.8	4 TK	27.2	5 TK	481.2	6 TK	28.2
7 TK	403.8	8 TK	207.1	9 TK	323.8	10 TK	407.4
11 TK	665.3	12 TK	1015.6	13 TK	81.9	14 TK	1057.2
15 TK	844.1	16 TK	1122.6	17 TK	1116.5	18 TK	1165.6
19 TK	924.1	20 TK	926.0	21 TK	704.3	22 TK	526.9
23 TK	47.8	25 TK	10.2	26 R1	-17.35	27 R2	7.01
28 R3	6.45	29 R4	7.11	30 R5	5.12	36 RT	18.2
34 TT	-11.1	35 TT	20.3				

## 15:10:35

0 WS	3.1	1 WD	6.	2 WB	4.8	3 DB	5.5
24 RK	8.0	4 TK	24.4	5 TK	481.2	6 TK	22.5
7 TK	401.1	8 TK	284.2	9 TK	363.9	10 TK	506.3
11 TK	686.1	12 TK	1079.1	13 TK	67.2	14 TK	1066.1
15 TK	879.1	16 TK	1123.6	17 TK	1062.1	18 TK	1140.9
19 TK	881.0	20 TK	885.8	21 TK	700.7	22 TK	468.6
23 TK	40.3	25 TK	8.3	26 R1	-13.87	27 R2	6.77
28 R3	5.82	29 R4	6.64	30 R5	5.40	36 RT	19.0
34 TT	-12.6	35 TT	18.8				

## 15:10:36

0 WS	3.0	1 WD	358.	2 WB	4.9	3 DB	5.5
24 RK	8.9	4 TK	18.7	5 TK	471.3	6 TK	26.3
7 TK	332.9	8 TK	233.7	9 TK	314.6	10 TK	484.8
11 TK	644.5	12 TK	1018.5	13 TK	63.5	14 TK	991.0
15 TK	831.9	16 TK	1009.6	17 TK	1088.2	18 TK	1158.4
19 TK	913.5	20 TK	831.9	21 TK	724.4	22 TK	578.0
23 TK	14.9	25 TK	5.4	26 R1	-12.69	27 R2	5.97
28 R3	6.18	29 R4	6.96	30 R5	5.88	36 RT	19.4
34 TT	-9.3	35 TT	19.3				

## 15:10:37

0 WS	2.9	1 WD	341.	2 WB	5.3	3 DB	5.4
24 RK	15.6	4 TK	28.2	5 TK	475.8	6 TK	33.8
7 TK	342.0	8 TK	195.7	9 TK	260.0	10 TK	435.4
11 TK	497.3	12 TK	1091.2	13 TK	66.2	14 TK	971.5
15 TK	679.8	16 TK	921.2	17 TK	1033.3	18 TK	1134.8
19 TK	878.2	20 TK	895.3	21 TK	806.6	22 TK	541.2
23 TK	39.4	25 TK	16.8	26 R1	-15.16	27 R2	6.42
28 R3	5.01	29 R4	7.01	30 R5	5.37	36 RT	24.8
34 TT	-5.5	35 TT	24.0				

## 15:10:38

0 WS	3.3	1 WD	349.	2 WB	4.9	3 DB	5.3
24 RK	11.8	4 TK	18.7	5 TK	498.2	6 TK	24.4
7 TK	289.7	8 TK	149.9	9 TK	198.6	10 TK	329.2
11 TK	413.7	12 TK	1112.4	13 TK	57.0	14 TK	970.5
15 TK	724.4	16 TK	924.1	17 TK	1065.1	18 TK	1168.7
19 TK	1057.2	20 TK	986.1	21 TK	827.2	22 TK	32.9
23 TK	24.4	25 TK	5.4	26 R1	-12.23	27 R2	5.68
28 R3	5.28	29 R4	7.03	30 R5	5.31	36 RT	24.0
34 TT	-8.4	35 TT	26.5				

## 15:10:39

0 WS	3.0	1 WD	354.	2 WB	4.9	3 DB	5.1
24 RK	9.9	4 TK	8.3	5 TK	511.7	6 TK	19.7
7 TK	228.1	8 TK	112.3	9 TK	155.6	10 TK	257.2
11 TK	386.6	12 TK	1056.2	13 TK	52.4	14 TK	920.2
15 TK	711.6	16 TK	960.8	17 TK	1154.2	18 TK	1252.8
19 TK	1202.0	20 TK	1045.2	21 TK	754.7	22 TK	40.3
23 TK	6.3	25 TK	7.3	26 R1	-17.08	27 R2	5.94
28 R3	4.72	29 R4	6.94	30 R5	5.26	36 RT	19.6
34 TT	-11.7	35 TT	22.1				

## 15:10:40

0 WS	2.9	1 WD	352.	2 WB	5.3	3 DB	5.1
24 RK	9.9	4 TK	11.1	5 TK	470.4	6 TK	24.4
7 TK	169.9	8 TK	87.4	9 TK	123.5	10 TK	218.6
11 TK	308.2	12 TK	1025.4	13 TK	52.4	14 TK	860.2
15 TK	623.8	16 TK	886.7	17 TK	1139.9	18 TK	1217.7
19 TK	1144.0	20 TK	1035.3	21 TK	708.0	22 TK	40.3
23 TK	-27.0	25 TK	3.5	26 R1	-23.39	27 R2	4.98
28 R3	4.54	29 R4	6.90	30 R5	4.98	36 RT	26.5
34 TT	-6.6	35 TT	24.8				

## 15:10:41

0 WS	3.3	1 WD	350.	2 WB	4.9	3 DB	5.3
24 RK	8.0	4 TK	2.5	5 TK	437.2	6 TK	18.7
7 TK	164.1	8 TK	75.4	9 TK	137.6	10 TK	182.3
11 TK	569.0	12 TK	1032.3	13 TK	48.7	14 TK	980.2
15 TK	732.7	16 TK	937.5	17 TK	1152.2	18 TK	1219.8
19 TK	1073.1	20 TK	1015.6	21 TK	696.1	22 TK	53.3
23 TK	40.3	25 TK	0.6	26 R1	-22.11	27 R2	4.88
28 R3	4.93	29 R4	7.07	30 R5	5.54	36 RT	19.1
34 TT	-16.5	35 TT	18.7				

## 15:10:42

0 WS	3.3	1 WD	344.	2 WB	5.3	3 DB	5.5
24 RK	8.0	4 TK	1.5	5 TK	390.2	6 TK	18.7
7 TK	190.9	8 TK	85.6	9 TK	220.5	10 TK	307.2
11 TK	638.2	12 TK	1088.2	13 TK	54.3	14 TK	1042.2
15 TK	830.0	16 TK	952.1	17 TK	1131.7	18 TK	1189.4
19 TK	1061.1	20 TK	1026.4	21 TK	687.0	22 TK	17.8
23 TK	-30.1	25 TK	1.5	26 R1	-23.11	27 R2	5.64
28 R3	4.84	29 R4	7.22	30 R5	5.21	36 RT	16.9
34 TT	-17.3	35 TT	19.4				

## 15:10:43

0 WS	3.4	1 WD	351.	2 WB	5.0	3 DB	5.4
24 RK	9.9	4 TK	-2.3	5 TK	384.8	6 TK	17.8
7 TK	134.7	8 TK	91.1	9 TK	300.8	10 TK	310.9
11 TK	498.2	12 TK	1081.2	13 TK	50.6	14 TK	1009.6
15 TK	768.6	16 TK	978.3	17 TK	1155.3	18 TK	1229.3
19 TK	1127.6	20 TK	973.4	21 TK	712.5	22 TK	28.2
23 TK	-1.3	25 TK	8.3	26 R1	-18.63	27 R2	4.92
28 R3	4.16	29 R4	6.36	30 R5	4.94	36 RT	19.4
34 TT	-9.8	35 TT	17.9				



## 15:10:44

0 WS	3.5	1 WD	350.	2 WB	5.3	3 DB	5.4
24 RK	8.0	4 TK	-2.3	5 TK	373.0	6 TK	14.9
7 TK	210.0	8 TK	79.1	9 TK	260.0	10 TK	240.3
11 TK	428.2	12 TK	1103.3	13 TK	51.5	14 TK	927.9
15 TK	679.8	16 TK	920.2	17 TK	1142.9	18 TK	1233.6
19 TK	1154.2	20 TK	946.2	21 TK	609.4	22 TK	23.5
23 TK	-9.1	25 TK	0.6	26 R1	-20.46	27 R2	5.79
28 R3	4.16	29 R4	6.27	30 R5	5.14	36 RT	30.6
34 TT	-4.6	35 TT	30.9				

## 15:10:45

0 WS	3.8	1 WD	357.	2 WB	4.9	3 DB	5.5
24 RK	12.7	4 TK	2.5	5 TK	414.6	6 TK	15.9
7 TK	254.4	8 TK	92.9	9 TK	302.6	10 TK	331.1
11 TK	604.0	12 TK	1040.3	13 TK	51.5	14 TK	988.1
15 TK	729.0	16 TK	1063.1	17 TK	1303.7	18 TK	1308.1
19 TK	1307.0	20 TK	905.8	21 TK	159.4	22 TK	34.7
23 TK	-10.1	25 TK	10.2	26 R1	-17.90	27 R2	5.03
28 R3	3.96	29 R4	6.16	30 R5	5.33	36 RT	23.1
34 TT	-8.4	35 TT	22.0				

## 15:10:46

0 WS	3.9	1 WD	357.	2 WB	5.2	3 DB	5.4
24 RK	8.0	4 TK	-3.2	5 TK	401.1	6 TK	24.4
7 TK	249.7	8 TK	128.2	9 TK	243.2	10 TK	411.9
11 TK	657.1	12 TK	1147.0	13 TK	50.6	14 TK	1062.1
15 TK	803.8	16 TK	1147.0	17 TK	1250.6	18 TK	1254.9
19 TK	1202.0	20 TK	1103.3	21 TK	601.3	22 TK	488.4
23 TK	215.7	25 TK	-0.3	26 R1	-14.79	27 R2	7.96
28 R3	8.95	29 R4	8.18	30 R5	6.45	36 RT	23.4
34 TT	-10.7	35 TT	22.3				

## 15:10:47

0 WS	4.0	1 WD	352.	2 WB	5.3	3 DB	5.0
24 RK	14.6	4 TK	9.2	5 TK	411.9	6 TK	31.0
7 TK	331.1	8 TK	106.8	9 TK	208.1	10 TK	430.9
11 TK	719.8	12 TK	1044.2	13 TK	62.6	14 TK	1158.4
15 TK	924.1	16 TK	1112.4	17 TK	1181.1	18 TK	1146.0
19 TK	1101.3	20 TK	1034.3	21 TK	771.3	22 TK	731.7
23 TK	408.3	25 TK	5.4	26 R1	-15.89	27 R2	7.71
28 R3	8.71	29 R4	7.46	30 R5	5.93	36 RT	19.4
34 TT	-17.2	35 TT	22.3				

## 15:10:48

0 WS	3.7	1 WD	358.	2 WB	5.3	3 DB	4.9
24 RK	10.8	4 TK	4.4	5 TK	475.8	6 TK	21.6
7 TK	331.1	8 TK	109.5	9 TK	245.1	10 TK	462.3
11 TK	679.8	12 TK	1109.4	13 TK	60.7	14 TK	1098.3
15 TK	899.1	16 TK	1101.3	17 TK	1216.6	18 TK	1157.3
19 TK	1108.4	20 TK	1100.3	21 TK	787.1	22 TK	706.1
23 TK	647.2	25 TK	-0.3	26 R1	-16.71	27 R2	8.31
28 R3	8.10	29 R4	7.55	30 R5	5.86	36 RT	24.4
34 TT	-14.6	35 TT	23.4				



15:10:49

0 WS	3.8	1 WD	350.	2 WB	5.3	3 DB	5.0
24 RK	10.8	4 TK	14.0	5 TK	478.5	6 TK	26.3
7 TK	375.7	8 TK	212.9	9 TK	321.9	10 TK	515.3
11 TK	744.6	12 TK	996.9	13 TK	76.4	14 TK	1042.2
15 TK	880.1	16 TK	1168.7	17 TK	1182.1	18 TK	1155.3
19 TK	1090.2	20 TK	1104.3	21 TK	804.8	22 TK	671.6
23 TK	720.8	25 TK	8.3	26 R1	-14.06	27 R2	5.83
28 R3	8.55	29 R4	7.63	30 R5	5.44	36 RT	17.3
34 TT	-16.4	35 TT	18.1				

15:10:50

0 WS	4.0	1 WD	349.	2 WB	5.1	3 DB	5.3
24 RK	6.0	4 TK	8.3	5 TK	504.5	6 TK	20.6
7 TK	299.0	8 TK	211.9	9 TK	336.6	10 TK	479.4
11 TK	707.1	12 TK	1037.3	13 TK	80.0	14 TK	1026.4
15 TK	831.9	16 TK	1109.4	17 TK	1151.2	18 TK	1119.5
19 TK	1062.1	20 TK	1083.2	21 TK	784.3	22 TK	700.7
23 TK	754.7	25 TK	-5.2	26 R1	-8.94	27 R2	5.38
28 R3	7.90	29 R4	6.98	30 R5	5.40	36 RT	17.3
34 TT	-21.2	35 TT	17.0				

15:10:51

0 WS	4.0	1 WD	349.	2 WB	4.9	3 DB	5.4
24 RK	9.9	4 TK	12.1	5 TK	461.5	6 TK	19.7
7 TK	237.5	8 TK	157.5	9 TK	278.6	10 TK	479.4
11 TK	791.7	12 TK	1028.4	13 TK	70.9	14 TK	1063.1
15 TK	895.3	16 TK	1045.2	17 TK	1084.2	18 TK	1157.3
19 TK	986.1	20 TK	1038.3	21 TK	756.5	22 TK	631.0
23 TK	830.0	25 TK	-2.3	26 R1	-10.03	27 R2	6.77
28 R3	7.79	29 R4	7.07	30 R5	5.40	36 RT	18.4
34 TT	-18.9	35 TT	18.9				

15:10:52

0 WS	4.0	1 WD	340.	2 WB	5.1	3 DB	5.4
24 RK	12.7	4 TK	15.9	5 TK	480.3	6 TK	24.4
7 TK	196.6	8 TK	127.2	9 TK	226.2	10 TK	489.3
11 TK	617.5	12 TK	1048.2	13 TK	72.7	14 TK	1061.1
15 TK	779.7	16 TK	1152.2	17 TK	1183.2	18 TK	1146.0
19 TK	1013.6	20 TK	1174.9	21 TK	837.5	22 TK	685.2
23 TK	762.1	25 TK	7.3	26 R1	-15.61	27 R2	5.18
28 R3	7.70	29 R4	6.77	30 R5	5.95	36 RT	28.9
34 TT	-9.9	35 TT	28.9				

15:10:53

0 WS	4.1	1 WD	0.	2 WB	4.9	3 DB	5.4
24 RK	8.9	4 TK	7.3	5 TK	485.7	6 TK	14.9
7 TK	148.0	8 TK	90.2	9 TK	189.9	10 TK	377.5
11 TK	525.1	12 TK	1036.3	13 TK	63.5	14 TK	1065.1
15 TK	849.8	16 TK	1028.4	17 TK	1090.2	18 TK	1178.0
19 TK	1046.2	20 TK	1092.2	21 TK	880.1	22 TK	689.8
23 TK	855.4	25 TK	-3.2	26 R1	-13.78	27 R2	4.57
28 R3	7.54	29 R4	6.72	30 R5	5.21	36 RT	18.9
34 TT	-21.1	35 TT	18.8				



15:10:54

0 WS	3.8	1 WD	350.	2 WB	5.3	3 DB	4.9
24 RK	12.7	4 TK	15.9	5 TK	447.1	6 TK	31.9
7 TK	133.8	8 TK	91.1	9 TK	162.2	10 TK	307.2
11 TK	588.7	12 TK	1040.3	13 TK	62.6	14 TK	948.2
15 TK	793.6	16 TK	926.0	17 TK	1020.5	18 TK	1173.8
19 TK	1059.2	20 TK	1094.2	21 TK	830.0	22 TK	764.9
23 TK	952.1	25 TK	-1.3	26 R1	-13.14	27 R2	3.59
28 R3	7.72	29 R4	6.96	30 R5	5.01	36 RT	23.7
34 TT	-16.7	35 TT	23.4				

15:10:55

0 WS	3.7	1 WD	357.	2 WB	5.2	3 DB	4.9
24 RK	9.9	4 TK	16.8	5 TK	437.2	6 TK	20.6
7 TK	99.4	8 TK	67.2	9 TK	124.4	10 TK	220.5
11 TK	433.6	12 TK	835.7	13 TK	55.2	14 TK	896.3
15 TK	694.3	16 TK	785.2	17 TK	872.5	18 TK	1148.1
19 TK	1027.4	20 TK	1149.1	21 TK	829.1	22 TK	778.7
23 TK	1039.3	25 TK	-4.2	26 R1	-13.69	27 R2	2.71
28 R3	7.03	29 R4	6.14	30 R5	4.78	36 RT	16.0
34 TT	-26.1	35 TT	14.7				

15:10:56

0 WS	3.5	1 WD	353.	2 WB	5.1	3 DB	5.1
24 RK	12.7	4 TK	32.9	5 TK	438.1	6 TK	38.5
7 TK	92.9	8 TK	74.5	9 TK	108.6	10 TK	224.3
11 TK	342.0	12 TK	763.9	13 TK	53.3	14 TK	760.2
15 TK	611.2	16 TK	711.6	17 TK	808.5	18 TK	1067.1
19 TK	986.1	20 TK	1010.6	21 TK	753.8	22 TK	757.5
23 TK	1086.2	25 TK	-0.3	26 R1	-21.92	27 R2	2.27
28 R3	6.38	29 R4	5.53	30 R5	4.20	36 RT	21.6
34 TT	-16.9	35 TT	20.1				

15:10:57

0 WS	3.8	1 WD	354.	2 WB	5.3	3 DB	5.0
24 RK	13.7	4 TK	69.9	5 TK	415.5	6 TK	66.2
7 TK	86.5	8 TK	98.5	9 TK	86.5	10 TK	187.1
11 TK	235.6	12 TK	585.1	13 TK	47.8	14 TK	541.2
15 TK	463.2	16 TK	537.6	17 TK	574.4	18 TK	976.3
19 TK	864.0	20 TK	772.3	21 TK	731.7	22 TK	731.7
23 TK	1005.7	25 TK	0.6	26 R1	-23.30	27 R2	1.58
28 R3	6.60	29 R4	4.21	30 R5	3.22	36 RT	17.8
34 TT	-21.8	35 TT	19.7				

15:10:58

0 WS	3.7	1 WD	352.	2 WB	4.9	3 DB	5.4
24 RK	16.5	4 TK	79.1	5 TK	413.7	6 TK	63.5
7 TK	69.0	8 TK	92.0	9 TK	67.2	10 TK	143.2
11 TK	166.0	12 TK	455.2	13 TK	42.2	14 TK	369.4
15 TK	375.7	16 TK	391.1	17 TK	402.9	18 TK	624.7
19 TK	644.5	20 TK	663.5	21 TK	584.2	22 TK	521.5
23 TK	735.4	25 TK	3.5	26 R1	-21.01	27 R2	1.05
28 R3	6.81	29 R4	3.56	30 R5	2.62	36 RT	20.1
34 TT	-21.7	35 TT	21.4				



15:10:59

0 WS	3.4	1 WD	354.	2 WB	4.8	3 DB	5.3
24 RK	11.8	4 TK	71.8	5 TK	399.3	6 TK	55.2
7 TK	52.4	8 TK	79.1	9 TK	49.6	10 TK	104.0
11 TK	111.4	12 TK	316.4	13 TK	32.9	14 TK	252.5
15 TK	300.8	16 TK	261.9	17 TK	267.5	18 TK	412.8
19 TK	497.3	20 TK	629.2	21 TK	451.6	22 TK	373.9
23 TK	567.2	25 TK	3.5	26 R1	-18.08	27 R2	1.36
28 R3	7.46	29 R4	2.86	30 R5	2.16	36 RT	19.5
34 TT	-16.8	35 TT	18.7				

15:11:00

0 WS	3.3	1 WD	352.	2 WB	5.2	3 DB	5.3
24 RK	11.8	4 TK	62.6	5 TK	385.7	6 TK	58.0
7 TK	44.1	8 TK	71.8	9 TK	41.3	10 TK	78.2
11 TK	79.1	12 TK	229.0	13 TK	31.0	14 TK	167.0
15 TK	258.2	16 TK	165.1	17 TK	181.3	18 TK	273.1
19 TK	394.7	20 TK	594.1	21 TK	358.4	22 TK	261.9
23 TK	434.5	25 TK	-2.3	26 R1	-12.23	27 R2	0.61
28 R3	6.72	29 R4	2.60	30 R5	2.66	36 RT	18.3
34 TT	-19.0	35 TT	17.0				

15:11:01

0 WS	3.6	1 WD	352.	2 WB	5.2	3 DB	5.1
24 RK	13.7	4 TK	53.3	5 TK	373.9	6 TK	68.1
7 TK	37.5	8 TK	52.4	9 TK	39.4	10 TK	66.2
11 TK	60.7	12 TK	159.4	13 TK	29.1	14 TK	113.3
15 TK	204.3	16 TK	120.7	17 TK	130.0	18 TK	184.2
19 TK	325.6	20 TK	532.3	21 TK	281.4	22 TK	203.3
23 TK	332.9	25 TK	4.4	26 R1	-11.77	27 R2	1.20
28 R3	6.69	29 R4	2.78	30 R5	2.21	36 RT	21.0
34 TT	-18.1	35 TT	23.4				

15:11:02

0 WS	3.8	1 WD	352.	2 WB	5.2	3 DB	5.2
24 RK	14.6	4 TK	52.4	5 TK	357.5	6 TK	75.4
7 TK	32.9	8 TK	48.7	9 TK	33.8	10 TK	57.0
11 TK	52.4	12 TK	120.7	13 TK	29.1	14 TK	88.3
15 TK	164.1	16 TK	93.8	17 TK	97.5	18 TK	125.4
19 TK	245.1	20 TK	463.2	21 TK	217.6	22 TK	155.6
23 TK	262.8	25 TK	4.4	26 R1	-6.10	27 R2	0.76
28 R3	7.16	29 R4	2.39	30 R5	1.81	36 RT	21.9
34 TT	-13.2	35 TT	25.4				

15:11:03

0 WS	3.8	1 WD	354.	2 WB	5.0	3 DB	5.2
24 RK	11.8	4 TK	41.3	5 TK	338.4	6 TK	56.1
7 TK	30.0	8 TK	41.3	9 TK	28.2	10 TK	44.1
11 TK	36.6	12 TK	91.1	13 TK	26.3	14 TK	60.7
15 TK	154.6	16 TK	64.4	17 TK	69.0	18 TK	78.2
19 TK	182.3	20 TK	380.3	21 TK	169.9	22 TK	118.8
23 TK	211.0	25 TK	7.3	26 R1	-6.92	27 R2	0.31
28 R3	6.20	29 R4	2.30	30 R5	2.43	36 RT	16.9
34 TT	-18.6	35 TT	16.1				





15:11:04

0 WS	3.8	1 WD	356.	2 WB	5.2	3 DB	5.2
24 RK	11.8	4 TK	34.7	5 TK	322.8	6 TK	40.3
7 TK	27.2	8 TK	31.9	9 TK	24.4	10 TK	33.8
11 TK	33.8	12 TK	64.4	13 TK	23.5	14 TK	43.1
15 TK	145.1	16 TK	58.0	17 TK	54.3	18 TK	57.0
19 TK	135.7	20 TK	305.4	21 TK	133.8	22 TK	91.1
23 TK	166.0	25 TK	5.4	26 R1	-4.91	27 R2	0.61
28 R3	6.72	29 R4	2.08	30 R5	1.86	36 RT	19.0
34 TT	-16.1	35 TT	20.3				

15:11:05

0 WS	4.0	1 WD	359.	2 WB	4.8	3 DB	5.3
24 RK	9.9	4 TK	24.4	5 TK	303.6	6 TK	28.2
7 TK	23.5	8 TK	24.4	9 TK	21.6	10 TK	25.3
11 TK	26.3	12 TK	49.6	13 TK	19.7	14 TK	29.1
15 TK	144.2	16 TK	47.8	17 TK	41.3	18 TK	44.1
19 TK	109.5	20 TK	231.9	21 TK	110.5	22 TK	69.9
23 TK	129.1	25 TK	5.4	26 R1	-1.25	27 R2	0.46
28 R3	7.86	29 R4	2.28	30 R5	2.16	36 RT	17.6
34 TT	-17.3	35 TT	17.6				

15:11:06

0 WS	3.7	1 WD	356.	2 WB	5.3	3 DB	5.0
24 RK	10.8	4 TK	25.3	5 TK	288.8	6 TK	27.2
7 TK	21.6	8 TK	24.4	9 TK	21.6	10 TK	24.4
11 TK	27.2	12 TK	38.5	13 TK	19.7	14 TK	27.2
15 TK	132.9	16 TK	45.9	17 TK	37.5	18 TK	33.8
19 TK	77.3	20 TK	161.3	21 TK	86.5	22 TK	56.1
23 TK	112.3	25 TK	6.3	26 R1	-1.62	27 R2	0.29
28 R3	8.48	29 R4	1.82	30 R5	2.41	36 RT	23.9
34 TT	-7.4	35 TT	23.8				

15:11:07

0 WS	3.9	1 WD	348.	2 WB	5.0	3 DB	5.4
24 RK	13.7	4 TK	31.0	5 TK	277.7	6 TK	25.3
7 TK	24.4	8 TK	29.1	9 TK	23.5	10 TK	24.4
11 TK	27.2	12 TK	34.7	13 TK	26.3	14 TK	28.2
15 TK	129.1	16 TK	37.5	17 TK	34.7	18 TK	31.9
19 TK	59.8	20 TK	104.9	21 TK	71.8	22 TK	50.6
23 TK	91.1	25 TK	12.1	26 R1	-1.07	27 R2	0.46
28 R3	7.74	29 R4	1.89	30 R5	2.25	36 RT	29.1
34 TT	-4.0	35 TT	31.5				

15:11:08

0 WS	3.8	1 WD	339.	2 WB	5.2	3 DB	4.9
24 RK	8.9	4 TK	28.2	5 TK	260.0	6 TK	24.4
7 TK	18.7	8 TK	19.7	9 TK	16.8	10 TK	18.7
11 TK	21.6	12 TK	28.2	13 TK	15.9	14 TK	24.4
15 TK	116.0	16 TK	31.9	17 TK	26.3	18 TK	23.5
19 TK	43.1	20 TK	45.9	21 TK	55.2	22 TK	39.4
23 TK	74.5	25 TK	9.2	26 R1	-0.06	27 R2	0.50
28 R3	7.39	29 R4	1.80	30 R5	2.11	36 RT	16.9
34 TT	-17.4	35 TT	16.1				



15:11:09

0 WS	3.7	1 WD	344.	2 WB	4.9	3 DB	5.2
24 RK	8.9	4 TK	21.6	5 TK	249.7	6 TK	20.6
7 TK	19.7	8 TK	19.7	9 TK	14.0	10 TK	16.8
11 TK	19.7	12 TK	24.4	13 TK	18.7	14 TK	19.7
15 TK	114.2	16 TK	29.1	17 TK	26.3	18 TK	19.7
19 TK	39.4	20 TK	-12.0	21 TK	50.6	22 TK	37.5
23 TK	67.2	25 TK	7.3	26 R1	0.38	27 R2	0.29
28 R3	7.66	29 R4	1.93	30 R5	1.84	36 RT	27.4
34 TT	-2.5	35 TT	30.3				

15:11:10

0 WS	3.6	1 WD	340.	2 WB	5.2	3 DB	5.5
24 RK	9.9	4 TK	19.7	5 TK	241.3	6 TK	14.0
7 TK	20.6	8 TK	15.9	9 TK	15.9	10 TK	16.8
11 TK	25.3	12 TK	27.2	13 TK	15.9	14 TK	16.8
15 TK	114.2	16 TK	27.2	17 TK	22.5	18 TK	22.5
19 TK	47.8	20 TK	-68.4	21 TK	42.2	22 TK	31.9
23 TK	58.9	25 TK	12.1	26 R1	1.75	27 R2	1.11
28 R3	6.49	29 R4	1.28	30 R5	1.52	36 RT	24.6
34 TT	-7.8	35 TT	26.3				

15:11:11

0 WS	3.6	1 WD	354.	2 WB	5.3	3 DB	5.2
24 RK	13.7	4 TK	20.6	5 TK	232.8	6 TK	17.8
7 TK	22.5	8 TK	19.7	9 TK	21.6	10 TK	20.6
11 TK	25.3	12 TK	25.3	13 TK	20.6	14 TK	23.5
15 TK	115.1	16 TK	21.6	17 TK	30.0	18 TK	23.5
19 TK	55.2	20 TK	-113.9	21 TK	45.0	22 TK	35.7
23 TK	47.8	25 TK	14.0	26 R1	1.66	27 R2	0.48
28 R3	2.67	29 R4	1.39	30 R5	1.36	36 RT	25.4
34 TT	-3.4	35 TT	24.3				



## NBS BOFST PRESSURE RECORDINGS

Acronym	Description	Units
GO	Gas Orifice	psig
WO	Water Orifice	psig
RO	Restriction Orifice	psig
WP	Water Line (near nozzle(s))	psig
G $\Delta$ P	Gas Differential Pressure	inches of water
W $\Delta$ P	Water Differential Pressure	inches of water
R $\Delta$ P	Restriction Orifice Differential Pressure	inches of water

First  is at time of ignition.

Second  is at time of water injection.

Time corresponds to times of data acquisition system.

TEST 3

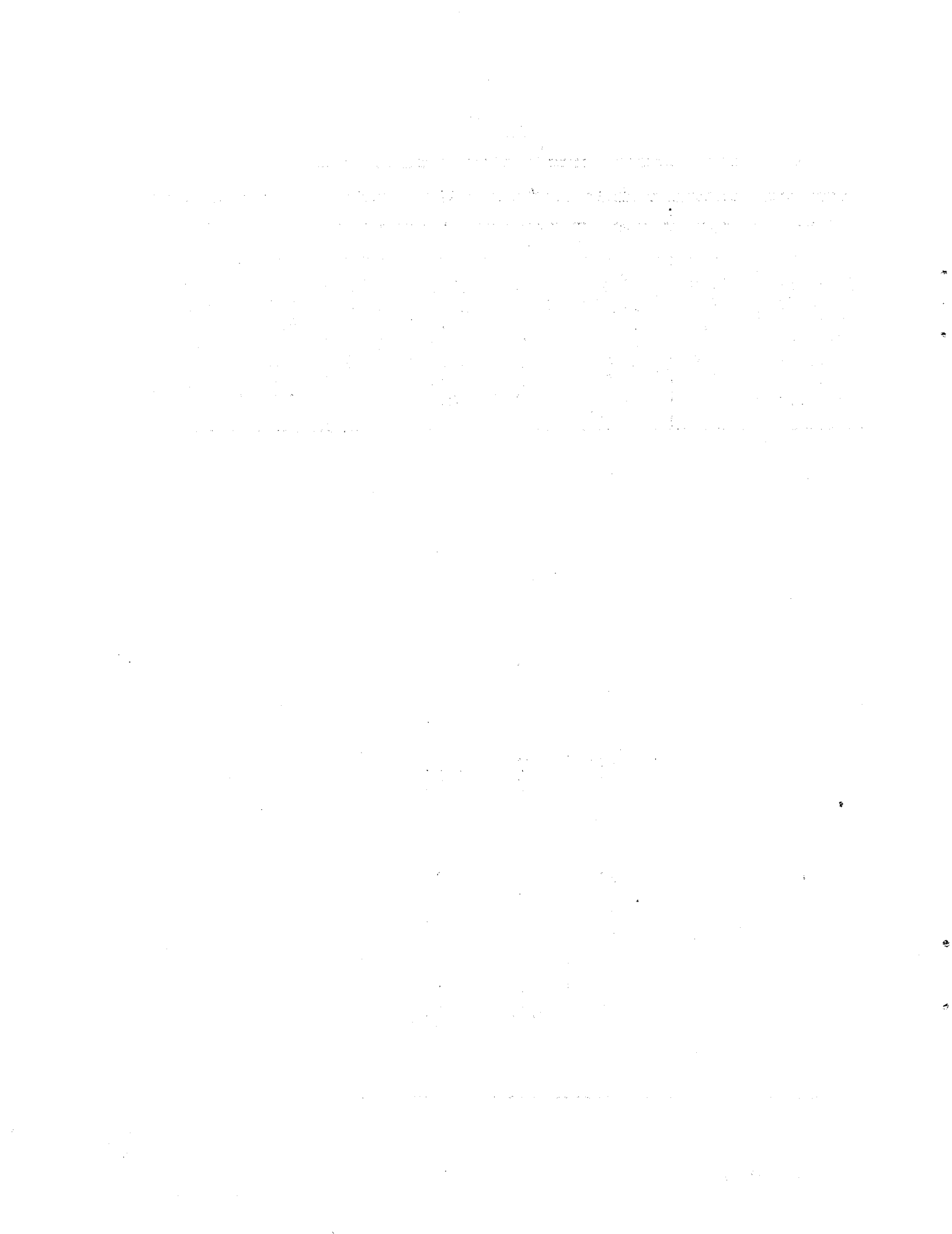
Time	GO	WO	RO	WP	GAP	WAP	RAP
15:10:08	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15:10:09	1.0	0.0	0.5	0.0	105.0	0.0	908.0
15:10:10	1.5	0.0	1.0	0.0	242.0	0.0	905.0
15:10:11	3.0	0.0	3.0	2.0	241.0	0.0	899.0
15:10:12	8.0	0.0	8.0	4.0	240.0	0.0	903.0
15:10:13	14.0	2.0	13.0	7.0	239.0	0.0	904.0
15:10:14	23.0	9.5	16.0	11.0	238.0	0.0	922.0
15:10:15	38.0	20.0	25.0	15.0	238.0	0.0	927.0
15:10:16	41.0	26.0	29.0	21.0	237.0	0.0	936.0
15:10:17	43.0	28.5	34.0	29.0	236.0	0.0	933.0
15:10:18	43.5	29.5	34.0	32.0	235.0	0.0	930.0
15:10:19	43.5	29.5	34.0	32.5	234.0	0.0	927.0
15:10:20	43.5	29.5	34.0	32.5	235.0	0.0	924.0
15:10:21	43.0	29.5	34.0	32.5	236.0	0.0	921.0
15:10:22	43.0	29.5	33.5	32.5	237.0	0.0	919.0
15:10:23	43.0	32.0	33.5	33.0	238.0	0.0	917.0
15:10:24	43.0	33.0	33.5	34.0	230.0	0.0	914.0
15:10:25	42.5	34.0	33.5	33.0	224.0	0.0	910.0
15:10:26	42.5	32.0	33.5	32.0	224.0	0.0	906.0
15:10:27	42.5	37.0	33.5	33.0	228.0	0.0	903.0
15:10:28	42.0	42.0	33.5	35.0	227.0	62.0	899.0
15:10:29	42.5	34.0	33.5	38.0	225.0	105.0	842.0
15:10:30	42.0	45.0	33.0	47.0	222.0	63.0	842.0
15:10:31	42.5	46.0	33.0	53.0	220.0	79.0	814.0
15:10:32	43.0	49.0	33.5	62.0	218.0	46.0	777.0
15:10:33	43.0	64.0	34.0	62.0	214.0	84.0	749.0
15:10:34	43.0	63.0	34.0	65.0	213.0	101.0	680.0
15:10:35	43.0	68.0	34.0	72.0	212.0	92.0	595.0
15:10:36	43.0	74.0	34.0	72.0	210.0	105.0	512.0
15:10:37	42.5	83.0	34.0	80.0	209.0	121.0	446.0
15:10:38	42.5	83.0	33.5	81.0	208.0	120.0	374.0
15:10:39	42.5	83.0	33.5	82.0	207.0	119.0	326.0
15:10:40	42.0	84.0	33.5	82.0	206.0	118.0	276.0
15:10:41	42.0	86.0	33.5	83.0	205.0	134.0	220.0
15:10:42	42.0	86.0	33.5	83.0	204.0	135.0	162.0
15:10:43	42.0	86.0	33.5	83.0	204.0	136.0	110.0
15:10:44	41.5	86.0	33.0	83.0	210.0	136.0	58.0
15:10:45	41.0	86.0	33.0	74.0	214.0	137.0	0.0
15:10:46	41.0	77.0	33.0	53.0	198.0	137.0	0.0
15:10:47	39.5	68.0	32.5	36.0	186.0	127.0	0.0
15:10:48	39.0	59.0	32.5	33.0	174.0	84.0	0.0
15:10:49	38.5	47.0	30.0	32.5	158.0	42.0	0.0
15:10:50	37.5	38.0	30.0	32.0	150.0	4.2	0.0
15:10:51	37.0	32.0	29.5	32.0	119.0	0.0	0.0



TEST 3  
(Continued)

Time	GO	WO	RO	WP	GAP	WAP	RAP
15:10:52	34.0	28.0	29.0	32.0	100.0	0.0	0.0
15:10:53	32.0	24.0	28.5	26.0	79.0	0.0	0.0
15:10:54	29.0	21.0	27.0	22.0	48.0	0.0	0.0
15:10:55	23.0	18.0	23.0	18.0	24.0	0.0	0.0
15:10:56	17.0	15.0	21.0	16.0	5.0	0.0	0.0
15:10:57	8.0	13.0	14.0	12.0	0.0	0.0	0.0
15:10:58	0.5	11.0	7.0	8.0	0.0	0.0	0.0





APPENDIX H

TEST NUMBER 4

DATA ACQUISITION RECORDINGS AND PRESSURE READINGS



NBS BOFST CHANNEL ASSIGNMENT

Channel	Acronym	Description	Units	Location
0	WS	Wind Speed	mph	Met Tower (10 m)
1	WD	Wind Direction	° from N	Met Tower (10 m)
2	WB	Wet Bulb	°C	Met Tower (10 m)
3	DB	Dry Bulb	°C	Met Tower (10 m)
4	KT	K Thermocouple	°C	Cable Array (#1)
5	KT	K Thermocouple	°C	Cable Array (#2)
6	KT	K Thermocouple	°C	Cable Array (#3)
7	KT	K Thermocouple	°C	Cable Array (#4)
8	KT	K Thermocouple	°C	Cable Array (#5)
9	KT	K Thermocouple	°C	Cable Array (#6)
10	KT	K Thermocouple	°C	Cable Array (#7)
11	KT	K Thermocouple	°C	Cable Array (#8)
12	KT	K Thermocouple	°C	Cable Array (#9)
13	KT	K Thermocouple	°C	Cable Array (#10)
14	KT	K Thermocouple	°C	Cable Array (#11)
15	KT	K Thermocouple	°C	Cable Array (#12)
16	KT	K Thermocouple	°C	Cable Array (#13)
17	KT	K Thermocouple	°C	Cable Array (#14)
18	KT	K Thermocouple	°C	Cable Array (#15)
19	KT	K Thermocouple	°C	Cable Array (#16)
20	KT	K Thermocouple	°C	Cable Array (#17)
21	KT	K Thermocouple	°C	Cable Array (#18)
22	KT	K Thermocouple	°C	Cable Array (#19)
23	KT	K Thermocouple	°C	Cable Array (#20)
24	KR	K Reference Thermocouple	°C	Junctions for K Thermocouples
25	KT	K Thermocouple	°C	Gas Outlet
26	R1	Radiometer (7°)	kW/m <sup>2</sup>	Radiometer Array (#1)
27	R2	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#2)
28	R3	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#3)
29	R4	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#4)
30	R5	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#5)
34	TT	T Thermocouple	°C	Gas Line
35	TT	T Thermocouple	°C	Water Line
36	TR	T Reference Thermocouple	°C	Junctions for T Thermocouples





nbs blowout fire simulation, test 4

1/27/84

34 channels per scan

16:37:20

0 WS	0.8	1 WD	23.	2 WB	6.2	3 DB	6.4
24 RK	9.9	4 TK	27.2	5 TK	19.7	6 TK	20.6
7 TK	14.9	8 TK	20.6	9 TK	14.0	10 TK	17.8
11 TK	17.8	12 TK	21.6	13 TK	14.0	14 TK	21.6
15 TK	15.9	16 TK	18.7	17 TK	-7.1	18 TK	22.5
19 TK	18.7	20 TK	15.9	21 TK	20.6	22 TK	19.7
23 TK	12.1	25 TK	175.6	26 R1	1.75	27 R2	0.68
28 R3	0.40	29 R4	0.65	30 R5	0.87	36 RT	5.8
34 TT	18.9	35 TT	13.0				

16:37:21

0 WS	0.8	1 WD	23.	2 WB	6.0	3 DB	6.5
24 RK	11.8	4 TK	29.1	5 TK	21.6	6 TK	21.6
7 TK	16.8	8 TK	22.5	9 TK	16.8	10 TK	19.7
11 TK	17.8	12 TK	24.4	13 TK	17.8	14 TK	19.7
15 TK	16.8	16 TK	20.6	17 TK	-8.1	18 TK	19.7
19 TK	20.6	20 TK	19.7	21 TK	18.7	22 TK	23.5
23 TK	14.0	25 TK	174.6	26 R1	3.95	27 R2	0.64
28 R3	0.40	29 R4	0.61	30 R5	0.92	36 RT	6.3
34 TT	16.7	35 TT	15.5				

16:37:22

0 WS	0.8	1 WD	22.	2 WB	5.5	3 DB	5.8
24 RK	9.9	4 TK	29.1	5 TK	21.6	6 TK	18.7
7 TK	14.0	8 TK	20.6	9 TK	16.8	10 TK	16.8
11 TK	16.8	12 TK	24.4	13 TK	14.9	14 TK	16.8
15 TK	16.8	16 TK	17.8	17 TK	-10.1	18 TK	19.7
19 TK	20.6	20 TK	16.8	21 TK	16.8	22 TK	23.5
23 TK	14.0	25 TK	168.9	26 R1	3.49	27 R2	0.63
28 R3	0.43	29 R4	0.76	30 R5	1.31	36 RT	9.7
34 TT	18.9	35 TT	20.6				

16:37:23

0 WS	0.8	1 WD	22.	2 WB	5.6	3 DB	5.9
24 RK	10.8	4 TK	28.2	5 TK	21.6	6 TK	20.6
7 TK	15.9	8 TK	20.6	9 TK	15.9	10 TK	17.8
11 TK	17.8	12 TK	25.3	13 TK	14.9	14 TK	17.8
15 TK	16.8	16 TK	17.8	17 TK	-9.1	18 TK	18.7
19 TK	19.7	20 TK	19.7	21 TK	17.8	22 TK	21.6
23 TK	14.9	25 TK	167.0	26 R1	3.31	27 R2	0.70
28 R3	0.49	29 R4	0.67	30 R5	0.76	36 RT	13.8
34 TT	24.4	35 TT	22.3				

16:37:24

0 WS	0.9	1 WD	23.	2 WB	5.8	3 DB	6.0
24 RK	8.0	4 TK	26.3	5 TK	20.6	6 TK	18.7
7 TK	12.1	8 TK	22.5	9 TK	12.1	10 TK	16.8
11 TK	13.0	12 TK	19.7	13 TK	14.9	14 TK	15.9
15 TK	17.8	16 TK	14.0	17 TK	-10.1	18 TK	18.7
19 TK	14.9	20 TK	15.9	21 TK	14.0	22 TK	17.8
23 TK	12.1	25 TK	159.4	26 R1	5.05	27 R2	0.46
28 R3	0.43	29 R4	0.74	30 R5	0.80	36 RT	9.3
34 TT	20.1	35 TT	18.8				



## 16:37:25

0 WS	1.0	1 WD	21.	2 WB	4.9	3 DB	5.4
24 RK	15.6	4 TK	32.9	5 TK	23.5	6 TK	29.1
7 TK	19.7	8 TK	25.3	9 TK	22.5	10 TK	23.5
11 TK	23.5	12 TK	29.1	13 TK	21.6	14 TK	27.2
15 TK	22.5	16 TK	20.6	17 TK	-2.3	18 TK	25.3
19 TK	22.5	20 TK	20.6	21 TK	20.6	22 TK	31.0
23 TK	16.8	25 TK	165.1	26 R1	4.77	27 R2	0.41
28 R3	0.78	29 R4	0.59	30 R5	0.51	36 RT	6.0
34 TT	16.1	35 TT	15.3				

## 16:37:26

0 WS	1.0	1 WD	22.	2 WB	5.7	3 DB	6.0
24 RK	9.9	4 TK	27.2	5 TK	19.7	6 TK	19.7
7 TK	15.9	8 TK	20.6	9 TK	16.8	10 TK	15.9
11 TK	14.9	12 TK	26.3	13 TK	14.9	14 TK	15.9
15 TK	17.8	16 TK	15.9	17 TK	-7.1	18 TK	17.8
19 TK	17.8	20 TK	16.8	21 TK	16.8	22 TK	21.6
23 TK	13.0	25 TK	159.4	26 R1	4.96	27 R2	0.39
28 R3	0.49	29 R4	0.91	30 R5	0.64	36 RT	16.7
34 TT	28.4	35 TT	24.3				

## 16:37:27

0 WS	0.9	1 WD	22.	2 WB	5.2	3 DB	5.6
24 RK	9.9	4 TK	27.2	5 TK	20.6	6 TK	19.7
7 TK	15.9	8 TK	21.6	9 TK	16.8	10 TK	15.9
11 TK	17.8	12 TK	22.5	13 TK	14.9	14 TK	16.8
15 TK	17.8	16 TK	16.8	17 TK	-8.1	18 TK	18.7
19 TK	17.8	20 TK	17.8	21 TK	15.9	22 TK	21.6
23 TK	14.0	25 TK	157.5	26 R1	3.58	27 R2	0.74
28 R3	0.42	29 R4	0.63	30 R5	0.83	36 RT	12.8
34 TT	23.2	35 TT	21.2				

## 16:37:28

0 WS	1.0	1 WD	22.	2 WB	5.5	3 DB	5.8
24 RK	9.9	4 TK	27.2	5 TK	20.6	6 TK	20.6
7 TK	16.8	8 TK	21.6	9 TK	14.0	10 TK	17.8
11 TK	16.8	12 TK	23.5	13 TK	14.9	14 TK	17.8
15 TK	16.8	16 TK	16.8	17 TK	-8.1	18 TK	17.8
19 TK	20.6	20 TK	17.8	21 TK	16.8	22 TK	19.7
23 TK	11.1	25 TK	155.6	26 R1	3.40	27 R2	0.42
28 R3	0.56	29 R4	0.89	30 R5	0.71	36 RT	19.2
34 TT	29.6	35 TT	27.9				

## 16:37:29

0 WS	1.0	1 WD	22.	2 WB	5.6	3 DB	5.8
24 RK	8.9	4 TK	24.4	5 TK	22.5	6 TK	20.6
7 TK	13.0	8 TK	21.6	9 TK	15.9	10 TK	16.8
11 TK	13.0	12 TK	24.4	13 TK	17.8	14 TK	18.7
15 TK	16.8	16 TK	15.9	17 TK	-11.1	18 TK	16.8
19 TK	18.7	20 TK	19.7	21 TK	14.9	22 TK	19.7
23 TK	14.9	25 TK	150.8	26 R1	3.77	27 R2	0.35
28 R3	0.18	29 R4	1.21	30 R5	0.53	36 RT	10.8
34 TT	23.6	35 TT	18.2				

16:37:30

0 WS	0.9	1 WD	22.	2 WB	5.5	3 DB	5.8
24 RK	7.0	4 TK	25.3	5 TK	15.9	6 TK	16.8
7 TK	15.9	8 TK	18.7	9 TK	14.0	10 TK	16.8
11 TK	11.1	12 TK	21.6	13 TK	15.9	14 TK	13.0
15 TK	14.0	16 TK	14.0	17 TK	-13.0	18 TK	14.9
19 TK	14.0	20 TK	18.7	21 TK	12.1	22 TK	16.8
23 TK	12.1	25 TK	152.7	26 R1	3.31	27 R2	0.53
28 R3	0.51	29 R4	0.39	30 R5	0.53	36 RT	5.8
34 TT	17.8	35 TT	13.2				

16:37:31

0 WS	0.9	1 WD	21.	2 WB	4.9	3 DB	5.3
24 RK	11.8	4 TK	29.1	5 TK	21.6	6 TK	23.5
7 TK	16.8	8 TK	23.5	9 TK	16.8	10 TK	20.6
11 TK	18.7	12 TK	24.4	13 TK	16.8	14 TK	19.7
15 TK	18.7	16 TK	20.6	17 TK	-5.2	18 TK	19.7
19 TK	20.6	20 TK	20.6	21 TK	16.8	22 TK	22.5
23 TK	19.7	25 TK	148.9	26 R1	4.32	27 R2	0.61
28 R3	0.83	29 R4	0.41	30 R5	0.83	36 RT	14.2
34 TT	22.1	35 TT	22.3				

16:37:32

0 WS	0.9	1 WD	22.	2 WB	5.0	3 DB	5.1
24 RK	9.9	4 TK	28.2	5 TK	20.6	6 TK	20.6
7 TK	15.9	8 TK	21.6	9 TK	14.0	10 TK	17.8
11 TK	15.9	12 TK	22.5	13 TK	14.0	14 TK	17.8
15 TK	17.8	16 TK	16.8	17 TK	-7.1	18 TK	17.8
19 TK	20.6	20 TK	16.8	21 TK	16.8	22 TK	20.6
23 TK	13.0	25 TK	148.9	26 R1	3.31	27 R2	0.55
28 R3	0.52	29 R4	0.67	30 R5	0.83	36 RT	13.0
34 TT	23.1	35 TT	21.2				

16:37:33

0 WS	0.8	1 WD	22.	2 WB	5.2	3 DB	5.6
24 RK	9.9	4 TK	27.2	5 TK	18.7	6 TK	20.6
7 TK	14.9	8 TK	21.6	9 TK	14.9	10 TK	21.6
11 TK	15.9	12 TK	22.5	13 TK	19.7	14 TK	17.8
15 TK	18.7	16 TK	18.7	17 TK	-9.1	18 TK	18.7
19 TK	19.7	20 TK	14.9	21 TK	14.0	22 TK	20.6
23 TK	16.8	25 TK	145.1	26 R1	2.03	27 R2	1.00
28 R3	0.76	29 R4	0.89	30 R5	0.99	36 RT	18.1
34 TT	31.3	35 TT	27.3				

16:37:34

0 WS	1.0	1 WD	23.	2 WB	5.9	3 DB	6.2
24 RK	10.8	4 TK	27.2	5 TK	19.7	6 TK	21.6
7 TK	18.7	8 TK	21.6	9 TK	15.9	10 TK	18.7
11 TK	20.6	12 TK	21.6	13 TK	16.8	14 TK	18.7
15 TK	15.9	16 TK	19.7	17 TK	-7.1	18 TK	21.6
19 TK	17.8	20 TK	18.7	21 TK	17.8	22 TK	22.5
23 TK	14.0	25 TK	146.1	26 R1	3.58	27 R2	0.61
28 R3	0.36	29 R4	0.63	30 R5	0.92	36 RT	10.0
34 TT	20.7	35 TT	17.8				



## 16:37:35

0 WS	0.9	1 WD	22.	2 WB	5.5	3 DB	5.8
24 RK	15.6	4 TK	32.9	5 TK	24.4	6 TK	29.1
7 TK	20.6	8 TK	26.3	9 TK	22.5	10 TK	23.5
11 TK	21.6	12 TK	31.0	13 TK	19.7	14 TK	24.4
15 TK	22.5	16 TK	22.5	17 TK	-2.3	18 TK	26.3
19 TK	22.5	20 TK	20.6	21 TK	24.4	22 TK	25.3
23 TK	17.8	25 TK	149.9	26 R1	4.13	27 R2	0.42
28 R3	0.67	29 R4	1.04	30 R5	0.67	36 RT	19.4
34 TT	28.8	35 TT	26.6				

## 16:37:36

0 WS	1.0	1 WD	22.	2 WB	5.6	3 DB	5.8
24 RK	8.0	4 TK	25.3	5 TK	18.7	6 TK	18.7
7 TK	15.9	8 TK	18.7	9 TK	13.0	10 TK	15.9
11 TK	16.8	12 TK	22.5	13 TK	12.1	14 TK	16.8
15 TK	14.0	16 TK	15.9	17 TK	-6.2	18 TK	14.9
19 TK	20.6	20 TK	14.0	21 TK	14.9	22 TK	17.8
23 TK	16.8	25 TK	135.7	26 R1	2.40	27 R2	1.07
28 R3	0.18	29 R4	1.13	30 R5	0.87	36 RT	11.8
34 TT	23.7	35 TT	19.1				

## 16:37:37

0 WS	1.0	1 WD	23.	2 WB	5.9	3 DB	6.1
24 RK	8.9	4 TK	31.0	5 TK	18.7	6 TK	21.6
7 TK	15.9	8 TK	18.7	9 TK	13.0	10 TK	15.9
11 TK	18.7	12 TK	21.6	13 TK	14.9	14 TK	17.8
15 TK	17.8	16 TK	17.8	17 TK	-6.2	18 TK	20.6
19 TK	14.9	20 TK	14.9	21 TK	14.0	22 TK	23.5
23 TK	12.1	25 TK	140.4	26 R1	3.77	27 R2	0.98
28 R3	0.36	29 R4	0.76	30 R5	1.13	36 RT	10.0
34 TT	18.7	35 TT	17.3				

## 16:37:38

0 WS	1.1	1 WD	21.	2 WB	4.9	3 DB	5.3
24 RK	8.0	4 TK	30.0	5 TK	15.9	6 TK	17.8
7 TK	14.0	8 TK	18.7	9 TK	16.8	10 TK	14.9
11 TK	14.0	12 TK	22.5	13 TK	12.1	14 TK	18.7
15 TK	13.0	16 TK	14.9	17 TK	-7.1	18 TK	15.9
19 TK	19.7	20 TK	14.9	21 TK	13.0	22 TK	21.6
23 TK	10.2	25 TK	135.7	26 R1	5.23	27 R2	0.28
28 R3	0.23	29 R4	0.91	30 R5	1.19	36 RT	8.0
34 TT	20.6	35 TT	16.2				

## 16:37:39

0 WS	1.0	1 WD	22.	2 WB	5.7	3 DB	5.9
24 RK	11.8	4 TK	31.0	5 TK	21.6	6 TK	23.5
7 TK	15.9	8 TK	24.4	9 TK	16.8	10 TK	19.7
11 TK	16.8	12 TK	25.3	13 TK	17.8	14 TK	19.7
15 TK	18.7	16 TK	22.5	17 TK	-4.2	18 TK	20.6
19 TK	21.6	20 TK	17.8	21 TK	18.7	22 TK	23.5
23 TK	18.7	25 TK	135.7	26 R1	3.04	27 R2	0.63
28 R3	0.56	29 R4	0.46	30 R5	0.99	36 RT	6.0
34 TT	15.0	35 TT	15.1				

16:37:40

0 WS	1.1	1 WD	23.	2 WB	5.8	3 DB	5.9
24 RK	11.8	4 TK	31.9	5 TK	21.6	6 TK	21.6
7 TK	17.8	8 TK	23.5	9 TK	17.8	10 TK	21.6
11 TK	15.9	12 TK	24.4	13 TK	18.7	14 TK	20.6
15 TK	16.8	16 TK	18.7	17 TK	-1.3	18 TK	20.6
19 TK	20.6	20 TK	21.6	21 TK	19.7	22 TK	20.6
23 TK	16.8	25 TK	138.5	26 R1	1.30	27 R2	0.74
28 R3	0.61	29 R4	0.30	30 R5	0.90	36 RT	19.1
34 TT	27.2	35 TT	28.0				

16:37:41

0 WS	1.0	1 WD	22.	2 WB	5.8	3 DB	6.3
24 RK	8.0	4 TK	27.2	5 TK	16.8	6 TK	20.6
7 TK	13.0	8 TK	21.6	9 TK	15.9	10 TK	15.9
11 TK	13.0	12 TK	20.6	13 TK	16.8	14 TK	14.0
15 TK	14.0	16 TK	18.7	17 TK	-9.1	18 TK	17.8
19 TK	19.7	20 TK	13.0	21 TK	12.1	22 TK	18.7
23 TK	14.9	25 TK	129.1	26 R1	3.68	27 R2	1.11
28 R3	0.34	29 R4	0.46	30 R5	0.99	36 RT	10.3
34 TT	20.8	35 TT	18.7				

16:37:42

0 WS	1.0	1 WD	22.	2 WB	5.2	3 DB	5.6
24 RK	7.0	4 TK	26.3	5 TK	15.9	6 TK	19.7
7 TK	13.0	8 TK	19.7	9 TK	14.9	10 TK	14.0
11 TK	11.1	12 TK	19.7	13 TK	15.9	14 TK	14.0
15 TK	12.1	16 TK	17.8	17 TK	-11.1	18 TK	14.9
19 TK	18.7	20 TK	14.0	21 TK	12.1	22 TK	17.8
23 TK	14.9	25 TK	127.2	26 R1	3.49	27 R2	0.81
28 R3	0.14	29 R4	0.46	30 R5	0.74	36 RT	8.0
34 TT	17.4	35 TT	15.9				

16:37:43

0 WS	0.9	1 WD	24.	2 WB	6.0	3 DB	6.2
24 RK	10.8	4 TK	31.0	5 TK	20.6	6 TK	21.6
7 TK	15.9	8 TK	23.5	9 TK	14.9	10 TK	19.7
11 TK	17.8	12 TK	24.4	13 TK	14.9	14 TK	17.8
15 TK	18.7	16 TK	20.6	17 TK	-3.2	18 TK	20.6
19 TK	19.7	20 TK	17.8	21 TK	17.8	22 TK	22.5
23 TK	14.0	25 TK	130.0	26 R1	2.94	27 R2	0.61
28 R3	0.42	29 R4	0.65	30 R5	0.80	36 RT	11.2
34 TT	20.4	35 TT	19.4				

16:37:44

0 WS	1.0	1 WD	28.	2 WB	5.6	3 DB	5.9
24 RK	9.9	4 TK	29.1	5 TK	18.7	6 TK	23.5
7 TK	14.0	8 TK	25.3	9 TK	15.9	10 TK	17.8
11 TK	14.9	12 TK	25.3	13 TK	14.0	14 TK	20.6
15 TK	-16.8	16 TK	20.6	17 TK	-6.2	18 TK	19.7
19 TK	20.6	20 TK	14.9	21 TK	16.8	22 TK	23.5
23 TK	14.0	25 TK	126.3	26 R1	3.68	27 R2	0.81
28 R3	0.29	29 R4	0.63	30 R5	1.06	36 RT	5.9
34 TT	14.9	35 TT	14.8				



## 16:37:45

0 WS	1.1	1 WD	34.	2 WB	5.8	3 DB	6.2
24 RK	14.6	4 TK	33.8	5 TK	24.4	6 TK	28.2
7 TK	18.7	8 TK	26.3	9 TK	23.5	10 TK	21.6
11 TK	21.6	12 TK	31.0	13 TK	18.7	14 TK	21.6
15 TK	23.5	16 TK	20.6	17 TK	-0.3	18 TK	26.3
19 TK	20.6	20 TK	22.5	21 TK	22.5	22 TK	24.4
23 TK	19.7	25 TK	131.9	26 R1	2.40	27 R2	0.44
28 R3	0.22	29 R4	1.15	30 R5	0.55	36 RT	7.5
34 TT	16.8	35 TT	14.5				

## 16:37:46

0 WS	1.1	1 WD	45.	2 WB	5.7	3 DB	5.9
24 RK	12.7	4 TK	34.7	5 TK	21.6	6 TK	22.5
7 TK	19.7	8 TK	23.5	9 TK	17.8	10 TK	21.6
11 TK	21.6	12 TK	25.3	13 TK	18.7	14 TK	19.7
15 TK	22.5	16 TK	20.6	17 TK	-2.3	18 TK	21.6
19 TK	25.3	20 TK	24.4	21 TK	17.8	22 TK	25.3
23 TK	15.9	25 TK	130.0	26 R1	2.40	27 R2	0.70
28 R3	0.85	29 R4	0.67	30 R5	0.99	36 RT	15.6
34 TT	28.4	35 TT	23.3				

## 16:37:47

0 WS	1.1	1 WD	49.	2 WB	5.0	3 DB	5.8
24 RK	12.7	4 TK	33.8	5 TK	23.5	6 TK	23.5
7 TK	18.7	8 TK	24.4	9 TK	18.7	10 TK	21.6
11 TK	17.8	12 TK	28.2	13 TK	17.8	14 TK	19.7
15 TK	20.6	16 TK	18.7	17 TK	-3.2	18 TK	23.5
19 TK	22.5	20 TK	22.5	21 TK	17.8	22 TK	25.3
23 TK	20.6	25 TK	128.2	26 R1	2.03	27 R2	0.39
28 R3	0.43	29 R4	0.87	30 R5	0.53	36 RT	8.8
34 TT	18.0	35 TT	15.9				

## 16:37:48

0 WS	1.1	1 WD	49.	2 WB	5.5	3 DB	5.9
24 RK	7.0	4 TK	28.2	5 TK	16.8	6 TK	18.7
7 TK	13.0	8 TK	18.7	9 TK	13.0	10 TK	18.7
11 TK	12.1	12 TK	20.6	13 TK	13.0	14 TK	16.8
15 TK	13.0	16 TK	14.9	17 TK	-4.2	18 TK	14.0
19 TK	16.8	20 TK	14.9	21 TK	12.1	22 TK	16.8
23 TK	9.2	25 TK	123.5	26 R1	2.03	27 R2	0.64
28 R3	0.40	29 R4	0.28	30 R5	0.92	36 RT	6.6
34 TT	20.1	35 TT	14.1				

## 16:37:49

0 WS	1.0	1 WD	49.	2 WB	5.8	3 DB	6.2
24 RK	9.9	4 TK	30.0	5 TK	21.6	6 TK	20.6
7 TK	16.8	8 TK	20.6	9 TK	14.9	10 TK	17.8
11 TK	19.7	12 TK	22.5	13 TK	14.9	14 TK	18.7
15 TK	19.7	16 TK	16.8	17 TK	-5.2	18 TK	21.6
19 TK	17.8	20 TK	15.9	21 TK	17.8	22 TK	23.5
23 TK	13.0	25 TK	120.7	26 R1	1.48	27 R2	0.83
28 R3	0.23	29 R4	1.19	30 R5	0.53	36 RT	5.5
34 TT	16.7	35 TT	12.7				



16:37:50

0 WS	1.1	1 WD	48.	2 WB	4.9	3 DB	5.4
24 RK	8.0	4 TK	28.2	5 TK	17.8	6 TK	20.6
7 TK	14.9	8 TK	20.6	9 TK	13.0	10 TK	20.6
11 TK	12.1	12 TK	20.6	13 TK	12.1	14 TK	15.9
15 TK	13.0	16 TK	14.0	17 TK	-5.2	18 TK	14.9
19 TK	16.8	20 TK	15.9	21 TK	17.8	22 TK	19.7
23 TK	13.0	25 TK	117.0	26 R1	3.40	27 R2	0.39
28 R3	0.56	29 R4	0.54	30 R5	1.36	36 RT	6.4
34 TT	16.2	35 TT	15.3				

16:37:51

0 WS	1.2	1 WD	49.	2 WB	5.7	3 DB	6.0
24 RK	7.0	4 TK	28.2	5 TK	16.8	6 TK	18.7
7 TK	11.1	8 TK	18.7	9 TK	13.0	10 TK	16.8
11 TK	13.0	12 TK	22.5	13 TK	12.1	14 TK	14.9
15 TK	13.0	16 TK	14.9	17 TK	-9.1	18 TK	17.8
19 TK	14.9	20 TK	14.9	21 TK	13.0	22 TK	20.6
23 TK	10.2	25 TK	116.0	26 R1	1.94	27 R2	0.68
28 R3	0.47	29 R4	0.82	30 R5	0.60	36 RT	6.5
34 TT	17.3	35 TT	15.4				

16:37:52

0 WS	1.2	1 WD	49.	2 WB	4.9	3 DB	5.3
24 RK	10.8	4 TK	31.9	5 TK	21.6	6 TK	21.6
7 TK	16.8	8 TK	22.5	9 TK	15.9	10 TK	19.7
11 TK	16.8	12 TK	24.4	13 TK	15.9	14 TK	19.7
15 TK	18.7	16 TK	18.7	17 TK	-4.2	18 TK	18.7
19 TK	20.6	20 TK	18.7	21 TK	17.8	22 TK	21.6
23 TK	14.9	25 TK	117.0	26 R1	2.40	27 R2	0.59
28 R3	0.43	29 R4	0.69	30 R5	0.90	36 RT	5.9
34 TT	16.1	35 TT	13.2				

16:37:53

0 WS	1.2	1 WD	50.	2 WB	5.6	3 DB	5.4
24 RK	9.9	4 TK	29.1	5 TK	22.5	6 TK	23.5
7 TK	14.9	8 TK	20.6	9 TK	15.9	10 TK	20.6
11 TK	16.8	12 TK	25.3	13 TK	14.9	14 TK	15.9
15 TK	15.9	16 TK	16.8	17 TK	-4.2	18 TK	16.8
19 TK	21.6	20 TK	20.6	21 TK	14.9	22 TK	20.6
23 TK	17.8	25 TK	113.3	26 R1	1.94	27 R2	0.92
28 R3	0.22	29 R4	0.48	30 R5	0.92	36 RT	11.0
34 TT	18.6	35 TT	20.1				

16:37:54

0 WS	1.1	1 WD	53.	2 WB	4.9	3 DB	5.6
24 RK	10.8	4 TK	31.9	5 TK	19.7	6 TK	22.5
7 TK	15.9	8 TK	21.6	9 TK	17.8	10 TK	19.7
11 TK	15.9	12 TK	25.3	13 TK	14.0	14 TK	16.8
15 TK	18.7	16 TK	18.7	17 TK	-4.2	18 TK	21.6
19 TK	18.7	20 TK	17.8	21 TK	20.6	22 TK	20.6
23 TK	15.9	25 TK	114.2	26 R1	2.12	27 R2	0.98
28 R3	0.34	29 R4	0.48	30 R5	1.08	36 RT	14.7
34 TT	23.8	35 TT	22.5				



16:37:55

0 WS	1.1	1 WD	55.	2 WB	5.1	3 DB	5.5
24 RK	12.7	4 TK	32.9	5 TK	23.5	6 TK	23.5
7 TK	17.8	8 TK	25.3	9 TK	18.7	10 TK	25.3
11 TK	16.8	12 TK	26.3	13 TK	19.7	14 TK	18.7
15 TK	19.7	16 TK	21.6	17 TK	-0.3	18 TK	20.6
19 TK	22.5	20 TK	21.6	21 TK	19.7	22 TK	24.4
23 TK	16.8	25 TK	115.1	26 R1	2.40	27 R2	0.68
28 R3	0.43	29 R4	0.56	30 R5	0.83	36 RT	6.6
34 TT	16.9	35 TT	15.4				

16:37:56

0 WS	1.0	1 WD	55.	2 WB	5.7	3 DB	6.0
24 RK	13.7	4 TK	32.9	5 TK	23.5	6 TK	27.2
7 TK	18.7	8 TK	24.4	9 TK	19.7	10 TK	22.5
11 TK	18.7	12 TK	29.1	13 TK	18.7	14 TK	19.7
15 TK	21.6	16 TK	19.7	17 TK	4.4	18 TK	19.7
19 TK	21.6	20 TK	19.7	21 TK	17.8	22 TK	28.2
23 TK	19.7	25 TK	113.3	26 R1	3.68	27 R2	0.44
28 R3	0.42	29 R4	0.91	30 R5	0.85	36 RT	5.5
34 TT	16.8	35 TT	14.9				

16:37:57

0 WS	0.9	1 WD	56.	2 WB	5.6	3 DB	6.2
24 RK	8.0	4 TK	29.1	5 TK	17.8	6 TK	16.8
7 TK	13.0	8 TK	19.7	9 TK	14.9	10 TK	14.9
11 TK	14.9	12 TK	20.6	13 TK	14.9	14 TK	14.9
15 TK	14.9	16 TK	18.7	17 TK	-1.3	18 TK	16.8
19 TK	17.8	20 TK	19.7	21 TK	12.1	22 TK	17.8
23 TK	12.1	25 TK	112.3	26 R1	2.40	27 R2	0.57
28 R3	0.63	29 R4	0.39	30 R5	0.83	36 RT	7.1
34 TT	19.8	35 TT	14.4				

16:37:58

0 WS	0.9	1 WD	55.	2 WB	5.5	3 DB	5.9
24 RK	15.6	4 TK	34.7	5 TK	24.4	6 TK	27.2
7 TK	19.7	8 TK	27.2	9 TK	19.7	10 TK	24.4
11 TK	18.7	12 TK	28.2	13 TK	19.7	14 TK	22.5
15 TK	20.6	16 TK	28.2	17 TK	-0.3	18 TK	25.3
19 TK	29.1	20 TK	20.6	21 TK	22.5	22 TK	26.3
23 TK	22.5	25 TK	115.1	26 R1	2.30	27 R2	0.28
28 R3	0.32	29 R4	0.43	30 R5	0.60	36 RT	6.9
34 TT	16.9	35 TT	18.1				

16:37:59

0 WS	0.8	1 WD	55.	2 WB	5.5	3 DB	5.6
24 RK	9.9	4 TK	30.0	5 TK	19.7	6 TK	19.7
7 TK	14.9	8 TK	20.6	9 TK	14.9	10 TK	18.7
11 TK	14.9	12 TK	23.5	13 TK	15.9	14 TK	17.8
15 TK	16.8	16 TK	18.7	17 TK	-3.2	18 TK	18.7
19 TK	19.7	20 TK	16.8	21 TK	16.8	22 TK	21.6
23 TK	13.0	25 TK	107.7	26 R1	2.12	27 R2	0.57
28 R3	0.43	29 R4	0.61	30 R5	0.87	36 RT	12.7
34 TT	22.6	35 TT	20.4				





16:38:00

0 WS	0.7	1 WD	55.	2 WB	5.3	3 DB	5.7
24 RK	13.7	4 TK	31.9	5 TK	22.5	6 TK	25.3
7 TK	17.8	8 TK	23.5	9 TK	21.6	10 TK	21.6
11 TK	18.7	12 TK	29.1	13 TK	17.8	14 TK	20.6
15 TK	24.4	16 TK	19.7	17 TK	-0.3	18 TK	26.3
19 TK	21.6	20 TK	19.7	21 TK	24.4	22 TK	23.5
23 TK	16.8	25 TK	113.3	26 R1	1.21	27 R2	0.63
28 R3	0.52	29 R4	0.41	30 R5	0.76	36 RT	10.4
34 TT	18.8	35 TT	18.2				

16:38:01

0 WS	0.8	1 WD	55.	2 WB	5.5	3 DB	5.5
24 RK	9.9	4 TK	30.0	5 TK	19.7	6 TK	22.5
7 TK	15.9	8 TK	20.6	9 TK	14.0	10 TK	20.6
11 TK	14.9	12 TK	23.5	13 TK	14.0	14 TK	18.7
15 TK	19.7	16 TK	16.8	17 TK	-3.2	18 TK	18.7
19 TK	18.7	20 TK	16.8	21 TK	16.8	22 TK	26.3
23 TK	12.1	25 TK	105.8	26 R1	4.96	27 R2	0.46
28 R3	0.43	29 R4	0.61	30 R5	0.62	36 RT	7.4
34 TT	17.4	35 TT	14.7				

16:38:02

0 WS	0.8	1 WD	55.	2 WB	5.5	3 DB	5.8
24 RK	13.7	4 TK	33.8	5 TK	22.5	6 TK	23.5
7 TK	17.8	8 TK	27.2	9 TK	17.8	10 TK	21.6
11 TK	21.6	12 TK	26.3	13 TK	18.7	14 TK	22.5
15 TK	19.7	16 TK	21.6	17 TK	-0.3	18 TK	22.5
19 TK	23.5	20 TK	20.6	21 TK	20.6	22 TK	25.3
23 TK	17.8	25 TK	106.8	26 R1	2.40	27 R2	0.64
28 R3	0.42	29 R4	0.63	30 R5	0.87	36 RT	14.4
34 TT	24.7	35 TT	22.7				

16:38:03

0 WS	0.8	1 WD	55.	2 WB	5.5	3 DB	5.8
24 RK	7.0	4 TK	24.4	5 TK	14.9	6 TK	15.9
7 TK	14.0	8 TK	19.7	9 TK	14.0	10 TK	14.0
11 TK	14.0	12 TK	19.7	13 TK	12.1	14 TK	16.8
15 TK	14.9	16 TK	16.8	17 TK	-6.2	18 TK	14.9
19 TK	15.9	20 TK	13.0	21 TK	13.0	22 TK	16.8
23 TK	10.2	25 TK	103.1	26 R1	1.85	27 R2	0.98
28 R3	0.25	29 R4	0.46	30 R5	1.36	36 RT	5.8
34 TT	14.8	35 TT	17.8				

16:38:04

0 WS	0.9	1 WD	57.	2 WB	6.0	3 DB	6.2
24 RK	14.6	4 TK	33.8	5 TK	24.4	6 TK	25.3
7 TK	18.7	8 TK	26.3	9 TK	19.7	10 TK	21.6
11 TK	21.6	12 TK	28.2	13 TK	18.7	14 TK	20.6
15 TK	20.6	16 TK	28.2	17 TK	0.6	18 TK	21.6
19 TK	25.3	20 TK	19.7	21 TK	24.4	22 TK	26.3
23 TK	22.5	25 TK	103.1	26 R1	2.94	27 R2	0.70
28 R3	0.32	29 R4	0.52	30 R5	0.87	36 RT	14.7
34 TT	23.0	35 TT	24.3				



16:38:05

0 WS	0.9	1 WD	55.	2 WB	5.7	3 DB	6.0
24 RK	9.9	4 TK	30.0	5 TK	18.7	6 TK	20.6
7 TK	14.9	8 TK	22.5	9 TK	14.9	10 TK	18.7
11 TK	14.9	12 TK	22.5	13 TK	15.9	14 TK	17.8
15 TK	16.8	16 TK	18.7	17 TK	-2.3	18 TK	18.7
19 TK	19.7	20 TK	17.8	21 TK	15.9	22 TK	20.6
23 TK	14.0	25 TK	101.2	26 R1	2.85	27 R2	0.53
28 R3	0.43	29 R4	0.61	30 R5	0.87	36 RT	11.6
34 TT	21.8	35 TT	20.1				

16:38:06

0 WS	1.0	1 WD	53.	2 WB	5.6	3 DB	5.9
24 RK	9.9	4 TK	29.1	5 TK	20.6	6 TK	18.7
7 TK	15.9	8 TK	21.6	9 TK	16.8	10 TK	17.8
11 TK	15.9	12 TK	23.5	13 TK	16.8	14 TK	16.8
15 TK	16.8	16 TK	17.8	17 TK	-2.3	18 TK	16.8
19 TK	18.7	20 TK	16.8	21 TK	14.9	22 TK	21.6
23 TK	13.0	25 TK	123.5	26 R1	1.57	27 R2	0.50
28 R3	0.43	29 R4	0.35	30 R5	1.01	36 RT	5.9
34 TT	19.4	35 TT	14.4				

16:38:07

0 WS	0.9	1 WD	53.	2 WB	5.5	3 DB	5.6
24 RK	9.9	4 TK	29.1	5 TK	17.8	6 TK	18.7
7 TK	16.8	8 TK	19.7	9 TK	13.0	10 TK	16.8
11 TK	19.7	12 TK	23.5	13 TK	14.0	14 TK	18.7
15 TK	20.6	16 TK	18.7	17 TK	-5.2	18 TK	16.8
19 TK	18.7	20 TK	21.6	21 TK	16.8	22 TK	25.3
23 TK	12.1	25 TK	136.6	26 R1	3.49	27 R2	0.35
28 R3	0.18	29 R4	0.46	30 R5	0.78	36 RT	7.0
34 TT	17.4	35 TT	14.8				

16:38:08

0 WS	0.9	1 WD	53.	2 WB	5.0	3 DB	5.2
24 RK	11.8	4 TK	29.1	5 TK	20.6	6 TK	22.5
7 TK	17.8	8 TK	22.5	9 TK	16.8	10 TK	19.7
11 TK	18.7	12 TK	24.4	13 TK	17.8	14 TK	19.7
15 TK	18.7	16 TK	20.6	17 TK	0.6	18 TK	20.6
19 TK	21.6	20 TK	18.7	21 TK	18.7	22 TK	23.5
23 TK	15.9	25 TK	160.3	26 R1	2.76	27 R2	0.57
28 R3	0.43	29 R4	0.69	30 R5	0.85	36 RT	6.3
34 TT	15.7	35 TT	15.1				

16:38:09

0 WS	1.0	1 WD	53.	2 WB	5.8	3 DB	6.0
24 RK	9.9	4 TK	29.1	5 TK	21.6	6 TK	21.6
7 TK	14.9	8 TK	24.4	9 TK	16.8	10 TK	19.7
11 TK	15.9	12 TK	26.3	13 TK	14.9	14 TK	18.7
15 TK	16.8	16 TK	20.6	17 TK	-2.3	18 TK	18.7
19 TK	20.6	20 TK	19.7	21 TK	15.9	22 TK	20.6
23 TK	17.8	25 TK	172.7	26 R1	2.30	27 R2	0.53
28 R3	0.74	29 R4	0.41	30 R5	1.06	36 RT	10.1
34 TT	18.0	35 TT	18.0				



## 16:38:10

0 WS	1.0	1 WD	50.	2 WB	5.6	3 DB	5.9
24 RK	8.9	4 TK	28.2	5 TK	19.7	6 TK	21.6
7 TK	14.0	8 TK	20.6	9 TK	14.9	10 TK	14.9
11 TK	13.0	12 TK	20.6	13 TK	15.9	14 TK	14.0
15 TK	14.9	16 TK	16.8	17 TK	1.5	18 TK	16.8
19 TK	19.7	20 TK	15.9	21 TK	19.7	22 TK	22.5
23 TK	11.1	25 TK	182.3	26 R1	1.02	27 R2	0.44
28 R3	0.22	29 R4	1.06	30 R5	0.67	36 RT	5.9
34 TT	17.4	35 TT	13.6				

## 16:38:11

0 WS	1.1	1 WD	49.	2 WB	5.6	3 DB	5.9
24 RK	8.9	4 TK	27.2	5 TK	17.8	6 TK	19.7
7 TK	14.9	8 TK	22.5	9 TK	14.0	10 TK	15.9
11 TK	15.9	12 TK	22.5	13 TK	14.0	14 TK	17.8
15 TK	20.6	16 TK	15.9	17 TK	-4.2	18 TK	14.0
19 TK	21.6	20 TK	14.9	21 TK	16.8	22 TK	23.5
23 TK	11.1	25 TK	175.6	26 R1	1.21	27 R2	0.94
28 R3	0.22	29 R4	0.67	30 R5	0.90	36 RT	14.1
34 TT	24.4	35 TT	21.8				

## 16:38:12

0 WS	1.1	1 WD	50.	2 WB	5.4	3 DB	5.2
24 RK	14.6	4 TK	32.9	5 TK	23.5	6 TK	24.4
7 TK	19.7	8 TK	27.2	9 TK	18.7	10 TK	24.4
11 TK	19.7	12 TK	28.2	13 TK	22.5	14 TK	20.6
15 TK	21.6	16 TK	25.3	17 TK	4.4	18 TK	26.3
19 TK	23.5	20 TK	19.7	21 TK	22.5	22 TK	26.3
23 TK	23.5	25 TK	178.5	26 R1	2.49	27 R2	1.12
28 R3	0.40	29 R4	0.46	30 R5	1.15	36 RT	12.8
34 TT	24.4	35 TT	20.6				

## 16:38:13

0 WS	1.2	1 WD	52.	2 WB	5.6	3 DB	5.9
24 RK	9.9	4 TK	30.0	5 TK	18.7	6 TK	20.6
7 TK	16.8	8 TK	21.6	9 TK	14.9	10 TK	18.7
11 TK	16.8	12 TK	22.5	13 TK	14.0	14 TK	17.8
15 TK	17.8	16 TK	19.7	17 TK	0.6	18 TK	17.8
19 TK	19.7	20 TK	16.8	21 TK	16.8	22 TK	22.5
23 TK	13.0	25 TK	173.7	26 R1	2.49	27 R2	0.48
28 R3	0.29	29 R4	0.59	30 R5	0.92	36 RT	8.6
34 TT	18.6	35 TT	17.4				

## 16:38:14

0 WS	1.1	1 WD	50.	2 WB	5.1	3 DB	6.0
24 RK	10.8	4 TK	30.0	5 TK	20.6	6 TK	20.6
7 TK	15.9	8 TK	22.5	9 TK	14.9	10 TK	19.7
11 TK	16.8	12 TK	23.5	13 TK	16.8	14 TK	19.7
15 TK	17.8	16 TK	18.7	17 TK	0.6	18 TK	20.6
19 TK	20.6	20 TK	18.7	21 TK	16.8	22 TK	22.5
23 TK	14.9	25 TK	171.8	26 R1	2.94	27 R2	0.57
28 R3	0.32	29 R4	0.67	30 R5	0.85	36 RT	5.3
34 TT	15.4	35 TT	12.7				

16:38:15

0 WS	1.1	1 WD	37.	2 WB	5.9	3 DB	6.1
24 RK	9.9	4 TK	27.2	5 TK	21.6	6 TK	18.7
7 TK	16.8	8 TK	22.5	9 TK	14.9	10 TK	19.7
11 TK	15.9	12 TK	21.6	13 TK	14.0	14 TK	17.8
15 TK	20.6	16 TK	16.8	17 TK	-0.3	18 TK	20.6
19 TK	16.8	20 TK	17.8	21 TK	16.8	22 TK	19.7
23 TK	13.0	25 TK	169.9	26 R1	1.66	27 R2	0.53
28 R3	0.43	29 R4	0.61	30 R5	0.69	36 RT	11.0
34 TT	21.2	35 TT	18.5				

16:38:16

0 WS	1.1	1 WD	31.	2 WB	5.4	3 DB	6.3
24 RK	11.8	4 TK	31.0	5 TK	20.6	6 TK	20.6
7 TK	19.7	8 TK	23.5	9 TK	15.9	10 TK	22.5
11 TK	16.8	12 TK	24.4	13 TK	19.7	14 TK	19.7
15 TK	17.8	16 TK	22.5	17 TK	5.4	18 TK	24.4
19 TK	22.5	20 TK	16.8	21 TK	15.9	22 TK	21.6
23 TK	15.9	25 TK	166.0	26 R1	1.11	27 R2	0.29
28 R3	0.70	29 R4	0.37	30 R5	0.46	36 RT	8.2
34 TT	15.9	35 TT	15.3				

16:38:17

0 WS	1.1	1 WD	15.	2 WB	5.7	3 DB	5.9
24 RK	7.0	4 TK	24.4	5 TK	19.7	6 TK	15.9
7 TK	11.1	8 TK	21.6	9 TK	11.1	10 TK	14.0
11 TK	14.9	12 TK	18.7	13 TK	13.0	14 TK	16.8
15 TK	13.0	16 TK	16.8	17 TK	-0.3	18 TK	14.0
19 TK	16.8	20 TK	16.8	21 TK	12.1	22 TK	18.7
23 TK	14.9	25 TK	157.5	26 R1	2.85	27 R2	0.83
28 R3	0.22	29 R4	0.67	30 R5	1.17	36 RT	5.8
34 TT	15.0	35 TT	14.1				

16:38:18

0 WS	1.1	1 WD	2.	2 WB	5.6	3 DB	5.7
24 RK	9.9	4 TK	27.2	5 TK	19.7	6 TK	19.7
7 TK	14.9	8 TK	20.6	9 TK	14.9	10 TK	19.7
11 TK	14.9	12 TK	22.5	13 TK	14.9	14 TK	16.8
15 TK	16.8	16 TK	19.7	17 TK	-0.3	18 TK	17.8
19 TK	19.7	20 TK	17.8	21 TK	15.9	22 TK	21.6
23 TK	14.0	25 TK	161.3	26 R1	2.49	27 R2	0.63
28 R3	0.38	29 R4	0.63	30 R5	0.87	36 RT	14.8
34 TT	24.8	35 TT	24.1				

16:38:19

0 WS	1.1	1 WD	1.	2 WB	5.0	3 DB	5.5
24 RK	14.6	4 TK	31.0	5 TK	24.4	6 TK	22.5
7 TK	20.6	8 TK	25.3	9 TK	21.6	10 TK	23.5
11 TK	21.6	12 TK	27.2	13 TK	18.7	14 TK	22.5
15 TK	20.6	16 TK	22.5	17 TK	9.2	18 TK	19.7
19 TK	21.6	20 TK	19.7	21 TK	22.5	22 TK	25.3
23 TK	20.6	25 TK	161.3	26 R1	3.68	27 R2	0.42
28 R3	0.40	29 R4	0.46	30 R5	0.92	36 RT	7.1
34 TT	19.5	35 TT	14.4				



16:38:20

0 WS	1.2	1 WD	1.	2 WB	5.8	3 DB	6.0
24 RK	10.8	4 TK	29.1	5 TK	20.6	6 TK	20.6
7 TK	16.8	8 TK	22.5	9 TK	14.9	10 TK	22.5
11 TK	15.9	12 TK	23.5	13 TK	16.8	14 TK	17.8
15 TK	17.8	16 TK	18.7	17 TK	6.3	18 TK	19.7
19 TK	19.7	20 TK	20.6	21 TK	15.9	22 TK	21.6
23 TK	14.0	25 TK	160.3	26 R1	2.94	27 R2	0.66
28 R3	0.85	29 R4	0.41	30 R5	0.80	36 RT	9.1
34 TT	18.4	35 TT	17.3				

16:38:21

0 WS	1.1	1 WD	2.	2 WB	5.9	3 DB	6.2
24 RK	9.9	4 TK	26.3	5 TK	18.7	6 TK	19.7
7 TK	18.7	8 TK	21.6	9 TK	14.9	10 TK	20.6
11 TK	14.0	12 TK	21.6	13 TK	14.0	14 TK	19.7
15 TK	16.8	16 TK	19.7	17 TK	4.4	18 TK	17.8
19 TK	16.8	20 TK	15.9	21 TK	14.0	22 TK	19.7
23 TK	16.8	25 TK	166.0	26 R1	1.94	27 R2	0.66
28 R3	0.47	29 R4	0.50	30 R5	0.62	36 RT	10.5
34 TT	23.3	35 TT	18.2				

16:38:22

0 WS	1.1	1 WD	2.	2 WB	5.8	3 DB	6.1
24 RK	9.9	4 TK	28.2	5 TK	20.6	6 TK	16.8
7 TK	15.9	8 TK	22.5	9 TK	14.0	10 TK	18.7
11 TK	14.9	12 TK	22.5	13 TK	13.0	14 TK	17.8
15 TK	18.7	16 TK	15.9	17 TK	0.6	18 TK	19.7
19 TK	18.7	20 TK	16.8	21 TK	16.8	22 TK	23.5
23 TK	12.1	25 TK	175.6	26 R1	2.94	27 R2	0.52
28 R3	0.27	29 R4	0.72	30 R5	1.06	36 RT	10.6
34 TT	20.4	35 TT	19.4				

16:38:23

0 WS	1.1	1 WD	1.	2 WB	5.5	3 DB	5.7
24 RK	11.8	4 TK	29.1	5 TK	22.5	6 TK	24.4
7 TK	19.7	8 TK	24.4	9 TK	15.9	10 TK	18.7
11 TK	15.9	12 TK	23.5	13 TK	15.9	14 TK	17.8
15 TK	15.9	16 TK	19.7	17 TK	1.5	18 TK	19.7
19 TK	20.6	20 TK	20.6	21 TK	18.7	22 TK	22.5
23 TK	14.0	25 TK	188.0	26 R1	2.40	27 R2	0.52
28 R3	0.36	29 R4	0.74	30 R5	0.87	36 RT	6.5
34 TT	16.1	35 TT	15.3				

16:38:24

0 WS	1.1	1 WD	1.	2 WB	5.8	3 DB	6.0
24 RK	8.9	4 TK	27.2	5 TK	18.7	6 TK	18.7
7 TK	14.9	8 TK	19.7	9 TK	14.0	10 TK	15.9
11 TK	14.9	12 TK	20.6	13 TK	14.0	14 TK	17.8
15 TK	15.9	16 TK	16.8	17 TK	-0.3	18 TK	16.8
19 TK	15.9	20 TK	14.9	21 TK	16.8	22 TK	21.6
23 TK	18.7	25 TK	194.7	26 R1	2.58	27 R2	0.64
28 R3	0.45	29 R4	0.54	30 R5	0.97	36 RT	7.1
34 TT	16.6	35 TT	16.7				



## 16:38:25

0 WS	1.1	1 WD	1.	2 WB	5.8	3 DB	6.0
24 RK	9.9	4 TK	27.2	5 TK	19.7	6 TK	18.7
7 TK	17.8	8 TK	19.7	9 TK	14.9	10 TK	17.8
11 TK	17.8	12 TK	23.5	13 TK	14.0	14 TK	18.7
15 TK	15.9	16 TK	17.8	17 TK	-1.3	18 TK	21.6
19 TK	16.8	20 TK	16.8	21 TK	15.9	22 TK	23.5
23 TK	11.1	25 TK	201.4	26 R1	2.76	27 R2	0.26
28 R3	0.45	29 R4	0.50	30 R5	1.13	36 RT	10.6
34 TT	21.0	35 TT	18.0				

## 16:38:26

0 WS	1.1	1 WD	1.	2 WB	5.6	3 DB	5.8
24 RK	14.6	4 TK	31.9	5 TK	24.4	6 TK	26.3
7 TK	18.7	8 TK	25.3	9 TK	19.7	10 TK	22.5
11 TK	19.7	12 TK	28.2	13 TK	18.7	14 TK	20.6
15 TK	21.6	16 TK	20.6	17 TK	7.3	18 TK	21.6
19 TK	22.5	20 TK	23.5	21 TK	25.3	22 TK	23.5
23 TK	16.8	25 TK	210.0	26 R1	2.85	27 R2	0.39
28 R3	0.49	29 R4	0.41	30 R5	0.67	36 RT	6.0
34 TT	15.1	35 TT	14.5				

## 16:38:27

0 WS	1.2	1 WD	2.	2 WB	5.9	3 DB	6.1
24 RK	12.7	4 TK	29.1	5 TK	23.5	6 TK	22.5
7 TK	18.7	8 TK	23.5	9 TK	17.8	10 TK	22.5
11 TK	16.8	12 TK	24.4	13 TK	18.7	14 TK	20.6
15 TK	18.7	16 TK	20.6	17 TK	6.3	18 TK	22.5
19 TK	19.7	20 TK	17.8	21 TK	17.8	22 TK	23.5
23 TK	16.8	25 TK	202.4	26 R1	5.14	27 R2	0.57
28 R3	0.60	29 R4	0.43	30 R5	1.17	36 RT	11.5
34 TT	20.7	35 TT	18.7				

## 16:38:28

0 WS	1.2	1 WD	5.	2 WB	5.9	3 DB	6.1
24 RK	8.9	4 TK	28.2	5 TK	18.7	6 TK	18.7
7 TK	14.9	8 TK	19.7	9 TK	14.0	10 TK	15.9
11 TK	14.0	12 TK	21.6	13 TK	13.0	14 TK	17.8
15 TK	14.9	16 TK	17.8	17 TK	-1.3	18 TK	17.8
19 TK	17.8	20 TK	14.9	21 TK	46.8	22 TK	167.0
23 TK	369.4	25 TK	184.2	26 R1	2.21	27 R2	0.63
28 R3	1.61	29 R4	0.80	30 R5	1.06	36 RT	8.7
34 TT	18.0	35 TT	16.2				

## 16:38:29

0 WS	1.1	1 WD	4.	2 WB	5.3	3 DB	5.2
24 RK	8.0	4 TK	20.6	5 TK	16.8	6 TK	10.2
7 TK	14.0	8 TK	6.3	9 TK	14.0	10 TK	9.2
11 TK	13.0	12 TK	11.1	13 TK	14.0	14 TK	12.1
15 TK	15.9	16 TK	121.6	17 TK	-2.3	18 TK	205.2
19 TK	480.3	20 TK	525.1	21 TK	379.3	22 TK	645.4
23 TK	787.1	25 TK	157.5	26 R1	1.57	27 R2	0.72
28 R3	3.29	29 R4	1.45	30 R5	1.77	36 RT	7.7
34 TT	20.4	35 TT	15.1				



16:38:30

0 WS	1.1	1 WD	4.	2 WB	4.9	3 DB	5.3
24 RK	7.0	4 TK	3.5	5 TK	11.1	6 TK	5.4
7 TK	118.8	8 TK	59.8	9 TK	183.2	10 TK	415.5
11 TK	663.5	12 TK	113.3	13 TK	231.9	14 TK	754.7
15 TK	590.5	16 TK	943.3	17 TK	960.8	18 TK	610.3
19 TK	1120.5	20 TK	1008.7	21 TK	695.2	22 TK	734.5
23 TK	716.2	25 TK	86.5	26 R1	4.41	27 R2	2.76
28 R3	4.68	29 R4	3.54	30 R5	3.05	36 RT	6.0
34 TT	20.1	35 TT	12.5				

16:38:31

0 WS	1.1	1 WD	5.	2 WB	5.6	3 DB	5.9
24 RK	8.9	4 TK	62.6	5 TK	6.3	6 TK	141.3
7 TK	462.3	8 TK	793.6	9 TK	860.2	10 TK	1076.1
11 TK	1172.8	12 TK	257.2	13 TK	399.3	14 TK	1121.5
15 TK	931.8	16 TK	1154.2	17 TK	1167.6	18 TK	975.4
19 TK	1181.1	20 TK	1076.1	21 TK	762.1	22 TK	661.7
23 TK	514.4	25 TK	34.7	26 R1	7.61	27 R2	6.12
28 R3	5.93	29 R4	3.80	30 R5	4.62	36 RT	11.0
34 TT	16.3	35 TT	17.9				

16:38:32

0 WS	1.1	1 WD	6.	2 WB	5.9	3 DB	6.2
24 RK	9.9	4 TK	63.5	5 TK	17.8	6 TK	218.6
7 TK	983.2	8 TK	1110.4	9 TK	1217.7	10 TK	1241.0
11 TK	1291.6	12 TK	368.5	13 TK	519.7	14 TK	1195.7
15 TK	1060.1	16 TK	1198.8	17 TK	1200.9	18 TK	1045.2
19 TK	1202.0	20 TK	1044.2	21 TK	767.6	22 TK	622.0
23 TK	373.9	25 TK	24.4	26 R1	8.71	27 R2	8.89
28 R3	6.42	29 R4	5.01	30 R5	4.27	36 RT	10.3
34 TT	14.4	35 TT	22.6				

16:38:33

0 WS	1.0	1 WD	5.	2 WB	5.1	3 DB	5.5
24 RK	11.8	4 TK	53.3	5 TK	63.5	6 TK	245.1
7 TK	1056.2	8 TK	1128.7	9 TK	1288.4	10 TK	1235.7
11 TK	1319.1	12 TK	378.4	13 TK	539.4	14 TK	1209.3
15 TK	1112.4	16 TK	1189.4	17 TK	1182.1	18 TK	1111.4
19 TK	1176.9	20 TK	1028.4	21 TK	775.0	22 TK	572.6
23 TK	383.9	25 TK	22.5	26 R1	10.54	27 R2	9.38
28 R3	6.69	29 R4	5.27	30 R5	4.94	36 RT	8.9
34 TT	8.1	35 TT	18.9				

16:38:34

0 WS	1.0	1 WD	6.	2 WB	5.5	3 DB	5.8
24 RK	8.9	4 TK	72.7	5 TK	81.0	6 TK	311.8
7 TK	1113.4	8 TK	1134.8	9 TK	1291.6	10 TK	1247.4
11 TK	1324.6	12 TK	519.7	13 TK	591.4	14 TK	1248.5
15 TK	1138.9	16 TK	1115.5	17 TK	1155.3	18 TK	1161.4
19 TK	1180.1	20 TK	1004.7	21 TK	781.5	22 TK	586.0
23 TK	388.4	25 TK	14.9	26 R1	11.72	27 R2	9.90
28 R3	6.87	29 R4	5.42	30 R5	5.54	36 RT	9.9
34 TT	8.1	35 TT	19.3				



## 16:38:35

0 WS	0.9	1 WD	6.	2 WB	5.5	3 DB	5.8
24 RK	9.9	4 TK	136.6	5 TK	163.2	6 TK	567.2
7 TK	1127.6	8 TK	1142.9	9 TK	1260.3	10 TK	1253.8
11 TK	1324.6	12 TK	658.0	13 TK	691.6	14 TK	1285.1
15 TK	1145.0	16 TK	1130.7	17 TK	1139.9	18 TK	1137.8
19 TK	1203.0	20 TK	997.9	21 TK	762.1	22 TK	610.3
23 TK	415.5	25 TK	15.9	26 R1	7.79	27 R2	9.81
28 R3	6.90	29 R4	5.21	30 R5	5.08	36 RT	9.3
34 TT	4.5	35 TT	17.6				

## 16:38:36

0 WS	0.9	1 WD	6.	2 WB	5.8	3 DB	6.0
24 RK	13.7	4 TK	175.6	5 TK	235.6	6 TK	635.5
7 TK	1179.0	8 TK	1230.4	9 TK	1308.1	10 TK	1257.0
11 TK	1329.0	12 TK	601.3	13 TK	760.2	14 TK	1313.6
15 TK	1159.4	16 TK	1159.4	17 TK	1171.8	18 TK	1125.6
19 TK	1185.3	20 TK	1001.8	21 TK	771.3	22 TK	596.8
23 TK	478.5	25 TK	19.7	26 R1	10.99	27 R2	10.29
28 R3	7.27	29 R4	5.42	30 R5	5.49	36 RT	6.0
34 TT	1.2	35 TT	16.6				

## 16:38:37

0 WS	0.8	1 WD	6.	2 WB	5.3	3 DB	6.0
24 RK	11.8	4 TK	208.1	5 TK	267.5	6 TK	610.3
7 TK	1218.8	8 TK	1272.1	9 TK	1304.8	10 TK	1269.9
11 TK	1326.8	12 TK	575.3	13 TK	647.2	14 TK	1320.2
15 TK	1162.5	16 TK	1153.2	17 TK	1162.5	18 TK	1154.2
19 TK	1187.3	20 TK	1008.7	21 TK	774.1	22 TK	599.5
23 TK	506.3	25 TK	16.8	26 R1	8.71	27 R2	10.64
28 R3	6.94	29 R4	5.23	30 R5	4.94	36 RT	14.7
34 TT	7.9	35 TT	21.4				

## 16:38:38

0 WS	0.8	1 WD	6.	2 WB	5.8	3 DB	6.0
24 RK	9.9	4 TK	226.2	5 TK	283.3	6 TK	666.2
7 TK	1013.6	8 TK	1267.8	9 TK	1274.3	10 TK	1260.3
11 TK	1321.3	12 TK	569.0	13 TK	717.1	14 TK	1344.6
15 TK	1160.4	16 TK	1157.3	17 TK	1164.5	18 TK	1153.2
19 TK	1203.0	20 TK	1007.7	21 TK	762.1	22 TK	615.7
23 TK	535.0	25 TK	12.1	26 R1	8.43	27 R2	11.19
28 R3	6.85	29 R4	5.44	30 R5	5.67	36 RT	15.8
34 TT	8.1	35 TT	25.7				

## 16:38:39

0 WS	0.9	1 WD	5.	2 WB	5.0	3 DB	5.5
24 RK	10.8	4 TK	287.9	5 TK	297.1	6 TK	645.4
7 TK	969.5	8 TK	1322.4	9 TK	1303.7	10 TK	1290.6
11 TK	1314.7	12 TK	566.3	13 TK	676.1	14 TK	1327.9
15 TK	1171.8	16 TK	1162.5	17 TK	1170.7	18 TK	1126.6
19 TK	1220.9	20 TK	1001.8	21 TK	757.5	22 TK	625.6
23 TK	581.5	25 TK	14.0	26 R1	8.43	27 R2	10.95
28 R3	6.98	29 R4	5.34	30 R5	5.17	36 RT	8.6
34 TT	1.2	35 TT	16.7				





16:38:40

0 WS	0.8	1 WD	5.	2 WB	5.3	3 DB	5.7
24 RK	7.0	4 TK	290.7	5 TK	272.1	6 TK	576.2
7 TK	1096.2	8 TK	1252.8	9 TK	1309.2	10 TK	1294.9
11 TK	1330.1	12 TK	513.5	13 TK	760.2	14 TK	1275.3
15 TK	1176.9	16 TK	1191.5	17 TK	1182.1	18 TK	1080.1
19 TK	1224.0	20 TK	993.9	21 TK	761.2	22 TK	629.2
23 TK	631.9	25 TK	11.1	26 R1	8.80	27 R2	10.75
28 R3	7.14	29 R4	5.42	30 R5	5.14	36 RT	8.6
34 TT	-0.4	35 TT	15.5				

16:38:41

0 WS	0.9	1 WD	6.	2 WB	6.0	3 DB	6.3
24 RK	14.6	4 TK	277.7	5 TK	285.1	6 TK	577.1
7 TK	1037.3	8 TK	1213.5	9 TK	1259.2	10 TK	1268.9
11 TK	1349.0	12 TK	509.0	13 TK	706.1	14 TK	1268.9
15 TK	1211.4	16 TK	1213.5	17 TK	1205.1	18 TK	1107.3
19 TK	1219.8	20 TK	1069.1	21 TK	791.7	22 TK	643.6
23 TK	650.8	25 TK	15.9	26 R1	8.43	27 R2	10.80
28 R3	7.43	29 R4	5.60	30 R5	5.33	36 RT	9.4
34 TT	0.7	35 TT	18.4				

16:38:42

0 WS	0.8	1 WD	4.	2 WB	4.9	3 DB	5.2
24 RK	11.8	4 TK	286.0	5 TK	291.6	6 TK	583.3
7 TK	931.8	8 TK	1244.2	9 TK	1272.1	10 TK	1296.0
11 TK	1330.1	12 TK	439.9	13 TK	675.2	14 TK	1298.2
15 TK	1211.4	16 TK	1225.1	17 TK	1174.9	18 TK	1100.3
19 TK	1194.6	20 TK	1029.4	21 TK	775.0	22 TK	639.1
23 TK	631.9	25 TK	12.1	26 R1	6.60	27 R2	10.19
28 R3	6.58	29 R4	5.44	30 R5	5.17	36 RT	5.8
34 TT	-4.4	35 TT	16.6				

16:38:43

0 WS	0.8	1 WD	6.	2 WB	5.5	3 DB	5.8
24 RK	11.8	4 TK	319.2	5 TK	304.5	6 TK	652.6
7 TK	867.7	8 TK	1115.5	9 TK	1156.3	10 TK	1186.3
11 TK	1180.1	12 TK	569.0	13 TK	732.7	14 TK	1234.6
15 TK	1123.6	16 TK	1084.2	17 TK	1107.3	18 TK	1034.3
19 TK	1043.2	20 TK	817.8	21 TK	428.2	22 TK	92.0
23 TK	-31.1	25 TK	15.9	26 R1	4.77	27 R2	7.26
28 R3	2.82	29 R4	3.88	30 R5	3.88	36 RT	8.9
34 TT	-3.9	35 TT	15.6				

16:38:44

0 WS	0.8	1 WD	4.	2 WB	4.9	3 DB	5.1
24 RK	11.8	4 TK	308.2	5 TK	282.3	6 TK	590.5
7 TK	667.1	8 TK	779.7	9 TK	886.7	10 TK	1002.8
11 TK	968.6	12 TK	589.6	13 TK	670.7	14 TK	1098.3
15 TK	987.1	16 TK	830.0	17 TK	571.7	18 TK	568.1
19 TK	206.2	20 TK	62.6	21 TK	37.5	22 TK	89.2
23 TK	-26.0	25 TK	14.9	26 R1	2.94	27 R2	4.46
28 R3	1.30	29 R4	2.84	30 R5	2.21	36 RT	15.2
34 TT	3.3	35 TT	22.4				



## 16:38:45

0 WS	0.8	1 WD	5.	2 WB	5.5	3 DB	5.8
24 RK	8.9	4 TK	297.1	5 TK	292.5	6 TK	457.9
7 TK	374.8	8 TK	430.9	9 TK	548.4	10 TK	526.9
11 TK	402.9	12 TK	390.2	13 TK	389.3	14 TK	483.0
15 TK	526.9	16 TK	130.0	17 TK	22.5	18 TK	127.2
19 TK	38.5	20 TK	22.5	21 TK	31.0	22 TK	52.4
23 TK	4.4	25 TK	10.2	26 R1	1.39	27 R2	2.40
28 R3	0.85	29 R4	1.30	30 R5	1.56	36 RT	5.4
34 TT	-8.4	35 TT	14.3				

## 16:38:46

0 WS	0.7	1 WD	5.	2 WB	5.0	3 DB	5.4
24 RK	8.9	4 TK	226.2	5 TK	339.3	6 TK	253.5
7 TK	129.1	8 TK	144.2	9 TK	235.6	10 TK	138.5
11 TK	29.1	12 TK	247.9	13 TK	155.6	14 TK	106.8
15 TK	177.5	16 TK	31.0	17 TK	24.4	18 TK	48.7
19 TK	25.3	20 TK	19.7	21 TK	10.2	22 TK	109.5
23 TK	101.2	25 TK	12.1	26 R1	-0.16	27 R2	1.38
28 R3	0.56	29 R4	1.04	30 R5	1.36	36 RT	12.3
34 TT	-0.0	35 TT	21.8				

## 16:38:47

0 WS	0.7	1 WD	5.	2 WB	5.4	3 DB	5.3
24 RK	10.8	4 TK	167.9	5 TK	245.1	6 TK	81.0
7 TK	69.0	8 TK	151.8	9 TK	75.4	10 TK	161.3
11 TK	34.7	12 TK	177.5	13 TK	57.0	14 TK	182.3
15 TK	85.6	16 TK	268.4	17 TK	75.4	18 TK	31.9
19 TK	30.0	20 TK	33.8	21 TK	-32.1	22 TK	493.8
23 TK	48.7	25 TK	13.0	26 R1	-2.26	27 R2	1.20
28 R3	0.63	29 R4	0.52	30 R5	0.83	36 RT	24.0
34 TT	12.0	35 TT	31.3				

## 16:38:48

0 WS	0.7	1 WD	5.	2 WB	5.4	3 DB	5.7
24 RK	8.9	4 TK	300.8	5 TK	421.0	6 TK	296.2
7 TK	537.6	8 TK	298.0	9 TK	421.9	10 TK	117.0
11 TK	547.5	12 TK	239.4	13 TK	223.3	14 TK	80.0
15 TK	11.1	16 TK	243.2	17 TK	181.3	18 TK	43.1
19 TK	59.8	20 TK	46.8	21 TK	-29.0	22 TK	371.2
23 TK	-82.1	25 TK	7.3	26 R1	-0.70	27 R2	1.09
28 R3	0.29	29 R4	0.48	30 R5	1.22	36 RT	9.9
34 TT	-4.1	35 TT	17.6				

## 16:38:49

0 WS	0.7	1 WD	5.	2 WB	4.9	3 DB	5.2
24 RK	9.9	4 TK	254.4	5 TK	449.8	6 TK	385.7
7 TK	704.3	8 TK	289.7	9 TK	448.0	10 TK	211.9
11 TK	330.2	12 TK	278.6	13 TK	463.2	14 TK	150.8
15 TK	102.1	16 TK	187.1	17 TK	175.6	18 TK	86.5
19 TK	182.3	20 TK	28.2	21 TK	14.9	22 TK	380.3
23 TK	-84.5	25 TK	8.3	26 R1	-2.53	27 R2	1.07
28 R3	0.38	29 R4	0.69	30 R5	1.08	36 RT	13.0
34 TT	-1.2	35 TT	22.0				



## NBS BOFST PRESSURE RECORDINGS

Acronym	Description	Units
GO	Gas Orifice	psig
WO	Water Orifice	psig
RO	Restriction Orifice	psig
WP	Water Line (near nozzle(s))	psig
GΔP	Gas Differential Pressure	inches of water
WΔP	Water Differential Pressure	inches of water
RΔP	Restriction Orifice Differential Pressure	inches of water

First  is at time of ignition.

Second  is at time of water injection.

Time corresponds to times of data acquisition system.



TEST 4

Time	GO	WO	RO	WP	GAP	WAP	RAP
16:38:28	0.5	0.0	0.0	0.0	3.8	0.0	0.0
16:38:29	0.5	0.0	0.0	0.0	75.0	0.0	93.0
16:38:30	1.0	0.0	1.0	0.0	113.0	0.0	465.0
16:38:31	5.0	0.0	2.5	0.0	203.0	0.0	628.0
16:38:32	20.0	0.0	7.0	0.0	217.0	0.0	707.0
16:38:33	26.0	0.0	12.0	0.0	216.0	0.0	772.0
16:38:34	35.0	0.0	20.0	0.0	215.0	0.0	832.0
16:38:35	38.0	0.0	27.0	0.0	214.0	0.0	830.0
16:38:36	40.0	0.0	31.0	0.0	214.0	0.0	828.0
16:38:37	39.5	0.0	31.0	0.0	213.0	0.0	824.0
16:38:38	39.5	0.0	31.0	0.0	213.0	0.0	820.0
16:38:39	39.0	0.0	31.0	0.0	212.0	0.0	816.0
16:38:40	39.0	0.0	31.0	0.0	212.0	0.0	812.0
16:38:41	38.5	0.0	31.0	0.0	211.0	0.0	808.0
16:38:42	38.5	0.0	31.0	0.0	210.0	0.0	804.0
16:38:43	38.5	2.0	31.0	3.0	209.0	49.0	800.0
16:38:44	38.0	3.0	31.0	7.0	208.0	91.0	795.0
16:38:45	38.0	6.0	36.5	25.0	207.0	122.0	794.0
16:38:46	38.0	30.0	30.5	37.0	206.0	164.0	790.0
16:38:47	37.5	90.0	30.5	97.0	205.0	188.0	744.0
16:38:48	37.5	100.0	30.5	109.0	204.0	213.0	715.0
16:38:49	37.5	45.0	30.0	52.0	203.0	234.0	679.0
16:38:50	37.0	30.0	30.0	36.0	199.0	188.0	629.0
16:38:51	37.0	25.0	29.5	31.0	196.0	134.0	580.0
16:38:52	37.0	20.0	29.5	27.0	192.0	79.0	526.0
16:38:53	36.5	12.0	29.0	19.0	182.0	64.0	468.0
16:38:54	34.5	6.0	28.0	14.0	166.0	30.0	414.0
16:38:55	32.0	4.0	27.0	13.0	150.0	0.0	352.0
16:38:56	28.0	3.0	26.0	9.0	133.0	0.0	277.0
16:38:57	23.0	2.0	24.0	7.0	119.0	0.0	186.0
16:38:58	18.0	0.0	20.0	0.0	105.0	0.0	112.0
16:38:59	14.0	0.0	17.0	0.0	100.0	0.0	56.0
16:39:00	8.0	0.0	13.0	0.0	90.0	0.0	11.0
16:39:01	2.0	0.0	9.0	0.0	67.0	0.0	5.0
16:39:02	0.0	0.0	5.0	0.0	38.0	0.0	0.0

APPENDIX I

TEST NUMBER 5

DATA ACQUISITION RECORDINGS AND PRESSURE READINGS



NBS BOFST CHANNEL ASSIGNMENT

Channel	Acronym	Description	Units	Location
0	WS	Wind Speed	mph	Met Tower (10 m)
1	WD	Wind Direction	° from N	Met Tower (10 m)
2	WB	Wet Bulb	°C	Met Tower (10 m)
3	DB	Dry Bulb	°C	Met Tower (10 m)
4	KT	K Thermocouple	°C	Cable Array (#1)
5	KT	K Thermocouple	°C	Cable Array (#2)
6	KT	K Thermocouple	°C	Cable Array (#3)
7	KT	K Thermocouple	°C	Cable Array (#4)
8	KT	K Thermocouple	°C	Cable Array (#5)
9	KT	K Thermocouple	°C	Cable Array (#6)
10	KT	K Thermocouple	°C	Cable Array (#7)
11	KT	K Thermocouple	°C	Cable Array (#8)
12	KT	K Thermocouple	°C	Cable Array (#9)
13	KT	K Thermocouple	°C	Cable Array (#10)
14	KT	K Thermocouple	°C	Cable Array (#11)
15	KT	K Thermocouple	°C	Cable Array (#12)
16	KT	K Thermocouple	°C	Cable Array (#13)
17	KT	K Thermocouple	°C	Cable Array (#14)
18	KT	K Thermocouple	°C	Cable Array (#15)
19	KT	K Thermocouple	°C	Cable Array (#16)
20	KT	K Thermocouple	°C	Cable Array (#17)
21	KT	K Thermocouple	°C	Cable Array (#18)
22	KT	K Thermocouple	°C	Cable Array (#19)
23	KT	K Thermocouple	°C	Cable Array (#20)
24	KR	K Reference Thermocouple	°C	Junctions for K Thermocouples
25	KT	K Thermocouple	°C	Gas Outlet
26	R1	Radiometer (7°)	kW/m <sup>2</sup>	Radiometer Array (#1)
27	R2	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#2)
28	R3	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#3)
29	R4	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#4)
30	R5	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#5)
34	TT	T Thermocouple	°C	Gas Line
35	TT	T Thermocouple	°C	Water Line
36	TR	T Reference Thermocouple	°C	Junctions for T Thermocouples

nbs blowout fire simulation, test 5  
 1/27/84  
 34 channels per scan

17:00:13

0 WS	1.2	1 WD	24.	2 WB	5.2	3 DB	5.5
24 RK	11.8	4 TK	38.5	5 TK	23.5	6 TK	19.7
7 TK	24.4	8 TK	34.7	9 TK	13.0	10 TK	28.2
11 TK	20.6	12 TK	29.1	13 TK	15.9	14 TK	17.8
15 TK	18.7	16 TK	20.6	17 TK	19.7	18 TK	19.7
19 TK	24.4	20 TK	17.8	21 TK	17.8	22 TK	23.5
23 TK	18.7	25 TK	361.2	26 R1	5.96	27 R2	0.37
28 R3	0.25	29 R4	0.89	30 R5	0.94	36 RT	9.1
34 TT	13.5	35 TT	18.0				

17:00:14

0 WS	1.1	1 WD	22.	2 WB	5.8	3 DB	6.0
24 RK	9.9	4 TK	37.5	5 TK	22.5	6 TK	18.7
7 TK	21.6	8 TK	34.7	9 TK	11.1	10 TK	23.5
11 TK	20.6	12 TK	28.2	13 TK	15.9	14 TK	14.0
15 TK	18.7	16 TK	18.7	17 TK	15.9	18 TK	22.5
19 TK	22.5	20 TK	20.6	21 TK	14.9	22 TK	23.5
23 TK	16.8	25 TK	359.4	26 R1	7.33	27 R2	0.41
28 R3	0.31	29 R4	0.72	30 R5	0.39	36 RT	11.2
34 TT	15.5	35 TT	21.1				

17:00:15

0 WS	1.1	1 WD	22.	2 WB	5.5	3 DB	5.2
24 RK	7.0	4 TK	35.7	5 TK	17.8	6 TK	17.8
7 TK	18.7	8 TK	30.0	9 TK	8.3	10 TK	20.6
11 TK	21.6	12 TK	22.5	13 TK	10.2	14 TK	11.1
15 TK	18.7	16 TK	20.6	17 TK	14.0	18 TK	14.0
19 TK	14.9	20 TK	17.8	21 TK	12.1	22 TK	22.5
23 TK	14.0	25 TK	364.8	26 R1	6.05	27 R2	0.66
28 R3	0.42	29 R4	0.37	30 R5	1.03	36 RT	7.1
34 TT	8.8	35 TT	15.1				

17:00:16

0 WS	1.1	1 WD	21.	2 WB	5.0	3 DB	5.4
24 RK	8.9	4 TK	35.7	5 TK	19.7	6 TK	19.7
7 TK	18.7	8 TK	31.9	9 TK	10.2	10 TK	23.5
11 TK	20.6	12 TK	24.4	13 TK	13.0	14 TK	14.9
15 TK	16.8	16 TK	22.5	17 TK	14.9	18 TK	16.8
19 TK	17.8	20 TK	18.7	21 TK	16.8	22 TK	23.5
23 TK	16.8	25 TK	369.4	26 R1	5.96	27 R2	0.33
28 R3	0.43	29 R4	0.61	30 R5	0.67	36 RT	11.7
34 TT	12.7	35 TT	21.3				

17:00:17

0 WS	1.1	1 WD	22.	2 WB	5.7	3 DB	5.9
24 RK	9.9	4 TK	37.5	5 TK	23.5	6 TK	18.7
7 TK	20.6	8 TK	33.8	9 TK	12.1	10 TK	23.5
11 TK	19.7	12 TK	27.2	13 TK	14.9	14 TK	14.0
15 TK	19.7	16 TK	18.7	17 TK	14.9	18 TK	18.7
19 TK	23.5	20 TK	16.8	21 TK	18.7	22 TK	20.6
23 TK	20.6	25 TK	372.1	26 R1	4.13	27 R2	0.98
28 R3	0.09	29 R4	1.00	30 R5	0.51	36 RT	14.2
34 TT	20.4	35 TT	23.0				



## 17:00:18

0 WS	1.2	1 WD	23.	2 WB	5.9	3 DB	6.2
24 RK	8.0	4 TK	34.7	5 TK	22.5	6 TK	17.8
7 TK	17.8	8 TK	30.0	9 TK	10.2	10 TK	24.4
11 TK	16.8	12 TK	24.4	13 TK	12.1	14 TK	14.9
15 TK	16.8	16 TK	16.8	17 TK	15.9	18 TK	18.7
19 TK	14.9	20 TK	15.9	21 TK	13.0	22 TK	25.3
23 TK	15.9	25 TK	381.2	26 R1	4.68	27 R2	0.48
28 R3	0.67	29 R4	0.33	30 R5	0.90	36 RT	5.7
34 TT	8.9	35 TT	13.2				

## 17:00:19

0 WS	1.3	1 WD	22.	2 WB	5.8	3 DB	6.0
24 RK	8.0	4 TK	33.8	5 TK	19.7	6 TK	19.7
7 TK	17.8	8 TK	30.0	9 TK	11.1	10 TK	20.6
11 TK	18.7	12 TK	28.2	13 TK	12.1	14 TK	11.1
15 TK	15.9	16 TK	21.6	17 TK	16.8	18 TK	15.9
19 TK	17.8	20 TK	18.7	21 TK	17.8	22 TK	19.7
23 TK	14.9	25 TK	385.7	26 R1	4.32	27 R2	0.63
28 R3	0.36	29 R4	0.56	30 R5	0.57	36 RT	9.1
34 TT	10.9	35 TT	17.5				

## 17:00:20

0 WS	1.3	1 WD	22.	2 WB	5.8	3 DB	6.0
24 RK	8.0	4 TK	32.9	5 TK	22.5	6 TK	16.8
7 TK	20.6	8 TK	30.0	9 TK	10.2	10 TK	22.5
11 TK	20.6	12 TK	23.5	13 TK	10.2	14 TK	12.1
15 TK	15.9	16 TK	16.8	17 TK	13.0	18 TK	15.9
19 TK	15.9	20 TK	19.7	21 TK	14.0	22 TK	19.7
23 TK	17.8	25 TK	398.4	26 R1	3.95	27 R2	0.41
28 R3	0.42	29 R4	0.93	30 R5	0.64	36 RT	11.2
34 TT	12.9	35 TT	24.0				

## 17:00:21

0 WS	1.3	1 WD	21.	2 WB	5.7	3 DB	5.6
24 RK	10.8	4 TK	37.5	5 TK	22.5	6 TK	20.6
7 TK	21.6	8 TK	32.9	9 TK	12.1	10 TK	24.4
11 TK	21.6	12 TK	31.0	13 TK	14.9	14 TK	14.9
15 TK	19.7	16 TK	20.6	17 TK	17.8	18 TK	19.7
19 TK	23.5	20 TK	22.5	21 TK	17.8	22 TK	22.5
23 TK	17.8	25 TK	411.9	26 R1	4.68	27 R2	0.79
28 R3	0.49	29 R4	0.72	30 R5	0.57	36 RT	11.1
34 TT	15.1	35 TT	23.7				

## 17:00:22

0 WS	1.3	1 WD	15.	2 WB	5.9	3 DB	6.1
24 RK	9.9	4 TK	37.5	5 TK	21.6	6 TK	19.7
7 TK	20.6	8 TK	32.9	9 TK	12.1	10 TK	27.2
11 TK	23.5	12 TK	26.3	13 TK	13.0	14 TK	15.9
15 TK	16.8	16 TK	19.7	17 TK	17.8	18 TK	15.9
19 TK	17.8	20 TK	22.5	21 TK	15.9	22 TK	21.6
23 TK	16.8	25 TK	418.2	26 R1	3.31	27 R2	0.37
28 R3	0.31	29 R4	0.76	30 R5	0.62	36 RT	12.7
34 TT	18.9	35 TT	23.3				





## 17:00:23

0 WS	1.3	1 WD	14.	2 WB	5.4	3 DB	6.1
24 RK	8.9	4 TK	35.7	5 TK	19.7	6 TK	18.7
7 TK	18.7	8 TK	31.9	9 TK	11.1	10 TK	23.5
11 TK	18.7	12 TK	26.3	13 TK	12.1	14 TK	14.0
15 TK	18.7	16 TK	18.7	17 TK	16.8	18 TK	15.9
19 TK	18.7	20 TK	21.6	21 TK	17.8	22 TK	20.6
23 TK	16.8	25 TK	421.0	26 R1	4.86	27 R2	0.72
28 R3	0.45	29 R4	0.41	30 R5	0.53	36 RT	4.8
34 TT	6.4	35 TT	16.2				

## 17:00:24

0 WS	1.3	1 WD	17.	2 WB	5.5	3 DB	6.2
24 RK	8.0	4 TK	33.8	5 TK	18.7	6 TK	17.8
7 TK	17.8	8 TK	31.0	9 TK	9.2	10 TK	22.5
11 TK	16.8	12 TK	27.2	13 TK	10.2	14 TK	13.0
15 TK	19.7	16 TK	20.6	17 TK	14.9	18 TK	14.0
19 TK	17.8	20 TK	14.9	21 TK	14.0	22 TK	21.6
23 TK	17.8	25 TK	427.3	26 R1	5.41	27 R2	0.72
28 R3	0.11	29 R4	0.37	30 R5	0.60	36 RT	9.5
34 TT	11.3	35 TT	20.6				

## 17:00:25

0 WS	1.3	1 WD	18.	2 WB	6.0	3 DB	6.2
24 RK	7.0	4 TK	34.7	5 TK	17.8	6 TK	18.7
7 TK	15.9	8 TK	31.9	9 TK	9.2	10 TK	20.6
11 TK	16.8	12 TK	23.5	13 TK	14.0	14 TK	14.9
15 TK	20.6	16 TK	14.0	17 TK	16.8	18 TK	12.1
19 TK	20.6	20 TK	15.9	21 TK	18.7	22 TK	19.7
23 TK	12.1	25 TK	438.1	26 R1	2.49	27 R2	0.61
28 R3	0.52	29 R4	0.39	30 R5	0.55	36 RT	7.4
34 TT	7.7	35 TT	18.0				

## 17:00:26

0 WS	1.3	1 WD	17.	2 WB	5.8	3 DB	6.0
24 RK	7.0	4 TK	36.6	5 TK	17.8	6 TK	20.6
7 TK	15.9	8 TK	29.1	9 TK	8.3	10 TK	20.6
11 TK	18.7	12 TK	22.5	13 TK	10.2	14 TK	12.1
15 TK	18.7	16 TK	21.6	17 TK	14.0	18 TK	13.0
19 TK	16.8	20 TK	14.9	21 TK	17.8	22 TK	22.5
23 TK	13.0	25 TK	440.8	26 R1	5.96	27 R2	0.31
28 R3	0.14	29 R4	0.61	30 R5	0.85	36 RT	7.8
34 TT	11.2	35 TT	18.4				

## 17:00:27

0 WS	1.4	1 WD	18.	2 WB	5.9	3 DB	6.2
24 RK	8.9	4 TK	36.6	5 TK	22.5	6 TK	17.8
7 TK	16.8	8 TK	33.8	9 TK	10.2	10 TK	22.5
11 TK	19.7	12 TK	28.2	13 TK	12.1	14 TK	14.0
15 TK	17.8	16 TK	21.6	17 TK	15.9	18 TK	15.9
19 TK	17.8	20 TK	18.7	21 TK	16.8	22 TK	20.6
23 TK	16.8	25 TK	442.6	26 R1	4.32	27 R2	0.46
28 R3	0.27	29 R4	0.74	30 R5	0.85	36 RT	8.6
34 TT	11.9	35 TT	20.6				

17:00:28

0 WS	1.4	1 WD	17.	2 WB	5.1	3 DB	5.2
24 RK	8.0	4 TK	34.7	5 TK	19.7	6 TK	19.7
7 TK	17.8	8 TK	31.0	9 TK	9.2	10 TK	24.4
11 TK	17.8	12 TK	25.3	13 TK	13.0	14 TK	12.1
15 TK	15.9	16 TK	18.7	17 TK	14.0	18 TK	16.8
19 TK	16.8	20 TK	21.6	21 TK	14.0	22 TK	21.6
23 TK	15.9	25 TK	443.5	26 R1	4.77	27 R2	0.39
28 R3	0.42	29 R4	0.52	30 R5	0.57	36 RT	13.2
34 TT	13.6	35 TT	22.3				

17:00:29

0 WS	1.4	1 WD	17.	2 WB	5.5	3 DB	5.3
24 RK	10.8	4 TK	37.5	5 TK	23.5	6 TK	20.6
7 TK	18.7	8 TK	33.8	9 TK	14.0	10 TK	26.3
11 TK	22.5	12 TK	27.2	13 TK	14.9	14 TK	15.9
15 TK	17.8	16 TK	21.6	17 TK	18.7	18 TK	17.8
19 TK	18.7	20 TK	19.7	21 TK	20.6	22 TK	24.4
23 TK	17.8	25 TK	448.0	26 R1	4.86	27 R2	0.59
28 R3	0.22	29 R4	0.56	30 R5	0.80	36 RT	5.3
34 TT	6.1	35 TT	15.7				

17:00:30

0 WS	1.4	1 WD	15.	2 WB	5.6	3 DB	5.5
24 RK	7.0	4 TK	32.9	5 TK	20.6	6 TK	19.7
7 TK	15.9	8 TK	28.2	9 TK	8.3	10 TK	21.6
11 TK	21.6	12 TK	26.3	13 TK	9.2	14 TK	11.1
15 TK	13.0	16 TK	20.6	17 TK	14.9	18 TK	14.0
19 TK	14.9	20 TK	16.8	21 TK	14.9	22 TK	23.5
23 TK	14.0	25 TK	444.4	26 R1	3.22	27 R2	0.85
28 R3	0.43	29 R4	0.76	30 R5	0.39	36 RT	4.7
34 TT	7.2	35 TT	14.1				

17:00:31

0 WS	1.4	1 WD	15.	2 WB	5.7	3 DB	6.0
24 RK	9.9	4 TK	37.5	5 TK	22.5	6 TK	20.6
7 TK	19.7	8 TK	31.9	9 TK	12.1	10 TK	24.4
11 TK	20.6	12 TK	25.3	13 TK	17.8	14 TK	16.8
15 TK	14.9	16 TK	19.7	17 TK	15.9	18 TK	18.7
19 TK	20.6	20 TK	18.7	21 TK	16.8	22 TK	24.4
23 TK	13.0	25 TK	456.1	26 R1	3.77	27 R2	0.42
28 R3	0.18	29 R4	0.80	30 R5	0.83	36 RT	4.2
34 TT	6.3	35 TT	13.7				

17:00:32

0 WS	1.4	1 WD	15.	2 WB	5.4	3 DB	6.1
24 RK	14.6	4 TK	39.4	5 TK	26.3	6 TK	23.5
7 TK	25.3	8 TK	38.5	9 TK	16.8	10 TK	26.3
11 TK	29.1	12 TK	32.9	13 TK	16.8	14 TK	22.5
15 TK	22.5	16 TK	24.4	17 TK	22.5	18 TK	25.3
19 TK	27.2	20 TK	23.5	21 TK	21.6	22 TK	31.9
23 TK	18.7	25 TK	466.8	26 R1	4.13	27 R2	0.77
28 R3	0.09	29 R4	1.00	30 R5	0.64	36 RT	4.8
34 TT	5.5	35 TT	15.7				



17:00:33

0 WS	1.4	1 WD	15.	2 WB	5.9	3 DB	6.2
24 RK	10.8	4 TK	38.5	5 TK	22.5	6 TK	23.5
7 TK	18.7	8 TK	32.9	9 TK	14.0	10 TK	22.5
11 TK	21.6	12 TK	29.1	13 TK	14.0	14 TK	15.9
15 TK	17.8	16 TK	18.7	17 TK	19.7	18 TK	18.7
19 TK	19.7	20 TK	23.5	21 TK	15.9	22 TK	23.5
23 TK	18.7	25 TK	468.6	26 R1	4.41	27 R2	0.92
28 R3	0.16	29 R4	0.78	30 R5	0.71	36 RT	6.9
34 TT	10.0	35 TT	15.3				

17:00:34

0 WS	1.4	1 WD	15.	2 WB	5.5	3 DB	5.3
24 RK	11.8	4 TK	36.6	5 TK	25.3	6 TK	22.5
7 TK	18.7	8 TK	35.7	9 TK	13.0	10 TK	25.3
11 TK	26.3	12 TK	27.2	13 TK	17.8	14 TK	18.7
15 TK	15.9	16 TK	25.3	17 TK	18.7	18 TK	17.8
19 TK	24.4	20 TK	22.5	21 TK	18.7	22 TK	27.2
23 TK	14.9	25 TK	475.8	26 R1	2.58	27 R2	0.48
28 R3	0.54	29 R4	0.93	30 R5	0.44	36 RT	9.1
34 TT	10.1	35 TT	17.8				

17:00:35

0 WS	1.2	1 WD	15.	2 WB	5.4	3 DB	6.2
24 RK	11.8	4 TK	36.6	5 TK	23.5	6 TK	21.6
7 TK	21.6	8 TK	36.6	9 TK	13.0	10 TK	24.4
11 TK	26.3	12 TK	27.2	13 TK	14.0	14 TK	16.8
15 TK	21.6	16 TK	25.3	17 TK	16.8	18 TK	16.8
19 TK	21.6	20 TK	25.3	21 TK	20.6	22 TK	25.3
23 TK	17.8	25 TK	473.1	26 R1	4.13	27 R2	0.39
28 R3	0.27	29 R4	1.06	30 R5	0.71	36 RT	12.2
34 TT	14.7	35 TT	22.0				

17:00:36

0 WS	1.2	1 WD	15.	2 WB	6.0	3 DB	6.3
24 RK	7.0	4 TK	35.7	5 TK	20.6	6 TK	18.7
7 TK	15.9	8 TK	29.1	9 TK	9.2	10 TK	21.6
11 TK	18.7	12 TK	23.5	13 TK	9.2	14 TK	13.0
15 TK	12.1	16 TK	19.7	17 TK	12.1	18 TK	15.9
19 TK	17.8	20 TK	14.9	21 TK	15.9	22 TK	20.6
23 TK	5.4	25 TK	470.4	26 R1	5.50	27 R2	1.00
28 R3	0.07	29 R4	0.61	30 R5	0.46	36 RT	8.2
34 TT	9.0	35 TT	18.1				

17:00:37

0 WS	1.0	1 WD	14.	2 WB	5.6	3 DB	5.9
24 RK	7.0	4 TK	33.8	5 TK	18.7	6 TK	16.8
7 TK	18.7	8 TK	32.9	9 TK	8.3	10 TK	19.7
11 TK	20.6	12 TK	24.4	13 TK	11.1	14 TK	12.1
15 TK	13.0	16 TK	15.9	17 TK	14.0	18 TK	18.7
19 TK	17.8	20 TK	14.9	21 TK	13.0	22 TK	21.6
23 TK	8.3	25 TK	477.6	26 R1	3.86	27 R2	0.74
28 R3	0.16	29 R4	0.52	30 R5	0.97	36 RT	7.7
34 TT	9.7	35 TT	18.5				



17:00:38

0 WS	0.8	1 WD	19.	2 WB	5.5	3 DB	5.9
24 RK	7.0	4 TK	36.6	5 TK	18.7	6 TK	17.8
7 TK	17.8	8 TK	32.9	9 TK	10.2	10 TK	17.8
11 TK	21.6	12 TK	23.5	13 TK	12.1	14 TK	14.0
15 TK	12.1	16 TK	17.8	17 TK	12.1	18 TK	18.7
19 TK	15.9	20 TK	17.8	21 TK	14.9	22 TK	26.3
23 TK	9.2	25 TK	484.8	26 R1	5.05	27 R2	0.33
28 R3	0.32	29 R4	0.30	30 R5	0.90	36 RT	11.7
34 TT	14.2	35 TT	20.5				

17:00:39

0 WS	0.7	1 WD	19.	2 WB	4.9	3 DB	5.3
24 RK	8.9	4 TK	35.7	5 TK	24.4	6 TK	19.7
7 TK	17.8	8 TK	31.9	9 TK	11.1	10 TK	21.6
11 TK	22.5	12 TK	27.2	13 TK	12.1	14 TK	14.9
15 TK	13.0	16 TK	17.8	17 TK	15.9	18 TK	15.9
19 TK	24.4	20 TK	15.9	21 TK	16.8	22 TK	24.4
23 TK	12.1	25 TK	492.9	26 R1	2.49	27 R2	0.98
28 R3	0.11	29 R4	0.61	30 R5	0.74	36 RT	8.3
34 TT	9.7	35 TT	17.0				

17:00:40

0 WS	0.6	1 WD	20.	2 WB	5.5	3 DB	5.9
24 RK	11.8	4 TK	37.5	5 TK	25.3	6 TK	23.5
7 TK	21.6	8 TK	35.7	9 TK	13.0	10 TK	26.3
11 TK	26.3	12 TK	28.2	13 TK	17.8	14 TK	17.8
15 TK	16.8	16 TK	21.6	17 TK	18.7	18 TK	18.7
19 TK	23.5	20 TK	20.6	21 TK	19.7	22 TK	29.1
23 TK	13.0	25 TK	501.8	26 R1	2.76	27 R2	0.72
28 R3	0.42	29 R4	0.61	30 R5	0.69	36 RT	8.6
34 TT	10.9	35 TT	17.9				

17:00:41

0 WS	1.1	1 WD	19.	2 WB	5.4	3 DB	5.7
24 RK	7.0	4 TK	32.9	5 TK	20.6	6 TK	19.7
7 TK	18.7	8 TK	31.0	9 TK	7.3	10 TK	18.7
11 TK	21.6	12 TK	22.5	13 TK	12.1	14 TK	12.1
15 TK	12.1	16 TK	18.7	17 TK	14.9	18 TK	13.0
19 TK	18.7	20 TK	14.0	21 TK	14.9	22 TK	22.5
23 TK	9.2	25 TK	500.9	26 R1	2.76	27 R2	0.68
28 R3	0.29	29 R4	0.30	30 R5	1.17	36 RT	9.2
34 TT	13.7	35 TT	17.9				

17:00:42

0 WS	0.7	1 WD	20.	2 WB	5.4	3 DB	6.0
24 RK	8.9	4 TK	35.7	5 TK	20.6	6 TK	21.6
7 TK	17.8	8 TK	31.9	9 TK	10.2	10 TK	23.5
11 TK	19.7	12 TK	25.3	13 TK	14.9	14 TK	14.0
15 TK	14.0	16 TK	19.7	17 TK	14.0	18 TK	16.8
19 TK	20.6	20 TK	15.9	21 TK	17.8	22 TK	26.3
23 TK	10.2	25 TK	508.1	26 R1	3.58	27 R2	0.53
28 R3	0.14	29 R4	0.54	30 R5	0.53	36 RT	7.2
34 TT	8.9	35 TT	15.9				



17:00:43

0 WS	0.6	1 WD	20.	2 WB	5.5	3 DB	5.9
24 RK	8.0	4 TK	34.7	5 TK	20.6	6 TK	20.6
7 TK	17.8	8 TK	29.1	9 TK	10.2	10 TK	23.5
11 TK	19.7	12 TK	23.5	13 TK	12.1	14 TK	14.0
15 TK	14.0	16 TK	15.9	17 TK	13.0	18 TK	14.0
19 TK	21.6	20 TK	14.0	21 TK	14.0	22 TK	23.5
23 TK	13.0	25 TK	510.8	26 R1	3.40	27 R2	0.31
28 R3	0.20	29 R4	0.82	30 R5	1.17	36 RT	10.1
34 TT	11.2	35 TT	17.9				

17:00:44

0 WS	0.5	1 WD	19.	2 WB	5.5	3 DB	5.9
24 RK	8.0	4 TK	33.8	5 TK	23.5	6 TK	18.7
7 TK	20.6	8 TK	30.0	9 TK	9.2	10 TK	24.4
11 TK	20.6	12 TK	23.5	13 TK	14.9	14 TK	14.0
15 TK	16.8	16 TK	16.8	17 TK	13.0	18 TK	18.7
19 TK	18.7	20 TK	13.0	21 TK	19.7	22 TK	22.5
23 TK	14.9	25 TK	511.7	26 R1	2.21	27 R2	0.94
28 R3	0.47	29 R4	0.30	30 R5	1.19	36 RT	5.8
34 TT	9.5	35 TT	13.8				

17:00:45

0 WS	0.6	1 WD	19.	2 WB	5.5	3 DB	5.9
24 RK	11.8	4 TK	40.3	5 TK	23.5	6 TK	22.5
7 TK	25.3	8 TK	32.9	9 TK	13.0	10 TK	29.1
11 TK	20.6	12 TK	31.0	13 TK	16.8	14 TK	17.8
15 TK	22.5	16 TK	18.7	17 TK	17.8	18 TK	22.5
19 TK	20.6	20 TK	20.6	21 TK	21.6	22 TK	27.2
23 TK	17.8	25 TK	522.4	26 R1	3.31	27 R2	1.00
28 R3	0.13	29 R4	0.43	30 R5	0.78	36 RT	15.6
34 TT	17.4	35 TT	23.6				

17:00:46

0 WS	0.6	1 WD	19.	2 WB	5.5	3 DB	5.9
24 RK	10.8	4 TK	39.4	5 TK	23.5	6 TK	21.6
7 TK	23.5	8 TK	32.9	9 TK	13.0	10 TK	24.4
11 TK	21.6	12 TK	31.0	13 TK	15.9	14 TK	17.8
15 TK	21.6	16 TK	19.7	17 TK	15.9	18 TK	16.8
19 TK	23.5	20 TK	21.6	21 TK	19.7	22 TK	27.2
23 TK	20.6	25 TK	530.5	26 R1	3.22	27 R2	0.98
28 R3	0.51	29 R4	0.56	30 R5	0.53	36 RT	4.9
34 TT	9.2	35 TT	16.1				

17:00:47

0 WS	0.5	1 WD	20.	2 WB	5.5	3 DB	5.8
24 RK	9.9	4 TK	36.6	5 TK	23.5	6 TK	19.7
7 TK	23.5	8 TK	32.9	9 TK	12.1	10 TK	22.5
11 TK	20.6	12 TK	31.0	13 TK	15.9	14 TK	16.8
15 TK	21.6	16 TK	15.9	17 TK	19.7	18 TK	18.7
19 TK	20.6	20 TK	25.3	21 TK	15.9	22 TK	29.1
23 TK	23.5	25 TK	542.1	26 R1	4.32	27 R2	0.64
28 R3	0.25	29 R4	1.06	30 R5	1.10	36 RT	5.4
34 TT	10.7	35 TT	14.4				



17:00:48

0 WS	0.6	1 WD	20.	2 WB	5.5	3 DB	5.9
24 RK	8.9	4 TK	34.7	5 TK	20.6	6 TK	24.4
7 TK	19.7	8 TK	32.9	9 TK	8.3	10 TK	20.6
11 TK	21.6	12 TK	28.2	13 TK	13.0	14 TK	14.9
15 TK	15.9	16 TK	21.6	17 TK	14.0	18 TK	17.8
19 TK	17.8	20 TK	20.6	21 TK	15.9	22 TK	26.3
23 TK	19.7	25 TK	543.9	26 R1	2.03	27 R2	0.66
28 R3	0.42	29 R4	0.48	30 R5	0.44	36 RT	10.8
34 TT	12.9	35 TT	20.4				

17:00:49

0 WS	1.0	1 WD	20.	2 WB	5.3	3 DB	5.7
24 RK	8.0	4 TK	36.6	5 TK	19.7	6 TK	19.7
7 TK	17.8	8 TK	31.0	9 TK	10.2	10 TK	22.5
11 TK	17.8	12 TK	29.1	13 TK	12.1	14 TK	14.0
15 TK	15.9	16 TK	15.9	17 TK	14.9	18 TK	16.8
19 TK	16.8	20 TK	23.5	21 TK	19.7	22 TK	22.5
23 TK	16.8	25 TK	551.1	26 R1	3.58	27 R2	0.29
28 R3	0.27	29 R4	0.63	30 R5	1.29	36 RT	9.2
34 TT	9.6	35 TT	18.0				

17:00:50

0 WS	0.8	1 WD	20.	2 WB	5.5	3 DB	5.8
24 RK	11.8	4 TK	40.3	5 TK	24.4	6 TK	23.5
7 TK	24.4	8 TK	34.7	9 TK	13.0	10 TK	24.4
11 TK	23.5	12 TK	31.0	13 TK	14.9	14 TK	19.7
15 TK	21.6	16 TK	23.5	17 TK	18.7	18 TK	17.8
19 TK	23.5	20 TK	26.3	21 TK	17.8	22 TK	30.0
23 TK	20.6	25 TK	562.7	26 R1	4.32	27 R2	1.03
28 R3	0.38	29 R4	0.52	30 R5	1.01	36 RT	5.3
34 TT	8.9	35 TT	17.5				

17:00:51

0 WS	0.8	1 WD	20.	2 WB	5.6	3 DB	5.9
24 RK	8.0	4 TK	34.7	5 TK	19.7	6 TK	21.6
7 TK	17.8	8 TK	30.0	9 TK	9.2	10 TK	22.5
11 TK	18.7	12 TK	27.2	13 TK	11.1	14 TK	13.0
15 TK	19.7	16 TK	14.9	17 TK	14.9	18 TK	13.0
19 TK	19.7	20 TK	22.5	21 TK	14.0	22 TK	22.5
23 TK	20.6	25 TK	565.4	26 R1	2.30	27 R2	0.66
28 R3	0.14	29 R4	0.30	30 R5	0.78	36 RT	6.1
34 TT	9.8	35 TT	14.1				

17:00:52

0 WS	1.0	1 WD	20.	2 WB	5.6	3 DB	5.9
24 RK	9.9	4 TK	35.7	5 TK	22.5	6 TK	19.7
7 TK	23.5	8 TK	31.9	9 TK	13.0	10 TK	21.6
11 TK	20.6	12 TK	27.2	13 TK	13.0	14 TK	19.7
15 TK	17.8	16 TK	20.6	17 TK	14.9	18 TK	19.7
19 TK	17.8	20 TK	22.5	21 TK	18.7	22 TK	26.3
23 TK	21.6	25 TK	560.9	26 R1	5.14	27 R2	0.39
28 R3	0.42	29 R4	0.56	30 R5	0.76	36 RT	11.4
34 TT	12.0	35 TT	23.4				



17:00:53

0 WS	1.1	1 WD	24.	2 WB	5.9	3 DB	6.2
24 RK	8.9	4 TK	34.7	5 TK	21.6	6 TK	21.6
7 TK	19.7	8 TK	31.0	9 TK	10.2	10 TK	20.6
11 TK	22.5	12 TK	28.2	13 TK	12.1	14 TK	14.9
15 TK	20.6	16 TK	22.5	17 TK	14.0	18 TK	17.8
19 TK	19.7	20 TK	17.8	21 TK	14.9	22 TK	27.2
23 TK	20.6	25 TK	567.2	26 R1	4.50	27 R2	0.50
28 R3	0.13	29 R4	0.61	30 R5	1.01	36 RT	5.2
34 TT	6.2	35 TT	13.6				

17:00:54

0 WS	1.2	1 WD	35.	2 WB	5.0	3 DB	5.2
24 RK	9.9	4 TK	34.7	5 TK	24.4	6 TK	20.6
7 TK	24.4	8 TK	31.9	9 TK	11.1	10 TK	22.5
11 TK	20.6	12 TK	26.3	13 TK	17.8	14 TK	14.9
15 TK	18.7	16 TK	18.7	17 TK	18.7	18 TK	14.9
19 TK	20.6	20 TK	17.8	21 TK	18.7	22 TK	26.3
23 TK	23.5	25 TK	565.4	26 R1	3.77	27 R2	0.35
28 R3	0.69	29 R4	0.26	30 R5	0.78	36 RT	9.9
34 TT	15.1	35 TT	17.9				

17:00:55

0 WS	1.2	1 WD	35.	2 WB	5.0	3 DB	5.4
24 RK	8.0	4 TK	33.8	5 TK	21.6	6 TK	19.7
7 TK	18.7	8 TK	32.9	9 TK	8.3	10 TK	24.4
11 TK	18.7	12 TK	25.3	13 TK	12.1	14 TK	17.8
15 TK	16.8	16 TK	17.8	17 TK	14.0	18 TK	15.9
19 TK	17.8	20 TK	17.8	21 TK	18.7	22 TK	27.2
23 TK	22.5	25 TK	565.4	26 R1	1.48	27 R2	0.57
28 R3	0.47	29 R4	0.50	30 R5	0.51	36 RT	6.4
34 TT	9.0	35 TT	18.2				

17:00:56

0 WS	1.3	1 WD	35.	2 WB	5.9	3 DB	6.2
24 RK	8.0	4 TK	34.7	5 TK	20.6	6 TK	21.6
7 TK	17.8	8 TK	32.9	9 TK	6.3	10 TK	21.6
11 TK	17.8	12 TK	27.2	13 TK	13.0	14 TK	16.8
15 TK	16.8	16 TK	20.6	17 TK	12.1	18 TK	18.7
19 TK	16.8	20 TK	19.7	21 TK	15.9	22 TK	27.2
23 TK	21.6	25 TK	568.1	26 R1	3.22	27 R2	0.90
28 R3	0.38	29 R4	0.78	30 R5	0.57	36 RT	8.1
34 TT	10.1	35 TT	19.9				

17:00:57

0 WS	1.3	1 WD	30.	2 WB	5.0	3 DB	5.9
24 RK	8.0	4 TK	37.5	5 TK	22.5	6 TK	18.7
7 TK	18.7	8 TK	33.8	9 TK	7.3	10 TK	19.7
11 TK	17.8	12 TK	25.3	13 TK	17.8	14 TK	13.0
15 TK	17.8	16 TK	17.8	17 TK	15.9	18 TK	13.0
19 TK	19.7	20 TK	22.5	21 TK	17.8	22 TK	28.2
23 TK	17.8	25 TK	565.4	26 R1	1.85	27 R2	0.29
28 R3	0.45	29 R4	0.30	30 R5	1.06	36 RT	8.1
34 TT	10.9	35 TT	19.3				



17:00:58

0 WS	1.3	1 WD	24.	2 WB	5.0	3 DB	5.5
24 RK	12.7	4 TK	36.6	5 TK	27.2	6 TK	27.2
7 TK	23.5	8 TK	37.5	9 TK	11.1	10 TK	23.5
11 TK	24.4	12 TK	29.1	13 TK	20.6	14 TK	22.5
15 TK	20.6	16 TK	25.3	17 TK	18.7	18 TK	18.7
19 TK	24.4	20 TK	25.3	21 TK	19.7	22 TK	32.9
23 TK	25.3	25 TK	560.0	26 R1	3.77	27 R2	0.72
28 R3	0.14	29 R4	0.95	30 R5	0.39	36 RT	4.6
34 TT	7.9	35 TT	13.0				

17:00:59

0 WS	1.2	1 WD	17.	2 WB	5.8	3 DB	6.0
24 RK	7.0	4 TK	33.8	5 TK	21.6	6 TK	18.7
7 TK	21.6	8 TK	28.2	9 TK	4.4	10 TK	20.6
11 TK	15.9	12 TK	26.3	13 TK	13.0	14 TK	13.0
15 TK	18.7	16 TK	15.9	17 TK	11.1	18 TK	16.8
19 TK	14.9	20 TK	20.6	21 TK	16.8	22 TK	24.4
23 TK	23.5	25 TK	552.0	26 R1	2.49	27 R2	0.98
28 R3	0.13	29 R4	0.95	30 R5	0.44	36 RT	6.8
34 TT	12.5	35 TT	14.9				

17:01:00

0 WS	1.1	1 WD	17.	2 WB	5.5	3 DB	5.5
24 RK	14.6	4 TK	39.4	5 TK	28.2	6 TK	25.3
7 TK	25.3	8 TK	38.5	9 TK	13.0	10 TK	25.3
11 TK	29.1	12 TK	31.9	13 TK	20.6	14 TK	23.5
15 TK	22.5	16 TK	28.2	17 TK	16.8	18 TK	19.7
19 TK	27.2	20 TK	22.5	21 TK	23.5	22 TK	32.9
23 TK	25.3	25 TK	561.8	26 R1	4.22	27 R2	0.29
28 R3	0.20	29 R4	0.33	30 R5	1.26	36 RT	12.0
34 TT	12.3	35 TT	20.5				

17:01:01

0 WS	1.2	1 WD	13.	2 WB	5.8	3 DB	6.0
24 RK	13.7	4 TK	38.5	5 TK	27.2	6 TK	28.2
7 TK	27.2	8 TK	35.7	9 TK	12.1	10 TK	25.3
11 TK	23.5	12 TK	29.1	13 TK	20.6	14 TK	19.7
15 TK	23.5	16 TK	22.5	17 TK	15.9	18 TK	18.7
19 TK	24.4	20 TK	22.5	21 TK	23.5	22 TK	28.2
23 TK	28.2	25 TK	553.8	26 R1	2.76	27 R2	0.31
28 R3	0.36	29 R4	0.39	30 R5	0.41	36 RT	8.2
34 TT	10.3	35 TT	18.2				

17:01:02

0 WS	1.3	1 WD	3.	2 WB	5.8	3 DB	6.0
24 RK	7.0	4 TK	34.7	5 TK	20.6	6 TK	16.8
7 TK	16.8	8 TK	31.0	9 TK	5.4	10 TK	19.7
11 TK	14.9	12 TK	27.2	13 TK	12.1	14 TK	13.0
15 TK	14.9	16 TK	20.6	17 TK	10.2	18 TK	14.9
19 TK	14.9	20 TK	20.6	21 TK	18.7	22 TK	24.4
23 TK	18.7	25 TK	545.7	26 R1	4.86	27 R2	0.42
28 R3	0.36	29 R4	0.95	30 R5	0.90	36 RT	9.3
34 TT	10.2	35 TT	21.8				





## 17:01:03

0 WS	1.1	1 WD	6.	2 WB	5.6	3 DB	5.8
24 RK	9.9	4 TK	37.5	5 TK	22.5	6 TK	20.6
7 TK	22.5	8 TK	35.7	9 TK	8.3	10 TK	26.3
11 TK	21.6	12 TK	26.3	13 TK	14.9	14 TK	15.9
15 TK	19.7	16 TK	23.5	17 TK	11.1	18 TK	20.6
19 TK	19.7	20 TK	17.8	21 TK	21.6	22 TK	30.0
23 TK	25.3	25 TK	553.8	26 R1	1.85	27 R2	0.53
28 R3	0.09	29 R4	0.65	30 R5	0.87	36 RT	7.5
34 TT	8.8	35 TT	18.7				

## 17:01:04

0 WS	0.9	1 WD	9.	2 WB	5.5	3 DB	5.8
24 RK	11.8	4 TK	35.7	5 TK	28.2	6 TK	23.5
7 TK	26.3	8 TK	34.7	9 TK	14.0	10 TK	24.4
11 TK	19.7	12 TK	30.0	13 TK	17.8	14 TK	18.7
15 TK	21.6	16 TK	25.3	17 TK	14.0	18 TK	17.8
19 TK	21.6	20 TK	23.5	21 TK	22.5	22 TK	26.3
23 TK	28.2	25 TK	558.3	26 R1	1.85	27 R2	0.63
28 R3	0.56	29 R4	0.24	30 R5	0.46	36 RT	8.6
34 TT	10.7	35 TT	16.4				

## 17:01:05

0 WS	0.9	1 WD	9.	2 WB	5.6	3 DB	5.8
24 RK	7.0	4 TK	32.9	5 TK	19.7	6 TK	17.8
7 TK	18.7	8 TK	31.9	9 TK	8.3	10 TK	17.8
11 TK	16.8	12 TK	26.3	13 TK	12.1	14 TK	14.0
15 TK	15.9	16 TK	15.9	17 TK	8.3	18 TK	14.0
19 TK	17.8	20 TK	15.9	21 TK	17.8	22 TK	23.5
23 TK	22.5	25 TK	552.9	26 R1	1.66	27 R2	0.63
28 R3	0.65	29 R4	0.85	30 R5	0.78	36 RT	6.4
34 TT	7.5	35 TT	14.4				

## 17:01:06

0 WS	0.9	1 WD	9.	2 WB	5.6	3 DB	5.8
24 RK	8.0	4 TK	32.9	5 TK	20.6	6 TK	21.6
7 TK	19.7	8 TK	30.0	9 TK	7.3	10 TK	19.7
11 TK	16.8	12 TK	29.1	13 TK	12.1	14 TK	15.9
15 TK	19.7	16 TK	24.4	17 TK	13.0	18 TK	14.9
19 TK	14.9	20 TK	15.9	21 TK	16.8	22 TK	23.5
23 TK	22.5	25 TK	552.9	26 R1	1.48	27 R2	0.64
28 R3	0.34	29 R4	0.28	30 R5	0.76	36 RT	8.5
34 TT	8.9	35 TT	19.5				

## 17:01:07

0 WS	0.9	1 WD	9.	2 WB	5.2	3 DB	5.6
24 RK	8.0	4 TK	33.8	5 TK	22.5	6 TK	19.7
7 TK	20.6	8 TK	31.9	9 TK	7.3	10 TK	20.6
11 TK	19.7	12 TK	23.5	13 TK	15.9	14 TK	14.9
15 TK	16.8	16 TK	19.7	17 TK	13.0	18 TK	13.0
19 TK	20.6	20 TK	18.7	21 TK	16.8	22 TK	26.3
23 TK	23.5	25 TK	549.3	26 R1	3.68	27 R2	0.50
28 R3	0.13	29 R4	0.82	30 R5	1.06	36 RT	7.1
34 TT	12.3	35 TT	16.4				

## 17:01:08

0 WS	0.8	1 WD	10.	2 WB	5.8	3 DB	6.0
24 RK	8.0	4 TK	35.7	5 TK	19.7	6 TK	18.7
7 TK	21.6	8 TK	30.0	9 TK	9.2	10 TK	20.6
11 TK	17.8	12 TK	23.5	13 TK	15.9	14 TK	15.9
15 TK	19.7	16 TK	18.7	17 TK	13.0	18 TK	14.0
19 TK	21.6	20 TK	17.8	21 TK	17.8	22 TK	28.2
23 TK	58.9	25 TK	535.0	26 R1	4.50	27 R2	0.29
28 R3	1.32	29 R4	1.28	30 R5	0.55	36 RT	7.4
34 TT	13.1	35 TT	17.3				

## 17:01:09

0 WS	0.7	1 WD	11.	2 WB	5.5	3 DB	5.9
24 RK	9.9	4 TK	37.5	5 TK	291.6	6 TK	24.4
7 TK	299.9	8 TK	35.7	9 TK	123.5	10 TK	23.5
11 TK	93.8	12 TK	27.2	13 TK	53.3	14 TK	18.7
15 TK	94.8	16 TK	20.6	17 TK	54.3	18 TK	18.7
19 TK	27.2	20 TK	109.5	21 TK	131.0	22 TK	417.3
23 TK	532.3	25 TK	474.0	26 R1	3.31	27 R2	0.87
28 R3	3.09	29 R4	1.93	30 R5	2.00	36 RT	8.6
34 TT	11.9	35 TT	16.9				

## 17:01:10

0 WS	0.5	1 WD	11.	2 WB	5.5	3 DB	5.8
24 RK	7.0	4 TK	-0.3	5 TK	288.8	6 TK	-16.0
7 TK	317.3	8 TK	-9.1	9 TK	99.4	10 TK	45.0
11 TK	108.6	12 TK	19.7	13 TK	63.5	14 TK	42.2
15 TK	157.5	16 TK	236.6	17 TK	450.7	18 TK	104.0
19 TK	383.9	20 TK	623.8	21 TK	478.5	22 TK	786.2
23 TK	1056.2	25 TK	375.7	26 R1	3.68	27 R2	1.33
28 R3	4.45	29 R4	2.99	30 R5	2.48	36 RT	14.4
34 TT	18.9	35 TT	22.7				

## 17:01:11

0 WS	0.6	1 WD	11.	2 WB	5.5	3 DB	5.8
24 RK	8.9	4 TK	7.3	5 TK	164.1	6 TK	41.3
7 TK	193.8	8 TK	53.3	9 TK	115.1	10 TK	88.3
11 TK	568.1	12 TK	28.2	13 TK	187.1	14 TK	593.2
15 TK	624.7	16 TK	962.7	17 TK	1014.6	18 TK	538.5
19 TK	1052.2	20 TK	984.2	21 TK	730.8	22 TK	714.4
23 TK	1113.4	25 TK	258.2	26 R1	4.22	27 R2	2.60
28 R3	5.30	29 R4	3.95	30 R5	3.81	36 RT	5.3
34 TT	4.7	35 TT	18.2				

## 17:01:12

0 WS	0.5	1 WD	11.	2 WB	5.5	3 DB	5.8
24 RK	10.8	4 TK	40.3	5 TK	194.7	6 TK	47.8
7 TK	401.1	8 TK	363.0	9 TK	451.6	10 TK	678.0
11 TK	1096.2	12 TK	176.5	13 TK	509.0	14 TK	1035.3
15 TK	926.9	16 TK	1164.5	17 TK	1117.5	18 TK	811.3
19 TK	1186.3	20 TK	1066.1	21 TK	784.3	22 TK	627.4
23 TK	757.5	25 TK	153.7	26 R1	7.70	27 R2	5.70
28 R3	6.34	29 R4	4.53	30 R5	4.85	36 RT	8.7
34 TT	4.6	35 TT	16.7				



## 17:01:13

0 WS	0.6	1 WD	11.	2 WB	5.5	3 DB	5.8
24 RK	13.7	4 TK	122.6	5 TK	127.2	6 TK	63.5
7 TK	879.1	8 TK	705.2	9 TK	875.3	10 TK	1047.2
11 TK	1281.9	12 TK	261.9	13 TK	655.3	14 TK	1140.9
15 TK	997.9	16 TK	1173.8	17 TK	1130.7	18 TK	892.5
19 TK	1239.9	20 TK	1053.2	21 TK	735.4	22 TK	616.6
23 TK	618.4	25 TK	89.2	26 R1	10.17	27 R2	6.71
28 R3	7.16	29 R4	5.23	30 R5	5.17	36 RT	6.5
34 TT	0.8	35 TT	17.6				

## 17:01:14

0 WS	0.5	1 WD	9.	2 WB	5.5	3 DB	5.8
24 RK	13.7	4 TK	131.0	5 TK	100.3	6 TK	321.9
7 TK	915.4	8 TK	889.6	9 TK	1061.1	10 TK	1136.8
11 TK	1320.2	12 TK	274.0	13 TK	779.7	14 TK	1089.2
15 TK	1003.8	16 TK	1136.8	17 TK	1100.3	18 TK	1059.2
19 TK	1188.4	20 TK	1004.7	21 TK	702.5	22 TK	612.1
23 TK	441.7	25 TK	49.6	26 R1	7.61	27 R2	8.37
28 R3	7.14	29 R4	5.42	30 R5	4.50	36 RT	9.5
34 TT	1.7	35 TT	17.3				

## 17:01:15

0 WS	0.8	1 WD	6.	2 WB	5.5	3 DB	6.2
24 RK	12.7	4 TK	138.5	5 TK	93.8	6 TK	413.7
7 TK	794.5	8 TK	1025.4	9 TK	1131.7	10 TK	1094.2
11 TK	1296.0	12 TK	299.9	13 TK	777.8	14 TK	1114.4
15 TK	962.7	16 TK	1169.7	17 TK	1032.3	18 TK	1059.2
19 TK	1191.5	20 TK	934.7	21 TK	690.7	22 TK	595.9
23 TK	232.8	25 TK	31.0	26 R1	7.97	27 R2	8.46
28 R3	7.07	29 R4	6.18	30 R5	4.73	36 RT	7.8
34 TT	-2.1	35 TT	17.3				

## 17:01:16

0 WS	0.8	1 WD	6.	2 WB	5.3	3 DB	5.6
24 RK	12.7	4 TK	237.5	5 TK	189.9	6 TK	591.4
7 TK	941.4	8 TK	1018.5	9 TK	1179.0	10 TK	1137.8
11 TK	1314.7	12 TK	313.7	13 TK	864.9	14 TK	1173.8
15 TK	993.9	16 TK	1237.8	17 TK	1084.2	18 TK	938.5
19 TK	1193.6	20 TK	953.0	21 TK	694.3	22 TK	681.6
23 TK	267.5	25 TK	22.5	26 R1	10.44	27 R2	8.63
28 R3	6.99	29 R4	5.83	30 R5	5.14	36 RT	8.2
34 TT	-2.6	35 TT	16.4				

## 17:01:17

0 WS	0.7	1 WD	6.	2 WB	5.5	3 DB	5.8
24 RK	6.0	4 TK	266.6	5 TK	148.9	6 TK	611.2
7 TK	888.6	8 TK	960.8	9 TK	1084.2	10 TK	1099.3
11 TK	1275.3	12 TK	351.2	13 TK	931.8	14 TK	1154.2
15 TK	976.3	16 TK	1184.2	17 TK	1049.2	18 TK	914.5
19 TK	1241.0	20 TK	974.4	21 TK	701.6	22 TK	626.5
23 TK	448.0	25 TK	9.2	26 R1	8.25	27 R2	9.01
28 R3	7.48	29 R4	5.62	30 R5	5.35	36 RT	11.1
34 TT	-3.6	35 TT	18.9				

17:01:18

0 WS	0.6	1 WD	9.	2 WB	5.5	3 DB	5.7
24 RK	13.7	4 TK	287.9	5 TK	201.4	6 TK	659.9
7 TK	801.0	8 TK	1102.3	9 TK	1155.3	10 TK	1062.1
11 TK	1263.5	12 TK	430.0	13 TK	948.2	14 TK	1207.2
15 TK	1023.4	16 TK	1205.1	17 TK	1114.4	18 TK	955.9
19 TK	1242.1	20 TK	1008.7	21 TK	728.1	22 TK	653.5
23 TK	236.6	25 TK	16.8	26 R1	9.44	27 R2	8.57
28 R3	7.10	29 R4	6.36	30 R5	4.82	36 RT	9.5
34 TT	-6.1	35 TT	18.1				

17:01:19

0 WS	0.6	1 WD	14.	2 WB	5.5	3 DB	5.8
24 RK	12.7	4 TK	308.2	5 TK	230.9	6 TK	744.6
7 TK	804.8	8 TK	1053.2	9 TK	1173.8	10 TK	1208.2
11 TK	1232.5	12 TK	483.0	13 TK	880.1	14 TK	1204.0
15 TK	1008.7	16 TK	1278.6	17 TK	1151.2	18 TK	1024.4
19 TK	1251.7	20 TK	1013.6	21 TK	748.3	22 TK	701.6
23 TK	224.3	25 TK	14.9	26 R1	8.43	27 R2	8.59
28 R3	7.32	29 R4	6.49	30 R5	5.51	36 RT	6.1
34 TT	-10.3	35 TT	16.0				

17:01:20

0 WS	1.1	1 WD	20.	2 WB	5.5	3 DB	5.8
24 RK	8.9	4 TK	293.4	5 TK	229.0	6 TK	788.9
7 TK	794.5	8 TK	1081.2	9 TK	1148.1	10 TK	1174.9
11 TK	1278.6	12 TK	487.5	13 TK	782.4	14 TK	1275.3
15 TK	1036.3	16 TK	1250.6	17 TK	1152.2	18 TK	1056.2
19 TK	1208.2	20 TK	1004.7	21 TK	751.0	22 TK	669.8
23 TK	448.0	25 TK	14.9	26 R1	6.79	27 R2	9.49
28 R3	7.30	29 R4	5.64	30 R5	5.14	36 RT	7.1
34 TT	-6.5	35 TT	15.4				

17:01:21

0 WS	1.0	1 WD	21.	2 WB	5.5	3 DB	5.8
24 RK	8.0	4 TK	256.3	5 TK	273.1	6 TK	667.1
7 TK	915.4	8 TK	1084.2	9 TK	1136.8	10 TK	1122.6
11 TK	1298.2	12 TK	442.6	13 TK	846.0	14 TK	1142.9
15 TK	1096.2	16 TK	1235.7	17 TK	1159.4	18 TK	1004.7
19 TK	1214.5	20 TK	1030.3	21 TK	763.9	22 TK	666.2
23 TK	320.1	25 TK	6.3	26 R1	6.88	27 R2	9.33
28 R3	6.94	29 R4	6.40	30 R5	4.73	36 RT	7.1
34 TT	-8.4	35 TT	16.2				

17:01:22

0 WS	1.0	1 WD	21.	2 WB	5.5	3 DB	5.8
24 RK	12.7	4 TK	208.1	5 TK	297.1	6 TK	632.8
7 TK	881.0	8 TK	1031.3	9 TK	1075.1	10 TK	1095.2
11 TK	1228.3	12 TK	391.1	13 TK	805.7	14 TK	1084.2
15 TK	1077.1	16 TK	1127.6	17 TK	1074.1	18 TK	1038.3
19 TK	1141.9	20 TK	955.9	21 TK	682.5	22 TK	95.7
23 TK	-572.7	25 TK	12.1	26 R1	7.43	27 R2	6.82
28 R3	4.48	29 R4	4.88	30 R5	4.04	36 RT	8.1
34 TT	-6.0	35 TT	16.3				



## 17:01:23

0 WS	0.6	1 WD	21.	2 WB	5.5	3 DB	5.8
24 RK	8.0	4 TK	249.7	5 TK	296.2	6 TK	626.5
7 TK	718.9	8 TK	817.8	9 TK	872.5	10 TK	948.2
11 TK	1093.2	12 TK	449.8	13 TK	818.8	14 TK	1106.3
15 TK	1047.2	16 TK	1205.1	17 TK	1187.3	18 TK	1168.7
19 TK	1213.5	20 TK	1114.4	21 TK	560.9	22 TK	69.9
23 TK	-572.7	25 TK	4.4	26 R1	8.07	27 R2	5.70
28 R3	3.40	29 R4	4.92	30 R5	3.63	36 RT	8.3
34 TT	-9.0	35 TT	16.9				

## 17:01:24

0 WS	0.6	1 WD	21.	2 WB	5.6	3 DB	5.8
24 RK	9.9	4 TK	237.5	5 TK	297.1	6 TK	532.3
7 TK	593.2	8 TK	708.9	9 TK	795.5	10 TK	991.0
11 TK	1094.2	12 TK	468.6	13 TK	748.3	14 TK	1049.2
15 TK	1025.4	16 TK	1247.4	17 TK	1239.9	18 TK	1095.2
19 TK	1084.2	20 TK	963.7	21 TK	16.8	22 TK	69.9
23 TK	-115.2	25 TK	12.1	26 R1	3.86	27 R2	5.16
28 R3	2.44	29 R4	3.73	30 R5	2.78	36 RT	6.5
34 TT	-9.8	35 TT	15.4				

## 17:01:25

0 WS	0.9	1 WD	21.	2 WB	5.6	3 DB	5.8
24 RK	10.8	4 TK	193.8	5 TK	285.1	6 TK	459.7
7 TK	498.2	8 TK	622.9	9 TK	612.1	10 TK	663.5
11 TK	716.2	12 TK	449.8	13 TK	599.5	14 TK	739.1
15 TK	753.8	16 TK	748.3	17 TK	580.7	18 TK	653.5
19 TK	401.1	20 TK	283.3	21 TK	12.1	22 TK	119.8
23 TK	-79.8	25 TK	8.3	26 R1	3.13	27 R2	2.97
28 R3	0.87	29 R4	2.34	30 R5	1.40	36 RT	7.8
34 TT	-11.7	35 TT	19.8				

## 17:01:26

0 WS	0.6	1 WD	21.	2 WB	5.6	3 DB	5.8
24 RK	15.6	4 TK	143.2	5 TK	321.9	6 TK	330.2
7 TK	335.6	8 TK	330.2	9 TK	340.2	10 TK	315.5
11 TK	338.4	12 TK	353.9	13 TK	349.3	14 TK	375.7
15 TK	400.2	16 TK	151.8	17 TK	77.3	18 TK	412.8
19 TK	34.7	20 TK	20.6	21 TK	-6.2	22 TK	126.3
23 TK	-11.1	25 TK	16.8	26 R1	2.40	27 R2	1.70
28 R3	0.54	29 R4	1.89	30 R5	0.83	36 RT	16.6
34 TT	-0.8	35 TT	27.7				

## 17:01:27

0 WS	0.7	1 WD	24.	2 WB	5.5	3 DB	5.7
24 RK	11.8	4 TK	94.8	5 TK	282.3	6 TK	184.2
7 TK	170.8	8 TK	104.0	9 TK	148.0	10 TK	79.1
11 TK	71.8	12 TK	269.3	13 TK	153.7	14 TK	100.3
15 TK	194.7	16 TK	81.9	17 TK	28.2	18 TK	60.7
19 TK	34.7	20 TK	12.1	21 TK	-7.1	22 TK	194.7
23 TK	35.7	25 TK	5.4	26 R1	0.66	27 R2	1.81
28 R3	0.58	29 R4	0.76	30 R5	0.62	36 RT	5.0
34 TT	-9.2	35 TT	16.3				



17:01:28

0 WS	0.8	1 WD	30.	2 WB	5.5	3 DB	5.7
24 RK	13.7	4 TK	202.4	5 TK	287.9	6 TK	167.0
7 TK	89.2	8 TK	218.6	9 TK	79.1	10 TK	63.5
11 TK	117.0	12 TK	242.2	13 TK	109.5	14 TK	101.2
15 TK	129.1	16 TK	80.0	17 TK	46.8	18 TK	37.5
19 TK	45.9	20 TK	6.3	21 TK	12.1	22 TK	190.9
23 TK	16.8	25 TK	8.3	26 R1	1.30	27 R2	0.81
28 R3	0.56	29 R4	1.06	30 R5	1.03	36 RT	8.5
34 TT	-12.2	35 TT	17.9				

17:01:29

0 WS	0.6	1 WD	41.	2 WB	5.6	3 DB	5.8
24 RK	7.0	4 TK	194.7	5 TK	336.6	6 TK	184.2
7 TK	253.5	8 TK	161.3	9 TK	110.5	10 TK	51.5
11 TK	110.5	12 TK	211.9	13 TK	52.4	14 TK	86.5
15 TK	53.3	16 TK	93.8	17 TK	52.4	18 TK	34.7
19 TK	42.2	20 TK	-7.1	21 TK	-31.1	22 TK	129.1
23 TK	-25.0	25 TK	-1.3	26 R1	-1.07	27 R2	0.74
28 R3	0.81	29 R4	0.78	30 R5	0.83	36 RT	7.6
34 TT	-14.7	35 TT	16.3				

17:01:30

0 WS	0.7	1 WD	45.	2 WB	5.6	3 DB	5.8
24 RK	12.7	4 TK	155.6	5 TK	402.0	6 TK	156.5
7 TK	297.1	8 TK	189.0	9 TK	105.8	10 TK	81.9
11 TK	148.0	12 TK	151.8	13 TK	98.5	14 TK	77.3
15 TK	53.3	16 TK	95.7	17 TK	36.6	18 TK	33.8
19 TK	38.5	20 TK	-19.0	21 TK	-6.2	22 TK	126.3
23 TK	-25.0	25 TK	6.3	26 R1	-0.98	27 R2	0.57
28 R3	0.20	29 R4	0.56	30 R5	0.62	36 RT	8.5
34 TT	-13.8	35 TT	21.1				

17:01:31

0 WS	0.7	1 WD	45.	2 WB	5.6	3 DB	5.8
24 RK	8.9	4 TK	146.1	5 TK	378.4	6 TK	161.3
7 TK	329.2	8 TK	201.4	9 TK	152.7	10 TK	76.4
11 TK	186.1	12 TK	154.6	13 TK	97.5	14 TK	75.4
15 TK	78.2	16 TK	117.0	17 TK	34.7	18 TK	26.3
19 TK	32.9	20 TK	-12.0	21 TK	7.3	22 TK	183.2
23 TK	12.1	25 TK	-0.3	26 R1	-0.06	27 R2	0.55
28 R3	0.20	29 R4	0.91	30 R5	1.03	36 RT	15.0
34 TT	-6.6	35 TT	23.3				

17:01:32

0 WS	0.6	1 WD	47.	2 WB	5.6	3 DB	5.8
24 RK	11.8	4 TK	141.3	5 TK	395.7	6 TK	159.4
7 TK	231.9	8 TK	203.3	9 TK	102.1	10 TK	77.3
11 TK	133.8	12 TK	132.9	13 TK	91.1	14 TK	76.4
15 TK	56.1	16 TK	153.7	17 TK	56.1	18 TK	30.0
19 TK	32.9	20 TK	-0.3	21 TK	13.0	22 TK	216.7
23 TK	-2.3	25 TK	-1.3	26 R1	-0.61	27 R2	0.79
28 R3	0.27	29 R4	1.04	30 R5	0.99	36 RT	4.6
34 TT	-25.0	35 TT	13.7				



17:01:33

0 WS	0.5	1 WD	53.	2 WB	5.7	3 DB	5.8
24 RK	9.9	4 TK	128.2	5 TK	347.5	6 TK	145.1
7 TK	146.1	8 TK	175.6	9 TK	94.8	10 TK	69.0
11 TK	96.6	12 TK	112.3	13 TK	58.9	14 TK	65.3
15 TK	48.7	16 TK	135.7	17 TK	44.1	18 TK	29.1
19 TK	31.9	20 TK	2.5	21 TK	8.3	22 TK	168.9
23 TK	9.2	25 TK	-0.3	26 R1	0.75	27 R2	0.83
28 R3	0.70	29 R4	0.33	30 R5	0.51	36 RT	5.2
34 TT	-23.9	35 TT	16.9				

17:01:34

0 WS	1.4	1 WD	55.	2 WB	6.0	3 DR	6.1
24 RK	10.8	4 TK	120.7	5 TK	293.4	6 TK	117.9
7 TK	110.5	8 TK	146.1	9 TK	76.4	10 TK	61.6
11 TK	70.9	12 TK	100.3	13 TK	50.6	14 TK	58.9
15 TK	41.3	16 TK	99.4	17 TK	34.7	18 TK	30.0
19 TK	31.9	20 TK	5.4	21 TK	8.3	22 TK	131.0
23 TK	17.8	25 TK	1.5	26 R1	1.57	27 R2	0.57
28 R3	0.74	29 R4	0.39	30 R5	0.51	36 RT	5.3
34 TT	-19.9	35 TT	16.2				

17:01:35

0 WS	1.2	1 WD	55.	2 WB	5.9	3 DB	6.0
24 RK	9.9	4 TK	111.4	5 TK	267.5	6 TK	104.9
7 TK	90.2	8 TK	127.2	9 TK	66.2	10 TK	55.2
11 TK	52.4	12 TK	88.3	13 TK	40.3	14 TK	61.6
15 TK	32.9	16 TK	84.6	17 TK	32.9	18 TK	21.6
19 TK	29.1	20 TK	7.3	21 TK	10.2	22 TK	105.8
23 TK	14.9	25 TK	8.3	26 R1	-1.07	27 R2	0.37
28 R3	0.27	29 R4	0.50	30 R5	0.90	36 RT	10.0
34 TT	-16.5	35 TT	19.4				

17:01:36

0 WS	1.3	1 WD	55.	2 WB	5.5	3 DB	5.8
24 RK	8.9	4 TK	111.4	5 TK	270.3	6 TK	104.9
7 TK	88.3	8 TK	124.4	9 TK	57.0	10 TK	52.4
11 TK	51.5	12 TK	89.2	13 TK	42.2	14 TK	59.8
15 TK	33.8	16 TK	74.5	17 TK	26.3	18 TK	23.5
19 TK	27.2	20 TK	12.1	21 TK	11.1	22 TK	102.1
23 TK	10.2	25 TK	3.5	26 R1	-0.98	27 R2	0.61
28 R3	0.29	29 R4	0.78	30 R5	1.22	36 RT	6.4
34 TT	-22.5	35 TT	15.9				



NBS BOFST PRESSURE RECORDINGS

Acronym	Description	Units
GO	Gas Orifice	psig
WO	Water Orifice	psig
RO	Restriction Orifice	psig
WP	Water Line (near nozzle(s))	psig
GΔP	Gas Differential Pressure	inches of water
WΔP	Water Differential Pressure	inches of water
RΔP	Restriction Orifice Differential Pressure	inches of water

First  is at time of ignition.

Second  is at time of water injection.

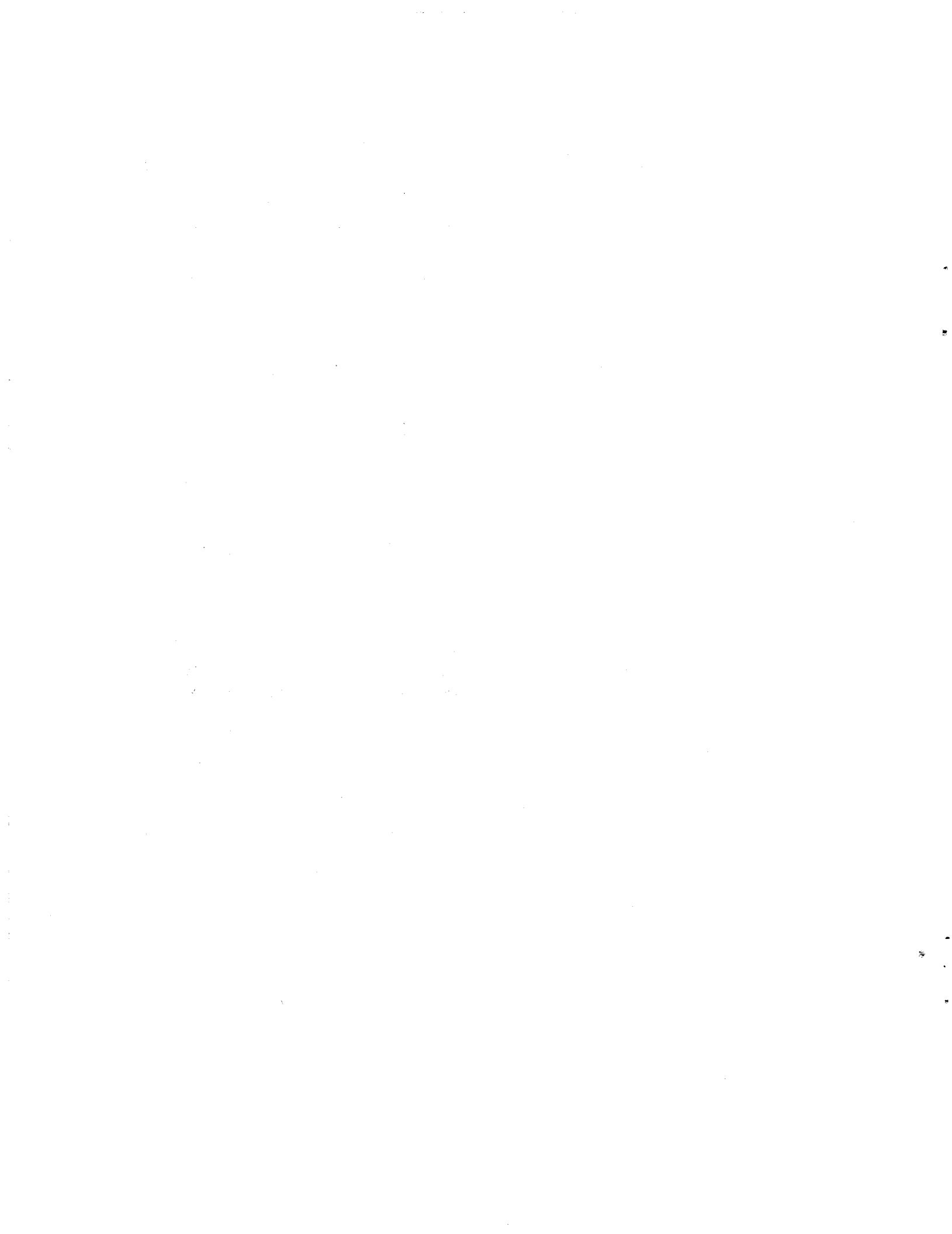
Time corresponds to times of data acquisition system.



TEST 5

Time	GO	WO	RO	WP	GAP	WAP	RAP
17:01:08	0.5	0.0	0.5	0.0	7.6	0.0	187.0
17:01:09	1.0	0.0	2.0	0.0	152.0	0.0	468.0
17:01:10	4.0	0.0	7.0	0.0	194.0	0.0	749.0
17:01:11	11.0	0.0	11.0	0.0	199.0	0.0	770.0
17:01:12	24.0	0.0	17.0	0.0	199.0	0.0	768.0
17:01:13	29.0	0.0	25.0	0.0	199.0	0.0	765.0
17:01:14	34.0	0.0	27.0	0.0	199.0	0.0	762.0
17:01:15	35.0	0.0	28.0	0.0	198.0	0.0	759.0
17:01:16	35.0	0.0	28.0	0.0	198.0	0.0	756.0
17:01:17	35.0	0.0	28.0	0.0	198.0	0.0	753.0
17:01:18	35.0	0.0	28.0	0.0	198.0	0.0	750.0
17:01:19	35.0	0.0	28.0	0.0	197.0	0.0	748.0
17:01:20	35.0	0.0	28.0	0.0	197.0	0.0	745.0
17:01:21	35.0	0.0	27.5	0.0	197.0	0.0	742.0
17:01:22	34.5	0.3	27.5	3.0	196.0	18.0	739.0
17:01:23	34.5	33.0	27.5	5.0	196.0	26.0	738.0
17:01:24	34.5	50.0	27.0	12.0	196.0	47.0	737.0
17:01:25	34.0	74.0	27.0	21.0	195.0	58.0	736.0
17:01:26	34.0	54.0	27.0	24.0	194.0	53.0	735.0
17:01:27	33.5	42.0	26.5	28.0	193.0	29.0	730.0
17:01:28	33.5	33.0	26.0	29.0	192.0	29.0	700.0
17:01:29	33.0	32.0	25.0	30.0	190.0	29.0	524.0
17:01:30	31.0	31.0	22.0	30.0	180.0	29.0	312.0
17:01:31	26.0	31.0	13.0	29.5	168.0	28.0	58.0
17:01:32	0.0	31.0	1.0	24.0	154.0	26.0	0.0
17:01:33	0.0	24.0	0.0	18.0	137.0	21.0	0.0
17:01:34	0.0	16.0	0.0	12.0	112.0	15.0	0.0
17:01:35	0.0	8.0	0.0	9.0	90.0	9.0	0.0
17:01:36	0.0	2.0	0.0	7.0	52.0	3.0	0.0
17:01:37	0.0	0.0	0.0	6.0	0.0	0.0	0.0





APPENDIX J

TEST NUMBER 6

DATA ACQUISITION RECORDINGS AND PRESSURE READINGS



NBS BOFST CHANNEL ASSIGNMENT

Channel	Acronym	Description	Units	Location
0	WS	Wind Speed	mph	Met Tower (10 m)
1	WD	Wind Direction	° from N	Met Tower (10 m)
2	WB	Wet Bulb	°C	Met Tower (10 m)
3	DB	Dry Bulb	°C	Met Tower (10 m)
4	KT	K Thermocouple	°C	Cable Array (#1)
5	KT	K Thermocouple	°C	Cable Array (#2)
6	KT	K Thermocouple	°C	Cable Array (#3)
7	KT	K Thermocouple	°C	Cable Array (#4)
8	KT	K Thermocouple	°C	Cable Array (#5)
9	KT	K Thermocouple	°C	Cable Array (#6)
10	KT	K Thermocouple	°C	Cable Array (#7)
11	KT	K Thermocouple	°C	Cable Array (#8)
12	KT	K Thermocouple	°C	Cable Array (#9)
13	KT	K Thermocouple	°C	Cable Array (#10)
14	KT	K Thermocouple	°C	Cable Array (#11)
15	KT	K Thermocouple	°C	Cable Array (#12)
16	KT	K Thermocouple	°C	Cable Array (#13)
17	KT	K Thermocouple	°C	Cable Array (#14)
18	KT	K Thermocouple	°C	Cable Array (#15)
19	KT	K Thermocouple	°C	Cable Array (#16)
20	KT	K Thermocouple	°C	Cable Array (#17)
21	KT	K Thermocouple	°C	Cable Array (#18)
22	KT	K Thermocouple	°C	Cable Array (#19)
23	KT	K Thermocouple	°C	Cable Array (#20)
24	KR	K Reference Thermocouple	°C	Junctions for K Thermocouples
25	KT	K Thermocouple	°C	Gas Outlet
26	R1	Radiometer (7°)	kW/m <sup>2</sup>	Radiometer Array (#1)
27	R2	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#2)
28	R3	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#3)
29	R4	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#4)
30	R5	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#5)
34	TT	T Thermocouple	°C	Gas Line
35	TT	T Thermocouple	°C	Water Line
36	TR	T Reference Thermocouple	°C	Junctions for T Thermocouples

nbs blowout fire simulation, test 6

1/27/84

34 channels per scan

17:15:51

0 WS	1.6	1 WD	35.	2 WB	5.7	3 DB	6.0
24 RK	8.9	4 TK	28.2	5 TK	20.6	6 TK	19.7
7 TK	19.7	8 TK	22.5	9 TK	10.2	10 TK	15.9
11 TK	14.0	12 TK	25.3	13 TK	12.1	14 TK	14.0
15 TK	15.9	16 TK	19.7	17 TK	14.0	18 TK	16.8
19 TK	14.9	20 TK	20.6	21 TK	12.1	22 TK	23.5
23 TK	19.7	25 TK	197.6	26 R1	1.85	27 R2	0.68
28 R3	0.38	29 R4	0.65	30 R5	0.64	36 RT	8.3
34 TT	6.1	35 TT	17.2				

17:15:52

0 WS	1.5	1 WD	33.	2 WB	5.2	3 DB	5.8
24 RK	8.9	4 TK	27.2	5 TK	19.7	6 TK	19.7
7 TK	17.8	8 TK	22.5	9 TK	10.2	10 TK	15.9
11 TK	14.9	12 TK	25.3	13 TK	12.1	14 TK	13.0
15 TK	16.8	16 TK	17.8	17 TK	13.0	18 TK	16.8
19 TK	15.9	20 TK	20.6	21 TK	13.0	22 TK	23.5
23 TK	20.6	25 TK	197.6	26 R1	2.58	27 R2	0.63
28 R3	0.20	29 R4	0.61	30 R5	0.35	36 RT	6.0
34 TT	5.8	35 TT	16.8				

17:15:53

0 WS	1.5	1 WD	34.	2 WB	5.5	3 DB	5.7
24 RK	11.8	4 TK	31.0	5 TK	21.6	6 TK	21.6
7 TK	19.7	8 TK	23.5	9 TK	14.0	10 TK	21.6
11 TK	18.7	12 TK	31.0	13 TK	14.0	14 TK	16.8
15 TK	20.6	16 TK	18.7	17 TK	15.9	18 TK	17.8
19 TK	22.5	20 TK	22.5	21 TK	17.8	22 TK	25.3
23 TK	26.3	25 TK	199.5	26 R1	3.77	27 R2	0.35
28 R3	0.22	29 R4	0.43	30 R5	0.64	36 RT	6.6
34 TT	4.1	35 TT	17.5				

17:15:54

0 WS	1.5	1 WD	35.	2 WB	5.4	3 DB	5.8
24 RK	7.0	4 TK	27.2	5 TK	18.7	6 TK	18.7
7 TK	16.8	8 TK	19.7	9 TK	8.3	10 TK	13.0
11 TK	13.0	12 TK	26.3	13 TK	11.1	14 TK	10.2
15 TK	13.0	16 TK	15.9	17 TK	13.0	18 TK	14.9
19 TK	14.0	20 TK	16.8	21 TK	11.1	22 TK	23.5
23 TK	16.8	25 TK	194.7	26 R1	2.94	27 R2	0.57
28 R3	0.14	29 R4	0.30	30 R5	1.06	36 RT	12.4
34 TT	9.5	35 TT	22.4				

17:15:55

0 WS	1.6	1 WD	34.	2 WB	4.9	3 DB	4.9
24 RK	11.8	4 TK	31.0	5 TK	24.4	6 TK	22.5
7 TK	22.5	8 TK	24.4	9 TK	14.0	10 TK	16.8
11 TK	18.7	12 TK	30.0	13 TK	14.0	14 TK	15.9
15 TK	21.6	16 TK	19.7	17 TK	14.0	18 TK	15.9
19 TK	18.7	20 TK	23.5	21 TK	16.8	22 TK	29.1
23 TK	21.6	25 TK	196.6	26 R1	2.30	27 R2	0.33
28 R3	0.11	29 R4	0.46	30 R5	0.74	36 RT	10.5
34 TT	8.0	35 TT	21.4				



17:15:56

0 WS	1.5	1 WD	33.	2 WB	4.7	3 DB	5.2
24 RK	11.8	4 TK	31.0	5 TK	22.5	6 TK	23.5
7 TK	20.6	8 TK	24.4	9 TK	14.9	10 TK	19.7
11 TK	18.7	12 TK	27.2	13 TK	14.9	14 TK	16.8
15 TK	20.6	16 TK	25.3	17 TK	18.7	18 TK	16.8
19 TK	16.8	20 TK	20.6	21 TK	15.9	22 TK	25.3
23 TK	25.3	25 TK	198.6	26 R1	1.30	27 R2	0.41
28 R3	0.38	29 R4	0.41	30 R5	0.46	36 RT	8.7
34 TT	5.8	35 TT	18.0				

17:15:57

0 WS	1.5	1 WD	35.	2 WB	5.5	3 DB	5.9
24 RK	11.8	4 TK	31.9	5 TK	22.5	6 TK	24.4
7 TK	20.6	8 TK	24.4	9 TK	14.9	10 TK	18.7
11 TK	17.8	12 TK	26.3	13 TK	14.9	14 TK	14.9
15 TK	19.7	16 TK	20.6	17 TK	17.8	18 TK	17.8
19 TK	18.7	20 TK	22.5	21 TK	14.0	22 TK	26.3
23 TK	23.5	25 TK	197.6	26 R1	2.12	27 R2	0.50
28 R3	0.42	29 R4	0.48	30 R5	0.62	36 RT	8.3
34 TT	5.7	35 TT	17.8				

17:15:58

0 WS	1.5	1 WD	34.	2 WB	5.1	3 DB	4.9
24 RK	9.9	4 TK	29.1	5 TK	21.6	6 TK	21.6
7 TK	18.7	8 TK	22.5	9 TK	11.1	10 TK	15.9
11 TK	16.8	12 TK	25.3	13 TK	14.0	14 TK	14.9
15 TK	17.8	16 TK	19.7	17 TK	13.0	18 TK	17.8
19 TK	17.8	20 TK	23.5	21 TK	14.9	22 TK	22.5
23 TK	22.5	25 TK	190.9	26 R1	2.03	27 R2	0.64
28 R3	0.32	29 R4	0.59	30 R5	0.69	36 RT	12.1
34 TT	9.7	35 TT	22.4				

17:15:59

0 WS	1.4	1 WD	34.	2 WB	5.4	3 DB	5.7
24 RK	11.8	4 TK	31.0	5 TK	22.5	6 TK	22.5
7 TK	20.6	8 TK	24.4	9 TK	12.1	10 TK	19.7
11 TK	18.7	12 TK	26.3	13 TK	14.0	14 TK	17.8
15 TK	16.8	16 TK	19.7	17 TK	18.7	18 TK	20.6
19 TK	18.7	20 TK	22.5	21 TK	14.0	22 TK	24.4
23 TK	22.5	25 TK	197.6	26 R1	4.41	27 R2	0.52
28 R3	0.18	29 R4	0.43	30 R5	0.39	36 RT	7.0
34 TT	6.0	35 TT	16.9				

17:16:00

0 WS	1.4	1 WD	34.	2 WB	5.4	3 DB	5.7
24 RK	13.7	4 TK	31.9	5 TK	26.3	6 TK	25.3
7 TK	22.5	8 TK	26.3	9 TK	15.9	10 TK	20.6
11 TK	22.5	12 TK	31.9	13 TK	14.9	14 TK	17.8
15 TK	21.6	16 TK	21.6	17 TK	18.7	18 TK	18.7
19 TK	22.5	20 TK	22.5	21 TK	18.7	22 TK	28.2
23 TK	23.5	25 TK	194.7	26 R1	4.04	27 R2	0.37
28 R3	0.13	29 R4	0.91	30 R5	0.32	36 RT	4.1
34 TT	1.4	35 TT	16.2				



## 17:16:01

0 WS	1.4	1 WD	35.	2 WB	5.6	3 DB	5.9
24 RK	9.9	4 TK	28.2	5 TK	19.7	6 TK	21.6
7 TK	19.7	8 TK	24.4	9 TK	11.1	10 TK	16.8
11 TK	14.0	12 TK	24.4	13 TK	13.0	14 TK	14.0
15 TK	16.8	16 TK	19.7	17 TK	21.6	18 TK	15.9
19 TK	15.9	20 TK	24.4	21 TK	12.1	22 TK	22.5
23 TK	21.6	25 TK	193.8	26 R1	1.30	27 R2	0.68
28 R3	0.20	29 R4	0.56	30 R5	0.92	36 RT	9.9
34 TT	8.9	35 TT	19.1				

## 17:16:02

0 WS	1.4	1 WD	34.	2 WB	5.6	3 DB	5.8
24 RK	11.8	4 TK	30.0	5 TK	23.5	6 TK	22.5
7 TK	22.5	8 TK	26.3	9 TK	12.1	10 TK	18.7
11 TK	17.8	12 TK	26.3	13 TK	16.8	14 TK	17.8
15 TK	19.7	16 TK	20.6	17 TK	16.8	18 TK	17.8
19 TK	18.7	20 TK	22.5	21 TK	15.9	22 TK	25.3
23 TK	23.5	25 TK	192.8	26 R1	1.57	27 R2	0.55
28 R3	0.18	29 R4	0.69	30 R5	0.85	36 RT	7.0
34 TT	5.2	35 TT	18.7				

## 17:16:03

0 WS	1.4	1 WD	34.	2 WB	5.3	3 DB	5.0
24 RK	8.9	4 TK	28.2	5 TK	22.5	6 TK	19.7
7 TK	19.7	8 TK	21.6	9 TK	9.2	10 TK	15.9
11 TK	14.9	12 TK	23.5	13 TK	14.0	14 TK	14.0
15 TK	16.8	16 TK	17.8	17 TK	14.0	18 TK	15.9
19 TK	16.8	20 TK	17.8	21 TK	13.0	22 TK	23.5
23 TK	21.6	25 TK	188.0	26 R1	2.21	27 R2	0.55
28 R3	0.20	29 R4	0.65	30 R5	0.71	36 RT	7.8
34 TT	6.7	35 TT	17.2				

## 17:16:04

0 WS	1.4	1 WD	34.	2 WB	5.3	3 DB	5.0
24 RK	8.9	4 TK	26.3	5 TK	22.5	6 TK	19.7
7 TK	18.7	8 TK	21.6	9 TK	8.3	10 TK	16.8
11 TK	14.0	12 TK	22.5	13 TK	15.9	14 TK	13.0
15 TK	15.9	16 TK	16.8	17 TK	11.1	18 TK	13.0
19 TK	14.9	20 TK	17.8	21 TK	10.2	22 TK	25.3
23 TK	21.6	25 TK	186.1	26 R1	2.40	27 R2	0.59
28 R3	0.32	29 R4	0.46	30 R5	0.28	36 RT	13.5
34 TT	14.1	35 TT	22.3				

## 17:16:05

0 WS	1.4	1 WD	33.	2 WB	4.7	3 DB	4.9
24 RK	11.8	4 TK	31.0	5 TK	23.5	6 TK	23.5
7 TK	19.7	8 TK	24.4	9 TK	11.1	10 TK	19.7
11 TK	14.9	12 TK	28.2	13 TK	15.9	14 TK	16.8
15 TK	18.7	16 TK	20.6	17 TK	14.0	18 TK	21.6
19 TK	19.7	20 TK	18.7	21 TK	13.0	22 TK	28.2
23 TK	26.3	25 TK	187.1	26 R1	0.84	27 R2	0.41
28 R3	0.25	29 R4	0.43	30 R5	1.08	36 RT	9.4
34 TT	6.4	35 TT	19.1				

## 17:16:06

0 WS	1.4	1 WD	34.	2 WB	5.4	3 DB	5.7
24 RK	12.7	4 TK	31.9	5 TK	26.3	6 TK	22.5
7 TK	24.4	8 TK	26.3	9 TK	11.1	10 TK	18.7
11 TK	18.7	12 TK	28.2	13 TK	15.9	14 TK	17.8
15 TK	18.7	16 TK	24.4	17 TK	16.8	18 TK	17.8
19 TK	20.6	20 TK	20.6	21 TK	14.9	22 TK	27.2
23 TK	28.2	25 TK	189.9	26 R1	0.66	27 R2	0.26
28 R3	0.81	29 R4	0.26	30 R5	0.39	36 RT	9.9
34 TT	9.5	35 TT	18.9				

## 17:16:07

0 WS	1.4	1 WD	33.	2 WB	4.7	3 DB	4.9
24 RK	8.0	4 TK	25.3	5 TK	19.7	6 TK	22.5
7 TK	17.8	8 TK	21.6	9 TK	6.3	10 TK	18.7
11 TK	17.8	12 TK	20.6	13 TK	12.1	14 TK	13.0
15 TK	14.9	16 TK	17.8	17 TK	10.2	18 TK	15.9
19 TK	14.0	20 TK	15.9	21 TK	14.9	22 TK	20.6
23 TK	22.5	25 TK	178.5	26 R1	0.93	27 R2	0.61
28 R3	0.45	29 R4	0.50	30 R5	1.17	36 RT	8.9
34 TT	10.7	35 TT	17.8				

## 17:16:08

0 WS	1.5	1 WD	34.	2 WB	5.1	3 DB	4.9
24 RK	8.0	4 TK	28.2	5 TK	20.6	6 TK	18.7
7 TK	18.7	8 TK	20.6	9 TK	7.3	10 TK	14.0
11 TK	14.0	12 TK	22.5	13 TK	14.0	14 TK	14.0
15 TK	14.9	16 TK	21.6	17 TK	10.2	18 TK	13.0
19 TK	15.9	20 TK	15.9	21 TK	13.0	22 TK	20.6
23 TK	20.6	25 TK	182.3	26 R1	2.94	27 R2	0.35
28 R3	0.29	29 R4	0.50	30 R5	0.46	36 RT	7.5
34 TT	6.9	35 TT	16.4				

## 17:16:09

0 WS	1.5	1 WD	33.	2 WB	4.9	3 DB	5.8
24 RK	8.0	4 TK	27.2	5 TK	21.6	6 TK	17.8
7 TK	16.8	8 TK	20.6	9 TK	6.3	10 TK	13.0
11 TK	14.0	12 TK	23.5	13 TK	14.0	14 TK	12.1
15 TK	14.9	16 TK	14.9	17 TK	9.2	18 TK	18.7
19 TK	15.9	20 TK	14.9	21 TK	12.1	22 TK	23.5
23 TK	19.7	25 TK	175.6	26 R1	4.50	27 R2	0.88
28 R3	0.16	29 R4	0.13	30 R5	1.26	36 RT	5.9
34 TT	5.6	35 TT	16.0				

## 17:16:10

0 WS	1.5	1 WD	33.	2 WB	4.7	3 DB	4.9
24 RK	14.6	4 TK	32.9	5 TK	31.0	6 TK	25.3
7 TK	27.2	8 TK	26.3	9 TK	14.0	10 TK	20.6
11 TK	19.7	12 TK	31.9	13 TK	18.7	14 TK	20.6
15 TK	22.5	16 TK	26.3	17 TK	14.0	18 TK	20.6
19 TK	25.3	20 TK	21.6	21 TK	20.6	22 TK	29.1
23 TK	31.0	25 TK	181.3	26 R1	0.75	27 R2	0.31
28 R3	0.25	29 R4	0.48	30 R5	0.71	36 RT	3.8
34 TT	0.4	35 TT	13.0				





17:16:11

0 WS	1.5	1 WD	34.	2 WB	4.8	3 DB	4.9
24 RK	8.0	4 TK	26.3	5 TK	21.6	6 TK	21.6
7 TK	17.8	8 TK	20.6	9 TK	6.3	10 TK	16.8
11 TK	12.1	12 TK	20.6	13 TK	13.0	14 TK	14.9
15 TK	17.8	16 TK	19.7	17 TK	7.3	18 TK	14.9
19 TK	18.7	20 TK	15.9	21 TK	11.1	22 TK	20.6
23 TK	20.6	25 TK	175.6	26 R1	1.39	27 R2	0.35
28 R3	0.36	29 R4	0.69	30 R5	0.80	36 RT	3.3
34 TT	3.4	35 TT	14.3				

17:16:12

0 WS	1.6	1 WD	34.	2 WB	5.4	3 DB	5.7
24 RK	9.9	4 TK	27.2	5 TK	23.5	6 TK	22.5
7 TK	19.7	8 TK	25.3	9 TK	9.2	10 TK	19.7
11 TK	14.0	12 TK	26.3	13 TK	14.9	14 TK	20.6
15 TK	16.8	16 TK	17.8	17 TK	14.9	18 TK	16.8
19 TK	14.9	20 TK	18.7	21 TK	14.0	22 TK	28.2
23 TK	27.2	25 TK	180.4	26 R1	1.21	27 R2	1.03
28 R3	0.11	29 R4	1.04	30 R5	0.69	36 RT	6.6
34 TT	4.5	35 TT	16.3				

17:16:13

0 WS	1.6	1 WD	38.	2 WB	5.5	3 DB	5.7
24 RK	7.0	4 TK	25.3	5 TK	20.6	6 TK	17.8
7 TK	18.7	8 TK	21.6	9 TK	3.5	10 TK	15.9
11 TK	11.1	12 TK	24.4	13 TK	13.0	14 TK	13.0
15 TK	14.0	16 TK	16.8	17 TK	8.3	18 TK	14.0
19 TK	13.0	20 TK	17.8	21 TK	15.9	22 TK	21.6
23 TK	18.7	25 TK	172.7	26 R1	2.21	27 R2	0.55
28 R3	0.18	29 R4	0.69	30 R5	0.80	36 RT	12.4
34 TT	10.3	35 TT	22.7				

17:16:14

0 WS	1.5	1 WD	38.	2 WB	5.2	3 DB	4.9
24 RK	7.0	4 TK	25.3	5 TK	23.5	6 TK	18.7
7 TK	17.8	8 TK	23.5	9 TK	6.3	10 TK	13.0
11 TK	11.1	12 TK	21.6	13 TK	12.1	14 TK	14.9
15 TK	14.0	16 TK	14.9	17 TK	9.2	18 TK	14.0
19 TK	14.0	20 TK	15.9	21 TK	14.9	22 TK	20.6
23 TK	22.5	25 TK	168.9	26 R1	4.13	27 R2	0.90
28 R3	0.38	29 R4	0.39	30 R5	0.55	36 RT	8.7
34 TT	8.1	35 TT	18.6				

17:16:15

0 WS	1.6	1 WD	39.	2 WB	5.5	3 DB	5.7
24 RK	11.8	4 TK	32.9	5 TK	25.3	6 TK	23.5
7 TK	20.6	8 TK	24.4	9 TK	10.2	10 TK	17.8
11 TK	15.9	12 TK	26.3	13 TK	21.6	14 TK	16.8
15 TK	17.8	16 TK	19.7	17 TK	13.0	18 TK	16.8
19 TK	18.7	20 TK	22.5	21 TK	15.9	22 TK	25.3
23 TK	22.5	25 TK	178.5	26 R1	1.75	27 R2	0.57
28 R3	0.23	29 R4	0.24	30 R5	0.32	36 RT	4.7
34 TT	3.0	35 TT	14.5				



## 17:16:16

0 WS	1.6	1 WD	37.	2 WB	4.7	3 DB	4.9
24 RK	8.9	4 TK	25.3	5 TK	21.6	6 TK	17.8
7 TK	19.7	8 TK	25.3	9 TK	8.3	10 TK	16.8
11 TK	17.8	12 TK	23.5	13 TK	13.0	14 TK	13.0
15 TK	15.9	16 TK	17.8	17 TK	13.0	18 TK	15.9
19 TK	18.7	20 TK	20.6	21 TK	16.8	22 TK	21.6
23 TK	19.7	25 TK	167.9	26 R1	0.93	27 R2	0.52
28 R3	0.42	29 R4	0.28	30 R5	0.53	36 RT	9.3
34 TT	7.9	35 TT	20.4				

## 17:16:17

0 WS	1.5	1 WD	39.	2 WB	5.4	3 DB	5.8
24 RK	8.9	4 TK	28.2	5 TK	21.6	6 TK	18.7
7 TK	19.7	8 TK	22.5	9 TK	9.2	10 TK	14.9
11 TK	15.9	12 TK	23.5	13 TK	16.8	14 TK	14.0
15 TK	17.8	16 TK	20.6	17 TK	9.2	18 TK	15.9
19 TK	15.9	20 TK	17.8	21 TK	15.9	22 TK	22.5
23 TK	24.4	25 TK	167.0	26 R1	2.21	27 R2	0.52
28 R3	0.60	29 R4	0.41	30 R5	0.41	36 RT	13.8
34 TT	12.6	35 TT	24.8				

## 17:16:18

0 WS	1.5	1 WD	39.	2 WB	5.5	3 DB	5.8
24 RK	7.0	4 TK	28.2	5 TK	21.6	6 TK	18.7
7 TK	15.9	8 TK	19.7	9 TK	5.4	10 TK	16.8
11 TK	12.1	12 TK	22.5	13 TK	14.0	14 TK	13.0
15 TK	13.0	16 TK	19.7	17 TK	11.1	18 TK	13.0
19 TK	13.0	20 TK	14.9	21 TK	14.9	22 TK	19.7
23 TK	19.7	25 TK	165.1	26 R1	3.04	27 R2	0.63
28 R3	0.54	29 R4	0.52	30 R5	0.92	36 RT	5.9
34 TT	3.1	35 TT	19.4				

## 17:16:19

0 WS	1.5	1 WD	39.	2 WB	5.3	3 DB	5.6
24 RK	10.8	4 TK	30.0	5 TK	24.4	6 TK	20.6
7 TK	20.6	8 TK	24.4	9 TK	10.2	10 TK	16.8
11 TK	14.9	12 TK	24.4	13 TK	19.7	14 TK	14.0
15 TK	18.7	16 TK	19.7	17 TK	10.2	18 TK	21.6
19 TK	16.8	20 TK	22.5	21 TK	14.9	22 TK	23.5
23 TK	25.3	25 TK	172.7	26 R1	2.85	27 R2	0.52
28 R3	0.11	29 R4	0.61	30 R5	0.85	36 RT	14.8
34 TT	13.9	35 TT	23.6				

## 17:16:20

0 WS	1.4	1 WD	39.	2 WB	5.5	3 DB	5.7
24 RK	8.0	4 TK	26.3	5 TK	21.6	6 TK	18.7
7 TK	18.7	8 TK	21.6	9 TK	9.2	10 TK	15.9
11 TK	13.0	12 TK	23.5	13 TK	14.0	14 TK	13.0
15 TK	17.8	16 TK	18.7	17 TK	12.1	18 TK	12.1
19 TK	18.7	20 TK	15.9	21 TK	16.8	22 TK	25.3
23 TK	18.7	25 TK	167.9	26 R1	2.49	27 R2	0.31
28 R3	0.36	29 R4	0.24	30 R5	0.74	36 RT	5.0
34 TT	1.9	35 TT	14.2				



## 17:16:21

0 WS	1.4	1 WD	39.	2 WB	5.3	3 DB	5.1
24 RK	7.0	4 TK	25.3	5 TK	18.7	6 TK	16.8
7 TK	16.8	8 TK	20.6	9 TK	4.4	10 TK	14.0
11 TK	12.1	12 TK	20.6	13 TK	17.8	14 TK	13.0
15 TK	16.8	16 TK	20.6	17 TK	9.2	18 TK	13.0
19 TK	12.1	20 TK	14.9	21 TK	11.1	22 TK	19.7
23 TK	16.8	25 TK	162.2	26 R1	2.21	27 R2	0.28
28 R3	0.11	29 R4	0.43	30 R5	0.41	36 RT	6.4
34 TT	3.3	35 TT	15.6				

## 17:16:22

0 WS	1.4	1 WD	39.	2 WB	5.4	3 DB	5.6
24 RK	12.7	4 TK	30.0	5 TK	29.1	6 TK	22.5
7 TK	22.5	8 TK	24.4	9 TK	11.1	10 TK	21.6
11 TK	19.7	12 TK	30.0	13 TK	17.8	14 TK	18.7
15 TK	20.6	16 TK	23.5	17 TK	12.1	18 TK	17.8
19 TK	21.6	20 TK	22.5	21 TK	22.5	22 TK	25.3
23 TK	23.5	25 TK	174.6	26 R1	2.65	27 R2	0.44
28 R3	0.32	29 R4	0.89	30 R5	0.87	36 RT	11.2
34 TT	8.9	35 TT	23.7				

## 17:16:23

0 WS	1.5	1 WD	39.	2 WB	5.3	3 DB	5.6
24 RK	12.7	4 TK	31.0	5 TK	28.2	6 TK	25.3
7 TK	21.6	8 TK	26.3	9 TK	12.1	10 TK	19.7
11 TK	17.8	12 TK	27.2	13 TK	20.6	14 TK	17.8
15 TK	22.5	16 TK	21.6	17 TK	12.1	18 TK	17.8
19 TK	19.7	20 TK	18.7	21 TK	21.6	22 TK	26.3
23 TK	26.3	25 TK	170.8	26 R1	5.05	27 R2	0.41
28 R3	0.23	29 R4	0.65	30 R5	0.28	36 RT	14.1
34 TT	10.9	35 TT	25.2				

## 17:16:24

0 WS	1.5	1 WD	39.	2 WB	5.3	3 DB	5.3
24 RK	11.8	4 TK	30.0	5 TK	25.3	6 TK	24.4
7 TK	23.5	8 TK	24.4	9 TK	11.1	10 TK	18.7
11 TK	16.8	12 TK	27.2	13 TK	16.8	14 TK	15.9
15 TK	19.7	16 TK	20.6	17 TK	13.0	18 TK	17.8
19 TK	20.6	20 TK	20.6	21 TK	17.8	22 TK	26.3
23 TK	27.2	25 TK	169.9	26 R1	2.12	27 R2	0.66
28 R3	0.22	29 R4	0.33	30 R5	0.69	36 RT	11.2
34 TT	9.1	35 TT	21.6				

## 17:16:25

0 WS	1.4	1 WD	40.	2 WB	5.5	3 DB	5.7
24 RK	9.9	4 TK	27.2	5 TK	20.6	6 TK	22.5
7 TK	22.5	8 TK	25.3	9 TK	8.3	10 TK	15.9
11 TK	17.8	12 TK	23.5	13 TK	15.9	14 TK	13.0
15 TK	18.7	16 TK	20.6	17 TK	9.2	18 TK	17.8
19 TK	14.9	20 TK	18.7	21 TK	15.9	22 TK	24.4
23 TK	21.6	25 TK	169.9	26 R1	3.13	27 R2	0.37
28 R3	0.38	29 R4	0.63	30 R5	0.48	36 RT	9.5
34 TT	7.9	35 TT	19.4				



## 17:16:26

0 WS	1.5	1 WD	39.	2 WB	5.3	3 DB	5.2
24 RK	8.0	4 TK	28.2	5 TK	21.6	6 TK	19.7
7 TK	17.8	8 TK	21.6	9 TK	9.2	10 TK	14.0
11 TK	14.9	12 TK	23.5	13 TK	13.0	14 TK	14.0
15 TK	20.6	16 TK	14.9	17 TK	7.3	18 TK	17.8
19 TK	13.0	20 TK	16.8	21 TK	14.9	22 TK	19.7
23 TK	21.6	25 TK	168.9	26 R1	3.58	27 R2	0.29
28 R3	0.18	29 R4	0.56	30 R5	0.39	36 RT	5.5
34 TT	2.8	35 TT	15.7				

## 17:16:27

0 WS	1.5	1 WD	40.	2 WB	5.5	3 DB	5.7
24 RK	10.8	4 TK	28.2	5 TK	26.3	6 TK	20.6
7 TK	19.7	8 TK	23.5	9 TK	8.3	10 TK	21.6
11 TK	16.8	12 TK	28.2	13 TK	19.7	14 TK	14.9
15 TK	22.5	16 TK	19.7	17 TK	10.2	18 TK	19.7
19 TK	17.8	20 TK	18.7	21 TK	16.8	22 TK	28.2
23 TK	21.6	25 TK	178.5	26 R1	1.94	27 R2	0.66
28 R3	0.22	29 R4	0.76	30 R5	1.19	36 RT	7.0
34 TT	3.5	35 TT	16.8				

## 17:16:28

0 WS	1.5	1 WD	39.	2 WB	5.3	3 DB	5.4
24 RK	8.0	4 TK	28.2	5 TK	18.7	6 TK	18.7
7 TK	16.8	8 TK	21.6	9 TK	8.3	10 TK	14.0
11 TK	14.0	12 TK	23.5	13 TK	13.0	14 TK	11.1
15 TK	14.9	16 TK	17.8	17 TK	7.3	18 TK	14.9
19 TK	15.9	20 TK	20.6	21 TK	13.0	22 TK	21.6
23 TK	20.6	25 TK	173.7	26 R1	2.67	27 R2	0.39
28 R3	0.52	29 R4	0.74	30 R5	0.44	36 RT	7.7
34 TT	7.1	35 TT	17.8				

## 17:16:29

0 WS	1.5	1 WD	39.	2 WB	5.2	3 DB	5.7
24 RK	12.7	4 TK	31.9	5 TK	24.4	6 TK	22.5
7 TK	22.5	8 TK	28.2	9 TK	12.1	10 TK	17.8
11 TK	20.6	12 TK	27.2	13 TK	17.8	14 TK	20.6
15 TK	24.4	16 TK	23.5	17 TK	12.1	18 TK	20.6
19 TK	17.8	20 TK	19.7	21 TK	25.3	22 TK	24.4
23 TK	24.4	25 TK	183.2	26 R1	1.48	27 R2	0.55
28 R3	0.16	29 R4	0.93	30 R5	0.67	36 RT	5.2
34 TT	2.0	35 TT	15.0				

## 17:16:30

0 WS	1.5	1 WD	40.	2 WB	5.6	3 DB	5.8
24 RK	15.6	4 TK	32.9	5 TK	29.1	6 TK	26.3
7 TK	25.3	8 TK	29.1	9 TK	14.0	10 TK	26.3
11 TK	20.6	12 TK	31.0	13 TK	21.6	14 TK	17.8
15 TK	22.5	16 TK	25.3	17 TK	17.8	18 TK	25.3
19 TK	22.5	20 TK	23.5	21 TK	20.6	22 TK	28.2
23 TK	26.3	25 TK	188.0	26 R1	0.66	27 R2	0.29
28 R3	0.89	29 R4	0.43	30 R5	0.55	36 RT	7.5
34 TT	10.0	35 TT	16.6				



## 17:16:31

0 WS	1.5	1 WD	39.	2 WB	5.5	3 DB	5.7
24 RK	8.9	4 TK	27.2	5 TK	21.6	6 TK	18.7
7 TK	21.6	8 TK	21.6	9 TK	9.2	10 TK	15.9
11 TK	16.8	12 TK	21.6	13 TK	13.0	14 TK	18.7
15 TK	15.9	16 TK	19.7	17 TK	10.2	18 TK	17.8
19 TK	14.9	20 TK	15.9	21 TK	14.9	22 TK	22.5
23 TK	20.6	25 TK	178.5	26 R1	2.49	27 R2	0.26
28 R3	0.36	29 R4	0.85	30 R5	0.37	36 RT	12.8
34 TT	10.6	35 TT	21.9				

## 17:16:32

0 WS	1.5	1 WD	39.	2 WB	5.3	3 DB	5.8
24 RK	8.0	4 TK	29.1	5 TK	17.8	6 TK	20.6
7 TK	17.8	8 TK	19.7	9 TK	9.2	10 TK	15.9
11 TK	14.0	12 TK	21.6	13 TK	14.9	14 TK	11.1
15 TK	16.8	16 TK	18.7	17 TK	7.3	18 TK	14.9
19 TK	17.8	20 TK	17.8	21 TK	14.0	22 TK	20.6
23 TK	25.3	25 TK	177.5	26 R1	2.12	27 R2	0.83
28 R3	0.05	29 R4	0.80	30 R5	0.62	36 RT	13.3
34 TT	10.3	35 TT	25.2				

## 17:16:33

0 WS	1.5	1 WD	40.	2 WB	5.5	3 DB	5.8
24 RK	13.7	4 TK	33.8	5 TK	25.3	6 TK	24.4
7 TK	23.5	8 TK	27.2	9 TK	13.0	10 TK	19.7
11 TK	20.6	12 TK	27.2	13 TK	21.6	14 TK	16.8
15 TK	25.3	16 TK	24.4	17 TK	13.0	18 TK	22.5
19 TK	19.7	20 TK	19.7	21 TK	18.7	22 TK	26.3
23 TK	24.4	25 TK	178.5	26 R1	2.21	27 R2	0.46
28 R3	1.43	29 R4	0.54	30 R5	0.76	36 RT	14.6
34 TT	11.8	35 TT	24.8				

## 17:16:34

0 WS	1.5	1 WD	40.	2 WB	5.4	3 DB	5.7
24 RK	8.9	4 TK	31.9	5 TK	51.5	6 TK	53.3
7 TK	50.6	8 TK	37.5	9 TK	25.3	10 TK	16.8
11 TK	21.6	12 TK	27.2	13 TK	16.8	14 TK	32.9
15 TK	26.3	16 TK	31.9	17 TK	16.8	18 TK	17.8
19 TK	31.0	20 TK	22.5	21 TK	98.5	22 TK	116.0
23 TK	121.6	25 TK	157.5	26 R1	2.58	27 R2	0.37
28 R3	4.17	29 R4	1.26	30 R5	1.63	36 RT	4.4
34 TT	5.3	35 TT	13.1				

## 17:16:35

0 WS	1.5	1 WD	39.	2 WB	4.9	3 DB	5.7
24 RK	9.9	4 TK	-1.3	5 TK	83.7	6 TK	30.0
7 TK	106.8	8 TK	18.7	9 TK	31.0	10 TK	15.9
11 TK	18.7	12 TK	16.8	13 TK	49.6	14 TK	32.9
15 TK	70.9	16 TK	94.8	17 TK	175.6	18 TK	226.2
19 TK	423.7	20 TK	121.6	21 TK	219.5	22 TK	500.9
23 TK	412.8	25 TK	131.9	26 R1	1.66	27 R2	0.53
28 R3	4.50	29 R4	2.47	30 R5	1.98	36 RT	5.2
34 TT	3.8	35 TT	15.0				

## 17:16:36

0 WS	1.5	1 WD	39.	2 WB	4.7	3 DB	5.2
24 RK	7.0	4 TK	-0.3	5 TK	353.9	6 TK	26.3
7 TK	277.7	8 TK	17.8	9 TK	98.5	10 TK	76.4
11 TK	450.7	12 TK	41.3	13 TK	298.0	14 TK	236.6
15 TK	558.3	16 TK	737.3	17 TK	942.4	18 TK	655.3
19 TK	1103.3	20 TK	785.2	21 TK	689.8	22 TK	720.8
23 TK	1170.7	25 TK	98.5	26 R1	4.32	27 R2	2.69
28 R3	5.53	29 R4	3.99	30 R5	2.73	36 RT	9.2
34 TT	5.3	35 TT	18.4				

## 17:16:37

0 WS	1.5	1 WD	39.	2 WB	5.3	3 DB	5.7
24 RK	12.7	4 TK	38.5	5 TK	168.9	6 TK	101.2
7 TK	413.7	8 TK	86.5	9 TK	112.3	10 TK	477.6
11 TK	1077.1	12 TK	311.8	13 TK	571.7	14 TK	1066.1
15 TK	955.9	16 TK	1112.4	17 TK	1124.6	18 TK	903.9
19 TK	1211.4	20 TK	994.9	21 TK	784.3	22 TK	646.3
23 TK	1227.2	25 TK	63.5	26 R1	7.15	27 R2	4.63
28 R3	6.16	29 R4	4.60	30 R5	3.93	36 RT	8.6
34 TT	1.2	35 TT	17.3				

## 17:16:38

0 WS	1.5	1 WD	38.	2 WB	5.5	3 DB	5.8
24 RK	7.0	4 TK	155.6	5 TK	178.5	6 TK	299.9
7 TK	844.1	8 TK	763.0	9 TK	646.3	10 TK	926.9
11 TK	1215.6	12 TK	402.0	13 TK	689.8	14 TK	1236.8
15 TK	1081.2	16 TK	1218.8	17 TK	1128.7	18 TK	1012.6
19 TK	1223.0	20 TK	1068.1	21 TK	763.9	22 TK	705.2
23 TK	1033.3	25 TK	30.0	26 R1	8.43	27 R2	6.43
28 R3	6.74	29 R4	5.08	30 R5	4.25	36 RT	19.1
34 TT	8.6	35 TT	27.7				

## 17:16:39

0 WS	1.5	1 WD	36.	2 WB	5.0	3 DB	5.8
24 RK	8.9	4 TK	212.9	5 TK	343.9	6 TK	433.6
7 TK	1070.1	8 TK	1039.3	9 TK	1007.7	10 TK	1155.3
11 TK	1311.4	12 TK	477.6	13 TK	682.5	14 TK	1256.0
15 TK	1129.7	16 TK	1250.6	17 TK	1127.6	18 TK	1055.2
19 TK	1227.2	20 TK	1106.3	21 TK	753.8	22 TK	675.2
23 TK	987.1	25 TK	18.7	26 R1	8.43	27 R2	7.60
28 R3	6.61	29 R4	5.31	30 R5	4.98	36 RT	8.5
34 TT	-5.6	35 TT	20.4				

## 17:16:40

0 WS	1.5	1 WD	37.	2 WB	5.2	3 DB	5.0
24 RK	13.7	4 TK	220.5	5 TK	171.8	6 TK	483.0
7 TK	1088.2	8 TK	1108.4	9 TK	1141.9	10 TK	1244.2
11 TK	1299.3	12 TK	535.9	13 TK	662.6	14 TK	1308.1
15 TK	1062.1	16 TK	1257.0	17 TK	1090.2	18 TK	1064.1
19 TK	1235.7	20 TK	1019.5	21 TK	678.0	22 TK	653.5
23 TK	759.3	25 TK	17.8	26 R1	9.25	27 R2	9.03
28 R3	6.90	29 R4	5.94	30 R5	4.39	36 RT	5.2
34 TT	-10.2	35 TT	15.4				



## 17:16:41

0 WS	1.5	1 WD	37.	2 WB	5.4	3 DB	5.7
24 RK	14.6	4 TK	256.3	5 TK	212.9	6 TK	521.5
7 TK	1104.3	8 TK	1204.0	9 TK	1189.4	10 TK	1212.4
11 TK	1342.3	12 TK	530.5	13 TK	714.4	14 TK	1229.3
15 TK	1084.2	16 TK	1285.1	17 TK	1101.3	18 TK	1137.8
19 TK	1230.4	20 TK	988.1	21 TK	664.4	22 TK	660.8
23 TK	596.8	25 TK	14.9	26 R1	8.07	27 R2	8.37
28 R3	7.12	29 R4	5.29	30 R5	4.85	36 RT	7.1
34 TT	-6.5	35 TT	16.2				

## 17:16:42

0 WS	1.4	1 WD	37.	2 WB	5.3	3 DB	5.6
24 RK	9.9	4 TK	309.1	5 TK	223.3	6 TK	616.6
7 TK	987.1	8 TK	1117.5	9 TK	1172.8	10 TK	1265.6
11 TK	1340.1	12 TK	578.0	13 TK	745.5	14 TK	1284.0
15 TK	1118.5	16 TK	1297.1	17 TK	1131.7	18 TK	1171.8
19 TK	1260.3	20 TK	1038.3	21 TK	731.7	22 TK	668.9
23 TK	492.0	25 TK	12.1	26 R1	8.16	27 R2	8.65
28 R3	7.03	29 R4	5.47	30 R5	4.50	36 RT	4.2
34 TT	-13.6	35 TT	12.7				

## 17:16:43

0 WS	1.4	1 WD	37.	2 WB	5.3	3 DB	5.6
24 RK	9.9	4 TK	271.2	5 TK	254.4	6 TK	508.1
7 TK	1000.8	8 TK	1176.9	9 TK	1210.3	10 TK	1245.3
11 TK	1273.2	12 TK	604.9	13 TK	702.5	14 TK	1321.3
15 TK	1111.4	16 TK	1297.1	17 TK	1097.2	18 TK	1127.6
19 TK	1243.1	20 TK	1015.6	21 TK	730.8	22 TK	726.2
23 TK	344.8	25 TK	6.3	26 R1	7.97	27 R2	8.28
28 R3	6.92	29 R4	5.44	30 R5	4.78	36 RT	7.6
34 TT	-10.4	35 TT	16.4				

## 17:16:44

0 WS	1.4	1 WD	36.	2 WB	4.8	3 DB	5.2
24 RK	8.9	4 TK	315.5	5 TK	260.0	6 TK	601.3
7 TK	926.0	8 TK	1140.9	9 TK	1205.1	10 TK	1257.0
11 TK	1304.8	12 TK	589.6	13 TK	711.6	14 TK	1312.5
15 TK	1117.5	16 TK	1313.6	17 TK	1120.5	18 TK	1153.2
19 TK	1226.1	20 TK	1052.2	21 TK	755.6	22 TK	708.9
23 TK	313.7	25 TK	4.4	26 R1	8.25	27 R2	8.35
28 R3	6.96	29 R4	5.62	30 R5	4.64	36 RT	6.0
34 TT	-12.1	35 TT	15.7				

## 17:16:45

0 WS	1.3	1 WD	37.	2 WB	4.8	3 DB	4.9
24 RK	8.9	4 TK	283.3	5 TK	262.8	6 TK	560.9
7 TK	961.8	8 TK	1200.9	9 TK	1216.6	10 TK	1269.9
11 TK	1311.4	12 TK	541.2	13 TK	782.4	14 TK	1277.5
15 TK	1130.7	16 TK	1293.8	17 TK	1120.5	18 TK	1167.6
19 TK	1205.1	20 TK	1036.3	21 TK	750.1	22 TK	680.7
23 TK	343.9	25 TK	1.5	26 R1	8.43	27 R2	8.41
28 R3	6.13	29 R4	5.62	30 R5	4.34	36 RT	8.6
34 TT	-8.5	35 TT	17.6				

## 17:16:46

0 WS	1.3	1 WD	35.	2 WB	4.7	3 DB	5.0
24 RK	9.9	4 TK	193.8	5 TK	271.2	6 TK	487.5
7 TK	831.0	8 TK	952.1	9 TK	1044.2	10 TK	1128.7
11 TK	1205.1	12 TK	500.0	13 TK	699.8	14 TK	1211.4
15 TK	1053.2	16 TK	1188.4	17 TK	1059.2	18 TK	1146.0
19 TK	1128.7	20 TK	936.6	21 TK	657.1	22 TK	109.5
23 TK	-572.7	25 TK	5.4	26 R1	6.42	27 R2	6.53
28 R3	3.70	29 R4	4.73	30 R5	4.07	36 RT	9.1
34 TT	-9.5	35 TT	19.3				

## 17:16:47

0 WS	1.4	1 WD	37.	2 WB	5.4	3 DB	5.8
24 RK	13.7	4 TK	208.1	5 TK	283.3	6 TK	494.6
7 TK	658.0	8 TK	757.5	9 TK	856.4	10 TK	980.2
11 TK	1063.1	12 TK	598.6	13 TK	634.6	14 TK	1148.1
15 TK	1015.6	16 TK	1206.1	17 TK	1152.2	18 TK	1189.4
19 TK	1190.5	20 TK	1057.2	21 TK	616.6	22 TK	107.7
23 TK	39.4	25 TK	6.3	26 R1	7.52	27 R2	5.81
28 R3	3.07	29 R4	4.71	30 R5	3.28	36 RT	15.7
34 TT	-2.9	35 TT	24.8				

## 17:16:48

0 WS	1.4	1 WD	37.	2 WB	5.5	3 DB	5.7
24 RK	15.6	4 TK	236.6	5 TK	250.7	6 TK	490.2
7 TK	641.8	8 TK	725.3	9 TK	791.7	10 TK	966.6
11 TK	1056.2	12 TK	532.3	13 TK	606.7	14 TK	980.2
15 TK	1067.1	16 TK	1258.1	17 TK	1227.2	18 TK	1238.9
19 TK	1273.2	20 TK	1170.7	21 TK	367.5	22 TK	176.5
23 TK	115.1	25 TK	9.2	26 R1	4.41	27 R2	5.00
28 R3	2.35	29 R4	4.10	30 R5	3.26	36 RT	22.7
34 TT	5.3	35 TT	34.5				

## 17:16:49

0 WS	1.4	1 WD	37.	2 WB	5.2	3 DB	5.0
24 RK	10.8	4 TK	281.4	5 TK	273.1	6 TK	465.9
7 TK	636.4	8 TK	650.8	9 TK	809.4	10 TK	938.5
11 TK	1024.4	12 TK	500.0	13 TK	679.8	14 TK	1071.1
15 TK	1024.4	16 TK	1266.7	17 TK	1234.6	18 TK	1245.3
19 TK	1294.9	20 TK	1216.6	21 TK	59.8	22 TK	148.0
23 TK	90.2	25 TK	6.3	26 R1	4.04	27 R2	5.00
28 R3	2.48	29 R4	4.03	30 R5	3.31	36 RT	9.9
34 TT	-11.4	35 TT	19.3				

## 17:16:50

0 WS	1.5	1 WD	37.	2 WB	5.5	3 DB	5.7
24 RK	12.7	4 TK	295.3	5 TK	273.1	6 TK	413.7
7 TK	595.0	8 TK	740.0	9 TK	849.8	10 TK	988.1
11 TK	1062.1	12 TK	543.9	13 TK	675.2	14 TK	1077.1
15 TK	1019.5	16 TK	1265.6	17 TK	1234.6	18 TK	1266.7
19 TK	1290.6	20 TK	1232.5	21 TK	47.8	22 TK	116.0
23 TK	-52.0	25 TK	8.3	26 R1	2.30	27 R2	5.09
28 R3	2.64	29 R4	4.45	30 R5	3.49	36 RT	13.5
34 TT	-6.0	35 TT	23.6				





## 17:16:51

0 WS	1.4	1 WD	36.	2 WB	4.7	3 DB	5.5
24 RK	7.0	4 TK	252.5	5 TK	291.6	6 TK	354.8
7 TK	516.2	8 TK	587.8	9 TK	699.8	10 TK	861.1
11 TK	1045.2	12 TK	642.7	13 TK	588.7	14 TK	1054.2
15 TK	1007.7	16 TK	1272.1	17 TK	1220.9	18 TK	1241.0
19 TK	1285.1	20 TK	1202.0	21 TK	47.8	22 TK	123.5
23 TK	-5.2	25 TK	4.4	26 R1	5.05	27 R2	4.66
28 R3	2.64	29 R4	3.77	30 R5	3.22	36 RT	11.8
34 TT	-9.8	35 TT	21.4				

## 17:16:52

0 WS	1.4	1 WD	36.	2 WB	4.7	3 DB	4.9
24 RK	10.8	4 TK	251.6	5 TK	335.6	6 TK	355.7
7 TK	574.4	8 TK	649.0	9 TK	744.6	10 TK	924.1
11 TK	1073.1	12 TK	670.7	13 TK	533.2	14 TK	1202.0
15 TK	1035.3	16 TK	1254.9	17 TK	1183.2	18 TK	1243.1
19 TK	1200.9	20 TK	1138.9	21 TK	81.0	22 TK	123.5
23 TK	31.9	25 TK	0.6	26 R1	4.77	27 R2	5.53
28 R3	2.17	29 R4	4.71	30 R5	3.65	36 RT	9.5
34 TT	-11.1	35 TT	22.1				

## 17:16:53

0 WS	1.4	1 WD	37.	2 WB	5.2	3 DB	4.9
24 RK	10.8	4 TK	225.2	5 TK	381.2	6 TK	367.5
7 TK	578.0	8 TK	691.6	9 TK	666.2	10 TK	836.6
11 TK	1047.2	12 TK	654.4	13 TK	569.9	14 TK	1157.3
15 TK	1060.1	16 TK	1245.3	17 TK	1170.7	18 TK	1224.0
19 TK	1225.1	20 TK	1121.5	21 TK	74.5	22 TK	110.5
23 TK	152.7	25 TK	5.4	26 R1	2.03	27 R2	5.49
28 R3	2.64	29 R4	4.08	30 R5	3.58	36 RT	8.6
34 TT	-12.4	35 TT	18.9				

## 17:16:54

0 WS	1.5	1 WD	37.	2 WB	5.4	3 DB	5.6
24 RK	11.8	4 TK	274.9	5 TK	377.5	6 TK	363.9
7 TK	603.1	8 TK	723.5	9 TK	763.9	10 TK	931.8
11 TK	1106.3	12 TK	604.9	13 TK	560.9	14 TK	1195.7
15 TK	1070.1	16 TK	1272.1	17 TK	1221.9	18 TK	1252.8
19 TK	1284.0	20 TK	1224.0	21 TK	31.9	22 TK	113.3
23 TK	119.8	25 TK	2.5	26 R1	2.58	27 R2	5.35
28 R3	2.10	29 R4	4.10	30 R5	3.35	36 RT	7.1
34 TT	-14.2	35 TT	17.6				

## 17:16:55

0 WS	1.5	1 WD	37.	2 WB	5.4	3 DB	5.7
24 RK	8.0	4 TK	223.3	5 TK	383.9	6 TK	337.5
7 TK	736.3	8 TK	705.2	9 TK	771.3	10 TK	886.7
11 TK	973.4	12 TK	669.8	13 TK	575.3	14 TK	1204.0
15 TK	1042.2	16 TK	1268.9	17 TK	1212.4	18 TK	1234.6
19 TK	1249.5	20 TK	1190.5	21 TK	69.9	22 TK	102.1
23 TK	36.6	25 TK	2.5	26 R1	4.13	27 R2	5.38
28 R3	2.04	29 R4	4.34	30 R5	3.84	36 RT	11.1
34 TT	-7.5	35 TT	25.2				

17:16:56

0 WS	1.5	1 WD	37.	2 WB	5.4	3 DB	5.7
24 RK	6.0	4 TK	224.3	5 TK	438.1	6 TK	316.4
7 TK	617.5	8 TK	627.4	9 TK	733.6	10 TK	929.8
11 TK	1080.1	12 TK	682.5	13 TK	542.1	14 TK	1183.2
15 TK	1072.1	16 TK	1265.6	17 TK	1212.4	18 TK	1227.2
19 TK	1291.6	20 TK	1189.4	21 TK	22.5	22 TK	86.5
23 TK	722.6	25 TK	-3.2	26 R1	1.66	27 R2	4.92
28 R3	1.97	29 R4	3.77	30 R5	3.26	36 RT	7.6
34 TT	-17.0	35 TT	16.7				

17:16:57

0 WS	1.4	1 WD	36.	2 WB	4.9	3 DB	5.7
24 RK	8.9	4 TK	238.5	5 TK	438.1	6 TK	280.5
7 TK	559.1	8 TK	531.4	9 TK	622.9	10 TK	765.8
11 TK	937.5	12 TK	708.9	13 TK	560.9	14 TK	1216.6
15 TK	975.4	16 TK	1248.5	17 TK	1243.1	18 TK	1212.4
19 TK	1304.8	20 TK	1227.2	21 TK	22.5	22 TK	90.2
23 TK	189.9	25 TK	-3.2	26 R1	0.75	27 R2	4.20
28 R3	1.79	29 R4	3.77	30 R5	3.26	36 RT	4.6
34 TT	-16.8	35 TT	13.5				

17:16:58

0 WS	1.4	1 WD	37.	2 WB	5.5	3 DB	5.7
24 RK	7.0	4 TK	249.7	5 TK	405.6	6 TK	350.2
7 TK	612.1	8 TK	640.9	9 TK	712.5	10 TK	879.1
11 TK	1022.5	12 TK	702.5	13 TK	659.9	14 TK	1154.2
15 TK	995.9	16 TK	1221.9	17 TK	1193.6	18 TK	1223.0
19 TK	1241.0	20 TK	1147.0	21 TK	59.8	22 TK	99.4
23 TK	370.3	25 TK	0.6	26 R1	0.02	27 R2	4.55
28 R3	2.31	29 R4	3.97	30 R5	3.22	36 RT	3.8
34 TT	-19.0	35 TT	15.0				

17:16:59

0 WS	1.4	1 WD	37.	2 WB	5.5	3 DB	5.8
24 RK	8.0	4 TK	284.2	5 TK	417.3	6 TK	379.3
7 TK	653.5	8 TK	654.4	9 TK	765.8	10 TK	893.4
11 TK	1059.2	12 TK	691.6	13 TK	659.9	14 TK	1174.9
15 TK	1063.1	16 TK	1185.3	17 TK	1209.3	18 TK	1234.6
19 TK	1281.9	20 TK	1167.6	21 TK	36.6	22 TK	118.8
23 TK	115.1	25 TK	-4.2	26 R1	1.85	27 R2	5.14
28 R3	2.51	29 R4	3.69	30 R5	3.58	36 RT	22.7
34 TT	-2.4	35 TT	33.9				

17:17:00

0 WS	1.4	1 WD	37.	2 WB	5.3	3 DB	5.1
24 RK	9.9	4 TK	334.7	5 TK	434.5	6 TK	292.5
7 TK	614.8	8 TK	692.5	9 TK	760.2	10 TK	942.4
11 TK	1059.2	12 TK	619.3	13 TK	605.8	14 TK	1159.4
15 TK	1021.5	16 TK	1245.3	17 TK	1241.0	18 TK	1225.1
19 TK	1291.6	20 TK	1197.8	21 TK	84.6	22 TK	196.6
23 TK	332.9	25 TK	-0.3	26 R1	2.03	27 R2	4.87
28 R3	2.19	29 R4	4.40	30 R5	3.24	36 RT	5.3
34 TT	-17.9	35 TT	15.4				



## 17:17:01

0 WS	1.4	1 WD	37.	2 WB	5.5	3 DB	5.8
24 RK	6.0	4 TK	258.2	5 TK	426.4	6 TK	310.0
7 TK	674.3	8 TK	676.1	9 TK	751.0	10 TK	820.7
11 TK	996.9	12 TK	665.3	13 TK	614.8	14 TK	1174.9
15 TK	986.1	16 TK	1315.8	17 TK	1208.2	18 TK	1208.2
19 TK	1237.8	20 TK	1118.5	21 TK	79.1	22 TK	286.0
23 TK	106.8	25 TK	-5.2	26 R1	-0.43	27 R2	6.27
28 R3	2.60	29 R4	4.01	30 R5	3.47	36 RT	8.6
34 TT	-15.5	35 TT	19.3				

## 17:17:02

0 WS	1.3	1 WD	37.	2 WB	4.8	3 DB	5.5
24 RK	7.0	4 TK	239.4	5 TK	421.0	6 TK	323.8
7 TK	722.6	8 TK	696.1	9 TK	722.6	10 TK	826.3
11 TK	986.1	12 TK	616.6	13 TK	610.3	14 TK	1168.7
15 TK	1029.4	16 TK	-572.7	17 TK	1213.5	18 TK	1225.1
19 TK	1200.9	20 TK	1155.3	21 TK	66.2	22 TK	248.8
23 TK	647.2	25 TK	-6.2	26 R1	2.85	27 R2	5.31
28 R3	2.69	29 R4	3.86	30 R5	3.95	36 RT	8.5
34 TT	-17.7	35 TT	18.9				

## 17:17:03

0 WS	1.3	1 WD	37.	2 WB	5.5	3 DB	5.7
24 RK	8.0	4 TK	239.4	5 TK	416.4	6 TK	357.5
7 TK	763.9	8 TK	690.7	9 TK	720.8	10 TK	880.1
11 TK	1028.4	12 TK	684.3	13 TK	580.7	14 TK	1161.4
15 TK	1017.5	16 TK	1331.2	17 TK	1217.7	18 TK	1231.4
19 TK	1223.0	20 TK	1185.3	21 TK	54.3	22 TK	212.9
23 TK	408.3	25 TK	-2.3	26 R1	-1.07	27 R2	5.16
28 R3	2.80	29 R4	4.64	30 R5	3.47	36 RT	5.9
34 TT	-18.9	35 TT	16.9				

## 17:17:04

0 WS	1.3	1 WD	37.	2 WB	4.9	3 DB	4.9
24 RK	9.9	4 TK	228.1	5 TK	456.1	6 TK	375.7
7 TK	703.4	8 TK	787.1	9 TK	741.8	10 TK	858.3
11 TK	929.8	12 TK	664.4	13 TK	519.7	14 TK	1178.0
15 TK	1041.2	16 TK	1353.5	17 TK	1252.8	18 TK	1267.8
19 TK	1285.1	20 TK	1227.2	21 TK	40.3	22 TK	199.5
23 TK	231.9	25 TK	-1.3	26 R1	-0.80	27 R2	4.59
28 R3	2.64	29 R4	4.23	30 R5	3.63	36 RT	11.8
34 TT	-14.1	35 TT	21.7				

## 17:17:05

0 WS	1.3	1 WD	37.	2 WB	5.6	3 DB	5.8
24 RK	9.9	4 TK	245.1	5 TK	475.8	6 TK	363.9
7 TK	786.2	8 TK	680.7	9 TK	836.6	10 TK	993.0
11 TK	1155.3	12 TK	590.5	13 TK	508.1	14 TK	1174.9
15 TK	1112.4	16 TK	-572.7	17 TK	1261.3	18 TK	1260.3
19 TK	1309.2	20 TK	1265.6	21 TK	54.3	22 TK	163.2
23 TK	69.0	25 TK	-4.2	26 R1	0.47	27 R2	5.59
28 R3	2.48	29 R4	3.88	30 R5	3.56	36 RT	9.8
34 TT	-17.0	35 TT	18.7				



## 17:17:06

0 WS	1.2	1 WD	36.	2 WB	5.3	3 DB	5.5
24 RK	11.8	4 TK	230.0	5 TK	518.0	6 TK	364.8
7 TK	714.4	8 TK	711.6	9 TK	895.3	10 TK	946.2
11 TK	1034.3	12 TK	663.5	13 TK	449.8	14 TK	1251.7
15 TK	1004.7	16 TK	1322.4	17 TK	1242.1	18 TK	1246.3
19 TK	1264.6	20 TK	1206.1	21 TK	111.4	22 TK	143.2
23 TK	83.7	25 TK	0.6	26 R1	-1.16	27 R2	5.25
28 R3	2.33	29 R4	4.12	30 R5	4.13	36 RT	5.4
34 TT	-21.1	35 TT	15.6				

## 17:17:07

0 WS	1.3	1 WD	34.	2 WB	5.3	3 DB	5.4
24 RK	8.9	4 TK	208.1	5 TK	569.0	6 TK	384.8
7 TK	729.9	8 TK	609.4	9 TK	885.8	10 TK	944.3
11 TK	1113.4	12 TK	644.5	13 TK	573.5	14 TK	1224.0
15 TK	1062.1	16 TK	1277.5	17 TK	1207.2	18 TK	1210.3
19 TK	1219.8	20 TK	1169.7	21 TK	108.6	22 TK	116.0
23 TK	352.1	25 TK	-1.3	26 R1	-1.71	27 R2	5.03
28 R3	2.57	29 R4	4.10	30 R5	3.84	36 RT	5.5
34 TT	-21.2	35 TT	16.2				

## 17:17:08

0 WS	1.2	1 WD	34.	2 WB	4.7	3 DB	5.0
24 RK	7.0	4 TK	246.0	5 TK	533.2	6 TK	430.9
7 TK	714.4	8 TK	689.8	9 TK	835.7	10 TK	936.6
11 TK	1093.2	12 TK	704.3	13 TK	543.0	14 TK	1249.5
15 TK	1066.1	16 TK	1299.3	17 TK	1227.2	18 TK	1232.5
19 TK	1276.4	20 TK	1204.0	21 TK	87.4	22 TK	120.7
23 TK	321.0	25 TK	-4.2	26 R1	-1.98	27 R2	5.29
28 R3	2.55	29 R4	4.12	30 R5	3.51	36 RT	5.8
34 TT	-19.0	35 TT	14.4				

## 17:17:09

0 WS	1.3	1 WD	33.	2 WB	5.4	3 DB	5.6
24 RK	10.8	4 TK	204.3	5 TK	649.9	6 TK	368.5
7 TK	716.2	8 TK	569.9	9 TK	875.3	10 TK	852.6
11 TK	1090.2	12 TK	790.8	13 TK	504.5	14 TK	1216.6
15 TK	1061.1	16 TK	1236.8	17 TK	1246.3	18 TK	1223.0
19 TK	1207.2	20 TK	1158.4	21 TK	142.3	22 TK	109.5
23 TK	1122.6	25 TK	2.5	26 R1	0.57	27 R2	4.88
28 R3	2.78	29 R4	4.49	30 R5	3.65	36 RT	5.0
34 TT	-19.2	35 TT	13.7				

## 17:17:10

0 WS	1.2	1 WD	32.	2 WB	4.7	3 DB	5.2
24 RK	11.8	4 TK	189.0	5 TK	743.7	6 TK	376.6
7 TK	903.9	8 TK	655.3	9 TK	958.8	10 TK	868.7
11 TK	1115.5	12 TK	730.8	13 TK	571.7	14 TK	1151.2
15 TK	1132.7	16 TK	1258.1	17 TK	1261.3	18 TK	1205.1
19 TK	1164.5	20 TK	1097.2	21 TK	158.4	22 TK	108.6
23 TK	680.7	25 TK	-0.3	26 R1	-1.16	27 R2	4.79
28 R3	2.98	29 R4	4.47	30 R5	3.47	36 RT	11.5
34 TT	-14.2	35 TT	21.3				



## 17:17:11

0 WS	1.2	1 WD	31.	2 WB	4.8	3 DB	5.7
24 RK	8.0	4 TK	173.7	5 TK	684.3	6 TK	288.8
7 TK	831.0	8 TK	527.8	9 TK	857.3	10 TK	788.9
11 TK	1142.9	12 TK	672.5	13 TK	600.4	14 TK	1131.7
15 TK	1153.2	16 TK	1218.8	17 TK	1236.8	18 TK	1182.1
19 TK	1131.7	20 TK	1095.2	21 TK	360.3	22 TK	82.8
23 TK	765.8	25 TK	-5.2	26 R1	1.57	27 R2	5.36
28 R3	2.89	29 R4	4.01	30 R5	3.77	36 RT	15.0
34 TT	-9.8	35 TT	23.4				

## 17:17:12

0 WS	1.2	1 WD	32.	2 WB	5.5	3 DB	5.8
24 RK	7.0	4 TK	175.6	5 TK	732.7	6 TK	353.0
7 TK	915.4	8 TK	621.1	9 TK	897.2	10 TK	812.2
11 TK	1116.5	12 TK	705.2	13 TK	681.6	14 TK	1073.1
15 TK	1094.2	16 TK	1165.6	17 TK	1219.8	18 TK	1181.1
19 TK	1133.8	20 TK	1061.1	21 TK	486.6	22 TK	76.4
23 TK	-572.7	25 TK	-8.1	26 R1	-1.89	27 R2	4.81
28 R3	3.05	29 R4	4.51	30 R5	3.35	36 RT	6.6
34 TT	-20.8	35 TT	16.2				

## 17:17:13

0 WS	1.2	1 WD	30.	2 WB	5.5	3 DB	5.7
24 RK	11.8	4 TK	166.0	5 TK	675.2	6 TK	298.0
7 TK	774.1	8 TK	534.1	9 TK	810.4	10 TK	842.2
11 TK	1051.2	12 TK	628.3	13 TK	573.5	14 TK	1064.1
15 TK	1052.2	16 TK	1219.8	17 TK	1252.8	18 TK	1221.9
19 TK	1207.2	20 TK	1161.4	21 TK	428.2	22 TK	87.4
23 TK	570.8	25 TK	-1.3	26 R1	-0.06	27 R2	4.59
28 R3	2.67	29 R4	4.03	30 R5	3.58	36 RT	11.6
34 TT	-16.1	35 TT	22.1				

## 17:17:14

0 WS	1.1	1 WD	29.	2 WB	4.9	3 DB	5.7
24 RK	14.6	4 TK	276.8	5 TK	686.1	6 TK	327.4
7 TK	889.6	8 TK	558.3	9 TK	794.5	10 TK	781.5
11 TK	1002.8	12 TK	736.3	13 TK	513.5	14 TK	1191.5
15 TK	1061.1	16 TK	1221.9	17 TK	1249.5	18 TK	1246.3
19 TK	1218.8	20 TK	1152.2	21 TK	573.5	22 TK	90.2
23 TK	-572.7	25 TK	-1.3	26 R1	-1.89	27 R2	5.09
28 R3	3.04	29 R4	3.99	30 R5	3.28	36 RT	8.5
34 TT	-15.9	35 TT	17.0				

## 17:17:15

0 WS	1.1	1 WD	29.	2 WB	5.3	3 DB	5.3
24 RK	7.0	4 TK	256.3	5 TK	727.2	6 TK	280.5
7 TK	929.8	8 TK	523.3	9 TK	844.1	10 TK	792.7
11 TK	1015.6	12 TK	708.0	13 TK	564.5	14 TK	1210.3
15 TK	1103.3	16 TK	1243.1	17 TK	1245.3	18 TK	1205.1
19 TK	1229.3	20 TK	1184.2	21 TK	607.6	22 TK	71.8
23 TK	-572.7	25 TK	-7.1	26 R1	0.11	27 R2	5.22
28 R3	2.71	29 R4	4.19	30 R5	3.86	36 RT	5.9
34 TT	-21.4	35 TT	15.9				



## 17:17:16

0 WS	1.1	1 WD	28.	2 WB	5.4	3 DB	5.9
24 RK	13.7	4 TK	265.6	5 TK	636.4	6 TK	291.6
7 TK	957.9	8 TK	552.0	9 TK	803.8	10 TK	704.3
11 TK	1016.5	12 TK	805.7	13 TK	637.3	14 TK	1132.7
15 TK	1078.1	16 TK	1221.9	17 TK	1198.8	18 TK	1188.4
19 TK	1174.9	20 TK	1112.4	21 TK	704.3	22 TK	70.9
23 TK	-572.7	25 TK	-2.3	26 R1	0.02	27 R2	5.27
28 R3	2.46	29 R4	3.93	30 R5	3.19	36 RT	9.3
34 TT	-20.9	35 TT	19.2				

## 17:17:17

0 WS	1.0	1 WD	29.	2 WB	5.8	3 DB	6.0
24 RK	9.9	4 TK	261.0	5 TK	714.4	6 TK	260.0
7 TK	1013.6	8 TK	556.5	9 TK	791.7	10 TK	768.6
11 TK	1032.3	12 TK	701.6	13 TK	586.0	14 TK	1068.1
15 TK	1076.1	16 TK	1235.7	17 TK	1221.9	18 TK	1182.1
19 TK	1215.6	20 TK	1169.7	21 TK	708.0	22 TK	67.2
23 TK	-572.7	25 TK	-6.2	26 R1	1.85	27 R2	4.90
28 R3	2.13	29 R4	3.80	30 R5	3.19	36 RT	13.2
34 TT	-17.0	35 TT	24.1				

## 17:17:18

0 WS	0.9	1 WD	28.	2 WB	5.2	3 DB	6.0
24 RK	10.8	4 TK	294.4	5 TK	718.0	6 TK	294.4
7 TK	903.0	8 TK	535.0	9 TK	788.9	10 TK	700.7
11 TK	840.4	12 TK	680.7	13 TK	535.9	14 TK	1019.5
15 TK	956.9	16 TK	1085.2	17 TK	1128.7	18 TK	1070.1
19 TK	1164.5	20 TK	1170.7	21 TK	717.1	22 TK	132.9
23 TK	-572.7	25 TK	-8.1	26 R1	-1.53	27 R2	3.34
28 R3	1.86	29 R4	3.43	30 R5	2.92	36 RT	4.9
34 TT	-31.0	35 TT	16.8				

## 17:17:19

0 WS	0.9	1 WD	28.	2 WB	5.0	3 DB	5.6
24 RK	10.8	4 TK	242.2	5 TK	674.3	6 TK	287.9
7 TK	627.4	8 TK	392.9	9 TK	582.4	10 TK	540.3
11 TK	615.7	12 TK	543.0	13 TK	409.2	14 TK	697.0
15 TK	781.5	16 TK	787.1	17 TK	847.9	18 TK	854.5
19 TK	888.6	20 TK	915.4	21 TK	725.3	22 TK	87.4
23 TK	338.4	25 TK	-12.0	26 R1	-1.53	27 R2	1.84
28 R3	1.16	29 R4	1.89	30 R5	1.29	36 RT	5.5
34 TT	-29.7	35 TT	15.4				

## 17:17:20

0 WS	1.0	1 WD	28.	2 WB	5.4	3 DB	5.9
24 RK	8.9	4 TK	180.4	5 TK	606.7	6 TK	228.1
7 TK	469.5	8 TK	308.2	9 TK	427.3	10 TK	392.9
11 TK	460.6	12 TK	433.6	13 TK	302.6	14 TK	498.2
15 TK	637.3	16 TK	580.7	17 TK	613.9	18 TK	589.6
19 TK	644.5	20 TK	701.6	21 TK	582.4	22 TK	79.1
23 TK	256.3	25 TK	-11.1	26 R1	-4.27	27 R2	1.33
28 R3	0.45	29 R4	1.00	30 R5	0.90	36 RT	5.0
34 TT	-33.7	35 TT	16.2				



## 17:17:21

0 WS	1.1	1 WD	28.	2 WB	5.3	3 DB	5.6
24 RK	8.9	4 TK	139.5	5 TK	543.0	6 TK	185.2
7 TK	353.0	8 TK	261.9	9 TK	325.6	10 TK	297.1
11 TK	350.2	12 TK	328.3	13 TK	231.9	14 TK	398.4
15 TK	537.6	16 TK	482.1	17 TK	470.4	18 TK	426.4
19 TK	535.9	20 TK	546.6	21 TK	477.6	22 TK	66.2
23 TK	223.3	25 TK	-7.1	26 R1	-3.91	27 R2	0.92
28 R3	0.34	29 R4	0.95	30 R5	0.83	36 RT	5.0
34 TT	-31.8	35 TT	15.5				

## 17:17:22

0 WS	1.0	1 WD	27.	2 WB	5.6	3 DB	6.0
24 RK	13.7	4 TK	131.9	5 TK	501.8	6 TK	163.2
7 TK	287.9	8 TK	234.7	9 TK	259.1	10 TK	257.2
11 TK	270.3	12 TK	273.1	13 TK	184.2	14 TK	346.6
15 TK	478.5	16 TK	417.3	17 TK	360.3	18 TK	320.1
19 TK	457.9	20 TK	434.5	21 TK	394.7	22 TK	67.2
23 TK	204.3	25 TK	-6.2	26 R1	-2.08	27 R2	0.81
28 R3	0.22	29 R4	0.50	30 R5	0.94	36 RT	12.0
34 TT	-22.0	35 TT	23.1				

## 17:17:23

0 WS	1.0	1 WD	25.	2 WB	4.8	3 DB	5.1
24 RK	8.9	4 TK	113.3	5 TK	465.0	6 TK	138.5
7 TK	252.5	8 TK	197.6	9 TK	197.6	10 TK	197.6
11 TK	208.1	12 TK	212.9	13 TK	140.4	14 TK	307.2
15 TK	417.3	16 TK	353.9	17 TK	275.9	18 TK	235.6
19 TK	350.2	20 TK	343.9	21 TK	313.7	22 TK	54.3
23 TK	182.3	25 TK	-0.3	26 R1	-2.99	27 R2	0.59
28 R3	0.63	29 R4	1.06	30 R5	0.53	36 RT	9.2
34 TT	-29.1	35 TT	18.2				

## 17:17:24

0 WS	1.1	1 WD	25.	2 WB	5.3	3 DB	5.9
24 RK	8.9	4 TK	102.1	5 TK	436.3	6 TK	119.8
7 TK	227.1	8 TK	167.0	9 TK	160.3	10 TK	181.3
11 TK	167.9	12 TK	169.9	13 TK	114.2	14 TK	278.6
15 TK	373.0	16 TK	308.2	17 TK	210.0	18 TK	180.4
19 TK	268.4	20 TK	280.5	21 TK	255.3	22 TK	57.0
23 TK	166.0	25 TK	6.3	26 R1	-4.45	27 R2	0.31
28 R3	0.31	29 R4	0.54	30 R5	0.57	36 RT	6.9
34 TT	-29.7	35 TT	18.0				

## 17:17:25

0 WS	1.1	1 WD	25.	2 WB	4.9	3 DB	5.5
24 RK	7.0	4 TK	92.9	5 TK	410.1	6 TK	104.0
7 TK	208.1	8 TK	136.6	9 TK	128.2	10 TK	140.4
11 TK	134.7	12 TK	142.3	13 TK	89.2	14 TK	254.4
15 TK	332.9	16 TK	263.8	17 TK	158.4	18 TK	133.8
19 TK	211.0	20 TK	230.0	21 TK	204.3	22 TK	49.6
23 TK	153.7	25 TK	8.3	26 R1	-3.17	27 R2	0.55
28 R3	0.16	29 R4	0.24	30 R5	0.57	36 RT	6.8
34 TT	-31.6	35 TT	16.8				



## 17:17:26

0 WS	1.3	1 WD	26.	2 WB	5.6	3 DB	5.9
24 RK	7.0	4 TK	83.7	5 TK	385.7	6 TK	92.9
7 TK	196.6	8 TK	119.8	9 TK	105.8	10 TK	112.3
11 TK	106.8	12 TK	118.8	13 TK	75.4	14 TK	231.9
15 TK	303.6	16 TK	233.7	17 TK	123.5	18 TK	99.4
19 TK	161.3	20 TK	192.8	21 TK	166.0	22 TK	44.1
23 TK	141.3	25 TK	7.3	26 R1	-4.64	27 R2	0.37
28 R3	0.34	29 R4	0.93	30 R5	0.51	36 RT	6.9
34 TT	-28.1	35 TT	16.0				

## 17:17:27

0 WS	1.3	1 WD	26.	2 WB	5.6	3 DB	5.8
24 RK	9.9	4 TK	82.8	5 TK	364.8	6 TK	85.6
7 TK	189.0	8 TK	104.0	9 TK	94.8	10 TK	95.7
11 TK	92.0	12 TK	101.2	13 TK	67.2	14 TK	214.8
15 TK	276.8	16 TK	211.0	17 TK	97.5	18 TK	82.8
19 TK	128.2	20 TK	166.0	21 TK	136.6	22 TK	45.9
23 TK	134.7	25 TK	10.2	26 R1	-4.55	27 R2	0.41
28 R3	0.40	29 R4	0.74	30 R5	0.64	36 RT	5.8
34 TT	-28.8	35 TT	18.0				

## 17:17:28

0 WS	1.4	1 WD	25.	2 WB	4.9	3 DB	4.9
24 RK	9.9	4 TK	75.4	5 TK	342.0	6 TK	75.4
7 TK	181.3	8 TK	92.0	9 TK	79.1	10 TK	87.4
11 TK	78.2	12 TK	82.8	13 TK	58.0	14 TK	199.5
15 TK	256.3	16 TK	185.2	17 TK	77.3	18 TK	63.5
19 TK	104.0	20 TK	139.5	21 TK	111.4	22 TK	44.1
23 TK	127.2	25 TK	6.3	26 R1	-4.09	27 R2	0.57
28 R3	0.47	29 R4	0.43	30 R5	0.78	36 RT	9.5
34 TT	-23.1	35 TT	19.1				

## 17:17:29

0 WS	1.4	1 WD	27.	2 WB	5.6	3 DB	5.9
24 RK	10.8	4 TK	70.9	5 TK	324.7	6 TK	70.9
7 TK	172.7	8 TK	81.9	9 TK	69.9	10 TK	79.1
11 TK	69.9	12 TK	75.4	13 TK	53.3	14 TK	179.4
15 TK	233.7	16 TK	167.9	17 TK	62.6	18 TK	53.3
19 TK	81.9	20 TK	125.4	21 TK	92.0	22 TK	45.0
23 TK	122.6	25 TK	7.3	26 R1	-1.44	27 R2	0.50
28 R3	0.14	29 R4	0.22	30 R5	0.92	36 RT	8.1
34 TT	-29.2	35 TT	16.0				

## 17:17:30

0 WS	1.4	1 WD	26.	2 WB	5.6	3 DB	5.8
24 RK	8.9	4 TK	65.3	5 TK	303.6	6 TK	61.6
7 TK	166.0	8 TK	74.5	9 TK	59.8	10 TK	69.9
11 TK	61.6	12 TK	62.6	13 TK	40.3	14 TK	165.1
15 TK	216.7	16 TK	156.5	17 TK	51.5	18 TK	45.9
19 TK	64.4	20 TK	103.1	21 TK	77.3	22 TK	37.5
23 TK	112.3	25 TK	7.3	26 R1	-3.81	27 R2	0.74
28 R3	0.27	29 R4	0.56	30 R5	0.44	36 RT	10.1
34 TT	-21.4	35 TT	21.8				



## 17:17:31

0 WS	1.5	1 WD	26.	2 WB	5.5	3 DB	5.8
24 RK	14.6	4 TK	69.9	5 TK	290.7	6 TK	59.8
7 TK	163.2	8 TK	73.6	9 TK	59.8	10 TK	69.0
11 TK	58.9	12 TK	63.5	13 TK	45.9	14 TK	157.5
15 TK	208.1	16 TK	148.0	17 TK	47.8	18 TK	45.0
19 TK	62.6	20 TK	100.3	21 TK	67.2	22 TK	47.8
23 TK	114.2	25 TK	15.9	26 R1	-2.81	27 R2	0.59
28 R3	0.43	29 R4	0.24	30 R5	1.03	36 RT	4.9
34 TT	-30.4	35 TT	15.0				

## 17:17:32

0 WS	1.5	1 WD	27.	2 WB	5.5	3 DB	5.7
24 RK	8.0	4 TK	58.0	5 TK	269.3	6 TK	52.4
7 TK	148.9	8 TK	63.5	9 TK	48.7	10 TK	56.1
11 TK	49.6	12 TK	51.5	13 TK	33.8	14 TK	142.3
15 TK	189.9	16 TK	130.0	17 TK	36.6	18 TK	31.9
19 TK	45.9	20 TK	84.6	21 TK	54.3	22 TK	37.5
23 TK	103.1	25 TK	7.3	26 R1	-2.08	27 R2	0.44
28 R3	0.51	29 R4	0.43	30 R5	0.80	36 RT	7.8
34 TT	-25.2	35 TT	18.8				

## 17:17:33

0 WS	1.5	1 WD	27.	2 WB	5.2	3 DB	5.8
24 RK	8.9	4 TK	56.1	5 TK	255.3	6 TK	47.8
7 TK	145.1	8 TK	58.0	9 TK	45.0	10 TK	53.3
11 TK	46.8	12 TK	48.7	13 TK	31.0	14 TK	131.9
15 TK	179.4	16 TK	123.5	17 TK	33.8	18 TK	28.2
19 TK	43.1	20 TK	76.4	21 TK	50.6	22 TK	36.6
23 TK	100.3	25 TK	10.2	26 R1	-0.06	27 R2	0.39
28 R3	0.18	29 R4	0.22	30 R5	0.67	36 RT	11.6
34 TT	-22.2	35 TT	22.3				

## 17:17:34

0 WS	1.4	1 WD	36.	2 WB	5.6	3 DB	5.9
24 RK	14.6	4 TK	58.0	5 TK	247.9	6 TK	50.6
7 TK	148.9	8 TK	58.9	9 TK	47.8	10 TK	59.8
11 TK	49.6	12 TK	51.5	13 TK	37.5	14 TK	130.0
15 TK	170.8	16 TK	123.5	17 TK	39.4	18 TK	30.0
19 TK	40.3	20 TK	81.0	21 TK	48.7	22 TK	39.4
23 TK	99.4	25 TK	18.7	26 R1	0.29	27 R2	0.20
28 R3	0.09	29 R4	0.98	30 R5	1.15	36 RT	8.5
34 TT	-28.4	35 TT	21.7				

## 17:17:35

0 WS	1.4	1 WD	44.	2 WB	5.1	3 DB	5.0
24 RK	10.8	4 TK	53.3	5 TK	232.8	6 TK	45.9
7 TK	139.5	8 TK	55.2	9 TK	43.1	10 TK	48.7
11 TK	47.8	12 TK	45.9	13 TK	31.9	14 TK	122.6
15 TK	160.3	16 TK	113.3	17 TK	29.1	18 TK	26.3
19 TK	31.9	20 TK	74.5	21 TK	41.3	22 TK	39.4
23 TK	92.9	25 TK	8.3	26 R1	1.21	27 R2	0.31
28 R3	0.22	29 R4	0.63	30 R5	0.44	36 RT	5.3
34 TT	-26.3	35 TT	17.4				



17:17:36

0 WS	1.4	1 WD	45.	2 WB	5.6	3 DB	5.8
24 RK	7.0	4 TK	47.8	5 TK	216.7	6 TK	39.4
7 TK	131.9	8 TK	50.6	9 TK	39.4	10 TK	42.2
11 TK	37.5	12 TK	38.5	13 TK	29.1	14 TK	113.3
15 TK	150.8	16 TK	104.0	17 TK	30.0	18 TK	26.3
19 TK	25.3	20 TK	61.6	21 TK	31.0	22 TK	31.0
23 TK	87.4	25 TK	6.3	26 R1	-0.61	27 R2	0.77
28 R3	0.16	29 R4	0.46	30 R5	0.62	36 RT	9.3
34 TT	-21.6	35 TT	18.7				

17:17:37

0 WS	1.4	1 WD	45.	2 WB	5.6	3 DB	5.8
24 RK	9.9	4 TK	48.7	5 TK	212.9	6 TK	41.3
7 TK	134.7	8 TK	50.6	9 TK	41.3	10 TK	45.0
11 TK	43.1	12 TK	45.0	13 TK	29.1	14 TK	109.5
15 TK	146.1	16 TK	109.5	17 TK	27.2	18 TK	23.5
19 TK	28.2	20 TK	58.9	21 TK	32.9	22 TK	37.5
23 TK	90.2	25 TK	12.1	26 R1	-1.98	27 R2	0.17
28 R3	0.14	29 R4	0.95	30 R5	0.92	36 RT	9.7
34 TT	-24.4	35 TT	21.6				



## NBS BOFST PRESSURE RECORDINGS

Acronym	Description	Units
GO	Gas Orifice	psig
WO	Water Orifice	psig
RO	Restriction Orifice	psig
WP	Water Line (near nozzle(s))	psig
GΔP	Gas Differential Pressure	inches of water
WΔP	Water Differential Pressure	inches of water
RΔP	Restriction Orifice Differential Pressure	inches of water

First  is at time of ignition.

Second  is at time of water injection.

Time corresponds to times of data acquisition system.



TEST 6

Time	GO	WO	RO	WP	GAP	WAP	RAP
17:16:34	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17:16:35	9.0	0.0	0.0	0.0	167.0	0.0	187.0
17:16:36	23.0	0.0	15.0	0.0	194.0	0.0	468.0
17:16:37	32.0	0.0	18.0	0.0	193.0	0.0	674.0
17:16:38	32.5	0.0	24.0	0.0	192.0	0.0	719.0
17:16:39	32.5	0.0	25.0	0.0	191.0	0.0	719.0
17:16:40	32.5	0.0	26.0	0.0	190.0	0.0	716.0
17:16:41	32.5	0.0	26.0	0.0	190.0	0.0	711.0
17:16:42	32.5	0.0	26.0	0.0	189.0	0.0	708.0
17:16:43	32.0	0.0	26.0	0.0	188.0	0.0	705.0
17:16:44	32.0	0.0	26.0	0.0	187.0	0.0	703.0
17:16:45	32.0	0.0	26.0	0.0	186.0	0.0	700.0
17:16:46	32.0	3.0	26.0	3.0	185.0	5.3	697.0
17:16:47	31.5	20.0	26.0	5.0	185.0	7.9	694.0
17:16:48	31.5	30.0	26.0	10.0	184.0	21.0	692.0
17:16:49	31.5	30.5	25.5	17.0	184.0	26.0	689.0
17:16:50	31.5	30.5	25.5	22.0	183.0	31.0	686.0
17:16:51	31.0	30.5	25.5	27.0	183.0	30.0	683.0
17:16:52	31.0	30.5	25.5	30.0	182.0	30.0	681.0
17:16:53	31.0	30.5	25.5	31.0	182.0	29.0	678.0
17:16:54	31.0	30.5	25.5	31.0	181.0	29.0	675.0
17:16:55	30.5	30.5	25.5	31.0	181.0	29.0	673.0
17:16:56	30.5	30.5	25.5	31.0	180.0	28.0	670.0
17:16:57	30.5	30.5	25.5	31.0	180.0	28.0	667.0
17:16:58	30.5	30.5	25.0	31.0	179.0	28.0	664.0
17:16:59	30.0	30.5	25.0	31.0	179.0	27.0	661.0
17:17:00	30.0	30.5	25.0	31.0	178.0	27.0	658.0
17:17:01	30.0	30.5	25.0	31.0	178.0	27.0	655.0
17:17:02	30.0	30.5	24.5	31.0	178.0	26.0	652.0
17:17:03	29.5	30.5	24.5	31.0	177.0	26.0	649.0
17:17:04	29.5	31.0	24.0	31.0	177.0	26.0	646.0
17:17:05	29.5	31.0	24.0	31.0	177.0	26.0	643.0
17:17:06	29.5	31.0	23.5	31.0	176.0	26.0	640.0
17:17:07	29.0	31.0	23.0	31.0	176.0	25.0	636.0
17:17:08	29.0	31.0	22.0	31.0	175.0	25.0	632.0
17:17:09	29.0	31.0	21.0	31.0	175.0	25.0	628.0
17:17:10	29.0	31.0	20.0	31.0	174.0	25.0	623.0
17:17:11	29.0	31.0	18.5	31.0	174.0	25.0	619.0
17:17:12	28.5	31.0	17.5	31.0	173.0	21.0	614.0
17:17:13	28.5	31.0	16.0	31.0	172.0	11.0	558.0
17:17:14	28.5	31.0	14.0	31.0	171.0	2.6	465.0
17:17:15	28.0	31.0	11.0	31.0	170.0	0.0	232.0
17:17:16	20.0	31.0	8.0	31.0	169.0	0.0	93.0
17:17:17	6.0	31.0	3.0	30.5	167.0	0.0	19.0



TEST 6  
(Continued)

Time	GO	WO	RO	WP	GAP	WAP	RAP
17:17:18	0.0	31.0	0.0	30.5	105.0	0.0	9.3
17:17:19	0.0	31.0	0.0	30.5	38.0	0.0	0.0
17:17:20	0.0	30.0	0.0	25.0	0.0	0.0	0.0
17:17:21	0.0	20.0	0.0	19.0	0.0	0.0	0.0

10

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the success of any business and for the protection of the interests of all parties involved. The document then goes on to describe the various methods and techniques used to collect and analyze data, highlighting the need for consistency and reliability in the information gathered.

**APPENDIX K**

**TEST NUMBER 7**

**DATA ACQUISITION RECORDINGS AND PRESSURE READINGS**



NBS BOFST CHANNEL ASSIGNMENT

Channel	Acronym	Description	Units	Location
0	WS	Wind Speed	mph	Met Tower (10 m)
1	WD	Wind Direction	° from N	Met Tower (10 m)
2	WB	Wet Bulb	°C	Met Tower (10 m)
3	DB	Dry Bulb	°C	Met Tower (10 m)
4	KT	K Thermocouple	°C	Cable Array (#1)
5	KT	K Thermocouple	°C	Cable Array (#2)
6	KT	K Thermocouple	°C	Cable Array (#3)
7	KT	K Thermocouple	°C	Cable Array (#4)
8	KT	K Thermocouple	°C	Cable Array (#5)
9	KT	K Thermocouple	°C	Cable Array (#6)
10	KT	K Thermocouple	°C	Cable Array (#7)
11	KT	K Thermocouple	°C	Cable Array (#8)
12	KT	K Thermocouple	°C	Cable Array (#9)
13	KT	K Thermocouple	°C	Cable Array (#10)
14	KT	K Thermocouple	°C	Cable Array (#11)
15	KT	K Thermocouple	°C	Cable Array (#12)
16	KT	K Thermocouple	°C	Cable Array (#13)
17	KT	K Thermocouple	°C	Cable Array (#14)
18	KT	K Thermocouple	°C	Cable Array (#15)
19	KT	K Thermocouple	°C	Cable Array (#16)
20	KT	K Thermocouple	°C	Cable Array (#17)
21	KT	K Thermocouple	°C	Cable Array (#18)
22	KT	K Thermocouple	°C	Cable Array (#19)
23	KT	K Thermocouple	°C	Cable Array (#20)
24	KR	K Reference Thermocouple	°C	Junctions for K Thermocouples
25	KT	K Thermocouple	°C	Gas Outlet
26	R1	Radiometer (7°)	kW/m <sup>2</sup>	Radiometer Array (#1)
27	R2	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#2)
28	R3	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#3)
29	R4	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#4)
30	R5	Radiometer (150°)	kW/m <sup>2</sup>	Radiometer Array (#5)
34	TT	T Thermocouple	°C	Gas Line
35	TT	T Thermocouple	°C	Water Line
36	TR	T Reference Thermocouple	°C	Junctions for T Thermocouples





IDS DROWOUT fire simulation, test /  
 1/27/84  
 34 channels per scan

17:54:06

0 WS	1.8	1 WD	81.	2 WB	5.0	3 DB	5.0
24 RK	6.0	4 TK	14.9	5 TK	9.2	6 TK	12.1
7 TK	9.2	8 TK	14.0	9 TK	9.2	10 TK	9.2
11 TK	8.3	12 TK	8.3	13 TK	9.2	14 TK	7.3
15 TK	14.0	16 TK	14.9	17 TK	7.3	18 TK	9.2
19 TK	10.2	20 TK	9.2	21 TK	9.2	22 TK	16.8
23 TK	23.5	25 TK	12.1	26 R1	-0.52	27 R2	0.00
28 R3	-0.10	29 R4	0.00	30 R5	-0.01	36 RT	2.8
34 TT	0.3	35 TT	14.2				

17:54:07

0 WS	1.8	1 WD	80.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	14.9	5 TK	8.3	6 TK	11.1
7 TK	10.2	8 TK	13.0	9 TK	9.2	10 TK	9.2
11 TK	9.2	12 TK	10.2	13 TK	9.2	14 TK	7.3
15 TK	13.0	16 TK	14.0	17 TK	8.3	18 TK	10.2
19 TK	12.1	20 TK	11.1	21 TK	9.2	22 TK	16.8
23 TK	23.5	25 TK	13.0	26 R1	-0.70	27 R2	0.02
28 R3	-0.10	29 R4	-0.01	30 R5	-0.01	36 RT	3.2
34 TT	0.3	35 TT	13.9				

17:54:08

0 WS	1.8	1 WD	80.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	15.9	5 TK	8.3	6 TK	12.1
7 TK	9.2	8 TK	13.0	9 TK	10.2	10 TK	9.2
11 TK	9.2	12 TK	8.3	13 TK	8.3	14 TK	8.3
15 TK	14.0	16 TK	14.9	17 TK	8.3	18 TK	10.2
19 TK	11.1	20 TK	9.2	21 TK	11.1	22 TK	16.8
23 TK	22.5	25 TK	13.0	26 R1	-0.61	27 R2	0.02
28 R3	-0.10	29 R4	0.02	30 R5	0.00	36 RT	4.2
34 TT	2.2	35 TT	14.9				

17:54:09

0 WS	1.8	1 WD	79.	2 WB	4.2	3 DB	4.6
24 RK	6.0	4 TK	14.9	5 TK	8.3	6 TK	12.1
7 TK	9.2	8 TK	12.1	9 TK	9.2	10 TK	9.2
11 TK	9.2	12 TK	8.3	13 TK	8.3	14 TK	7.3
15 TK	13.0	16 TK	14.0	17 TK	8.3	18 TK	9.2
19 TK	11.1	20 TK	11.1	21 TK	10.2	22 TK	16.8
23 TK	22.5	25 TK	12.1	26 R1	-0.61	27 R2	0.00
28 R3	-0.08	29 R4	-0.01	30 R5	0.02	36 RT	4.1
34 TT	1.4	35 TT	14.8				

17:54:10

0 WS	1.8	1 WD	80.	2 WB	4.9	3 DB	5.0
24 RK	5.1	4 TK	14.9	5 TK	6.3	6 TK	10.2
7 TK	8.3	8 TK	12.1	9 TK	9.2	10 TK	9.2
11 TK	7.3	12 TK	8.3	13 TK	6.3	14 TK	7.3
15 TK	12.1	16 TK	13.0	17 TK	8.3	18 TK	9.2
19 TK	10.2	20 TK	9.2	21 TK	9.2	22 TK	15.9
23 TK	22.5	25 TK	12.1	26 R1	-0.52	27 R2	0.02
28 R3	-0.06	29 R4	-0.01	30 R5	0.00	36 RT	2.6
34 TT	-0.1	35 TT	13.5				



## 17:54:11

0 WS	1.8	1 WD	79.	2 WB	4.2	3 DB	4.4
24 RK	6.0	4 TK	15.9	5 TK	7.3	6 TK	11.1
7 TK	9.2	8 TK	14.0	9 TK	10.2	10 TK	9.2
11 TK	9.2	12 TK	9.2	13 TK	7.3	14 TK	7.3
15 TK	13.0	16 TK	14.0	17 TK	8.3	18 TK	10.2
19 TK	11.1	20 TK	12.1	21 TK	11.1	22 TK	16.8
23 TK	23.5	25 TK	13.0	26 R1	-0.61	27 R2	0.00
28 R3	-0.08	29 R4	0.00	30 R5	0.00	36 RT	2.1
34 TT	-0.6	35 TT	13.0				

## 17:54:12

0 WS	1.8	1 WD	81.	2 WB	4.9	3 DB	5.0
24 RK	6.0	4 TK	15.9	5 TK	7.3	6 TK	12.1
7 TK	9.2	8 TK	13.0	9 TK	10.2	10 TK	10.2
11 TK	9.2	12 TK	9.2	13 TK	7.3	14 TK	7.3
15 TK	13.0	16 TK	14.0	17 TK	9.2	18 TK	10.2
19 TK	11.1	20 TK	11.1	21 TK	9.2	22 TK	16.8
23 TK	22.5	25 TK	12.1	26 R1	-0.52	27 R2	0.00
28 R3	-0.04	29 R4	0.00	30 R5	-0.01	36 RT	3.1
34 TT	0.3	35 TT	13.8				

## 17:54:13

0 WS	1.7	1 WD	81.	2 WB	4.4	3 DB	4.3
24 RK	6.0	4 TK	16.8	5 TK	7.3	6 TK	12.1
7 TK	9.2	8 TK	13.0	9 TK	11.1	10 TK	10.2
11 TK	8.3	12 TK	10.2	13 TK	7.3	14 TK	6.3
15 TK	13.0	16 TK	13.0	17 TK	9.2	18 TK	10.2
19 TK	12.1	20 TK	12.1	21 TK	9.2	22 TK	16.8
23 TK	22.5	25 TK	12.1	26 R1	-0.25	27 R2	0.02
28 R3	-0.03	29 R4	0.02	30 R5	0.02	36 RT	3.0
34 TT	0.2	35 TT	13.8				

## 17:54:14

0 WS	1.8	1 WD	81.	2 WB	4.9	3 DB	4.9
24 RK	7.0	4 TK	16.8	5 TK	8.3	6 TK	13.0
7 TK	10.2	8 TK	14.0	9 TK	12.1	10 TK	10.2
11 TK	10.2	12 TK	11.1	13 TK	7.3	14 TK	8.3
15 TK	14.0	16 TK	14.9	17 TK	11.1	18 TK	11.1
19 TK	12.1	20 TK	13.0	21 TK	10.2	22 TK	17.8
23 TK	23.5	25 TK	13.0	26 R1	-0.25	27 R2	0.02
28 R3	-0.06	29 R4	0.02	30 R5	0.00	36 RT	2.1
34 TT	-0.2	35 TT	12.6				

## 17:54:15

0 WS	1.8	1 WD	79.	2 WB	4.2	3 DB	4.6
24 RK	6.0	4 TK	14.9	5 TK	7.3	6 TK	11.1
7 TK	9.2	8 TK	13.0	9 TK	12.1	10 TK	9.2
11 TK	9.2	12 TK	9.2	13 TK	6.3	14 TK	6.3
15 TK	13.0	16 TK	13.0	17 TK	-10.2	18 TK	9.2
19 TK	11.1	20 TK	12.1	21 TK	8.3	22 TK	16.8
23 TK	22.5	25 TK	12.1	26 R1	-0.25	27 R2	0.02
28 R3	-0.04	29 R4	0.00	30 R5	0.00	36 RT	2.8
34 TT	0.4	35 TT	13.3				



## 17:54:16

0 WS	1.8	1 WD	81.	2 WB	4.9	3 DB	4.7
24 RK	6.0	4 TK	15.9	5 TK	7.3	6 TK	11.1
7 TK	9.2	8 TK	12.1	9 TK	10.2	10 TK	9.2
11 TK	9.2	12 TK	10.2	13 TK	6.3	14 TK	8.3
15 TK	13.0	16 TK	14.0	17 TK	10.2	18 TK	10.2
19 TK	12.1	20 TK	13.0	21 TK	7.3	22 TK	17.8
23 TK	23.5	25 TK	12.1	26 R1	-0.34	27 R2	0.02
28 R3	-0.01	29 R4	0.00	30 R5	0.00	36 RT	2.8
34 TT	0.7	35 TT	13.3				

## 17:54:17

0 WS	1.8	1 WD	81.	2 WB	4.8	3 DB	4.9
24 RK	7.0	4 TK	17.8	5 TK	9.2	6 TK	12.1
7 TK	10.2	8 TK	14.0	9 TK	11.1	10 TK	10.2
11 TK	10.2	12 TK	10.2	13 TK	7.3	14 TK	8.3
15 TK	14.0	16 TK	14.9	17 TK	12.1	18 TK	10.2
19 TK	13.0	20 TK	13.0	21 TK	10.2	22 TK	17.8
23 TK	23.5	25 TK	12.1	26 R1	-0.25	27 R2	0.02
28 R3	-0.03	29 R4	0.00	30 R5	-0.01	36 RT	6.4
34 TT	3.8	35 TT	17.0				

## 17:54:18

0 WS	1.8	1 WD	81.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	14.9	5 TK	7.3	6 TK	11.1
7 TK	9.2	8 TK	12.1	9 TK	11.1	10 TK	9.2
11 TK	8.3	12 TK	9.2	13 TK	6.3	14 TK	7.3
15 TK	12.1	16 TK	14.0	17 TK	11.1	18 TK	10.2
19 TK	12.1	20 TK	12.1	21 TK	7.3	22 TK	16.8
23 TK	22.5	25 TK	12.1	26 R1	-0.25	27 R2	0.00
28 R3	-0.03	29 R4	0.00	30 R5	-0.01	36 RT	4.8
34 TT	2.3	35 TT	15.3				

## 17:54:19

0 WS	1.8	1 WD	82.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	14.9	5 TK	8.3	6 TK	12.1
7 TK	10.2	8 TK	12.1	9 TK	11.1	10 TK	10.2
11 TK	8.3	12 TK	9.2	13 TK	6.3	14 TK	7.3
15 TK	14.0	16 TK	13.0	17 TK	10.2	18 TK	9.2
19 TK	11.1	20 TK	13.0	21 TK	8.3	22 TK	16.8
23 TK	22.5	25 TK	12.1	26 R1	-0.16	27 R2	0.00
28 R3	-0.01	29 R4	0.02	30 R5	-0.01	36 RT	4.1
34 TT	1.5	35 TT	14.8				

## 17:54:20

0 WS	1.8	1 WD	82.	2 WB	4.9	3 DB	5.0
24 RK	6.0	4 TK	15.9	5 TK	7.3	6 TK	11.1
7 TK	8.3	8 TK	13.0	9 TK	11.1	10 TK	9.2
11 TK	10.2	12 TK	10.2	13 TK	6.3	14 TK	8.3
15 TK	13.0	16 TK	14.0	17 TK	11.1	18 TK	9.2
19 TK	12.1	20 TK	12.1	21 TK	8.3	22 TK	17.8
23 TK	21.6	25 TK	13.0	26 R1	-0.25	27 R2	0.02
28 R3	-0.03	29 R4	0.00	30 R5	0.00	36 RT	4.4
34 TT	2.2	35 TT	15.1				



17:54:21

0 WS	1.8	1 WD	81.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	15.9	5 TK	7.3	6 TK	12.1
7 TK	9.2	8 TK	13.0	9 TK	10.2	10 TK	8.3
11 TK	8.3	12 TK	10.2	13 TK	6.3	14 TK	8.3
15 TK	13.0	16 TK	14.0	17 TK	10.2	18 TK	9.2
19 TK	12.1	20 TK	13.0	21 TK	8.3	22 TK	16.8
23 TK	21.6	25 TK	12.1	26 R1	-0.25	27 R2	0.00
28 R3	-0.01	29 R4	0.00	30 R5	0.00	36 RT	3.8
34 TT	1.3	35 TT	14.2				

17:54:22

0 WS	1.7	1 WD	81.	2 WB	4.5	3 DB	4.9
24 RK	6.0	4 TK	14.9	5 TK	8.3	6 TK	12.1
7 TK	9.2	8 TK	13.0	9 TK	10.2	10 TK	9.2
11 TK	9.2	12 TK	10.2	13 TK	6.3	14 TK	8.3
15 TK	13.0	16 TK	14.0	17 TK	11.1	18 TK	10.2
19 TK	11.1	20 TK	13.0	21 TK	8.3	22 TK	16.8
23 TK	21.6	25 TK	12.1	26 R1	-0.16	27 R2	0.00
28 R3	0.02	29 R4	0.02	30 R5	-0.01	36 RT	3.8
34 TT	1.1	35 TT	14.7				

17:54:23

0 WS	1.8	1 WD	81.	2 WB	4.9	3 DB	4.5
24 RK	7.0	4 TK	15.9	5 TK	9.2	6 TK	13.0
7 TK	11.1	8 TK	13.0	9 TK	12.1	10 TK	10.2
11 TK	10.2	12 TK	10.2	13 TK	8.3	14 TK	9.2
15 TK	14.0	16 TK	14.9	17 TK	12.1	18 TK	10.2
19 TK	13.0	20 TK	13.0	21 TK	9.2	22 TK	17.8
23 TK	23.5	25 TK	14.0	26 R1	-0.16	27 R2	0.02
28 R3	0.00	29 R4	0.00	30 R5	-0.01	36 RT	4.4
34 TT	1.9	35 TT	14.9				

17:54:24

0 WS	1.8	1 WD	81.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	15.9	5 TK	91.1	6 TK	12.1
7 TK	92.9	8 TK	13.0	9 TK	41.3	10 TK	9.2
11 TK	40.3	12 TK	10.2	13 TK	36.6	14 TK	8.3
15 TK	42.2	16 TK	14.0	17 TK	30.0	18 TK	10.2
19 TK	12.1	20 TK	51.5	21 TK	24.4	22 TK	149.9
23 TK	457.0	25 TK	11.1	26 R1	-0.16	27 R2	0.02
28 R3	1.52	29 R4	0.35	30 R5	0.28	36 RT	6.3
34 TT	4.2	35 TT	16.8				

17:54:25

0 WS	1.8	1 WD	82.	2 WB	4.9	3 DB	4.7
24 RK	7.0	4 TK	18.7	5 TK	165.1	6 TK	15.9
7 TK	155.6	8 TK	14.0	9 TK	82.8	10 TK	11.1
11 TK	66.2	12 TK	13.0	13 TK	72.7	14 TK	10.2
15 TK	78.2	16 TK	15.9	17 TK	58.9	18 TK	19.7
19 TK	72.7	20 TK	178.5	21 TK	184.2	22 TK	795.5
23 TK	831.9	25 TK	11.1	26 R1	-0.16	27 R2	0.07
28 R3	2.53	29 R4	0.85	30 R5	0.71	36 RT	4.8
34 TT	2.7	35 TT	15.5				



17:54:26

0 WS	1.8	1 WD	81.	2 WB	4.2	3 DB	4.9
24 RK	6.0	4 TK	18.7	5 TK	167.0	6 TK	15.9
7 TK	193.8	8 TK	11.1	9 TK	111.4	10 TK	10.2
11 TK	112.3	12 TK	11.1	13 TK	197.6	14 TK	72.7
15 TK	155.6	16 TK	95.7	17 TK	507.2	18 TK	174.6
19 TK	469.5	20 TK	836.6	21 TK	622.9	22 TK	910.6
23 TK	929.8	25 TK	7.3	26 R1	0.02	27 R2	0.35
28 R3	3.52	29 R4	1.65	30 R5	1.36	36 RT	4.6
34 TT	2.8	35 TT	15.1				

17:54:27

0 WS	1.7	1 WD	82.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	63.5	5 TK	107.7	6 TK	51.5
7 TK	198.6	8 TK	60.7	9 TK	187.1	10 TK	45.9
11 TK	270.3	12 TK	13.0	13 TK	398.4	14 TK	294.4
15 TK	453.4	16 TK	831.9	17 TK	867.7	18 TK	323.8
19 TK	940.4	20 TK	1135.8	21 TK	827.2	22 TK	756.5
23 TK	667.1	25 TK	3.5	26 R1	1.30	27 R2	0.92
28 R3	4.43	29 R4	2.47	30 R5	2.04	36 RT	3.9
34 TT	1.1	35 TT	14.9				

17:54:28

0 WS	1.7	1 WD	82.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	181.3	5 TK	148.0	6 TK	193.8
7 TK	236.6	8 TK	167.0	9 TK	367.5	10 TK	484.8
11 TK	927.9	12 TK	130.0	13 TK	503.6	14 TK	608.5
15 TK	875.3	16 TK	1192.5	17 TK	1172.8	18 TK	471.3
19 TK	1176.9	20 TK	1167.6	21 TK	867.7	22 TK	727.2
23 TK	265.6	25 TK	8.3	26 R1	3.22	27 R2	1.99
28 R3	5.35	29 R4	3.34	30 R5	2.66	36 RT	3.0
34 TT	-2.2	35 TT	13.5				

17:54:29

0 WS	1.7	1 WD	81.	2 WB	4.5	3 DB	4.9
24 RK	7.0	4 TK	241.3	5 TK	123.5	6 TK	558.3
7 TK	330.2	8 TK	465.0	9 TK	604.9	10 TK	872.5
11 TK	1225.1	12 TK	176.5	13 TK	608.5	14 TK	983.2
15 TK	1069.1	16 TK	1324.6	17 TK	1213.5	18 TK	659.9
19 TK	1250.6	20 TK	1157.3	21 TK	855.4	22 TK	721.7
23 TK	644.5	25 TK	8.3	26 R1	4.68	27 R2	3.19
28 R3	6.18	29 R4	4.01	30 R5	3.22	36 RT	3.0
34 TT	-5.6	35 TT	13.6				

17:54:30

0 WS	1.8	1 WD	83.	2 WB	4.9	3 DB	4.9
24 RK	7.0	4 TK	254.4	5 TK	99.4	6 TK	502.7
7 TK	467.7	8 TK	777.8	9 TK	971.5	10 TK	1156.3
11 TK	1332.3	12 TK	211.9	13 TK	797.3	14 TK	1128.7
15 TK	1150.1	16 TK	1318.0	17 TK	1208.2	18 TK	812.2
19 TK	1244.2	20 TK	1132.7	21 TK	833.8	22 TK	740.9
23 TK	1342.3	25 TK	4.4	26 R1	5.23	27 R2	4.22
28 R3	6.45	29 R4	4.34	30 R5	3.47	36 RT	2.7
34 TT	-8.7	35 TT	13.2				



17:54:31

0 WS	1.8	1 WD	83.	2 WB	5.0	3 DB	5.0
24 RK	6.0	4 TK	286.0	5 TK	40.3	6 TK	608.5
7 TK	597.7	8 TK	847.9	9 TK	981.2	10 TK	1062.1
11 TK	1310.3	12 TK	274.9	13 TK	785.2	14 TK	1075.1
15 TK	1184.2	16 TK	1334.6	17 TK	1194.6	18 TK	903.0
19 TK	1284.0	20 TK	1116.5	21 TK	816.9	22 TK	737.3
23 TK	-572.7	25 TK	3.5	26 R1	5.87	27 R2	4.39
28 R3	6.56	29 R4	4.51	30 R5	3.61	36 RT	3.5
34 TT	-9.0	35 TT	14.1				

17:54:32

0 WS	1.8	1 WD	83.	2 WB	4.2	3 DB	4.3
24 RK	5.1	4 TK	424.6	5 TK	29.1	6 TK	676.1
7 TK	570.8	8 TK	1074.1	9 TK	1072.1	10 TK	1197.8
11 TK	1300.4	12 TK	364.8	13 TK	915.4	14 TK	1244.2
15 TK	1162.5	16 TK	-572.7	17 TK	1207.2	18 TK	1000.8
19 TK	1296.0	20 TK	1126.6	21 TK	833.8	22 TK	802.0
23 TK	-572.7	25 TK	3.5	26 R1	6.15	27 R2	4.94
28 R3	6.72	29 R4	4.71	30 R5	3.72	36 RT	7.0
34 TT	-7.6	35 TT	17.3				

17:54:33

0 WS	1.8	1 WD	85.	2 WB	4.9	3 DB	4.9
24 RK	7.0	4 TK	430.9	5 TK	13.0	6 TK	604.9
7 TK	527.8	8 TK	846.9	9 TK	940.4	10 TK	1072.1
11 TK	1260.3	12 TK	421.0	13 TK	861.1	14 TK	1244.2
15 TK	1182.1	16 TK	1341.2	17 TK	1198.8	18 TK	981.2
19 TK	1293.8	20 TK	1125.6	21 TK	832.8	22 TK	723.5
23 TK	-572.7	25 TK	3.5	26 R1	6.33	27 R2	4.61
28 R3	6.83	29 R4	4.66	30 R5	3.70	36 RT	2.0
34 TT	-13.8	35 TT	12.9				

17:54:34

0 WS	1.8	1 WD	86.	2 WB	4.9	3 DB	5.0
24 RK	6.0	4 TK	453.4	5 TK	-26.0	6 TK	696.1
7 TK	560.0	8 TK	880.1	9 TK	963.7	10 TK	1075.1
11 TK	1220.9	12 TK	396.6	13 TK	724.4	14 TK	947.2
15 TK	1171.8	16 TK	1318.0	17 TK	1220.9	18 TK	903.9
19 TK	1267.8	20 TK	1121.5	21 TK	835.7	22 TK	737.3
23 TK	-572.7	25 TK	5.4	26 R1	5.96	27 R2	4.44
28 R3	6.58	29 R4	4.64	30 R5	3.70	36 RT	1.9
34 TT	-14.7	35 TT	12.6				

17:54:35

0 WS	1.8	1 WD	86.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	374.8	5 TK	10.2	6 TK	659.9
7 TK	504.5	8 TK	801.0	9 TK	948.2	10 TK	1107.3
11 TK	1266.7	12 TK	353.0	13 TK	724.4	14 TK	993.0
15 TK	1203.0	16 TK	1318.0	17 TK	1239.9	18 TK	864.9
19 TK	1290.6	20 TK	1128.7	21 TK	856.4	22 TK	742.8
23 TK	-572.7	25 TK	2.5	26 R1	5.78	27 R2	4.24
28 R3	6.70	29 R4	4.58	30 R5	3.61	36 RT	2.7
34 TT	-14.5	35 TT	13.5				



## 17:54:36

0 WS	1.7	1 WD	85.	2 WB	4.2	3 DB	4.8
24 RK	6.0	4 TK	326.5	5 TK	31.9	6 TK	641.8
7 TK	568.1	8 TK	866.8	9 TK	993.0	10 TK	1106.3
11 TK	1230.4	12 TK	312.8	13 TK	775.0	14 TK	1001.8
15 TK	1130.7	16 TK	1287.3	17 TK	1242.1	18 TK	826.3
19 TK	1244.2	20 TK	1153.2	21 TK	887.7	22 TK	762.1
23 TK	943.3	25 TK	0.6	26 R1	5.41	27 R2	4.17
28 R3	6.58	29 R4	4.62	30 R5	3.67	36 RT	4.1
34 TT	-13.2	35 TT	14.8				

## 17:54:37

0 WS	1.7	1 WD	86.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	389.3	5 TK	54.3	6 TK	564.5
7 TK	453.4	8 TK	681.6	9 TK	811.3	10 TK	935.6
11 TK	1168.7	12 TK	250.7	13 TK	834.7	14 TK	933.7
15 TK	1148.1	16 TK	1318.0	17 TK	1231.4	18 TK	782.4
19 TK	1234.6	20 TK	1141.9	21 TK	888.6	22 TK	779.7
23 TK	561.8	25 TK	-2.3	26 R1	5.69	27 R2	3.94
28 R3	6.61	29 R4	4.51	30 R5	3.61	36 RT	2.6
34 TT	-14.9	35 TT	13.0				

## 17:54:38

0 WS	1.8	1 WD	87.	2 WB	5.0	3 DB	5.0
24 RK	6.0	4 TK	414.6	5 TK	67.2	6 TK	581.5
7 TK	459.7	8 TK	807.6	9 TK	872.5	10 TK	1017.5
11 TK	1227.2	12 TK	223.3	13 TK	818.8	14 TK	1052.2
15 TK	1204.0	16 TK	1304.8	17 TK	1217.7	18 TK	854.5
19 TK	1287.3	20 TK	1125.6	21 TK	855.4	22 TK	776.0
23 TK	465.0	25 TK	-5.2	26 R1	5.87	27 R2	3.98
28 R3	6.56	29 R4	4.45	30 R5	3.56	36 RT	3.5
34 TT	-13.5	35 TT	14.1				

## 17:54:39

0 WS	1.7	1 WD	84.	2 WB	4.2	3 DB	4.4
24 RK	7.0	4 TK	382.1	5 TK	87.4	6 TK	594.1
7 TK	443.5	8 TK	732.7	9 TK	869.6	10 TK	1147.0
11 TK	1289.5	12 TK	283.3	13 TK	830.0	14 TK	1004.7
15 TK	1195.7	16 TK	1309.2	17 TK	1196.7	18 TK	859.2
19 TK	1304.8	20 TK	1139.9	21 TK	819.7	22 TK	832.8
23 TK	283.3	25 TK	0.6	26 R1	5.50	27 R2	4.11
28 R3	6.58	29 R4	4.58	30 R5	3.67	36 RT	5.5
34 TT	-12.1	35 TT	15.9				

## 17:54:40

0 WS	1.8	1 WD	86.	2 WB	4.8	3 DB	5.0
24 RK	6.0	4 TK	355.7	5 TK	104.0	6 TK	628.3
7 TK	354.8	8 TK	696.1	9 TK	796.4	10 TK	991.0
11 TK	1219.8	12 TK	269.3	13 TK	778.7	14 TK	917.3
15 TK	1216.6	16 TK	1313.6	17 TK	1179.0	18 TK	922.1
19 TK	1275.3	20 TK	1119.5	21 TK	781.5	22 TK	864.9
23 TK	424.6	25 TK	-0.3	26 R1	5.82	27 R2	4.31
28 R3	6.76	29 R4	4.69	30 R5	3.74	36 RT	4.3
34 TT	-13.5	35 TT	14.8				



## 17:54:41

0 WS	1.8	1 WD	86.	2 WB	4.6	3 DB	5.0
24 RK	6.0	4 TK	369.4	5 TK	92.0	6 TK	651.7
7 TK	461.5	8 TK	795.5	9 TK	847.9	10 TK	1073.1
11 TK	1286.2	12 TK	349.3	13 TK	696.1	14 TK	976.3
15 TK	1241.0	16 TK	1319.1	17 TK	1176.9	18 TK	883.9
19 TK	1242.1	20 TK	1114.4	21 TK	749.2	22 TK	865.9
23 TK	568.1	25 TK	-10.1	26 R1	5.78	27 R2	5.03
28 R3	6.76	29 R4	4.79	30 R5	3.84	36 RT	3.5
34 TT	-14.9	35 TT	14.1				

## 17:54:42

0 WS	1.8	1 WD	87.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	373.9	5 TK	146.1	6 TK	668.9
7 TK	538.5	8 TK	936.6	9 TK	941.4	10 TK	1100.3
11 TK	1247.4	12 TK	361.2	13 TK	822.5	14 TK	1156.3
15 TK	1260.3	16 TK	1336.8	17 TK	1163.5	18 TK	1004.7
19 TK	1294.9	20 TK	1131.7	21 TK	745.5	22 TK	953.0
23 TK	773.2	25 TK	-5.2	26 R1	5.60	27 R2	5.01
28 R3	6.74	29 R4	4.75	30 R5	3.81	36 RT	4.1
34 TT	-14.7	35 TT	14.5				

## 17:54:43

0 WS	1.8	1 WD	85.	2 WB	4.2	3 DB	4.5
24 RK	5.1	4 TK	421.0	5 TK	139.5	6 TK	708.0
7 TK	443.5	8 TK	899.1	9 TK	883.9	10 TK	1124.6
11 TK	1272.1	12 TK	388.4	13 TK	765.8	14 TK	1173.8
15 TK	1217.7	16 TK	-572.7	17 TK	1152.2	18 TK	1049.2
19 TK	1298.2	20 TK	1133.8	21 TK	759.3	22 TK	1015.6
23 TK	825.3	25 TK	-6.2	26 R1	5.87	27 R2	4.92
28 R3	6.89	29 R4	4.79	30 R5	3.86	36 RT	2.4
34 TT	-17.0	35 TT	12.9				

## 17:54:44

0 WS	1.8	1 WD	87.	2 WB	4.6	3 DB	4.9
24 RK	6.0	4 TK	496.4	5 TK	162.2	6 TK	720.8
7 TK	432.7	8 TK	929.8	9 TK	907.8	10 TK	1103.3
11 TK	1190.5	12 TK	389.3	13 TK	861.1	14 TK	1108.4
15 TK	1072.1	16 TK	1349.0	17 TK	1133.8	18 TK	1094.2
19 TK	1311.4	20 TK	1104.3	21 TK	758.4	22 TK	1000.8
23 TK	809.4	25 TK	4.4	26 R1	5.50	27 R2	4.98
28 R3	6.65	29 R4	4.77	30 R5	3.86	36 RT	3.0
34 TT	-17.3	35 TT	13.5				

## 17:54:45

0 WS	1.8	1 WD	90.	2 WB	4.9	3 DB	5.0
24 RK	7.0	4 TK	459.7	5 TK	189.0	6 TK	702.5
7 TK	578.9	8 TK	974.4	9 TK	940.4	10 TK	1062.1
11 TK	1263.5	12 TK	419.1	13 TK	875.3	14 TK	1205.1
15 TK	1062.1	16 TK	-572.7	17 TK	1113.4	18 TK	1038.3
19 TK	1322.4	20 TK	1104.3	21 TK	772.3	22 TK	1059.2
23 TK	781.5	25 TK	-3.2	26 R1	5.69	27 R2	5.18
28 R3	6.69	29 R4	4.77	30 R5	3.86	36 RT	2.4
34 TT	-18.1	35 TT	13.2				





17:54:46

0 WS	1.8	1 WD	89.	2 WB	4.2	3 DB	4.4
24 RK	6.0	4 TK	543.9	5 TK	176.5	6 TK	829.1
7 TK	561.8	8 TK	955.0	9 TK	876.3	10 TK	1166.6
11 TK	1171.8	12 TK	426.4	13 TK	802.9	14 TK	1054.2
15 TK	993.9	16 TK	1364.7	17 TK	1109.4	18 TK	903.0
19 TK	1272.1	20 TK	1066.1	21 TK	765.8	22 TK	1163.5
23 TK	679.8	25 TK	-4.2	26 R1	5.23	27 R2	4.92
28 R3	6.83	29 R4	4.92	30 R5	3.90	36 RT	2.5
34 TT	-17.9	35 TT	13.0				

17:54:47

0 WS	1.8	1 WD	89.	2 WB	4.2	3 DB	4.3
24 RK	5.1	4 TK	498.2	5 TK	225.2	6 TK	807.6
7 TK	549.3	8 TK	998.8	9 TK	968.6	10 TK	1138.9
11 TK	1237.8	12 TK	396.6	13 TK	740.0	14 TK	1105.3
15 TK	1054.2	16 TK	-572.7	17 TK	1105.3	18 TK	960.8
19 TK	1288.4	20 TK	1032.3	21 TK	771.3	22 TK	1096.2
23 TK	559.1	25 TK	-7.1	26 R1	5.41	27 R2	5.05
28 R3	6.67	29 R4	4.77	30 R5	3.84	36 RT	2.4
34 TT	-18.9	35 TT	12.7				

17:54:48

0 WS	1.8	1 WD	89.	2 WB	4.2	3 DB	4.4
24 RK	6.0	4 TK	502.7	5 TK	218.6	6 TK	758.4
7 TK	603.1	8 TK	933.7	9 TK	866.8	10 TK	1123.6
11 TK	1139.9	12 TK	507.2	13 TK	774.1	14 TK	1081.2
15 TK	987.1	16 TK	1331.2	17 TK	1091.2	18 TK	1017.5
19 TK	1271.0	20 TK	1030.3	21 TK	780.6	22 TK	1149.1
23 TK	610.3	25 TK	-5.2	26 R1	5.14	27 R2	4.72
28 R3	6.87	29 R4	4.82	30 R5	3.88	36 RT	2.7
34 TT	-18.9	35 TT	13.2				

17:54:49

0 WS	1.8	1 WD	91.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	554.7	5 TK	247.9	6 TK	810.4
7 TK	740.0	8 TK	993.0	9 TK	938.5	10 TK	1227.2
11 TK	1231.4	12 TK	578.0	13 TK	749.2	14 TK	1221.9
15 TK	1032.3	16 TK	-572.7	17 TK	1105.3	18 TK	1086.2
19 TK	1302.6	20 TK	1030.3	21 TK	804.8	22 TK	1200.9
23 TK	514.4	25 TK	-5.2	26 R1	5.05	27 R2	4.77
28 R3	6.83	29 R4	4.88	30 R5	3.88	36 RT	4.1
34 TT	-17.8	35 TT	14.5				

17:54:50

0 WS	1.8	1 WD	91.	2 WB	4.9	3 DB	5.0
24 RK	7.0	4 TK	616.6	5 TK	268.4	6 TK	958.8
7 TK	692.5	8 TK	1215.6	9 TK	1037.3	10 TK	1300.4
11 TK	1318.0	12 TK	593.2	13 TK	830.0	14 TK	1233.6
15 TK	1007.7	16 TK	-572.7	17 TK	1070.1	18 TK	976.3
19 TK	1285.1	20 TK	962.7	21 TK	794.5	22 TK	1228.3
23 TK	640.0	25 TK	0.6	26 R1	5.32	27 R2	5.29
28 R3	6.76	29 R4	4.77	30 R5	3.84	36 RT	6.3
34 TT	-16.0	35 TT	16.6				



17:54:51

0 WS	1.8	1 WD	90.	2 WB	4.4	3 DB	4.3
24 RK	6.0	4 TK	737.3	5 TK	328.3	6 TK	1068.1
7 TK	846.9	8 TK	1256.0	9 TK	1129.7	10 TK	-572.7
11 TK	1355.7	12 TK	553.8	13 TK	861.1	14 TK	1276.4
15 TK	998.8	16 TK	-572.7	17 TK	1101.3	18 TK	943.3
19 TK	1287.3	20 TK	977.3	21 TK	834.7	22 TK	1309.2
23 TK	696.1	25 TK	-5.2	26 R1	5.05	27 R2	5.03
28 R3	6.69	29 R4	4.84	30 R5	3.88	36 RT	2.8
34 TT	-20.0	35 TT	13.1				

17:54:52

0 WS	1.7	1 WD	90.	2 WB	4.9	3 DB	5.1
24 RK	6.0	4 TK	758.4	5 TK	300.8	6 TK	1110.4
7 TK	637.3	8 TK	1032.3	9 TK	993.9	10 TK	1211.4
11 TK	1296.0	12 TK	485.7	13 TK	846.0	14 TK	1244.2
15 TK	1001.8	16 TK	-572.7	17 TK	1100.3	18 TK	910.6
19 TK	1250.6	20 TK	972.4	21 TK	831.0	22 TK	1272.1
23 TK	668.9	25 TK	-7.1	26 R1	4.68	27 R2	4.44
28 R3	6.70	29 R4	4.86	30 R5	3.90	36 RT	2.6
34 TT	-20.3	35 TT	13.1				

17:54:53

0 WS	1.8	1 WD	89.	2 WB	4.3	3 DB	4.9
24 RK	6.0	4 TK	849.8	5 TK	363.9	6 TK	1213.5
7 TK	616.6	8 TK	1063.1	9 TK	910.6	10 TK	1297.1
11 TK	-572.7	12 TK	584.2	13 TK	868.7	14 TK	-572.7
15 TK	1018.5	16 TK	-572.7	17 TK	1117.5	18 TK	916.4
19 TK	1258.1	20 TK	992.0	21 TK	868.7	22 TK	1282.9
23 TK	695.2	25 TK	-8.1	26 R1	5.14	27 R2	4.63
28 R3	6.70	29 R4	4.86	30 R5	3.90	36 RT	4.3
34 TT	-19.2	35 TT	14.8				

17:54:54

0 WS	1.8	1 WD	90.	2 WB	4.9	3 DB	5.0
24 RK	5.1	4 TK	799.2	5 TK	307.2	6 TK	1165.6
7 TK	670.7	8 TK	1083.2	9 TK	909.7	10 TK	1128.7
11 TK	1259.2	12 TK	529.6	13 TK	810.4	14 TK	1152.2
15 TK	962.7	16 TK	-572.7	17 TK	1131.7	18 TK	976.3
19 TK	1253.8	20 TK	996.9	21 TK	889.6	22 TK	1329.0
23 TK	741.8	25 TK	-5.2	26 R1	4.77	27 R2	4.57
28 R3	6.74	29 R4	4.82	30 R5	3.86	36 RT	3.0
34 TT	-20.7	35 TT	13.1				

17:54:55

0 WS	1.8	1 WD	90.	2 WB	4.9	3 DB	5.0
24 RK	7.0	4 TK	904.9	5 TK	382.1	6 TK	1171.8
7 TK	662.6	8 TK	1038.3	9 TK	853.5	10 TK	1217.7
11 TK	1365.8	12 TK	560.0	13 TK	858.3	14 TK	1262.4
15 TK	1006.7	16 TK	-572.7	17 TK	1111.4	18 TK	991.0
19 TK	1288.4	20 TK	960.8	21 TK	866.8	22 TK	1303.7
23 TK	858.3	25 TK	-2.3	26 R1	4.68	27 R2	4.74
28 R3	6.49	29 R4	4.79	30 R5	3.86	36 RT	3.7
34 TT	-20.3	35 TT	13.6				



17:54:56

0 WS	1.7	1 WD	89.	2 WB	4.8	3 DB	5.0
24 RK	6.0	4 TK	899.1	5 TK	376.6	6 TK	1137.8
7 TK	630.1	8 TK	1013.6	9 TK	768.6	10 TK	1148.1
11 TK	1363.6	12 TK	560.9	13 TK	839.4	14 TK	1292.7
15 TK	1005.7	16 TK	-572.7	17 TK	1120.5	18 TK	919.3
19 TK	1265.6	20 TK	949.2	21 TK	871.5	22 TK	1223.0
23 TK	732.7	25 TK	-7.1	26 R1	4.59	27 R2	4.53
28 R3	6.47	29 R4	4.73	30 R5	3.81	36 RT	3.2
34 TT	-21.4	35 TT	13.3				

17:54:57

0 WS	1.7	1 WD	91.	2 WB	4.9	3 DB	5.0
24 RK	6.0	4 TK	954.0	5 TK	409.2	6 TK	1160.4
7 TK	635.5	8 TK	1187.3	9 TK	902.0	10 TK	-572.7
11 TK	-572.7	12 TK	662.6	13 TK	908.7	14 TK	-572.7
15 TK	1021.5	16 TK	-572.7	17 TK	1116.5	18 TK	961.8
19 TK	1286.2	20 TK	963.7	21 TK	889.6	22 TK	1368.1
23 TK	830.0	25 TK	-10.1	26 R1	4.77	27 R2	4.53
28 R3	6.54	29 R4	4.75	30 R5	3.77	36 RT	5.5
34 TT	-19.1	35 TT	15.3				

17:54:58

0 WS	1.7	1 WD	91.	2 WB	4.9	3 DB	4.9
24 RK	7.0	4 TK	1073.1	5 TK	366.6	6 TK	-572.7
7 TK	648.1	8 TK	-572.7	9 TK	850.7	10 TK	-572.7
11 TK	1354.6	12 TK	899.1	13 TK	973.4	14 TK	-572.7
15 TK	1003.8	16 TK	-572.7	17 TK	1140.9	18 TK	944.3
19 TK	-572.7	20 TK	958.8	21 TK	900.1	22 TK	-572.7
23 TK	831.0	25 TK	-12.0	26 R1	4.86	27 R2	4.39
28 R3	6.83	29 R4	4.86	30 R5	3.90	36 RT	3.7
34 TT	-21.3	35 TT	13.6				

17:54:59

0 WS	1.7	1 WD	91.	2 WB	4.4	3 DB	4.4
24 RK	6.0	4 TK	1116.5	5 TK	469.5	6 TK	1189.4
7 TK	740.0	8 TK	-572.7	9 TK	897.2	10 TK	1311.4
11 TK	-572.7	12 TK	747.4	13 TK	1028.4	14 TK	-572.7
15 TK	1007.7	16 TK	-572.7	17 TK	1123.6	18 TK	940.4
19 TK	1334.6	20 TK	951.1	21 TK	942.4	22 TK	-572.7
23 TK	800.1	25 TK	-7.1	26 R1	4.32	27 R2	4.04
28 R3	6.14	29 R4	4.51	30 R5	3.56	36 RT	4.1
34 TT	-24.3	35 TT	13.6				

17:55:00

0 WS	1.7	1 WD	91.	2 WB	4.9	3 DB	4.9
24 RK	6.0	4 TK	921.2	5 TK	488.4	6 TK	1011.6
7 TK	729.0	8 TK	1130.7	9 TK	846.9	10 TK	1040.3
11 TK	1061.1	12 TK	608.5	13 TK	907.8	14 TK	1049.2
15 TK	863.0	16 TK	-572.7	17 TK	1161.4	18 TK	788.9
19 TK	1220.9	20 TK	1026.4	21 TK	994.9	22 TK	-572.7
23 TK	896.3	25 TK	-14.0	26 R1	2.12	27 R2	2.40
28 R3	4.83	29 R4	3.54	30 R5	2.73	36 RT	3.8
34 TT	-30.4	35 TT	13.2				



17:55:01

0 WS	1.7	1 WD	91.	2 WB	4.7	3 DB	5.0
24 RK	6.0	4 TK	822.5	5 TK	604.0	6 TK	877.2
7 TK	823.5	8 TK	866.8	9 TK	823.5	10 TK	809.4
11 TK	810.4	12 TK	506.3	13 TK	788.9	14 TK	793.6
15 TK	777.8	16 TK	1164.5	17 TK	1053.2	18 TK	629.2
19 TK	1019.5	20 TK	1025.4	21 TK	1033.3	22 TK	-572.7
23 TK	963.7	25 TK	-17.0	26 R1	-0.06	27 R2	1.20
28 R3	3.65	29 R4	2.36	30 R5	1.79	36 RT	3.7
34 TT	-34.1	35 TT	13.2				

17:55:02

0 WS	1.8	1 WD	91.	2 WB	4.3	3 DB	4.4
24 RK	6.0	4 TK	634.6	5 TK	500.9	6 TK	657.1
7 TK	666.2	8 TK	631.0	9 TK	651.7	10 TK	594.1
11 TK	582.4	12 TK	393.8	13 TK	587.8	14 TK	559.1
15 TK	668.9	16 TK	868.7	17 TK	881.0	18 TK	477.6
19 TK	738.2	20 TK	829.1	21 TK	941.4	22 TK	1190.5
23 TK	1122.6	25 TK	-18.0	26 R1	-0.98	27 R2	0.59
28 R3	2.04	29 R4	1.17	30 R5	0.90	36 RT	4.4
34 TT	-34.0	35 TT	14.2				

17:55:03

0 WS	1.8	1 WD	92.	2 WB	4.7	3 DB	4.4
24 RK	6.0	4 TK	479.4	5 TK	353.9	6 TK	496.4
7 TK	468.6	8 TK	476.7	9 TK	461.5	10 TK	435.4
11 TK	415.5	12 TK	312.8	13 TK	399.3	14 TK	422.8
15 TK	578.9	16 TK	664.4	17 TK	781.5	18 TK	369.4
19 TK	567.2	20 TK	637.3	21 TK	781.5	22 TK	859.2
23 TK	925.0	25 TK	-19.0	26 R1	-1.44	27 R2	0.29
28 R3	0.72	29 R4	0.56	30 R5	0.41	36 RT	6.4
34 TT	-31.3	35 TT	16.0				

17:55:04

0 WS	1.7	1 WD	91.	2 WB	4.2	3 DB	4.7
24 RK	6.0	4 TK	365.7	5 TK	248.8	6 TK	381.2
7 TK	333.8	8 TK	366.6	9 TK	321.0	10 TK	332.0
11 TK	302.6	12 TK	248.8	13 TK	274.0	14 TK	316.4
15 TK	478.5	16 TK	528.7	17 TK	645.4	18 TK	288.8
19 TK	448.0	20 TK	496.4	21 TK	628.3	22 TK	632.8
23 TK	650.8	25 TK	-19.0	26 R1	-1.71	27 R2	0.15
28 R3	0.32	29 R4	0.26	30 R5	0.25	36 RT	3.2
34 TT	-35.2	35 TT	12.7				

17:55:05

0 WS	1.8	1 WD	92.	2 WB	4.8	3 DB	4.5
24 RK	5.1	4 TK	281.4	5 TK	180.4	6 TK	300.8
7 TK	233.7	8 TK	278.6	9 TK	225.2	10 TK	258.2
11 TK	225.2	12 TK	202.4	13 TK	193.8	14 TK	240.3
15 TK	392.0	16 TK	425.5	17 TK	516.2	18 TK	225.2
19 TK	350.2	20 TK	387.5	21 TK	498.2	22 TK	480.3
23 TK	482.1	25 TK	-19.0	26 R1	-1.98	27 R2	0.09
28 R3	0.18	29 R4	0.13	30 R5	0.12	36 RT	6.3
34 TT	-32.2	35 TT	16.0				



17:55:06

0 WS	1.8	1 WD	92.	2 WB	4.9	3 DB	5.0
24 RK	7.0	4 TK	222.4	5 TK	142.3	6 TK	232.8
7 TK	178.5	8 TK	216.7	9 TK	157.5	10 TK	206.2
11 TK	171.8	12 TK	165.1	13 TK	138.5	14 TK	184.2
15 TK	325.6	16 TK	349.3	17 TK	405.6	18 TK	175.6
19 TK	269.3	20 TK	305.4	21 TK	398.4	22 TK	378.4
23 TK	374.8	25 TK	-17.0	26 R1	-1.89	27 R2	0.05
28 R3	0.09	29 R4	0.07	30 R5	0.07	36 RT	3.2
34 TT	-35.1	35 TT	12.9				

17:55:07

0 WS	1.8	1 WD	93.	2 WB	4.9	3 DB	5.1
24 RK	6.0	4 TK	176.5	5 TK	117.9	6 TK	187.1
7 TK	142.3	8 TK	170.8	9 TK	123.5	10 TK	166.0
11 TK	131.0	12 TK	135.7	13 TK	97.5	14 TK	141.3
15 TK	265.6	16 TK	287.0	17 TK	311.8	18 TK	137.6
19 TK	207.1	20 TK	243.2	21 TK	318.3	22 TK	299.9
23 TK	296.2	25 TK	-18.0	26 R1	-2.08	27 R2	0.02
28 R3	0.05	29 R4	0.00	30 R5	0.07	36 RT	4.2
34 TT	-34.0	35 TT	13.7				

17:55:08

0 WS	1.9	1 WD	91.	2 WB	4.9	3 DB	5.1
24 RK	6.0	4 TK	143.2	5 TK	104.0	6 TK	152.7
7 TK	119.8	8 TK	136.6	9 TK	104.0	10 TK	134.7
11 TK	102.1	12 TK	112.3	13 TK	70.9	14 TK	112.3
15 TK	218.6	16 TK	238.5	17 TK	233.7	18 TK	106.8
19 TK	159.4	20 TK	196.6	21 TK	256.3	22 TK	243.2
23 TK	240.3	25 TK	-18.0	26 R1	-2.08	27 R2	0.02
28 R3	0.07	29 R4	0.00	30 R5	0.05	36 RT	4.8
34 TT	-32.9	35 TT	14.2				

17:55:09

0 WS	1.8	1 WD	90.	2 WB	4.5	3 DB	4.4
24 RK	7.0	4 TK	120.7	5 TK	93.8	6 TK	130.0
7 TK	104.0	8 TK	111.4	9 TK	93.8	10 TK	111.4
11 TK	83.7	12 TK	98.5	13 TK	53.3	14 TK	90.2
15 TK	183.2	16 TK	200.5	17 TK	173.7	18 TK	87.4
19 TK	126.3	20 TK	161.3	21 TK	208.1	22 TK	202.4
23 TK	198.6	25 TK	-17.0	26 R1	-1.89	27 R2	0.02
28 R3	0.02	29 R4	-0.01	30 R5	0.02	36 RT	5.3
34 TT	-32.7	35 TT	14.8				

17:55:10

0 WS	1.8	1 WD	89.	2 WB	4.9	3 DB	4.7
24 RK	6.0	4 TK	100.3	5 TK	84.6	6 TK	109.5
7 TK	89.2	8 TK	92.9	9 TK	85.6	10 TK	91.1
11 TK	69.0	12 TK	82.8	13 TK	39.4	14 TK	73.6
15 TK	154.6	16 TK	167.9	17 TK	-126.3	18 TK	70.9
19 TK	97.5	20 TK	132.9	21 TK	169.9	22 TK	168.9
23 TK	165.1	25 TK	-18.0	26 R1	-1.89	27 R2	0.02
28 R3	0.02	29 R4	0.00	30 R5	0.00	36 RT	3.6
34 TT	-34.1	35 TT	13.0				



## 17:55:11

0 WS	1.8	1 WD	90.	2 WB	4.9	3 DB	4.9
24 RK	7.0	4 TK	89.2	5 TK	79.1	6 TK	95.7
7 TK	81.9	8 TK	81.0	9 TK	81.0	10 TK	79.1
11 TK	59.8	12 TK	73.6	13 TK	31.0	14 TK	63.5
15 TK	134.7	16 TK	144.2	17 TK	94.8	18 TK	61.6
19 TK	79.1	20 TK	112.3	21 TK	139.5	22 TK	144.2
23 TK	140.4	25 TK	-17.0	26 R1	-1.80	27 R2	-0.03
28 R3	0.04	29 R4	-0.01	30 R5	0.00	36 RT	3.0
34 TT	-34.4	35 TT	12.6				

## 17:55:12

0 WS	1.8	1 WD	89.	2 WB	4.8	3 DB	5.1
24 RK	6.0	4 TK	77.3	5 TK	71.8	6 TK	81.9
7 TK	73.6	8 TK	69.0	9 TK	75.4	10 TK	67.2
11 TK	51.5	12 TK	64.4	13 TK	24.4	14 TK	54.3
15 TK	117.0	16 TK	123.5	17 TK	69.9	18 TK	51.5
19 TK	63.5	20 TK	94.8	21 TK	114.2	22 TK	123.5
23 TK	117.9	25 TK	-17.0	26 R1	-1.71	27 R2	0.00
28 R3	0.00	29 R4	-0.01	30 R5	-0.01	36 RT	2.4
34 TT	-35.1	35 TT	11.8				

## 17:55:13

0 WS	1.8	1 WD	89.	2 WB	4.2	3 DB	4.8
24 RK	7.0	4 TK	69.0	5 TK	68.1	6 TK	73.6
7 TK	68.1	8 TK	59.8	9 TK	69.9	10 TK	58.9
11 TK	46.8	12 TK	58.0	13 TK	20.6	14 TK	48.7
15 TK	104.9	16 TK	107.7	17 TK	57.0	18 TK	46.8
19 TK	53.3	20 TK	83.7	21 TK	95.7	22 TK	110.5
23 TK	100.3	25 TK	-16.0	26 R1	-1.71	27 R2	0.00
28 R3	0.02	29 R4	-0.01	30 R5	-0.01	36 RT	2.2
34 TT	-34.4	35 TT	11.5				

## 17:55:14

0 WS	1.8	1 WD	89.	2 WB	4.2	3 DB	4.9
24 RK	6.0	4 TK	63.5	5 TK	61.6	6 TK	63.5
7 TK	61.6	8 TK	53.3	9 TK	64.4	10 TK	51.5
11 TK	42.2	12 TK	52.4	13 TK	16.8	14 TK	41.3
15 TK	93.8	16 TK	93.8	17 TK	44.1	18 TK	39.4
19 TK	44.1	20 TK	73.6	21 TK	80.0	22 TK	99.4
23 TK	85.6	25 TK	-17.0	26 R1	-1.62	27 R2	-0.01
28 R3	0.04	29 R4	0.00	30 R5	-0.01	36 RT	1.7
34 TT	-35.1	35 TT	11.5				

## 17:55:15

0 WS	1.9	1 WD	89.	2 WB	4.9	3 DB	4.5
24 RK	6.0	4 TK	57.0	5 TK	58.0	6 TK	58.0
7 TK	57.0	8 TK	47.8	9 TK	58.9	10 TK	45.0
11 TK	38.5	12 TK	47.8	13 TK	14.9	14 TK	36.6
15 TK	84.6	16 TK	82.8	17 TK	35.7	18 TK	34.7
19 TK	38.5	20 TK	66.2	21 TK	67.2	22 TK	90.2
23 TK	72.7	25 TK	-17.0	26 R1	-1.53	27 R2	-0.03
28 R3	0.04	29 R4	0.00	30 R5	-0.04	36 RT	2.7
34 TT	-33.9	35 TT	11.9				



17:55:16

0 WS	1.9	1 WD	89.	2 WB	4.9	3 DB	4.5
24 RK	6.0	4 TK	56.1	5 TK	57.0	6 TK	56.1
7 TK	57.0	8 TK	45.0	9 TK	59.8	10 TK	44.1
11 TK	37.5	12 TK	46.8	13 TK	14.9	14 TK	36.6
15 TK	84.6	16 TK	80.0	17 TK	33.8	18 TK	33.8
19 TK	36.6	20 TK	65.3	21 TK	64.4	22 TK	88.3
23 TK	70.9	25 TK	-18.0	26 R1	-1.62	27 R2	-0.01
28 R3	-0.01	29 R4	-0.01	30 R5	0.00	36 RT	2.1
34 TT	-34.8	35 TT	11.2				



## NBS BOFST PRESSURE RECORDINGS

Acronym	Description	Units
GO	Gas Orifice	psig
WO	Water Orifice	psig
RO	Restriction Orifice	psig
WP	Water Line (near nozzle(s))	psig
GΔP	Gas Differential Pressure	inches of water
WΔP	Water Differential Pressure	inches of water
RΔP	Restriction Orifice Differential Pressure	inches of water

First  is at time of ignition.

Second  is at time of water injection.

Time corresponds to times of data acquisition system.





TEST 7

Time	GO	WO	RO	WP	GAP	WAP	RAP
17:54:24	1.0	0.0	*	1.0	36.0	0.0	280.0
17:54:25	5.0	0.0		2.0	64.0	0.0	374.0
17:54:26	9.0	5.0		3.5	75.0	0.0	468.0
17:54:27	17.0	11.0		5.0	87.0	0.0	562.0
17:54:28	32.0	35.0		14.0	86.0	0.0	655.0
17:54:29	47.0	41.0		26.0	85.0	0.0	749.0
17:54:30	49.0	47.0		32.0	82.0	0.0	795.0
17:54:31	49.0	42.0		43.0	79.0	0.0	824.0
17:54:32	44.0	41.0		43.0	75.0	0.0	842.0
17:54:33	42.0	40.5		40.5	75.0	0.0	847.0
17:54:34	42.0	35.0		39.0	79.0	0.0	855.0
17:54:35	44.0	33.0		39.0	82.0	0.0	863.0
17:54:36	48.0	32.0		39.0	85.0	0.0	869.0
17:54:37	50.0	32.0		41.0	88.0	0.0	868.0
17:54:38	50.5	32.0		42.0	88.0	0.0	865.0
17:54:39	50.5	32.0		44.0	87.0	0.0	864.0
17:54:40	50.0	32.0		45.0	87.0	0.0	862.0
17:54:41	50.0	32.0		45.0	87.0	0.0	861.0
17:54:42	50.0	32.0		45.0	87.0	0.0	860.0
17:54:43	50.0	32.0		45.0	87.0	0.0	860.0
17:54:44	49.5	32.0		45.0	86.0	0.0	858.0
17:54:45	49.5	32.0		45.0	86.0	0.0	856.0
17:54:46	49.0	35.0		45.0	86.0	0.0	856.0
17:54:47	49.0	32.0		45.0	86.0	0.0	856.0
17:54:48	48.5	32.0		45.0	86.0	0.0	858.0
17:54:49	48.5	32.0		45.0	85.0	0.0	858.0
17:54:50	48.0	32.0		45.0	85.0	0.0	858.0
17:54:51	48.0	32.0		45.0	85.0	0.0	858.0
17:54:52	48.0	32.0		45.0	85.0	0.0	858.0
17:54:53	47.5	32.0		44.5	85.0	0.0	858.0
17:54:54	47.5	31.5		44.5	84.0	0.0	859.0
17:54:55	47.5	31.5		44.0	84.0	0.0	859.0
17:54:56	47.0	31.5		42.0	83.0	0.0	860.0
17:54:57	40.0	30.0		40.0	83.0	0.0	720.0
17:54:58	35.0	26.0		37.0	43.0	0.0	386.0
17:54:59	31.0	22.0		33.0	22.0	0.0	189.0

\* Inking system failure.

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<b>10. SUPPLEMENTARY NOTES</b>  <input type="checkbox"/> Document describes a computer program; SF-185, FIPS Software Summary, is attached.			
<b>11. ABSTRACT</b> (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here) <p>The blowout of oil and gas wells during drilling, production, and workover presents a serious hazard to personnel, the environment, and equipment. The only practical method to control a well fire subsequent to a blowout is to shut in the hydrocarbon at the well. Although some individuals have effectively used water to mitigate well fire hazards, the quantitative effect of water sprayed into the fire zone is not known. To design effective oil and gas well blowout fire control systems, both the hazards associated with the fire and the efficiency of water to control fire hazards must be quantitatively understood.</p> <p>The Center for Fire Research (CFR) of the National Bureau of Standards has studied for the Department of the Interior the effectiveness of water spray to control and extinguish fires resulting from gas well blowouts. Laboratory scale tests have been performed by the CFR on 0.01-10 megawatt fires to study the effects of water injection on the combustion of high velocity methane jets. This report presents the results of two 100 megawatt and five 200 megawatt fire tests performed to measure the effects of water spray on fires from large velocity gas discharges characteristic of natural gas well blowouts.</p>			
<b>12. KEY WORDS</b> (Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons) blowout fires; fire extinguishment; large scale fire tests; water sprays; well fires			
<b>13. AVAILABILITY</b> <input checked="" type="checkbox"/> Unlimited <input type="checkbox"/> For Official Distribution. Do Not Release to NTIS <input type="checkbox"/> Order From Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.  <input checked="" type="checkbox"/> Order From National Technical Information Service (NTIS), Springfield, VA. 22161		<b>14. NO. OF PRINTED PAGES</b> 202	<b>15. Price</b> \$19.00