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A Research Report
for UNC Nuclear Industries

N Reactor Thermal Plume Characterization Study During Dual-Purpose Mode of Operation

Part I—Field Investigation

Part II—Computer Simulation

September 1983

**Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RLO 1830**

**Pacific Northwest Laboratory
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N REACTOR THERMAL PLUME CHARACTERIZATION STUDY
DURING DUAL-PURPOSE MODE OF OPERATION

PART I - FIELD INVESTIGATION

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EXECUTIVE SUMMARY

A two-phase program was conducted to characterize the N Reactor heated water outfall in support of the National Pollutant Discharge Elimination System (NPDES) permit for the N Reactor. Phase one included three thermal and two dye surveys of the thermal plume during different Columbia River flow conditions. Phase two used the surveys to calibrate a mathematical model describing the N Reactor thermal plume.

The thermal and dye surveys were conducted in September 1982 at a range of Columbia River flows from 53,500 cubic feet per second (cfs) to 113,500 cfs. The thermal plume was well defined, generally narrow, and plume temperatures decreased rapidly downstream of the discharge port. The rate of transverse mixing of the thermal plume increased with decreased river flow. A large initial transverse spread of the thermal plume was observed; the spread may have occurred because the configuration of the discharge port and in the irregularities channel bed. The longitudinal temperature distribution from the N Reactor thermal plume was similar during all thermal surveys. Plume temperatures decreased rapidly with increasing distance downstream of the discharge port at all depths. In all cases, the highest plume temperatures were found within 25 feet of the discharge port. The greatest decline in plume temperatures occurred within 150 feet downstream of the port. Beyond 150 feet, the rate of decline of plume temperatures was very low. The highest plume temperatures during the field surveys were found below a depth of 10 feet and near the discharge port. Temperatures decreased rapidly as the thermal plume rose to the surface, but were nearly uniform with respect to depth at a distance of about 200 feet downstream of the discharge port.

Computer modeling was used to predict the effect of discharged heated water on downstream temperatures for river flow conditions ranging from 36,000 cfs to 300,000 cfs. Estimated discharge temperatures of 10.8°F above ambient were calculated from an assumed heat load of 460 MWt and outfall flows of 646 cfs. Centerline plume temperatures were found to decrease with corresponding increases in lateral eddy diffusivity, river velocity, and river depth. Increases in effluent flow rates and discharge temperatures resulted in an

increase in plume centerline temperatures. For the range of flows considered in the calibration process, the simulated plume was found to be vertically uniform from a short distance downstream of the discharge port. Simulated plumes for the low-flow (53,500 cfs) and the intermediate-flow (78,000 cfs) cases agreed with measured plumes past 250 feet downstream of the discharge port in both isothermal width and isothermal downstream length. At high flows (95,000 cfs), the simulated plume was narrower than the field-measured plume.

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N REACTOR THERMAL PLUME CHARACTERIZATION STUDY
DURING DUAL-PURPOSE MODE OF OPERATION

INTRODUCTION

The U.S. Department of Energy was issued a National Pollutant Discharge Elimination System (NPDES) permit for operation of the N Reactor discharge from December 7, 1981, through December 31, 1985. Part 1.A.9 (Effluent Limitations, Monitoring Requirements, and Schedule of Compliance) states in part that a detailed low-flow receiving-water study be conducted to document the extent and nature of the existing outfall discharge plume. Pacific Northwest Laboratory conducted a two-phase program to characterize the N Reactor thermal plume. The work was performed for UNC Nuclear Industries, Inc., the operator of N Reactor for the U.S. Department of Energy (DOE).

Part I of this report deals with the field studies to characterize the N Reactor thermal plume, performed September 15 through 20, 1982. It includes a description of the study area, a description of field tasks and procedures, and data collection results and discussion. The field studies consisted of a bathymetric survey, underway thermal surveys, dye dispersion surveys, and vertical velocity measurements.

Part II is the computer simulation of the thermal plume under different flow conditions and the calibration of the model used. It includes a description of the computer model and the assumptions on which it is based, a presentation of the input data used in this application, and a discussion of modeling results. The model is used to predict the effects of the discharged heated water on downstream river temperatures for flow conditions from 36,000 cubic feet per second (cfs) to 300,000 cfs.

Figures called out in the text of this report are found at the end of each section.

PART I: FIELD INVESTIGATION

DESCRIPTION OF STUDY AREA

The N Reactor is located on DOE's 570 square mile Hanford site in Benton County, Washington, approximately 30 miles north of the city of Richland. The N Reactor is situated on the east bank of the Columbia River at about river mile (RM) 380. The Columbia River and its tributaries are the dominant water systems in the Pacific Northwest Region. The mainstem of the Columbia River originates on the west slope of the Canadian Rockies and flows into the Pacific Ocean near Astoria, Oregon. The river drains a total area of approximately 259,000 square miles and has an average annual discharge of 18 million acre-feet. The Columbia River has been regulated by dams and reservoirs over the past 35 years. A large portion of the mainstem and major tributaries are developed for flood control, hydroelectric power, irrigation, navigation, and municipal and industrial supply. There are seven dams upstream and four dams downstream of the N Reactor on the mainstem of the Columbia River within the United States. Priest Rapids Dam, RM 397, is the nearest upstream impoundment and McNary Dam, RM 292, is the nearest downstream impoundment.

The Columbia River near the N Reactor (Figure 1) is relatively swift, straight, and shallow. The river width varies from 1400 ft to 1600 ft. Surface current velocities range from 3 to 11 ft per second (fps), depending on the flow rate of the Columbia River. Average water depths for normal flows range from 25 to 35 ft in this reach of river.

COLUMBIA RIVER FLOWS

The surface water flows of the Columbia River in the vicinity of the N Reactor are regulated by the Priest Rapids Dam. The minimum flow at Priest Rapids Dam is administratively set at 36,000 cubic ft. per second (cfs) by the Federal Power Commission License. Flows during the summer, fall, and winter vary daily from 36,000 cfs to 250,000 cfs. During the spring runoff, high flows from 250,000 cfs to 450,000 cfs are recorded. The average annual flow of the Columbia River at Priest Rapids Dam is about 120,800 cfs, whereas during low flow periods, average monthly flows may be as low as 60,000 cfs. Maximum and minimum monthly flows and mean monthly flows of the Columbia River at

Priest Rapids Dam for the period of 1960 through 1977 are shown in Figure 2. The mean monthly flow in June is 267,000 cfs, but can vary from a minimum of 70,000 cfs to a maximum of about 470,000 cfs. The lowest monthly flows occur in October with a mean monthly discharge of about 75,000 cfs. The monthly flow in October can vary from a minimum of about 45,000 cfs to a maximum of 113,000 cfs.

River stage (water surface elevation) at RM 380 is related to Columbia River discharge (flow) according to the stage discharge relationship in Figure 3, developed by the U.S. Geological Survey.

COLUMBIA RIVER TEMPERATURE

Columbia River temperatures vary seasonally. Minimum temperatures normally occur in February and maximum temperatures occur in August. Thermal characteristics of the Columbia River in the vicinity of the N Reactor depend, to a large degree, on upstream storage management at dams and flow rates of the river. The Hanford Reach of the Columbia River responds more rapidly to thermal modifications from weather and industrial input than do the impounded reaches of the Columbia River. Consequently, summer heating and winter cooling of the Columbia River in the Hanford Reach are rapid.

Maximum, minimum, and average daily temperatures of the Columbia River have been recorded at Vernita gaging station from 1960 to 1977. The Vernita gaging station is located about 8.5 river miles upstream of the N Reactor discharge. Maximum and minimum monthly river temperatures and mean monthly river temperatures at Vernita from 1960 to 1977 are shown in Figure 4. The lowest monthly water temperatures occur in February with a mean temperature of 38.2°F. The maximum and minimum monthly temperatures in February are 41.4°F and 34.7°F, respectively. The mean August temperature, when the water temperature is highest, is 64.7°F. The maximum and minimum monthly temperature in August are, respectively, 67.6°F and 62.2°F.

N REACTOR THERMAL DISCHARGE

N Reactor is a graphite-moderated, dual-purpose reactor. Heat produced during the production of plutonium is used to produce electricity. Fuel elements are cooled by a recirculating, primary coolant system which pumps high-purity water through the process tubes where the coolant picks up heat generated by the fission process in the fuel elements. This heat is transported to steam generators where steam is produced to drive the primary coolant pumps for production of electricity for in-plant usage, and to supply steam for operation of the Washington Public Power Supply System's Hanford Generating Project (HGP). The majority of the by-product heat produced is transported to HGP for use in the production of electricity. The remaining heat is utilized in the operation of the N Reactor and is eventually transferred to a circulating raw water system for discharge to the Columbia River.

Water for the heat dissipation system is drawn from the river through a shoreline intake system (Figure 1), circulated through various condensers and heat exchangers, and discharged back to the river through a mid-river heated water discharge port (Figure 1).

The N Reactor operates at a nominal rating of 4,000 megawatts thermal (Mwt). The intake system is composed of four pumps with ratings of 105,000 gallons per minute (gpm) each. Only three pumps are used during dual-purpose operation; the normal pumping rate is approximately 290,000 gpm. The normal heat load to the river is 550 Mwt and the maximum discharge temperature is 81°F. The circulating raw water is discharged to the river through a 102-in. line that extends approximately 400 ft into the river along the bottom. Heated water is discharged through a 13-ft port that is directed upward. A flat circular plate (velocity cap) is located 6 ft above the discharge level. The plate acts as a diffuser causing the flow to be diverted horizontally to the bed in a full 360° circle. The exit velocity from the 13-ft port is about 5 fps.

The Hanford Generating Project discharge, shown in Figure 1, is located approximately 600 ft upstream of the N Reactor discharge, and about 300 ft toward the center of the river. The HGP discharge is composed of four energy dissipator ports similar in configuration to the N Reactor's single port. HGP

operates at a power rating of 860 MW electrical. The heat load to the river is about 2680 MWt. Depending on the river temperature, either three or four pumps are used to provide water to the heat dissipation system. With three pumps the cooling water flow rate is 423,000 gpm and the discharge water temperature is 43°F above ambient. When four pumps are operating the cooling water flow rate is 564,000 gpm and the discharge water temperature is 35°F above ambient.

Thermal plume characterization studies of the HGP thermal discharge in 1972 and 1978 indicate that the HGP thermal plume does not interact directly with the heated water discharge from the N Reactor within the NPDES mixing zone. The HGP plume width was found to be sufficiently narrow within 600 ft downstream so that it does not pass over or near the N Reactor discharge. The N Reactor plume was found to be relatively small and was diluted rapidly to levels where temperature differences could not be measured.

DESCRIPTION OF WORK ELEMENTS

The N Reactor thermal plume characterization field studies included: bathymetric survey in the vicinity of the N Reactor thermal discharge, three thermal plume surveys and two dye concentration surveys under different river flow conditions, and current velocity measurements under different flow conditions. The primary study area corresponds to the NPDES mixing zone, which extends 50 ft to each side of the plume centerline, 50 ft upstream and 300 ft downstream of the discharge port. The surveys, however, extended 500 ft downstream of the discharge port, and at the furthest point downstream, extended about 300 ft to each side of the plume centerline. Additional transect lines were run upstream and downstream of the primary study area during some of the surveys.

BATHYMETRIC SURVEY

A bathymetric survey was conducted in the vicinity of the N Reactor discharge on September 1, 1982. The bathymetric survey was performed to show changes in the river bed elevations around the discharge port since the last survey in 1964, which was conducted prior to construction of the discharge.

An Aqua Probe® 390 continuous recording-depth recorder was used for the bathymetric survey. Depths were recorded along 21 transects downstream and two transects upstream of the N Reactor discharge port. The spacing of the transect lines varied from 10 ft to 50 ft, increasing with downstream distance from the discharge port. The vessel was kept on track by attaching a tether line between the survey vessel and a buoy located approximately 180 ft upstream of the discharge port and in line with the plume centerline. The same method was used to keep the survey vessel on track during the thermal and dye surveys.

Prior to conducting the bathymetric survey, the depth recorder was calibrated by lowering a metal plate attached to a graduated line beneath the depth recorder transducer.

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HORIZONTAL CONTROL

The position of the survey vessel was recorded during the bathymetric survey, as well as during the thermal and dye surveys, with the use of a Motorola® Mini-Ranger III Navigation System. The Mini Ranger III Navigation System accurately locates the position of the survey vessel with respect to two known geographical locations (reference points). It operates on the principal of pulse radar, with a radar interrogator (receiver-transmitter) located on the mobile unit (survey vessel) and a radar transponder (reference station) positioned at each reference point. The location of the two reference stations (transponders A and B) are shown in Figure 1. The transponders were tied into the 100-N Area Coordinate System by Kaiser Engineers on August 8, 1982.

The basis for determining the range (distance to each reference station) is the elapsed time between the receiver-transmitter, transmitted pulse, and the reception of the reference station reply pulse. The distances to each reference station are displayed on the range console and recorded on a digital printer along with the time. Fix marks were used on the depth record corresponding to the distances and time on the paper tape printout.

VERTICAL CONTROL

River stage (water level) is continuously recorded at the HGP intake structure. The water level recorder is referenced to the National Geodetic Vertical Datum, often referred to as mean sea level, where a stage height of 0 ft on the chart corresponds to 373.9 ft above mean sea level (MSL). The river stage record was used to adjust the depth soundings obtained during the bathymetric survey to the MSL datum. The river stage records at HGP were also used during the field studies to determine the river discharge, by converting stage to discharge, using the relationship in Figure 3.

CURRENT VELOCITY MEASUREMENTS

Vertical current velocity profiles were taken just upstream and about 120 ft downstream of the N Reactor discharge port, under different flow

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conditions on September 16, 17, and 29, 1982. A Bendix® Q-15 current meter was used to obtain the velocity measurements. Figure 5 shows how the current meter was deployed. A 75-lb wire-line depressor was suspended from the bottom of the current meter, and a line was attached between the current meter and bow of the survey vessel to maintain the current meter at a nearly vertical attitude in the high velocity currents of the Columbia River. Components of the current meter are shown in Figure 6. The Mini Ranger III Navigation System recorded the position of the survey vessel while taking the vertical velocity profiles. The depth intervals for the velocity measurements were determined by dividing the total water depth, as measured on the depth recorder, into roughly 10 equal segments. The current meter was lowered to each of these depths, and allowed to stabilize before the current velocity was recorded.

THERMAL SURVEYS

Three underway thermal surveys of the N Reactor plume were conducted during high, intermediate, and low river flow conditions on September 15, 19, and 20, 1982. Continuous temperature measurements were taken along the same 23 transect lines that were used in the bathymetric survey. The thermal surveys were performed in the same manner as the bathymetric survey, using the Motorola® Mini Ranger III for recording the position of the survey vessel as it traversed the transect lines. Additional transect lines were traversed upstream and downstream of the original 23 transect lines during the second (low-flow) and third (intermediate-flow) thermal surveys.

Water temperatures were recorded at depths of 1, 3, 5, 7 and 10 ft below the water surface using fast-response temperature sensors attached to a wire line depressor. Water temperatures at 11, 13, 15, 17 and 20 ft below the surface were also measured along the first 4 or 5 transects near the discharge port. Figures 7 and 8 show the depths where temperatures were measured relative to the water surface, river bed, and discharge port, along the centerline of the thermal plume during the high- and low-flow surveys.

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Fast-response temperature sensors (Fenwal® Model GB 32MM232) were used to measure water temperatures during the underway thermal surveys. The sensors have a temperature range of 32°F to 257°F. The response time of the temperature sensor is about 200 milliseconds. The output of the temperature sensors was sampled sequentially at approximately 1-second intervals and the data were automatically logged on a digital printer. Temperatures were recorded to a sensitivity of 0.1°F and an absolute accuracy of better than 0.3°F. Data on temperature and vessel position were coordinated by fix marks on the digital printer.

Two Ryan® thermographs were placed in the river to measure background water temperatures. One thermograph was located approximately 0.5 miles upstream of the N Reactor discharge where it would be out of the influence of both the N Reactor and HGP thermal plumes. The second thermograph was placed 120 ft upstream of, and in line with, the N Reactor discharge port. This thermograph would show any influence of the HGP thermal plume on the N Reactor thermal plume at the discharge port.

DYE SURVEYS

Two underway dye surveys of the N Reactor thermal plume were conducted during high and low river flow conditions on September 16 and 17, 1982. The dye surveys were performed in order to calculate transverse diffusivity coefficients. These are required to simulate the rate of lateral spread of the thermal plume in the mathematical model. Continuous dye concentration measurements were taken along the same 23 transect lines used in the bathymetric and thermal surveys. The dye surveys were performed in the same manner as the bathymetric and thermal surveys.

Rhodomine-WT dye was injected into the N Reactor sealwell at a constant flow rate during the dye surveys. Dye concentrations downstream of the discharge port were measured at 1 ft and 5 ft below the water surface during the first survey, and 2 ft and 5 ft below the water surface during the second

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survey. Two Model 10 Turner® Designs Fluorometers with high volume continuous flow attachments were used to measure the dye concentrations. In addition to dye concentrations, water temperature was recorded at each depth using the fast-response temperature sensors because dye concentration is dependent on water temperature. Dye concentration and water temperature data were recorded on a digital printer. The navigation data was interfaced with the dye and temperature data with fix marks at 10-second intervals.

The Model 10 Turner® Designs Fluorometers were calibrated in the laboratory using Columbia River water and a range of concentrations of Rhodamine-WT dye. The fluorometers were calibrated just prior to the dye surveys.

DATA COLLECTION RESULTS

The field studies characterizing the thermal plume of the N Reactor heated water discharge were conducted on September 15 through 20, 1982. The field studies included: a bathymetric survey in the vicinity of the N Reactor discharge port; measurement of river stage, discharge, and water temperatures; vertical velocity profile measurements near the discharge port; and underway thermal and dye concentration surveys downstream of the discharge during different Columbia River flows. Table 1 is a summary of the completed field work, and average stage and discharge of the Columbia River during each field task.

COLUMBIA RIVER FLOW CONDITIONS

Average daily discharges of the Columbia River at Priest Rapids Dam during August and September 1982 are compared with the 17-yr average daily discharge (1960-1977) for the same months in Figure 9. The average daily discharges in August and September 1982 were generally higher than the 17-yr average daily discharges. The daily discharges during August and September 1982, however, were well below the maximum daily discharges recorded in August and September during the 17-yr period. The maximum daily discharge during the field investigation was 99,000 cfs on September 16. The lowest daily discharge was 64,700 cfs on September 19. Because of the daily fluctuations in Columbia River flow rates, the discharges during the thermal and dye surveys could be higher or lower than the average daily discharge (Table 1).

Regulation of Columbia River flow at Priest Rapids Dam results in large fluctuations in the river flow in the vicinity of the N Reactor during the day. Hourly discharges of the Columbia River at HGP during the field studies are shown in Figure 10. The highest hourly discharge during the field studies occurred at 0700 hr on September 17 when the discharge at HGP was 117,500 cfs. The lowest discharge at HGP occurred at 1200 hr on September 19 when the discharge was 52,000 cfs. The largest daily variation in discharge occurred on September 17 when the discharge decreased from 117,500 cfs to 62,500 cfs in 4 hr.

TABLE 1. Summary of Completed Field Tasks

Date	Field Task	Average Stage (ft MSL)	Columbia River Discharge During Survey (cfs)
9-1-82	Bathymetric Survey	381.2	63,500
9-14-82	Calibration of Fluorometers	---	---
9-15-82	Thermal Survey, High Flow	383.8	95,000
9-16-82	Current Velocity Measurements (1)	383.1	86,000
	Current Velocity Measurements (2)	383.2	87,500
	Current Velocity Measurements (3)	383.3	88,000
	Current Velocity Measurements (4)	384.0	97,500
	Dye Survey, High Flow	385.0	113,500
9-17-82	Current Velocity Measurements (5)	384.1	99,000
	Current Velocity Measurements (6)	383.5	91,500
	Current Velocity Measurements (7)	383.1	86,000
	Dye Survey, Low Flow	381.4	65,500
	Current Velocity Measurements (8)	381.7	68,500
	Current Velocity Measurements (9)	381.9	72,000
9-19-82	Thermal Survey, Low Flow	380.1	53,500
9-20-82	Current Velocity Measurements (10)	380.9	60,000
	Current Velocity Measurements (11)	381.0	62,000
	Current Velocity Measurements (12)	381.2	63,500
	Thermal Survey, Intermediate Flow	382.5	78,000

The thermal survey under high-flow conditions was performed between 1445 and 1715 hr on September 15. The survey was conducted during the peak daily Columbia River discharge of 104,000 cfs, at 1500 hr. The discharge decreased from 104,000 cfs to 82,000 cfs during the high-flow thermal survey with an average discharge of 95,000 cfs. The intermediate-flow thermal survey was performed between 1245 and 1510 hr on September 20. The discharge during the survey increased from 72,600 cfs to 83,500 cfs. The average Columbia River discharge during the intermediate-flow thermal survey was 78,000 cfs. The low-flow thermal survey was performed between 1200 and 1530 hr on September 19.

Columbia River discharge during the low-flow survey increased from 52,000 cfs to 58,700 cfs. The average discharge during this survey was 53,500 cfs.

Dye surveys were performed during low- and high-flow conditions. The high-flow dye survey was performed between 1415 and 1600 hr on September 16. The Columbia River discharge decreased from 115,000 cfs to 112,000 cfs, with an average discharge of 113,500 cfs. The low-flow dye survey was conducted between 0930 and 1115 hr on September 17. The discharge decreased during the survey from 75,000 cfs to 62,500 cfs. The average Columbia River discharge during the low-flow dye survey was 65,500 cfs.

AMBIENT COLUMBIA RIVER TEMPERATURE CONDITIONS

Daily temperatures of the Columbia River, as measured just upstream of HGP during the field studies, are compared in Figure 11 to the average, maximum, and minimum daily water temperatures at Vernita Bridge for the period of 1960 to 1977. The daily river temperatures during the field studies ranged from 62.5°F on September 15 to 63.6°F on September 20. The water temperature during the first three days of the field investigation was slightly below average, and for the last three days, the temperature was about the same as the average daily temperature.

N REACTOR THERMAL DISCHARGE CONDITIONS

N Reactor discharge and intake water temperatures are monitored continuously at the sealwell and intake structures. Table 2 is a summary of the hourly discharge temperatures at the sealwell. The reactor power level varied from 3700 to 3740 MWt during the field studies, and the discharge water temperatures at the sealwell varied from 62°F to 76°F. An unplanned shutdown of the N Reactor occurred on the evening of September 15, but was brought back up the evening of September 16. The dye surveys were performed during the reactor shutdown. This was possible because during the reactor shutdown, the pumps were still operating at full capacity and heated water is not required to determine the transverse diffusivity coefficients. The reactor was operating during all the thermal surveys.

TABLE 2. N Reactor Heated Water Temperatures Recorded at Sealwell by UNC

Date	Time	Discharge ^(a) Temp. °F	Date	Time	Discharge ^(a) Temp. °F
9-14-82	0100	72	9-15-82	2200	65
	0200	72		2300	64
	0300	69		2400	65
	0400	70	9-16-82	0100	64
	0500	70		0200	64
	0600	70		0300	64
	0700	70		0400	64
	0800	70		0500	62
	0900	68		0600	63
	1000	70		0700	63
	1100	69		0800	62
	1200	70		0900	63
	1300	70		1000	64
	1400	70		1100	64
	1500	70		1200	64
	1600	70		1300	64
	1700	70		1400	64
	1800	70		1500	64
	1900	70		1600	64
	2000	70		1700	64
	2100	70		1800	64
	2200	70		1900	65
	2300	70		2000	69
9-15-82	0100	69		2200	70
	0200	69	9-17-82	2300	68
	0300	68		2400	70
	0400	70		0100	70
	0500	70		0200	71
	0600	70		0300	69
	0700	70		0400	69
	0800	70		0500	68
	0900	70		0600	70
	1000	70		0700	70
	1100	70		0800	71
	1200	70		0900	69
	1300	70		1000	69
	1400	70		1100	68
	1500	70		1200	70
	1600	70		1300	70
	1700	71		1400	69
	1800	71		1500	68
	1900	72		1600	70
	2000	70		1700	70
	2100	70		1800	70

(a) Discharge temperature measured at sealwell.

TABLE 2. (contd)

Date	Time	Discharge ^(a) Temp. °F	Date	Time	Discharge ^(a) Temp. °F
9-17-82	1900	70	9-19-82	1600	73
	2000	70		1700	73
	2100	69		1800	74
	2200	69		2900	74
	2300	69		2000	74
	2400	68		2100	75
9-18-82	0100	69	9-20-82	2200	74
	0200	68		2300	74
	0300	68		2400	75
	0400	69		0100	74
	0500	70		0200	74
	0600	70		0300	74
	0700	70		0400	75
	0800	70		0500	75
	0900	70		0600	74
	1000	68		0700	74
	1100	69		0800	74
	1200	70		0900	74
	1300	70		1000	74
	1400	70		1100	74
	1500	70		1200	74
	1600	70		1300	74
	1700	70		1400	74
	1800	70		1500	75
	1900	70		1600	75
	2000	70		1700	76
	2100	70		1800	76
	2200	73		1900	76
	2300	73		2000	76
	2400	74		2100	76
9-19-82	0100	74		2200	76
	0200	74		2300	75
	0300	74		2400	75
	0400	73			
	0500	73			
	0600	73			
	0700	72			
	0800	72			
	0900	72			
	1000	72			
	1100	72			
	1200	72			
	1300	72			
	1400	72			
	1500	73			

(a) Discharge temperature measured at sealwell.

BATHYMETRIC SURVEY

Prior to this field investigation, the latest bathymetric survey in the vicinity of the N Reactor thermal discharge was performed in 1964. The river bed contours from the 1964 survey are shown in Figure 12. The minimum river bed elevation in this reach of river is about 340 ft above MSL. At a Columbia River discharge rate of 60,000 cfs, this represents a water depth of about 41 ft. The N Reactor discharge port is located slightly to the east of the main channel (thalweg) at an elevation of between 360 ft and 365 ft above MSL.

River bed elevations in the vicinity of the N Reactor discharge port, as recorded during the bathymetric survey of September 1, 1982, are shown in Figure 13. The bed elevations have changed substantially since the 1964 bathymetric survey. The primary differences in the bed elevations are the presence of a knoll approximately 100 ft downstream of the discharge port, and greater water depths surrounding the discharge pipe and port in 1982. The top elevation of the knoll is about 369 ft above MSL, which is about 9 ft above the top of the discharge port (360 ft above MSL). During the low-flow thermal survey, the water depth over the knoll was only about 11 ft.

Figures 7 and 8 show a longitudinal section along the plume centerline, indicating the river bed elevations. The discharge port is located in a depression with a bed elevation of about 356 ft above MSL. The river bed rises rapidly to an elevation of 369 ft above MSL within 100 ft downstream of the discharge port, then drops off again to about 366 ft above MSL. Between 150 ft and 500 ft downstream of the downstream of the discharge port, the river bed elevation is fairly uniform, varying from 365 ft to 366 ft above MSL.

CURRENT VELOCITY CONDITIONS

Twelve current velocity profiles near the N Reactor discharge port were measured during the field investigation representing Columbia River discharges ranging from 60,000 cfs to 100,000 cfs. The vertical velocity distributions are shown in Figures 14 through 19. The date, time, location, depth, river stage and discharge, and vertically-averaged velocity for each profile are also given in the figures.

Maximum current velocities measured during the field investigation were slightly higher than 4 ft per second (fps). The vertically averaged velocities varied from 1.7 fps to 3.7 fps, depending on the Columbia River flow rate and location of the profile. The vertical velocity distribution of the profiles generally followed patterns found in most large rivers, i.e., the maximum velocities were near the surface and minimum velocities near the channel bed.

THERMAL SURVEYS

Water temperature data were collected along 21 transect lines traversing the N Reactor thermal plume downstream of the discharge port and along two transect lines upstream of the discharge port. Additional transect lines were traversed upstream and downstream of the discharge port during the low- and intermediate-flow surveys to better define the extent of the thermal plume. Temperature measurements were taken at 1, 3, 5, 7, and 10 ft below the water surface along these transect lines. Additional water temperature measurements were taken at 11, 13, 15, 17, and 20 ft below the water surface at four or five transect lines just upstream and within 50 ft downstream of the discharge port. The downstream extent of the deep tows was limited by the shallow water depths in the vicinity of the knoll downstream of the discharge port (Figures 7 and 8).

Vessel track plots during the three thermal surveys are shown in Figures A.1 through A.4 of Appendix A. Water temperature data for each thermal survey, along with the x and y coordinates, are given in Appendix B.

Using the thermal data in Appendix B, isothermal contour plots were prepared. The plots represent the longitudinal and lateral temperature distribution of the N Reactor thermal discharge at each of the ten measured depths for the three surveys. The isothermal plots were constructed using a computer contouring program which incorporates an interpolation algorithm. A grid was set up over the study area with a grid interval of 5 ft. The interpolation algorithm assigned a temperature to each grid point based on the five nearest recorded temperature measurements and their distance from the grid point. The distance weighting function for the interpolation algorithm was set at $1/r^2$, where r is the distance between the measured temperature and grid point. Thus,

a recorded temperature measurement at twice the distance as another temperature measurement from the grid point would have only 1/4 the impact on the interpolated temperature at the grid point.

The interpolation algorithm used for construction of the isothermal plots will truncate peak temperatures where the peak represents a very small area. Truncating occurs where the measured temperatures surrounding the peak drop rapidly and normally represent an area of less than 50 square feet. This area is less than the surface area of the discharge port.

High-Flow Thermal Survey

The high-flow thermal survey was performed on September 15, 1982. The average river stage during the survey was 383.8 ft above MSL, representing an average Columbia River discharge of 95,000 cfs. The top of the discharge port, located at an elevation of 360 ft above MSL, was 23.8 ft below the water surface during the survey. The deep sensor (20 ft) was slightly less than 4 ft above the discharge port. The temperature of the heated discharge water in the sealwell was 70°F during the survey. The ambient river temperature just upstream of the discharge port was 63.2°F. Thus, the maximum difference in temperature between the heated discharge water and ambient river was 6.8°F during the high-flow thermal survey.

Figures 20 through 26 are isothermal plots of the longitudinal and transverse plume temperature distribution at the 10 depths measured during the high-flow thermal survey. The N Reactor thermal plume, as encompassed by the 0.2°F, above ambient, temperature isotherm in Figures 20 through 26, was very well defined during the high-flow survey. The HGP thermal discharge was noticeable to the west of the N Reactor discharge port (towards the top of the figures), but did not mix with the N Reactor thermal plume within the NPDES mixing zone.

The initial transverse spreading of the plume was very large. Within 50 ft downstream of the discharge port the plume width was 100 ft at the 1-ft depth. At a distance of 200 ft downstream of the discharge port the plume had spread an additional 40 ft so that the total plume width was 140 ft. The transverse spreading of the plume decreased with increasing depth. The width

of the plume was 85 ft, at a depth of 10 ft and a distance of 50 ft downstream of the discharge port. At 300 ft downstream the width of the plume was 115 ft.

The thermal plume, encompassed by the 0.2°F isotherm, extended beyond 500 ft downstream of the discharge port at all the measured depths. The 1.0°F isotherm was contained within the NPDES mixing zone at depths below 3 ft during the high-flow survey. At 1 ft and 3 ft below the water surface the 1.0°F isotherm extended about 340 ft downstream of the discharge port, or 40 ft beyond the downstream extent of the mixing zone. At the 10-ft depth the 1.0°F isotherm extended only 110 ft downstream of the discharge port. The 1.0°F isotherm did not spread beyond the lateral extent of the mixing zone at any of the measured depths.

The 2.0°F isotherm was found only at depths greater than 7 ft below the water surface during the high-flow thermal survey. At the 10-ft depth the 2.0°F isotherm extended about 20 ft downstream of the discharge port. The maximum width of the 2.0°F isotherm at this depth was about 15 ft. Three distinguishable thermal islands with temperatures exceeding 2.0°F above ambient were present at depths of 11, 13, 15, and 17 ft below the water surface. Thermal islands are relatively small eddies of effluent water totally surrounded by cooler water. Thermal islands are very transient, lasting, at most, only a few tens of seconds before they diffuse and mix in the highly turbulent river. The thermal islands probably represent discharge surges (boils), which were observed regularly during the thermal surveys. The thermal islands were found as far as 25 ft upstream and 10 ft to either side of the discharge port. This is due to the diffuser design which causes the flow to be diverted in a full 360° circle with an exit velocity of about 5 fps.

Peak plume temperatures measured during the high-flow thermal survey are shown in Figure 27 as a function of downstream distance from the discharge port. These peak temperatures, found in Appendix B, are not necessarily represented on the isothermal plots in Figures 20 through 26 because they represent a very small area. The highest peak temperatures were found near the river bed at the discharge port and decreased rapidly with decreasing depth and increasing downstream distance from the discharge port. The highest peak temperatures at 1, 3, and 5 ft below the water surface were slightly greater

than 2.0°F above ambient within 100 ft downstream of the discharge port, but decreased rapidly to about 1.0°F, above ambient, beyond 100 ft downstream. At 7 and 10 ft below the water surface, peak temperatures were higher than 3.0°F, above ambient, near the discharge port, but decreased rapidly to about 1.0°F, above ambient, beyond 100 ft downstream.

Intermediate-Flow Thermal Survey

The intermediate-flow thermal survey was performed on September 20, 1982. The average river stage during the survey was 382.5 ft above MSL, corresponding to an average river discharge of 78,000 cfs. The top of the discharge port was at a depth of 22.5 ft below the water surface during the survey. The deep sensor was 2.5 ft above the top of the discharge port. The heated water discharge temperature in the sealwell was 75°F. The ambient river temperature upstream of the discharge port varied from 63.5°F to 63.8°F. An ambient temperature of 63.7°F is used in the analysis of the intermediate-flow thermal plume. The maximum difference in temperature between the heated discharge water and ambient river water was 10.3°F.

Isothermal plots of the longitudinal and transverse plume temperature distribution during the intermediate-flow survey are shown in Figures 28 through 34. The N Reactor thermal plume was well defined at all the measured depths. A portion of the HGP plume can be seen at the top of the figures with temperatures slightly higher than 1.0°F above ambient. The HGP plume, however, did not mix with the N Reactor thermal plume within the NPDES mixing zone.

Plume temperatures during the intermediate-flow survey were higher than during the high-flow survey. These higher temperatures can be accounted for by the lower Columbia River flow rate (78,000 cfs versus 95,000 cfs) and the higher discharge water temperature at the sealwell during the intermediate-flow survey (74°F versus 70°F). The maximum temperature during the intermediate-flow survey was 10.3°F above ambient, compared to 6.8°F above ambient during the high-flow survey. As a result of the lower river flows and higher temperature of the heated water discharge, plume temperatures near the discharge port were higher at all the measured depths, and the longitudinal

(downstream) extent of the plume temperatures was greater during the intermediate-flow survey. The lateral extent of the plume did not change noticeably during the high- and intermediate-flow surveys.

The transverse spread of the thermal plume during the intermediate-flow survey was very similar to the high-flow survey. The initial spreading was large. The surface plume (1-, 3-, and 5-ft depths), as defined by the 0.2°F temperature isotherm, spread to a width of 90 to 100 ft within a distance of 50 ft downstream of the discharge port. The width of the surface plume 300 ft downstream was 145 to 160 ft. The transverse spread of the plume decreased with increasing depth. At a depth of 10 ft the initial spreading of the plume was 75 ft, and at 300 ft downstream the plume width was 130 ft.

The 1.0°F temperature isotherm was confined laterally to the NPDES mixing zone during the intermediate-flow survey, but extended beyond 500 ft downstream of the discharge port. At a distance of 50 ft downstream of the discharge port, the width of the 1.0°F isotherm was 60 ft at 1 ft below the water surface, and 45 ft at 10 ft below the water surface. At a distance of about 300 ft downstream of the discharge port, the width of the 1.0°F isotherm had increased to 80 to 100 ft. The width of the 1.0°F isotherm appeared to diminish downstream of the mixing zone.

Temperature isotherms greater than 2.0°F above ambient were found at all the measured depths during the intermediate-flow survey, but were confined to a small area in the vicinity of the discharge port and were within the NPDES mixing zone. The 2.0°F temperature isotherm did not extend beyond 100 ft downstream of the discharge port, and was about 35 ft wide at the widest points. The concentric shape of 2.0°F and higher isotherms around the discharge port indicated that the plume rose rapidly and that much of the heat was dissipated before the thermal plume reached the water surface. Plume temperatures higher than 3.0°F above ambient were found at depths of 7 ft and greater. At a depth of 13 ft below the water surface there was a small area encompassed by the 6.0°F isotherm.

Peak temperatures measured during the intermediate-flow thermal survey are shown in Figure 35 as a function of downstream distance from the discharge port. The highest peak temperature of 8.7°F above ambient occurred at a depth

of 20 ft below the water surface (2.5 ft above the discharge port), and just upstream of the discharge port. Peak temperatures of 3.0°F above ambient or higher were found at the discharge port at all the measured depths. The peak temperatures dropped rapidly to below 2.0°F within 150 ft downstream of the discharge port.

Additional temperature measurements were taken along one transect line downstream of the N Reactor discharge port and along three transect lines upstream of the N Reactor discharge port, but downstream of the HGP thermal discharge. The additional transect lines were run to confirm that the plume temperatures recorded toward the middle of the channel originated from the HGP thermal discharge, and that the HGP plume did not interact with the N Reactor plume within the mixing zone. The measured temperature data are presented in Appendix B as lines 24 through 27 under the intermediate-flow survey. Figures 36 and 37 show cross-channel temperatures at depths of 1, 3, 5, 7 and 10 ft below the water surface. The plume temperatures in Figure 36 were measured 340 ft upstream of the N Reactor discharge port. Plume temperatures in Figure 37 were measured 160 ft downstream of the N Reactor discharge port. The distances on the graphs represent the distance to the left (east) or right (west) of the centerline of the N Reactor thermal plume looking upstream. In Figure 36, the HGP thermal plume with temperatures greater than 2.0°F, above ambient, was present about 300 ft to the west of the N Reactor discharge port. The maximum width of the HGP plume at this location was about 300 ft. The HGP plume did not extend to within 50 ft of the projected centerline of the N Reactor thermal plume. Both the N Reactor and HGP thermal plumes are present in Figure 37. The two plumes did not appear to merge at a distance of 160 ft downstream of the N Reactor discharge port. The N Reactor thermal plume with temperatures less than 2.0°F above ambient was about 150 ft wide at its widest point. The HGP thermal plume was more extensive even though the discharge port was located about 600 ft upstream of the transect line. At this location temperatures from the HGP discharge were 2.0°F above ambient or higher, and the width of the plume was about 300 ft.

Low-Flow Thermal Survey

The low-flow thermal survey was performed on September 19, 1982. The average river stage during the survey was 380.1 ft above MSL, representing an average river flow rate of 53,500 cfs. The top of the discharge port was located at a depth of 20.1 ft below the water surface. The deep sensor (20 ft) was at about the same elevation as the top of the discharge port during the low-flow survey. The temperature of the heated discharge water in the sealwell was 73°F. The ambient river temperature just upstream of the discharge port was 63.2°F, resulting in a maximum difference in temperature of 9.8°F between the heated discharge water and ambient river water. This was slightly lower than during the intermediate-flow survey.

Isothermal plots of the longitudinal and transverse plume temperature distribution during the low-flow survey are shown in Figures 38 through 44. As with the high- and intermediate-flow surveys, the thermal plume during low flow was well defined at all the measured depths. The HGP plume with temperatures slightly less than 2.0°F above ambient was present just to the west (top of figures) of the N Reactor thermal plume. Although the two plumes did not merge within the N Reactor mixing zone, it appeared that the plumes did merge at some distance downstream of the mixing zone.

Higher plume temperatures were measured in the near surface waters during the low-flow survey with the 3.0°F temperature isotherm surfacing about 20 ft downstream of the discharge port. The initial transverse spread of the thermal plume during low flow was also greater than during high- and intermediate-flow surveys. The width of the thermal plume, encompassed by the 0.2°F isotherm, was about 120 ft within 50 ft downstream of the discharge port, at depths of 1, 3, and 5 ft below the water surface. At 7 and 10 ft below the water surface, the initial spread of the plume was slightly less. The 1.0°F isotherm extended slightly beyond the lateral boundary of the NPDES mixing zone at depths of 1, 3, and 5 ft below the water surface. The 1.0°F isotherm also extended well beyond the downstream boundary of the NPDES mixing zone.

The 2.0°F and higher isotherms were confined to the NPDES mixing zone at all the measured depths during the low-flow survey. At the deeper depths of

13, 15, and 20 ft below the water surface a thermal island with temperatures higher than 3.0°F above ambient was present just upstream and to the left (looking upstream) of the discharge port.

Peak plume temperatures measured during the low-flow thermal survey are shown in Figure 45. The peak temperatures are plotted as a function of downstream distance from the discharge port. During the low-flow survey, the peak temperatures near the discharge port were somewhat lower than those measured during the intermediate-flow survey. This was probably due to the lower ambient and discharge water temperatures. The low-flow peak temperatures, however, did not decrease as rapidly with increasing downstream distance.

Additional temperature measurements were taken along one transect line about 300 ft upstream of the N Reactor discharge port and along nine transect lines extending about 3400 ft downstream of the discharge port. The additional transect lines were needed to evaluate the interaction of the HGP thermal plume with the N Reactor thermal plume, and to see how far downstream the N Reactor thermal plume extended. Figures 46 through 50 are cross-channel plume temperatures resulting from the HGP and N Reactor thermal discharges. The cross-sections were taken 310 ft upstream of the N Reactor discharge port, and 500 ft, 1350 ft, 2200 ft, and 3400 ft downstream of the N Reactor discharge port.

Temperatures from the HGP thermal plume at a distance of 310 ft upstream of the N Reactor discharge port are shown in Figure 46. The HGP plume centerline, with peak temperatures slightly higher than 3.0°F above ambient was about 300 ft west of the projected N Reactor thermal plume centerline. The HGP plume was about 300 ft wide with the outside edge of the plume about 100 ft west of the projected N Reactor plume centerline. Figure 47 shows the temperatures from the N Reactor and HGP thermal plumes, at a distance of 500 ft downstream of the N Reactor discharge port. The two thermal plumes were very distinguishable with peak temperatures from the HGP and N Reactor plumes of about 2.4°F and 1.4°F above ambient, respectively. The HGP plume, at a distance of 500 ft downstream of the N Reactor discharge port, was much more extensive with higher temperatures than the N Reactor plume. The plumes began to merge 500 ft downstream of the N Reactor discharge port.

The HGP and N Reactor thermal plumes continued to merge between 500 ft and 1350 ft downstream of the N Reactor discharge port, although both peaks were still discernible (Figure 48). The peak temperatures of the HGP and N Reactor plumes were 2.1°F and 1.1°F above ambient, respectively. The HGP plume was about 400 ft wide and the N Reactor plume about 200 ft wide. At a distance of 2200 ft downstream of the N Reactor discharge port, shown in Figure 49, the two thermal plumes had almost completely merged. The combined width of the two plumes was about 600 ft, with a peak temperature of about 2.0°F above ambient. The temperature coinciding with the N Reactor thermal plume centerline was about 1.0°F above ambient at 2200 ft downstream of the N Reactor discharge port. The furthest downstream transect, shown in Figure 50, was 3400 ft downstream of the N Reactor discharge port. The two plumes had completely merged at this location. The combined plume width was about 700 ft and the peak temperature was about 1.8°F above ambient. The temperature coinciding with the N Reactor thermal plume centerline was about 0.8°F, above ambient.

DYE SURVEYS

Dye concentration data were collected along the same 23 transect lines as the thermal surveys during high and low Columbia River flow conditions. Vessel track plots during the two dye surveys are shown in Figures A.5 and A.6 of Appendix A. Dye concentration data for each dye survey, along with the x and y coordinates, are given in Appendix B.

Contour plots representing the longitudinal and transverse dye distribution of the N Reactor thermal discharge at the two measured depths for each survey have been prepared from the dye concentration data in Appendix B. The dye concentration plots were constructed using the same computer contouring program as that used in preparing the isothermal contour plots.

High-Flow Dye Survey

The high-flow dye survey was performed on September 16, 1982. The average river stage during the survey was 385.0 ft above MSL, representing an average flow rate of the Columbia River of 113,500 cfs. Dye was pumped into the

N Reactor sealwell at a rate of 12.7 gallons per day (gpd) and the discharge flow rate was 290,000 gallons per minute (gpm) or 4.18×10^8 gpd. The initial dye concentration in the discharge pipe, assuming total mixing within the pipe, was 30.3 parts per billion (ppb).

The longitudinal and transverse dye distribution at depths of 1 and 5 ft below the water surface during the high-flow survey are shown in Figures 51 and 52. The dye plume, as defined by the 1 ppb isopleth, was well defined. The initial spread of the surface dye plume (1-ft depth) was relatively large, spreading to 100 ft within 50 ft downstream of the discharge port. The maximum width of the surface dye plume within the NPDES mixing zone was 140 ft. At a depth of 5 ft below the water surface the width of the dye plume was somewhat less, being about 80-ft wide at a distance of 50 ft downstream of the discharge port, and 110 ft wide at its widest point within the NPDES mixing zone. The 4 ppb and higher-concentration isopleths were confined within the NPDES mixing zone. A small area representing dye concentrations greater than 10 ppb were present just downstream and to the east of the discharge port.

Peak dye concentrations during the high-flow survey are shown in Figure 53 as a function of downstream distance from the N Reactor discharge port. Peak dye concentrations greater than 15 ppb were found near the discharge port at both depths, but decreased rapidly to below 10 ppb within 50 ft downstream of the discharge port. The peak dye concentrations continued to decrease rapidly to about 6 ppb within 150 ft downstream of the discharge port. The peak dye concentrations further decreased to about 4 ppb at the downstream extent of the NPDES mixing zone. Beyond 300 ft downstream of the discharge port, the peak dye concentrations continued to decrease, but at a slower rate. At about 500 ft downstream of the discharge port, the peak dye concentrations were slightly less than 4 ppb.

Low-Flow Dye Survey

The low-flow dye survey was performed on September 17, 1982. The average river stage during the survey was 381.4 ft above MSL, corresponding to a river flow rate of 65,500 cfs. Dye was pumped into the N Reactor sealwell at a rate of 13.0 gpd. The flow rate of the discharge was 290,000 gpm, the same as during the high-flow dye survey. The initial dye concentration in the

discharge pipe, assuming total mixing in the pipe, was 31.2 ppb. This was slightly higher than the initial dye concentration during the high-flow survey.

The longitudinal and transverse dye distribution at depths of 2 and 5 ft below the water surface during the low-flow survey are shown in Figures 54 and 55. The dye plume encompassed by the 1 ppb dye concentration isopleth was well defined during the low-flow survey. The plume width at a distance of 50 ft downstream of the discharge port was about 145 ft, and at 300 ft downstream, the plume width had further increased to about 180 ft. The 5 ppb dye-concentration isopleth extended about 40 ft outside the west boundary of the NPDES mixing zone at the 2-ft depth. A small area representing dye concentrations greater than 10 ppb was present in the immediate vicinity of the discharge port.

Peak dye concentrations during the low-flow dye survey are shown in Figure 56 as a function of downstream distance from the discharge port. Peak dye concentrations decreased rapidly to below 10 ppb within 50 ft downstream of the discharge port, as found during the high-flow survey. The peak dye concentrations continued to decrease to about 4 ppb at the downstream boundary of the NPDES mixing zone, 300 ft downstream of the discharge port.

DISCUSSION OF RESULTS

The three thermal and two dye surveys of the N Reactor thermal plume conducted in September 1982 covered a range of Columbia River flows from 53,500 cfs to 113,500 cfs. The average monthly flow of the Columbia River at Priest Rapids Dam during September for the period of 1960 to 1977 is about 80,000 cfs. Ambient river temperatures during the thermal surveys varied from 63.2°F to 63.7°F, which are very close to the average monthly Columbia River temperature at Vernita (1960-1977) of about 63.5°F. The N Reactor discharge temperature measured in the sealwell varied from 68°F to 76°F during the surveys.

The N Reactor thermal plume was well defined during all the surveys, and could be traced as far as 2200 ft downstream of the discharge port where it became totally mixed with the HGP thermal plume. The thermal plume was generally very narrow, and the temperatures decreased rapidly downstream of the discharge port.

TRANSVERSE PLUME TEMPERATURE DISTRIBUTION

The rate of transverse mixing of a thermal plume is related to the channel width, channel bed irregularities, cross-sectional variations in velocity, and changes in river flow (depth and velocity of flow). Assuming that the relative magnitude of the above factors remains about the same during different river flows, the transverse mixing should increase with decreasing river flow, because the transverse mixing coefficient is inversely proportional to the depth and velocity of flow. This was found to be the case during the field study. The transverse spread of the thermal and dye plumes was found to be greater at lower Columbia River flows. The width of the low-flow thermal plume at a distance of 50 ft downstream of the discharge port was about 130 ft as compared to 90 to 100 ft during the intermediate- and high-flow surveys. At a distance of 300 ft downstream of the discharge port, the plume width during low flow was 180 ft, as compared to about 145 ft during intermediate flow. The increase in plume width with decreasing river flow was also apparent during the high- and low-flow dye surveys for the reasons stated above. The dye plume

width, encompassed by the 1 ppb isopleth, at a distance of 50 ft downstream of the discharge port during the low-flow survey was 145 ft, whereas the width during the high-flow survey was less than 100 ft. The dye plume width at a distance of 300 ft downstream of the discharge port during the low- and high-flow surveys was 185 ft and 130 ft, respectively.

The initial transverse spread of the N Reactor thermal plume was large during all the surveys. Within five discharge port diameters downstream of the port (50 ft), the thermal plume width was 100 ft or greater. The large initial spread of the plume is probably due in most part to the discharge port configuration, consisting of a 13-ft-diameter energy dissipator cap which forces the heated water to exit the port horizontally to the bed in a full 360° circle. It is also likely that a channel bed irregularity downstream of the discharge port, in the form of a knoll extending about 10 ft above the port, has some effect on increasing the initial transverse spread of the thermal plume. The extent to which the downstream knoll affects the transverse spread of the plume, however, was not determined in the field study. After the initial spreading within 50 ft downstream of the discharge port, the thermal plume spreads very slowly. For example, the low-flow thermal plume was 145 ft wide at 50 ft downstream of the discharge port, 180 ft wide at 500 ft downstream of the port, and 200 ft wide at 1350 ft downstream.

LONGITUDINAL PLUME TEMPERATURE DISTRIBUTION

The longitudinal temperature distribution from the N Reactor thermal plume was similar during the high-, intermediate-, and low-flow thermal surveys, except in the immediate vicinity of the discharge port. Plume temperatures decreased rapidly with increasing distance downstream of the discharge port at all the measured depths. The highest temperatures were found within 25 ft of the discharge port at all the measured depths during the three surveys. The greatest decline in plume temperatures occurred within 150 ft downstream of the discharge port in the shallow tows (1-10 ft) and within 50 ft downstream of the discharge port in the deep tows (11-20 ft). Beyond 150 ft downstream of the discharge port, the rate of decrease of plume temperatures was very low. As an example, during the low-flow thermal survey, the maximum temperature of 4.0°F

above ambient at 1 ft below the surface was found 20 ft downstream of the discharge port. At 150 ft downstream, the peak temperature had declined to 2.0°F above ambient. The peak temperature at 300 ft downstream of the discharge port was 1.8°F above ambient. At 500 ft, 1350 ft, and 2200 ft, the peak temperature continued to decrease at a slow rate from 1.3°F to 1.1°F to 0.9°F above ambient.

The plume temperatures were much higher during the intermediate-flow survey than during the high-flow survey. The peak temperatures in the near-surface water near the discharge port were slightly higher than 4.0°F above ambient during the intermediate-flow survey, as compared to temperatures slightly higher than 2.0°F above ambient during the high-flow survey. The maximum measured plume temperature during the intermediate-flow survey was 8.7°F, above ambient, as compared to 6.1°F, above ambient, during the high-flow survey. The maximum measured temperature for both surveys was found at 20 ft below the surface near the discharge port. The peak temperatures at about 500 ft downstream of the discharge port were also slightly higher during the intermediate-flow survey. The higher plume temperature during the intermediate flow survey can partially be accounted for by the variation in river flow rates, but more importantly the difference in the heated water discharge temperatures in the sealwell (74°F versus 70°F) probably accounts for most of the difference in plume temperatures. During the low-flow survey, the peak plume temperatures near the discharge port were actually slightly lower than those found during the intermediate-flow survey. These lower temperatures were probably due to lower ambient and discharge water temperatures during the low-flow survey. The downstream plume temperatures were slightly higher.

VERTICAL PLUME TEMPERATURE DISTRIBUTION

The N Reactor thermal plume appeared to rise very rapidly. The highest temperatures during the three thermal surveys were found below a depth of 10 ft and near the discharge port. Not only was there a rapid longitudinal and transverse decrease in plume temperatures with increasing distance from the discharge port, but the plume temperatures decreased rapidly as the thermal plume rose to the surface. The peak temperatures during the intermediate-flow

survey at the discharge port decreased rapidly as the thermal plume rose to the surface. The peak temperatures during the intermediate-flow survey at the discharge port decreased from 8.7°F above ambient at 20 ft below the surface, to 7.3°F above ambient at 13 ft, to 7.0°F above ambient at 11 ft, to 6.2°F above ambient at 10 ft, to 5.8°F above ambient at 7 ft, to 4.3°F above ambient at 3 ft, and finally to 4.2°F above ambient at 1 ft below the surface. With increasing distance downstream of the discharge port, the thermal plume became more uniformly mixed with depth. At a distance of 300 ft downstream of the discharge port during the intermediate-flow survey, peak plume temperatures varied only slightly with depth.

INTERACTION OF N REACTOR AND HGP THERMAL PLUMES

Additional temperature measurements were taken during the intermediate- and low-flow thermal surveys to determine the interaction of the N Reactor and HGP thermal plumes. It was found that the HGP thermal plume did not interact with the N Reactor thermal plume within the N Reactor mixing zone. The two thermal plumes began to merge just downstream of the N Reactor NPDES mixing zone and were completely mixed at a distance of about 3400 ft downstream of the N Reactor discharge port during low flow. At that point the combined width of the two plumes was about 700 ft with a peak temperature of slightly less than 2.0°F above ambient. The excess temperature coinciding with the N Reactor thermal plume centerline was slightly less than 1.0°F above ambient.

FIGURES

FIGURE 1. N Reactor Thermal Plume Characterization Study Area

FIGURE 2. Columbia River Flows at Priest Rapids Dam, 1960-1977

FIGURE 3. Columbia River Stage/Discharge Relationship at RM 380

FIGURE 4. Columbia River Temperatures at Vernita Gaging Station, 1960-1977

FIGURE 5. Current Meter Deployment

FIGURE 6. Current Meter Components

FIGURE 7. Temperature Measurement Depths,
High-Flow Survey

FIGURE 8. Temperature Measurement Depths, Low-Flow Survey

FIGURE 9. Columbia River Daily Discharges, Priest Rapids Dam

FIGURE 10. Columbia River Hourly Discharges,
Hanford Generating Project

FIGURE 11. Daily Columbia River Temperatures at Vernita Gaging Station, 1960-1977

NOTES
 ORIGINAL SURVEY CONDUCTED IN WINTER OF 1963-64
 CONTOURS TAKEN FROM DRAWING N-1-32285
 CONTOUR INTERVAL IS ONE FOOT
 COORDINATES ARE BASED ON THE 1900 COORDINATE SYSTEM
 ELEVATIONS ARE BASED ON THE 1929 GEODETIC VERTICAL DATUM

FIGURE 12. Columbia River Bathymetry Near N Reactor, 1964

NOTES
 SURVEY CONDUCTED ON SEPTEMBER 1, 1982
 ELEVATIONS ARE BASED UPON THE 1929 GEODETIC
 VERTICAL DATUM
 COORDINATES SHOWN ARE BASED UPON THE
 100N AREA COORDINATE SYSTEM
 (C) SYMBOL INDICATES HEATED WATER DISCHARGE PORT
 RECTANGULAR AREA INDICATES PRIMARY
 STUDY AREA 100 x 350 FEET
 --- INDICATES THERMAL PLUME CENTERLINE

FIGURE 13. Columbia River Bathymetry Near 100-N Discharge, 1982

FIGURE 14. Vertical Velocity Profiles Taken During Thermal Surveys Conducted at N Reactor in September 1982

FIGURE 15. Vertical Velocity Profiles Taken During Thermal Surveys Conducted at N Reactor in September 1982

FIGURE 16. Vertical Velocity Profiles Taken During Thermal Surveys Conducted at N Reactor in September 1982

FIGURE 17. Vertical Velocity Profiles Taken During Thermal Surveys Conducted at N Reactor in September 1982

FIGURE 18. Vertical Velocity Profiles Taken During Thermal Surveys Conducted at N Reactor in September 1982

FIGURE 19. Vertical Velocity Profiles Taken During Thermal Surveys Conducted at N Reactor in September 1982

FIGURE 20. Temperature Isotherms of N Reactor Discharge at 1 ft Below Surface
 During High Flow

FIGURE 21. Temperature Isotherms of N Reactor Discharge at 3 ft Below Surface During High Flow

FIGURE 22. Temperature Isotherms of N Reactor Discharge at 5 ft Below Surface During High Flow

FIGURE 23. Temperature Isotherms of N Reactor Discharge at 7 ft Below Surface
 During High Flow

FIGURE 24. Temperature Isotherms of N Reactor Discharge at 10 ft Below Surface During High Flow

THERMAL SURVEY, HIGH FLOW,
 CONTOUR INTERVAL: 0.2 DEGREES F ABOVE AMBIENT TEMP.
 AMBIENT TEMPERATURE: 63.2 DEGREES F
 + DISCHARGE PORT NPDES MIXING ZONE
 EACH GRADUATION: 5 FT
 LOWER LEFT CORNER: X=6265 Y=7615

FIGURE 25. Temperature Isotherms of N Reactor Discharge at 11, 13 and 15 ft Below Surface During High Flow

FIGURE 26. Temperature Isotherms of N Reactor Discharge at 17 and 20 ft Below Surface During High Flow

FIGURE 27. Peak Plume Temperatures Downstream of Discharge Port at Depths
Noted on Each Plot During High-Flow

FIGURE 28. Temperature Isotherms of N Reactor Discharge at 1 ft Below Surface
 During Intermediate Flow

FIGURE 29. Temperature Isotherms of N Reactor Discharge at 3 ft Below Surface During Intermediate Flow

FIGURE 30. Temperature Isotherms of N Reactor Discharge at 5 ft Below Surface
 During Intermediate Flow

FIGURE 31. Temperature Isotherms of N Reactor Discharge at 7 ft Below Surface
 During Intermediate Flow

FIGURE 32. Temperature Isotherms of N Reactor Discharge at 10 ft Below Surface During Intermediate Flow

FIGURE 33. Temperature Isotherms of N Reactor Discharge at Depths of 11 and 13 ft During Intermediate Flow

FIGURE 34. Temperature Isotherms of N Reactor Discharge at Depths of
 15 and 20 ft During Intermediate Flow

FIGURE 35. Peak Plume Temperatures Downstream of Discharge Port at Depths
Noted on Each Plot Intermediate Flow

FIGURE 36. Cross-Channel Plume Temperatures at Depths of 1, 3, 5, 7 and 10 ft During Intermediate Flow (Cross-Section is 340 ft Upstream of Discharge Port)

FIGURE 37. Cross-Channel Plume Temperature at Depths of 1, 3, 5 and 7 and 10 ft During Intermediate Flow (Cross-Section is 160 ft Downstream of Discharge Port)

FIGURE 38. Temperature Isotherms of N Reactor Discharge at a Depth of 1 ft
 Below Surface During Low Flow

FIGURE 39. Temperature Isotherms of N Reactor Discharge at a Depth of 3 ft
 Below Surface During Low Flow

FIGURE 40. Temperature Isotherms of N Reactor Discharge at a Depth of 5 ft Below Surface During Low Flow

FIGURE 41. Temperature Isotherms of N Reactor Discharge at a Depth of 7 ft
 Below Surface During Low Flow

FIGURE 42. Temperature Isotherms of N Reactor Discharge at a Depth of 10 ft Below Surface During Low Flow

FIGURE 43. Temperature Isotherms of N Reactor Discharge at 11 and 13 ft
 Below Surface During Low Flow

FIGURE 44. Temperature Isotherms of N Reactor Discharge at 15 and 20 ft
 Below Surface During Low Flow

FIGURE 45. Peak Plume Temperatures Downstream of Discharge Port at Depths
Noted on Each Plot During Low Flow

FIGURE 46. Cross-Channel Plume Temperature at Depths of 1, 3, 5, 7 and 10 ft Below Surface During Low Flow (Cross-Section is 310 ft Upstream of Discharge Port)

FIGURE 47. Cross-Channel Plume Temperatures at Depths of 1, 3, 5, 7 and 10 ft Below Surface During Low Flow (Cross-Section is 500 ft Downstream of Discharge Port)

FIGURE 48. Cross-Channel Plume Temperatures at Depths of 1, 3, 5, 7 and 10 ft Below Surface During Low Flow (Cross-Section is 1350 ft Downstream of Discharge Port)

FIGURE 49. Cross-Channel Plume Temperatures at Depths of 1, 3, 5, 7 and 10 ft Below Surface During Low Flow (Cross-Section is 2200 ft Downstream of Discharge Port)

FIGURE 50. Cross-Channel Plume Temperatures at Depths of 1, 3, 5, 7 and 10 ft Below Surface During Low Flow (Cross-Section is 3400 ft Downstream of Discharge Port)

FIGURE 51. Dye Concentration Contours at a Depth of 1 ft Below Surface During High Flow

FIGURE 52. Dye Concentration Contours at a Depth of 5 ft Below Surface
During High Flow

FIGURE 53. Peak Downstream Dye Concentrations at 1 and 5 ft Below Surface During High Flow

FIGURE 54. Dye Concentration Contours at a Depth of 2 ft Below Surface
 During Low Flow

FIGURE 55. Dye Concentration Contours at a Depth of 5 ft Below Surface During Low Flow

FIGURE 56. Peak Downstream Dye Concentrations at 1 and 5 ft Below Surface During Low Flow

PART II: COMPUTER SIMULATION

MATHEMATICAL MODEL DESCRIPTION

The computer model used in this application addresses what is often termed the intermediate field. This is usually defined as the zone in which river processes dominate plume dynamics but heat transfer to the atmosphere is considered negligible. The model (referred to as the 2-D model) solves the classic pseudo three-dimensional, advection/diffusion partial-differential equation shown below.

$$\frac{\partial uT}{\partial x} = D_y \frac{\partial^2 T}{\partial y^2} + D_z \frac{\partial^2 T}{\partial z^2} \quad (1)$$

where

u = river velocity in the downstream direction

T = temperature

x = distance in downstream direction

y = distance in transverse direction

z = distance in vertical direction

D_y = tranverse eddy diffusivity (this mixing coefficient is assumed independent of position in x , y , z)

D_z = vertical eddy diffusivity (this mixing coefficient is also assumed independent of position in x , y , z).

This equation can be modified to:

$$\frac{\partial T}{\partial x} = K_y \frac{\partial^2 T}{\partial y^2} + K_z \frac{\partial^2 T}{\partial z^2} \quad (2)$$

where

$$K_y = \frac{D_y}{u}$$

$$K_z = \frac{D_z}{u}$$

if it is assumed that the river velocity, u , is independent of the downstream dimension, x .

The assumptions employed in reaching Equations (1) and (2) are:

- buoyancy effects are insignificant
- vertical and lateral velocity components are insignificant
- eddy diffusivities are homogeneous and spatially invariant^(a) but possibly anisotropic^(b)
- downstream diffusion is insignificant compared to downstream advection
- the flow is steady, i.e., $\partial T / \partial t \equiv 0$
- downstream velocity is spatially invariant in the region of the discharge.

Equation (2) has the form of the classical transient heat-conduction equation and may be easily solved for any desired boundary condition using well-tested numerical techniques. For the present study, the Douglas and Gunn (1964) alternating direction implicit method was used. The finite difference formulation is as follows:

$$T_{i,j}^{*n+1} - T_{i,j}^n = \frac{K_y \Delta t}{2} \left\{ \delta_y^2 (T^{*n+1} + T^n) + 2\delta_z^2 T^n \right\} \quad (3)$$

$$T_{i,j}^{n+1} - T_{i,j}^{*n+1} = \frac{K_z \Delta t}{2} \delta_z^2 (T^{n+1} - T^{*n}) \quad (4)$$

-
- (a) The effective eddy diffusivities need not be considered invariant if one is willing to assume that spatial gradients are small. If such an assumption is made the equations remain as given in Equation (2).
- (b) The version of the 2-D model used in this application assumes that the vertical eddy diffusivity is equal to the lateral eddy diffusivity.

where the subscripts i and j pertain to the (i,j) grid point in the y,z coordinate finite-difference network and n pertains to the point $n\Delta x$ downstream.

The difference operator δ^2 is defined by

$$\delta_y^2 T = (T_{i-1,j} + T_{i+1,j} - 2 T_{i,j}) / \Delta y^2 \quad (5)$$

for an evenly spaced grid.

The solution of the finite difference equations are determined by initial conditions and boundary conditions. The initial conditions consist of the temperatures throughout the cross-section being simulated. The boundary conditions may be of several types. The boundary condition may be 1) a certain temperature, 2) a heat flux boundary at which the temperature gradient is specified, or 3) a certain heat transfer coefficient may be specified (as in a convective heat transfer coefficient) with an attendant requirement for a reference off-boundary temperature. The boundary condition used in this application was the second type with the flux (i.e., temperature gradient) set to zero. This is the adiabatic boundary condition.

The initial condition employed in the simulations was a uniform cross-section ambient temperature with a region of higher temperature water near the discharge point. The size of this region was such that the energy flux through the cross-sectional area was the same as the discharge energy flux. The region shape depends upon the shape of the discharge and the judgment of the modeler.

Computational stability considerations are eliminated by the use of an implicit method. However, solution accuracy requires a judicious choice of grid spacing and downstream solution intervals. Poor selection of these parameters leads to numerical dispersion problems. The model permits the use of irregular, rectangular grid spacing in both dimensions of the cross-section and employs a marching solution for solving the parabolic governing equations in the downstream direction.

A near-field computer model entitled RBJ-3 (round buoyant jet, Fan 1967) was also considered for use in this study. Near the discharge port, discharged water mixes violently with the ambient water and is turned in the downstream direction. The near field is defined as the region extending from the point of discharge to a downstream location where the cross-stream velocity is no longer significant. RBJ-3 solves the pertinent equations of motion for the plume only, rather than for the complete discharge field.

The following differences between the model assumptions and the N Reactor discharge characteristics rendered the RBJ-3 model unsuitable for application to the N Reactor discharge plume:

1. The model assumes that the jet is discharging into a semi-infinite water body; hence it does not account for the boundary conditions (stream bottom and surface) which would tend to limit jet dilution. Given the river bathymetry in the vicinity of the discharge port and the design of the discharge structure, the plume probably interacts with the river bottom and surface only a short distance downstream, thus violating this model assumption.
2. The RBJ-3 formulation is based on a round discharge port. The N Reactor outfall includes a circular diffuser plate 6 ft above the vertically-oriented, 13-ft diameter discharge pipe opening. The heated water is therefore discharged laterally in a full 360° circle. This outfall configuration could not be accurately approximated as a round discharge port.

For these reasons, only the 2-D intermediate-field model was applied. As is shown in the comparison of model-predicted temperatures and field measurements (see Simulation Results), the 2-D model overestimates temperatures near the outfall (to ~200-ft downstream) and therefore gives conservative results in the near-field region.

INPUT DATA USED FOR N REACTOR PLUME SIMULATION

The primary reason for using a computer model in addition to field studies is to predict the effect of the discharged heated water on downstream river temperatures for flow conditions other than those which existed during the field studies. The field studies are an important part of the modeling effort because model parameters for other flow cases are selected on the basis of the calibration effort. Calibration is the term used when referring to the process of adjusting computer model parameters to achieve reasonable agreement between the measured plumes and the simulated plumes. Model calibration permits the computer model to be applied in a predictive mode because the calibration process demonstrates that the model simulates the plume reasonably well at different flow conditions when appropriate values are selected for the parameters.

This section describes the data used to calibrate the model and to select appropriate parameters for other flow conditions, including the "worst-case" river flow condition--36,000 cfs. This is the minimum flow allowed at Priest Rapids Dam as administratively set by the Federal Power Commission license. For our purposes, it is considered as the "worst-case" river flow condition because there is minimal flow to dilute the N Reactor heated water plume and therefore downstream plume temperatures will be highest during this flow condition.^(a) Results were also obtained for a more representative low-flow condition--53,500 cfs--and for the Columbia River average-flow condition--120,000 cfs.

As presented in the previous section, the following input data is required to run the 2-D model:

- discretization of the selected cross-section
- river velocity

(a) Note that this worst-case river flow condition seldom occurs. For the period of record for October 1959 to June 1983, the average daily flow at the Priest Rapids Dam and Vernita Gaging Station (approximately 13.0 river miles and 8.5 river miles upstream of the N Reactor discharge, respectively) was never less than 37,000 cfs and was between 37,000 cfs and 39,000 cfs only 0.3% of the total 24-year period, or 26 days. (Unpublished data, G. Whelan and C. A. Newbill, Pacific Northwest Laboratory.)

- initial plume temperature
- lateral eddy diffusivity.

The data used for each of these model elements is discussed below.

DISCRETIZATION OF THE SELECTED CROSS-SECTION

Figure 57 shows the discretization of the cross-sectional region used in this application. Only a portion of the total river cross-section was used. (The river width near the N Reactor outfall is approximately 1410 ft whereas the discretized area used for the computer simulations was only approximately 280 ft wide.) The boundary geometry was selected to correspond to typical bathymetry downstream of the outfall. The cross-stream divisions are seen to be variable with the grid spacing being smallest in the vicinity of the outfall. The vertical divisions are uniform at 1 ft intervals. The depths for the legal low flow (36,000 cfs) case vary within the cross-section from 12 ft to 26 ft. The water surface elevations for the low flow (53,500 cfs), intermediate flow (78,000 cfs), and high flow (95,000 cfs) cases were respectively, 3 ft, 5 ft, and 6 ft higher than that at legal low flow. At 120,000 cfs, the water surface elevation is 8 ft higher than that at legal low flow.

RIVER VELOCITY

Field measurements of the river velocity during field surveys in September 1982 and March 1983 provided means of correlating river flow with river velocity in the vicinity of the N Reactor outfall (Figure 58). The measured velocities for high flow, intermediate flow and low flow were respectively, 2.8 ft per second (fps), 2.4 fps and 1.8 fps. From Figure 58, the estimated velocity corresponding to legal low flow is 1.1 fps. For 120,000 cfs the corresponding velocity is estimated to be 3.2 fps.

INITIAL PLUME TEMPERATURES

The discharge temperatures were estimated from field measurements of the ambient river temperature just upstream of the discharge port and from the temperatures measured at the N Reactor sealwell structure. The discharge water temperatures at the sealwell varied from 62°F to 76°F during the field

studies. The river temperature varied from 62.5°F to 63.6°F. Averaging the sealwell water temperatures during each of the thermal surveys yielded the following plume temperatures for high flow, intermediate flow and low flow, respectively: 6.8°F, 10.3°F and 9.8°F, above ambient.

As was stated in the previous section (Mathematical Model Description), the size of the plume temperature region is determined such that the energy flux through the cross-sectional area is the same as the discharge energy flux. The discharge energy flux depends on the outfall flow. With three pumps operating, the normal outfall flow is 290,000 gpm (646 cfs) (WPPSS 1977). Therefore, the size of the plume temperature region for a given river velocity, V , would be $646/V$.

For other flow conditions, the plume temperature was estimated from the assumed heat load and the outfall flow given above. The normal heat load to the river is 550 MWt. This corresponds to a discharge temperature of:

$$\Delta T = \frac{\dot{Q}}{\dot{m} C_p} = 12.9^\circ\text{F}$$

where $\dot{Q}$ = reactor power level = 550 MWt

$\dot{m}$ = discharge-water mass-flow rate = 646 cfs x (62.4) lb/ft³

C_p = specific heat of water = 1 Btu/lb°F.

LATERAL EDDY DIFFUSIVITY

The lateral eddy diffusivity, D_y , is used in the 2-D model to simulate the rate of lateral spread of the thermal plume. A large lateral spread represents a high rate of mixing in the river. Plume temperatures at the centerline decrease more quickly when there is a high rate of mixing (larger spread) than when there is a low rate of mixing (smaller spread). Transverse diffusivities can be determined by using the following equation (Edinger et al. 1974):

$$\frac{\theta}{\theta_o} = \frac{Q_s}{(4\pi x u h^2 D_y)^{1/2}} \exp\left(\frac{-uy^2}{4xD_y}\right) \quad (6)$$

where

Q_s = volumetric flow rate of the discharge (cfs)

D_y = transverse diffusivity coefficient (ft²/sec)

x = distance downstream of discharge port (ft)

y = distance in transverse direction (ft)

u = river velocity (fps)

h = river depth (ft)

θ = plume centerline dye concentration (ppb) or temperature (°F) above ambient value

θ_o = discharge dye concentration (ppb) or temperature (°F) above ambient value

The equation can be simplified by assuming $y = 0$:

$$\frac{\theta}{\theta_o} = \frac{Q_s}{(4\pi x u h^2 D_y)^{1/2}} \quad (7)$$

Rearranging the equation and solving for D_y yields:

$$D_y = \left(\frac{\theta_o}{\theta}\right)^2 \frac{Q_s^2}{4\pi x u h^2} \quad (8)$$

The Edinger equation assumes Gaussian plume mixing in a fully-vertically-mixed, constant-depth river of infinite width. Use of peak concentrations (rather than the vertical average) should result in underestimation of diffusivity near the discharge. The equation is applicable for systems in which ambient turbulence is the primary mechanism of mixing. The near-field mixing is dominated by momentum jet-induced mixing. Therefore the dilutions computed by use of the Edinger equation with centerline peak concentrations

from field data result in substantially higher computed diffusion coefficients than are representative of real ambient river turbulence levels.

The curves shown in Figure 59 are based on D_y values calculated from the results of the thermal surveys. Peak temperatures downstream of the discharge port (see Figures 27, 35, and 45 of Part I) were used in Equation (8). The curves show a relationship between the lateral eddy diffusivity, D_y , and downstream distance. The calculated D_y values drop from values greater than 10 ft²/sec near the discharge port to values between 3 and 6 ft²/sec at 600 ft downstream. The higher values near the discharge port reflect the high rate of mixing near the outfall caused by jet-induced mixing and enhanced by the presence of a diffuser plate located 6 ft above the upward directed end of the 13-ft-diameter discharge pipe.

Figure 59 also indicates a relationship between D_y and river flow: the higher the river flow, the lower the value of the lateral diffusion coefficient. The decrease in transverse diffusivities with increasing flow results from the inverse relationship, shown in Equation (8), between D_y and both u (velocity) and h (depth). (Both the velocity and the depth vary directly with the river flow rate.)

Transverse diffusivities were also calculated on the basis of the dye surveys described in Part I for two different Columbia River flow conditions (65,000 cfs and 113,500 cfs). Peak dye concentrations downstream of the discharge port (see Figures 53 and 56 of Part I) were used in Equation (8). The calculated values showed the same trends as the D_y values calculated on the basis of temperature: decreasing values with downstream distance (for a given river flow), and with higher river flows (for a given distance downstream).

At 600 ft downstream, the D_y values based on temperature vary between 3 ft²/sec and 5.2 ft²/sec (see Figure 59). These values are consistent with values used in previous applications of the 2-D model to the Columbia River; both Kannberg (1980) and Trent (1976) used an eddy diffusivity value of 4 ft²/sec.

SIMULATION RESULTS

Sensitivity analyses were performed to determine the effect of various plume and site parameters on simulation results. Excess centerline temperatures some distance downstream were found to:

- decrease with an increase in the diffusion coefficient (lateral eddy diffusivity)
- increase with an increase in the effluent flow rate
- increase with an increase in the discharge temperature
- decrease with an increase in river velocity
- decrease with increased river depth

These results are consistent with the Edinger equation presented in the previous section (see Equation 8). Of the above parameters, all except the diffusion coefficient were assumed to be fixed for a given flow condition.

Figures 60, 61, and 62 compare the field-observed plumes (at a depth of 1 ft) with the simulated plumes. The 2-D model does not treat the initial dilution caused by jet-induced mixing near the outfall. The only mixing available in the computer model is that due to turbulence in the river. Therefore, the model predictions are not strictly accurate very near the outfall (predicted near-field temperatures are too high) but are reasonable approximations beyond about 200 ft downstream of the outfall. This is also seen in the plots of centerline temperature versus downstream distance (Figures 63 through 65). The measured temperatures shown in these three figures are vertically averaged values based on the temperatures shown in Figures 27, 35, and 45 of Part I. The simulated temperatures are those predicted by the model for the water surface, but are representative of vertically-averaged simulated temperature.

For the range of flows considered in the calibration process, the simulated plume was found to be vertically uniform from a short distance downstream of the discharge port. This results from the fact that a relatively large region of elevated temperature was required as the initial condition to

provide the required energy flux (based on an outfall flow of 646 cfs). A comparison of the field-observed isothermal contours for different depths at a given flow rate (i.e., 95,000 cfs, 78,000 cfs, 53,500 cfs) shows that the temperatures are reasonably well-mixed vertically beyond about 200 ft downstream of the discharge port. (The flat plate above the diffuser likely increases the rate of vertical mixing near the outfall.)

The plumes simulated for the low-flow and intermediate-flow cases agreed reasonably well (past about 250 ft) with measured plumes in both isothermal downstream length and isothermal width. The high-flow simulation could not be made to match both observed isothermal length and width with adjustments in the diffusivity. If the width were matched, the isothermal contours were too short, and if the downstream lengths of the isothermal contours were matched, the plume was too narrow. The sensitivity analyses indicated that, for a given flow (which fixes the water depth), the isothermal contours could be widened without being shortened (in the downstream direction) only with 1) an increase in effluent flow rate, 2) an increase in discharge temperature or 3) a decrease in river velocity. However, these parameters are assumed to be invariant. Figure 6 shows that the downstream lengths of the isothermal contours were matched. Consequently, the plume is narrower than the field-measured plume.

The values used for the lateral diffusivities in the three calibration flow cases were the following: $4 \text{ ft}^2/\text{sec}$ for the high-flow case, and $6 \text{ ft}^2/\text{sec}$ for both the intermediate- and low-flow cases. As discussed in the input data section (lateral eddy diffusivities), the lateral diffusivity value should tend to increase with decreasing river flow rate. Based on the values determined from the calibration effort, a value of 6 for E_y should give conservative results for the legal low-flow (36,000 cfs) case. (A higher value would give lower centerline temperatures and would thus be less conservative.) Figure 66 shows the simulated isothermal contours for the legal low flow case. (Note that the cross-section was extended by 80 ft on each side.) The plume is seen to spread more rapidly on the shallower side of the cross-section. Figure 67 shows the corresponding plot for the change in centerline temperature with downstream distance. Figures 68 through 71 show the simulated isothermal contours and the centerline temperature for the representative low flow

condition--53,500 cfs--and for the average-flow condition--120,000 cfs. Lateral diffusivity values selected for these two flow conditions were 6 ft²/sec and 3 ft²/sec, respectively.

It should be noted that the Hanford Generating Project (HGP) heated water discharge will probably increase the plume temperatures shown in Figure 66, most significantly on the left side of the plume (looking downstream). A comparison of Figures 60, 61, and 62 (see Figures 38, 28, and 20 in Part I) shows an increase in HGP plume interference with the N Reactor plume with decreases in river flow.

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FIGURE 57. Cross-Sectional Area Discretization Used for Simulations (as seen looking upstream; water surface elevation shown here corresponds to the low flow case--53,500 cfs.)

FIGURE 58. Average River Velocity as a Function of River Flow (based on velocity measurements in the vicinity of the discharge port)

FIGURE 59. Estimated Lateral Diffusion Coefficient (D_y) Values at Various Flows (based on peak excess temperatures)

FIGURE 60. Temperature Contours (measured and simulated) for Low Flow (53,500 cfs); $E = 6 \text{ ft}^2/\text{sec}$. (The temperatures measured at a water depth of 1 ft are reasonably representative of vertically-averaged measured temperatures, starting from about 200 ft downstream of the discharge port. Simulated temperatures are vertically uniform.)

FIGURE 61. Temperature Contours (measured and simulated) for Intermediate Flow (78,000 cfs); $E = 6 \text{ ft}^2/\text{sec}$. (The temperatures measured at a water depth of 1 ft are reasonably representative of vertically-averaged measured temperatures, starting from about 200 ft downstream of the discharge port. Simulated temperatures are vertically uniform.)

FIGURE 62. Temperature Contours (measured and simulated) for High Flow (95,000 cfs); $E = 4 \text{ ft}^2/\text{sec}$. (The temperatures measured at a water depth of 1 ft are reasonably representative of vertically-averaged measured temperatures, starting from about 200 ft downstream of the discharge port. Simulated temperatures are vertically uniform.)

FIGURE 63. Vertically-Averaged Plume Centerline Temperatures (measured and simulated) Versus Downstream Distance for Low Flow (53,500 cfs)

FIGURE 64. Vertically-Averaged Plume Centerline Temperatures (measured and simulated) Versus Downstream Distance for Intermediate Flow (78,000 cfs)

FIGURE 65. Vertically-Averaged Plume Centerline Temperatures (measured and simulated) Versus Downstream Distance for High Flow (95,000 cfs)

FIGURE 66. Temperature Contours (simulated) for Legal Low Flow
 (36,000 cfs); E = 6 ft²/sec; Vertically Uniform

FIGURE 67. Vertically-Averaged Plume Centerline Temperatures (simulated) Versus Downstream Distance for Legal Low Flow (36,000 cfs)

FIGURE 68. Temperature Contours (simulated) for Low Flow (53,500 cfs);
 E = 6 ft²/sec; Vertically Uniform

FIGURE 69. Vertically-Averaged Plume Centerline Temperatures (simulated)
Versus Downstream Distance for Low Flow (53,500 cfs)

FIGURE 70. Temperature Contours (simulated) for Average Flow (120,000 cfs);
E = 3 ft²/sec; Vertically Uniform

FIGURE 71. Vertically-Averaged Plume Centerline Temperatures (simulated)
Versus Downstream Distance for Average Flow (120,000 cfs)

APPENDIX A

NAVIGATION PLOTS

FIGURE A.1. Vessel Track, High-Flow Thermal Survey

FIGURE A.2. Vessel Track, Intermediate-Flow Thermal Survey

FIGURE A.3. Vessel Track, Low-Flow Thermal Survey

A.4

FIGURE A.4. Vessel Track, Thermal Surveys, Deep Tows (11-20 ft)

DYE SURVEY, HIGH FLOW

FIGURE A.5. Vessel Track, High-Flow Dye Survey

FIGURE A.6. Vessel Track, Low-Flow Dye Survey

APPENDIX B

THERMAL AND DYE DATA

HIGH-FLOW THERMAL SURVEY

REC #	LINE #	X	Y	1 FT	5 FT	5 FT	7 FT	10 FT
-----	-----	-----	-----	-----	-----	-----	-----	-----
1	1	6215.63	7633.28	63.1	63.2	63.2	63.2	63.1
2	1	6225.62	7642.74	63.1	63.2	63.2	63.2	63.2
3	1	6234.41	7648.21	63.1	63.2	63.2	63.2	63.1
4	1	6237.78	7657.57	63.1	63.2	63.2	63.2	63.2
5	1	6241.16	7666.44	63.1	63.2	63.2	63.2	63.2
6	1	6241.96	7673.94	63.1	63.2	63.2	63.2	63.1
7	1	6246.96	7683.78	63.1	63.2	63.2	63.2	63.2
8	1	6251.96	7693.63	63.1	63.2	63.2	63.2	63.2
9	1	6246.24	7703.49	63.1	63.2	63.2	63.1	63.1
10	1	6246.63	7714.35	63.1	63.2	63.2	63.2	63.1
11	1	6246.16	7727.76	63.1	63.2	63.2	63.1	63.1
12	1	6251.70	7741.21	63.1	63.2	63.2	63.1	63.1
13	1	6253.74	7745.19	63.1	63.1	63.2	63.2	63.1
14	1	6255.79	7749.17	63.1	63.1	63.2	63.2	63.1
15	1	6249.27	7757.56	63.1	63.1	63.2	63.2	63.1
16	2	6246.45	7620.86	63.1	63.2	63.2	63.2	63.2
17	2	6215.12	7621.33	63.1	63.2	63.2	63.2	63.2
18	2	6223.76	7621.79	63.1	63.2	63.2	63.2	63.1
19	2	6233.27	7637.79	63.1	63.2	63.2	63.2	63.2
20	2	6242.79	7653.60	63.1	63.2	63.2	63.2	63.2
21	2	6246.76	7661.65	63.1	63.2	63.2	63.2	63.2
22	2	6250.73	7669.50	63.1	63.2	63.2	63.2	63.2
23	2	6251.12	7673.00	63.1	63.2	63.2	63.2	63.2
24	2	6251.52	7676.51	63.1	63.2	63.2	63.2	63.2
25	2	6261.66	7686.14	63.2	63.2	63.2	63.2	63.2
26	2	6261.79	7704.85	63.2	63.2	63.2	63.2	63.2
27	2	6261.71	7723.57	63.1	63.2	63.2	63.2	63.1
28	2	6259.99	7726.20	63.2	63.2	63.2	63.2	63.1
29	2	6256.27	7732.63	63.1	63.2	63.2	63.2	63.1
30	2	6260.75	7742.35	63.1	63.2	63.2	63.2	63.1
31	2	6263.24	7747.67	63.1	63.2	63.2	63.2	63.1
32	3	6190.67	7600.10	63.1	63.2	63.2	63.2	63.2
33	3	6199.39	7598.95	63.1	63.2	63.2	63.2	63.2
34	3	6208.72	7597.80	63.1	63.2	63.2	63.2	63.2
35	3	6219.69	7607.13	63.1	63.2	63.2	63.2	63.1
36	3	6229.46	7616.46	63.1	63.2	63.2	63.2	63.1
37	3	6243.72	7633.76	63.1	63.2	63.2	63.2	63.2
38	3	6257.49	7651.07	63.1	63.2	63.2	63.2	63.1
39	3	6260.71	7662.61	63.1	63.2	63.3	65.1	63.9

REC #	LINE #	X	Y	1 FT	5 FT	5 FT	7 FT	10 FT
-----	-----	-----	-----	-----	-----	-----	-----	-----
40	3	6261.48	7669.82	63.2	63.2	63.9	65.6	65.4
41	3	6262.26	7676.64	65.5	64.6	63.7	65.7	66.5
42	3	6262.86	7681.89	63.5	65.6	64.7	66.6	64.5
43	3	6261.86	7686.14	63.7	63.4	64.2	66.7	67.9
44	3	6267.11	7704.66	63.3	63.3	63.7	63.4	63.5
45	3	6272.36	7723.18	63.3	63.3	63.6	63.3	63.4
46	3	6267.82	7735.52	63.2	63.2	63.4	63.2	63.3
47	3	6263.24	7747.67	63.2	63.2	63.3	63.2	63.2
48	3	6261.28	7754.96	63.1	63.2	63.3	63.2	63.2
49	4	6226.25	7615.65	63.2	63.2	63.2	63.2	63.2
50	4	6236.42	7608.87	63.1	63.2	63.2	63.2	63.2
51	4	6244.51	7618.65	63.1	63.2	63.2	63.2	63.2
52	4	6252.60	7629.24	63.1	63.2	63.2	63.2	63.2
53	4	6264.47	7639.27	63.1	63.2	63.2	63.2	63.2
54	4	6276.35	7649.31	63.1	63.2	63.2	63.2	63.2
55	4	6274.87	7664.86	63.1	63.2	63.3	63.2	63.2
56	4	6271.79	7678.69	63.1	64.8	64.7	66.0	66.6
57	4	6271.19	7680.22	64.1	63.6	64.5	63.7	64.5
58	4	6278.64	7681.76	63.4	65.6	65.0	64.5	65.1
59	4	6280.92	7691.50	64.1	63.5	64.2	65.4	65.5
60	4	6281.70	7698.56	63.3	63.3	63.8	63.3	63.7
61	4	6282.50	7705.62	63.2	63.3	63.6	63.2	63.3
62	4	6284.17	7719.76	63.2	63.2	63.5	63.2	63.2
63	4	6285.85	7733.94	63.1	63.2	63.4	63.2	63.2
64	4	6284.14	7738.46	63.2	63.2	63.3	63.2	63.2
65	4	6282.43	7743.19	63.1	63.2	63.3	63.2	63.2
66	4	6279.98	7759.57	63.1	63.2	63.3	63.2	63.2
67	5	6217.13	7603.23	63.2	63.2	63.3	63.2	63.2
68	5	6228.63	7602.59	63.1	63.2	63.3	63.2	63.2
69	5	6236.94	7641.95	63.1	63.2	63.3	63.2	63.2
70	5	6251.86	7613.81	63.2	63.2	63.2	63.2	63.2
71	5	6264.67	7625.68	63.1	63.2	63.2	63.2	63.2
72	5	6272.71	7636.40	63.1	63.2	63.2	63.2	63.2
73	5	6280.76	7647.13	65.3	64.7	63.3	63.2	63.1
74	5	6287.63	7655.95	63.6	64.3	63.6	64.5	64.4
75	5	6288.93	7666.50	65.8	63.7	64.1	65.0	64.6
76	5	6290.84	7677.86	63.6	63.4	63.9	63.4	64.2
77	5	6292.19	7689.65	63.3	63.3	64.0	65.2	65.8
78	5	6294.34	7702.24	63.3	63.2	63.6	63.3	63.3
79	5	6289.60	7716.88	63.2	63.2	63.5	63.2	63.3

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
-----	-----	-----	-----	-----	-----	-----	-----	-----
80	5	6283.85	7729.93	63.2	63.2	63.4	63.2	63.2
81	5	6284.59	7742.12	63.2	63.2	63.3	63.2	63.2
82	6	6232.51	7620.31	63.2	63.2	63.3	63.2	63.2
83	6	6242.43	7597.76	63.2	63.2	63.3	63.2	63.2
84	6	6252.36	7595.25	63.2	63.2	63.3	63.2	63.2
85	6	6258.79	7605.44	63.2	63.2	63.2	63.2	63.2
86	6	6265.23	7615.64	63.1	63.2	63.2	63.2	63.2
87	6	6272.99	7631.38	63.1	63.2	63.2	63.2	63.2
88	6	6280.76	7647.13	63.2	63.2	63.2	63.2	63.9
89	6	6284.65	7655.25	65.2	65.0	64.1	64.9	65.4
90	6	6288.55	7662.96	65.0	65.1	64.3	64.6	64.8
91	6	6297.80	7670.80	64.8	64.5	64.3	64.7	64.8
92	6	6307.06	7678.63	64.6	64.8	64.6	63.8	64.3
93	6	6311.09	7692.43	64.2	64.5	64.4	63.9	63.7
94	6	6290.32	7706.24	63.5	63.4	63.8	63.3	63.4
95	6	6304.24	7722.30	63.3	63.3	63.6	63.2	63.3
96	6	6301.35	7729.99	63.3	63.3	63.4	63.2	63.2
97	6	6298.46	7737.69	63.2	63.2	63.4	63.2	63.2
98	6	6296.75	7746.35	63.2	63.2	63.3	63.2	63.2
99	7	6241.43	7578.88	63.2	63.2	63.3	63.2	63.1
100	7	6246.81	7582.48	63.2	63.2	63.3	63.2	63.2
101	7	6256.22	7586.08	63.2	63.2	63.3	63.2	63.2
102	7	6262.63	7604.75	63.2	63.2	63.2	63.2	63.1
103	7	6276.72	7622.25	63.1	63.2	63.2	63.2	63.2
104	7	6290.82	7634.75	63.1	63.2	63.2	63.2	63.1
105	7	6299.79	7652.56	64.3	64.6	63.8	64.5	64.7
106	7	6308.50	7659.60	64.6	65.2	64.5	64.9	64.9
107	7	6301.22	7666.65	64.6	65.5	64.6	64.9	64.3
108	7	6306.64	7666.60	65.1	65.0	64.7	64.8	64.4
109	7	6312.07	7710.96	64.5	63.7	64.2	63.4	63.3
110	7	6314.15	7722.11	63.4	63.4	63.8	63.2	63.2
111	7	6317.64	7733.26	63.3	63.3	63.6	63.2	63.2
112	7	6314.76	7746.95	63.2	63.2	63.5	63.2	63.2
113	7	6311.84	7748.65	63.2	63.2	63.4	63.2	63.2
114	7	6309.05	7756.36	63.2	63.2	63.3	63.2	63.2
115	7	6306.22	7764.07	63.2	63.2	63.3	63.2	63.2
116	7	6296.62	7765.23	63.1	63.2	63.3	63.2	63.2
117	8	6210.48	7567.65	63.2	63.2	63.2	63.2	63.1
118	8	6228.57	7558.75	63.1	63.2	63.2	63.2	63.2
119	8	6239.50	7566.56	63.1	63.2	63.2	63.2	63.2

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
-----	-----	-----	-----	-----	-----	-----	-----	-----
120	8	6250.43	7574.41	63.1	63.2	63.2	63.2	63.2
121	8	6267.09	7585.57	63.2	63.2	63.2	63.2	63.2
122	8	6280.80	7599.50	63.1	63.2	63.2	63.2	63.2
123	8	6294.51	7613.51	63.2	63.2	63.2	63.2	63.1
124	8	6301.55	7630.90	63.5	63.5	63.5	64.6	64.4
125	8	6308.60	7648.29	64.1	64.7	64.1	64.4	64.8
126	8	6299.10	7605.53	64.4	64.3	64.3	64.9	64.9
127	8	6305.16	7652.43	64.5	64.7	64.5	64.8	64.5
128	8	6311.22	7659.33	64.4	64.7	64.4	64.3	64.1
129	8	6313.26	7671.92	64.5	64.3	64.3	64.0	64.1
130	8	6315.31	7684.52	64.3	64.7	64.6	65.6	65.2
131	8	6316.84	7698.70	65.2	64.1	64.3	63.4	63.3
132	8	6318.37	7712.68	63.5	63.4	63.8	63.3	63.3
133	8	6320.98	7729.15	63.3	63.3	63.6	63.2	63.2
134	8	6323.59	7745.42	63.2	63.2	63.5	63.2	63.3
135	8	6323.44	7750.53	63.2	63.2	63.4	63.2	63.2
136	8	6323.29	7755.65	63.2	63.3	63.3	63.3	63.3
137	8	6323.02	7765.69	63.2	63.2	63.3	63.2	63.2
138	9	6222.11	7557.16	63.2	63.2	63.3	63.2	63.2
139	9	6234.05	7556.44	63.2	63.2	63.2	63.2	63.2
140	9	6245.99	7559.73	63.2	63.2	63.2	63.2	63.2
141	9	6256.48	7566.07	63.1	63.2	63.3	63.2	63.2
142	9	6270.97	7576.42	63.1	63.2	63.2	63.2	63.2
143	9	6284.95	7593.89	63.1	63.2	63.2	63.2	63.2
144	9	6296.96	7611.30	63.2	63.2	63.2	63.2	63.2
145	9	6305.98	7628.76	63.1	63.2	63.4	63.3	63.2
146	9	6313.00	7645.17	64.3	64.3	63.6	64.5	64.2
147	9	6320.96	7657.12	64.0	64.3	64.8	63.8	63.9
148	9	6328.92	7668.08	64.5	64.9	64.4	65.0	64.4
149	9	6331.70	7687.83	64.6	64.9	64.6	64.6	64.6
150	9	6334.48	7707.58	63.5	63.4	63.8	63.3	63.3
151	9	6334.66	7724.91	63.3	63.3	63.6	63.2	63.2
152	9	6335.20	7742.25	63.2	63.3	63.5	63.3	63.2
153	9	6338.69	7754.56	63.2	63.2	63.4	63.2	63.2
154	9	6326.29	7761.76	63.2	63.2	63.3	63.2	63.3
155	9	6321.90	7768.97	63.2	63.2	63.3	63.2	63.2
156	9	6324.46	7771.51	63.2	63.2	63.3	63.2	63.2
157	9	6327.03	7774.05	63.2	63.2	63.3	63.3	63.2
158	9	6326.30	7764.73	63.3	63.3	63.4	63.7	63.5
159	10	6253.73	7556.32	63.2	63.3	63.3	63.2	63.2

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
-----	-----	-----	-----	-----	-----	-----	-----	-----
160	10	6259.22	7558.05	63.2	63.3	63.3	63.2	63.2
161	10	6264.68	7557.76	63.2	63.2	63.3	63.2	63.2
162	10	6273.92	7565.34	63.2	63.3	63.3	63.2	63.2
163	10	6283.17	7572.91	63.2	63.3	63.3	63.2	63.2
164	10	6290.11	7590.16	63.1	63.2	63.2	63.2	63.2
165	10	6297.06	7607.41	63.2	63.2	63.3	63.2	63.2
166	10	6305.95	7620.22	63.6	63.4	63.3	63.2	63.3
167	10	6314.64	7633.03	64.5	64.6	64.1	64.7	64.4
168	10	6328.79	7650.89	64.2	64.8	64.2	64.4	64.3
169	10	6326.95	7668.09	64.6	64.7	64.3	64.1	64.6
170	10	6329.12	7685.30	64.5	64.6	64.5	64.1	63.7
171	10	6335.53	7695.89	65.1	64.0	64.2	63.3	63.3
172	10	6341.94	7706.49	63.5	63.4	63.8	63.2	63.3
173	10	6342.90	7722.30	63.3	63.3	63.6	63.2	63.2
174	10	6343.66	7738.11	63.3	63.3	63.5	63.3	63.2
175	10	6342.95	7749.89	63.2	63.5	63.5	63.3	63.2
176	10	6342.05	7761.67	63.5	63.3	63.5	63.4	63.6
177	10	6339.35	7764.24	64.0	63.4	63.6	63.6	63.3
178	10	6336.66	7766.81	64.1	63.9	63.6	63.9	63.9
179	10	6326.82	7766.42	64.0	64.1	63.6	64.0	63.5
180	10	6325.60	7792.55	63.8	63.9	63.8	64.0	63.9
181	10	6322.39	7796.60	64.0	64.1	63.9	64.1	63.9
182	10	6319.13	7805.97	64.0	63.9	63.9	64.0	63.7
183	10	6315.87	7815.27	64.2	64.0	64.0	64.0	63.7
184	11	6248.02	7546.70	63.2	63.2	63.3	63.2	63.2
185	11	6263.53	7543.96	63.2	63.3	63.3	63.2	63.2
186	11	6279.04	7541.22	63.2	63.3	63.3	63.2	63.2
187	11	6285.61	7554.90	63.2	63.2	63.3	63.2	63.2
188	11	6292.18	7566.58	63.2	63.2	63.3	63.2	63.2
189	11	6302.60	7561.74	63.2	63.2	63.2	63.2	63.2
190	11	6313.02	7594.91	63.2	63.2	63.2	63.2	63.2
191	11	6331.93	7617.57	63.2	63.2	63.3	63.2	63.2
192	11	6331.91	7626.13	64.3	64.4	63.8	64.5	63.6
193	11	6331.90	7634.69	64.2	64.5	64.1	64.3	63.0
194	11	6334.45	7645.76	64.5	64.6	64.3	64.7	64.8
195	11	6337.00	7656.83	64.7	64.7	64.4	64.2	64.5
196	11	6342.83	7677.57	64.6	64.6	64.6	64.6	64.3
197	11	6348.67	7698.31	64.6	64.0	64.2	63.3	63.4
198	11	6345.47	7711.66	63.5	63.4	63.6	63.3	63.3
199	11	6342.20	7723.62	63.3	63.3	63.6	63.4	63.3

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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200	11	6346.59	7735.50	63.3	63.3	63.5	63.3	63.3
201	11	6350.91	7747.30	63.3	63.3	63.4	63.4	63.4
202	11	6352.55	7761.66	63.2	63.4	63.4	63.5	63.4
203	11	6347.59	7770.39	63.8	63.8	63.7	63.9	63.7
204	11	6342.64	7779.12	63.8	63.7	63.8	63.9	63.9
205	12	6251.99	7537.56	63.2	63.2	63.3	63.2	63.2
206	12	6260.70	7538.11	63.2	63.2	63.3	63.2	63.2
207	12	6269.41	7538.67	63.2	63.2	63.3	63.2	63.2
208	12	6287.86	7553.79	63.2	63.2	63.3	63.2	63.2
209	12	6301.73	7571.31	63.1	63.2	63.3	63.2	63.2
210	12	6315.61	7586.83	63.1	63.2	63.3	63.2	63.2
211	12	6326.29	7605.67	63.2	63.2	63.2	63.1	63.2
212	12	6336.97	7622.52	64.1	64.2	63.8	64.4	64.2
213	12	6344.83	7633.52	64.2	64.5	64.1	64.6	64.5
214	12	6352.69	7644.52	64.3	64.3	64.2	64.3	64.4
215	12	6355.69	7662.74	64.3	64.6	64.5	63.9	63.4
216	12	6359.09	7680.97	65.3	65.5	64.6	63.6	63.3
217	12	6359.09	7725.81	63.5	63.4	63.9	63.3	63.2
218	12	6357.14	7735.53	63.3	63.3	63.6	63.2	63.2
219	12	6355.19	7745.25	63.3	63.3	63.5	63.2	63.2
220	12	6356.00	7752.43	63.2	63.3	63.4	63.2	63.2
221	12	6356.81	7759.61	63.2	63.2	63.3	63.2	63.2
222	13	6290.62	7530.80	63.2	63.2	63.3	63.2	63.2
223	13	6304.67	7536.91	63.2	63.2	63.3	63.2	63.2
224	13	6310.52	7543.63	63.2	63.2	63.3	63.2	63.1
225	13	6326.00	7552.62	63.1	63.2	63.2	63.2	63.2
226	13	6341.49	7562.22	63.1	63.2	63.2	63.2	63.1
227	13	6348.47	7583.16	63.1	63.2	63.3	63.2	63.2
228	13	6355.45	7604.15	63.1	63.2	63.2	63.2	63.2
229	13	6357.67	7615.21	64.1	64.3	63.8	64.3	64.2
230	13	6360.30	7626.26	64.1	64.3	64.0	63.7	64.2
231	13	6365.25	7648.49	64.1	64.3	64.1	64.1	64.0
232	13	6370.27	7662.19	64.2	64.3	64.1	64.5	64.3
233	13	6375.29	7675.89	64.6	64.7	64.4	64.4	63.6
234	13	6382.02	7696.90	64.0	63.6	64.0	63.4	63.4
235	13	6388.75	7721.91	63.4	63.3	63.6	63.2	63.2
236	13	6387.72	7733.69	63.3	63.3	63.5	63.2	63.2
237	13	6386.69	7745.46	63.2	63.3	63.4	63.4	63.2
238	13	6384.76	7755.22	63.4	63.6	63.5	63.4	63.5
239	13	6382.83	7764.97	63.7	63.9	63.6	63.9	63.7

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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240	13	6375.15	7776.21	63.8	63.7	63.7	63.8	63.6
241	13	6373.74	7789.60	63.7	63.6	63.7	63.7	63.7
242	14	6307.22	7518.27	63.2	63.2	63.3	63.2	63.2
243	14	6327.76	7520.64	63.2	63.2	63.3	63.2	63.2
244	14	6339.34	7530.85	63.2	63.2	63.2	63.2	63.2
245	14	6350.93	7541.07	63.1	63.2	63.2	63.2	63.2
246	14	6358.44	7560.50	63.1	63.2	63.3	63.2	63.2
247	14	6365.96	7579.93	63.1	63.2	63.3	63.2	63.2
248	14	6375.50	7594.99	63.1	63.2	63.3	63.9	63.5
249	14	6385.05	7610.06	64.1	64.3	63.7	64.2	64.0
250	14	6395.35	7644.50	64.3	64.3	64.0	64.3	64.3
251	14	6397.17	7665.88	64.3	64.4	64.2	64.6	64.2
252	14	6399.00	7687.27	64.1	64.1	64.1	63.9	63.6
253	14	6403.09	7699.09	63.4	63.4	63.7	63.3	63.4
254	14	6407.19	7710.92	63.3	63.3	63.5	63.2	63.2
255	14	6409.78	7722.26	63.3	63.4	63.5	63.3	63.3
256	14	6412.37	7733.60	63.2	63.2	63.4	63.2	63.2
257	14	6409.20	7746.40	63.2	63.2	63.3	63.3	63.2
258	15	6318.09	7501.03	63.2	63.2	63.3	63.2	63.2
259	15	6329.06	7504.73	63.2	63.2	63.3	63.2	63.2
260	15	6340.64	7500.44	63.2	63.2	63.2	63.2	63.2
261	15	6357.13	7515.61	63.1	63.2	63.2	63.2	63.2
262	15	6373.62	7530.79	63.1	63.2	63.2	63.2	63.2
263	15	6386.39	7550.29	63.2	63.2	63.2	63.2	63.2
264	15	6399.16	7569.79	63.1	63.2	63.2	63.2	63.2
265	15	6404.12	7586.95	63.7	63.9	63.6	64.1	63.9
266	15	6409.08	7604.12	64.0	64.2	63.9	64.2	64.0
267	15	6412.57	7620.67	64.1	64.1	64.0	64.3	64.1
268	15	6416.07	7637.63	64.2	64.4	64.2	64.2	63.5
269	15	6423.35	7662.75	64.4	64.5	64.3	63.5	63.3
270	15	6430.64	7687.87	63.8	63.4	63.8	63.2	63.2
271	15	6428.85	7718.59	63.3	63.3	63.5	63.2	63.2
272	15	6428.68	7732.49	63.3	63.3	63.4	63.2	63.2
273	15	6428.52	7746.39	63.2	63.4	63.4	63.3	63.2
274	15	6427.49	7758.24	63.2	63.3	63.4	63.6	63.5
275	15	6426.47	7770.10	63.8	63.7	63.6	63.8	63.6
276	15	6424.16	7776.24	63.7	63.6	63.6	63.5	63.5
277	15	6421.65	7782.36	63.6	63.7	63.7	63.6	63.5
278	15	6426.23	7793.51	63.9	64.0	63.8	64.0	64.0
279	16	6337.72	7475.72	63.1	63.2	63.2	63.2	63.2

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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280	16	6340.74	7473.17	63.1	63.2	63.2	63.2	63.2
281	16	6343.77	7470.62	63.1	63.2	63.2	63.2	63.2
282	16	6355.98	7479.32	63.1	63.2	63.2	63.2	63.1
283	16	6368.20	7488.02	63.2	63.2	63.2	63.2	63.2
284	16	6397.75	7517.68	63.1	63.2	63.2	63.2	63.2
285	16	6412.44	7532.78	63.1	63.2	63.2	63.2	63.1
286	16	6427.14	7547.89	63.1	63.2	63.2	63.2	63.2
287	16	6430.37	7564.55	63.1	63.2	63.2	63.2	63.1
288	16	6433.60	7581.22	63.1	63.2	63.2	63.2	63.2
289	16	6434.91	7590.34	63.2	63.4	63.3	63.8	63.7
290	16	6436.23	7599.46	63.9	64.2	63.7	64.1	64.0
291	16	6438.06	7615.72	64.1	64.3	63.9	64.2	64.2
292	16	6439.90	7631.99	64.2	64.4	64.1	64.0	63.7
293	16	6444.03	7647.38	64.3	64.3	64.0	64.1	63.8
294	16	6448.17	7662.78	64.0	64.2	64.0	63.5	63.4
295	16	6444.25	7689.27	63.3	63.4	63.6	63.3	63.2
296	16	6448.55	7704.63	63.3	63.3	63.5	63.2	63.2
297	16	6452.86	7720.39	63.2	63.3	63.4	63.2	63.2
298	16	6454.72	7724.56	63.5	63.7	63.6	63.7	63.4
299	16	6456.58	7728.78	63.7	63.6	63.6	63.7	63.4
300	16	6456.30	7733.93	63.6	63.4	63.5	63.4	63.7
301	16	6456.03	7739.09	63.8	64.0	63.8	63.8	63.5
302	16	6458.24	7746.94	64.0	64.0	63.8	63.8	63.7
303	16	6460.45	7754.60	63.9	64.0	63.9	64.0	63.9
304	16	6457.73	7757.27	64.0	64.0	63.9	64.1	64.0
305	16	6455.01	7759.75	64.0	64.1	64.0	64.1	63.9
306	16	6460.67	7772.45	64.1	64.1	64.1	64.1	64.0
307	17	6383.04	7487.36	63.1	63.2	63.3	63.2	63.2
308	17	6386.01	7479.67	63.2	63.2	63.2	63.2	63.2
309	17	6396.26	7486.30	63.1	63.2	63.2	63.2	63.2
310	17	6405.91	7492.74	63.1	63.2	63.2	63.2	63.1
311	17	6415.99	7509.77	63.1	63.2	63.2	63.2	63.2
312	17	6426.08	7526.81	63.1	63.2	63.2	63.2	63.2
313	17	6439.11	7541.58	63.1	63.2	63.2	63.2	63.2
314	17	6452.14	7556.35	63.5	63.6	63.5	63.4	63.2
315	17	6462.57	7580.64	63.3	63.6	63.4	63.2	63.2
316	17	6461.01	7590.94	63.6	64.1	63.7	64.2	64.0
317	17	6460.66	7601.25	64.0	64.2	63.9	64.3	64.1
318	17	6465.29	7614.91	64.3	64.3	64.1	64.1	64.0
319	17	6469.92	7628.76	64.2	64.2	64.1	64.3	64.1

REC #	LINE #	X	Y	1 FT	2 FT	5 FT	7 FT	10 FT
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320	17	6467.78	7641.97	64.2	64.3	64.2	64.2	64.1
321	17	6465.65	7655.17	64.3	64.3	64.2	64.4	63.8
322	17	6467.07	7664.43	64.3	64.2	64.1	63.4	63.3
323	17	6468.49	7673.70	63.4	63.4	63.7	63.3	63.2
324	17	6472.10	7682.05	63.3	63.3	63.5	63.2	63.2
325	17	6475.72	7690.41	63.2	63.3	63.4	63.2	63.3
326	17	6473.13	7713.99	63.3	63.3	63.4	63.5	63.4
327	17	6473.43	7717.61	63.4	63.5	63.5	63.8	63.5
328	17	6473.74	7721.24	63.7	63.5	63.5	63.4	63.4
329	16	6361.98	7455.39	63.2	63.2	63.3	63.2	63.2
330	18	6372.74	7448.31	63.2	63.3	63.3	63.2	63.2
331	18	6383.50	7441.23	63.2	63.2	63.2	63.2	63.2
332	18	6397.31	7454.04	63.2	63.2	63.2	63.2	63.2
333	18	6411.12	7466.86	63.1	63.2	63.2	63.2	63.2
334	18	6437.14	7495.91	63.1	63.2	63.3	63.2	63.2
335	18	6443.12	7512.01	63.1	63.2	63.2	63.2	63.2
336	18	6449.11	7524.12	63.1	63.2	63.2	63.2	63.1
337	18	6466.16	7545.71	63.1	63.2	63.2	63.2	63.2
338	18	6483.22	7567.31	63.1	63.2	63.2	63.2	63.2
339	18	6484.79	7583.58	63.0	63.8	63.6	64.2	63.9
340	18	6486.37	7594.86	64.2	64.1	63.9	64.2	64.0
341	16	6486.93	7618.31	64.1	64.2	64.0	64.1	64.3
342	18	6491.50	7636.76	64.4	64.4	64.2	63.9	63.7
343	18	6494.60	7650.21	64.2	64.1	64.1	63.4	63.3
344	18	6497.70	7663.67	64.2	63.8	63.8	63.4	63.2
345	18	6501.50	7696.79	63.3	63.4	63.5	63.2	63.3
346	18	6499.56	7710.12	63.3	63.4	63.6	63.5	63.6
347	18	6497.62	7723.46	63.4	63.4	63.5	63.3	63.3
348	18	6501.56	7735.62	63.3	63.3	63.5	63.6	63.4
349	18	6505.51	7747.79	63.7	63.7	63.6	63.9	63.8
350	18	6501.57	7753.26	63.8	63.8	63.8	63.8	63.7
351	18	6497.64	7758.77	63.8	63.8	63.7	63.7	63.7
352	19	6424.56	7447.02	63.2	63.2	63.3	63.2	63.2
353	19	6431.45	7440.61	63.2	63.2	63.3	63.2	63.2
354	19	6438.34	7434.20	63.2	63.2	63.3	63.2	63.2
355	19	6452.08	7445.82	63.2	63.2	63.2	63.2	63.2
356	19	6467.23	7457.45	63.2	63.2	63.3	63.2	63.2
357	19	6495.71	7488.16	63.2	63.2	63.3	63.2	63.2
358	19	6505.42	7505.60	63.2	63.2	63.2	63.2	63.2
359	19	6515.13	7523.05	63.2	63.2	63.2	63.2	63.2

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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360	19	6517.85	7536.30	63.2	63.2	63.2	63.2	63.2
361	19	6520.57	7549.55	63.3	63.4	63.4	63.5	63.3
362	19	6523.35	7562.87	64.2	64.1	63.7	63.9	63.9
363	19	6526.13	7576.19	64.2	64.2	63.8	64.1	63.9
364	19	6531.19	7588.68	64.1	64.2	63.9	64.1	64.2
365	19	6536.25	7601.18	64.2	64.4	64.1	64.3	64.3
366	19	6537.11	7619.14	64.3	64.4	64.3	64.1	64.2
367	19	6537.98	7637.11	64.4	64.4	64.2	63.5	63.5
368	19	6542.63	7647.24	63.5	63.5	63.8	63.4	63.3
369	19	6541.36	7682.66	63.4	63.3	63.6	63.3	63.2
370	19	6542.10	7698.08	63.3	63.3	63.5	63.3	63.3
371	19	6542.85	7709.23	63.3	63.4	63.6	63.8	63.7
372	19	6541.66	7719.98	63.8	63.8	63.7	63.7	63.7
373	19	6554.23	7732.37	63.8	63.9	63.7	63.8	63.9
374	19	6551.13	7739.96	63.9	63.9	63.8	63.9	63.8
375	20	6448.91	7413.46	63.2	63.2	63.3	63.2	63.2
376	20	6458.25	7426.17	63.2	63.2	63.3	63.2	63.2
377	20	6467.60	7398.86	63.2	63.2	63.2	63.2	63.2
378	20	6492.94	7421.20	63.2	63.2	63.3	63.2	63.2
379	20	6513.35	7438.85	63.2	63.2	63.3	63.2	63.2
380	20	6533.77	7456.51	63.2	63.2	63.2	63.2	63.2
381	20	6540.16	7472.86	63.1	63.2	63.2	63.2	63.2
382	20	6546.55	7484.21	63.2	63.2	63.2	63.2	63.2
383	20	6557.58	7507.46	63.2	63.2	63.2	63.2	63.2
384	20	6568.62	7525.76	63.4	63.8	63.4	63.3	63.3
385	20	6572.01	7541.21	63.6	64.0	63.5	63.8	63.6
386	20	6575.40	7556.60	63.9	64.1	63.8	64.0	63.9
387	20	6582.57	7560.93	64.2	64.2	64.0	64.2	64.1
388	20	6586.26	7614.22	64.3	64.4	64.1	64.3	63.9
389	20	6589.94	7633.52	64.2	64.2	64.1	64.0	63.8
390	20	6589.62	7645.92	63.6	63.5	63.8	63.3	63.4
391	20	6589.61	7656.26	63.4	63.4	63.6	63.3	63.2
392	20	6589.89	7678.63	63.3	63.3	63.5	63.4	63.4
393	20	6590.16	7697.78	63.3	63.4	63.5	63.7	63.7
394	20	6588.68	7709.65	63.7	63.9	63.8	63.9	63.8
395	20	6587.19	7721.52	63.8	63.9	63.9	63.9	64.2
396	20	6591.63	7744.96	63.9	64.0	63.9	64.0	63.9
397	20	6587.90	7754.07	63.9	64.0	64.0	64.3	64.3
398	20	6584.18	7763.19	64.3	64.4	64.2	64.5	64.5
399	21	6582.20	7403.57	63.2	63.2	63.3	63.3	63.2

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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400	21	6519.43	7399.13	63.2	63.3	63.3	63.2	63.2
401	21	6527.26	7396.40	63.2	63.2	63.3	63.2	63.2
402	21	6546.72	7410.70	63.1	63.2	63.3	63.2	63.2
403	21	6566.19	7423.00	63.1	63.2	63.2	63.2	63.2
404	21	6576.99	7437.63	63.1	63.2	63.2	63.2	63.2
405	21	6587.79	7452.26	63.1	63.2	63.2	63.2	63.2
406	21	6596.25	7467.92	63.2	63.2	63.2	63.2	63.2
407	21	6604.72	7483.56	63.1	63.2	63.2	63.2	63.2
408	21	6615.51	7505.61	63.2	63.4	63.3	63.3	63.2
409	21	6617.12	7516.91	63.4	63.5	63.4	63.5	63.4
410	21	6618.74	7528.21	63.7	63.7	63.5	63.7	63.7
411	21	6621.97	7543.78	63.8	63.8	63.7	63.9	63.9
412	21	6625.21	7559.35	63.9	64.0	63.8	63.9	63.8
413	21	6626.52	7575.02	64.0	64.1	64.0	64.2	64.2
414	21	6631.83	7590.69	64.1	64.2	64.1	64.3	64.2
415	21	6634.41	7604.33	64.2	63.7	63.9	63.5	63.5
416	21	6637.00	7617.97	63.7	63.4	63.7	63.3	63.3
417	21	6631.92	7644.40	63.5	63.5	63.6	63.4	63.4
418	21	6636.63	7657.30	63.3	63.3	63.5	63.2	63.2
419	21	6641.74	7670.33	63.2	63.3	63.4	63.3	63.3
420	21	6639.22	7679.99	63.3	63.2	63.3	63.2	63.2
421	21	6636.74	7689.65	63.6	63.5	63.5	63.9	63.3
422	21	6637.88	7699.19	64.2	63.9	63.6	63.6	63.6
423	21	6639.06	7708.74	63.6	63.7	63.6	63.6	63.7
424	21	6636.01	7719.97	63.9	64.1	63.8	64.1	64.0
425	21	6632.96	7731.21	64.2	64.2	64.0	64.1	64.0
426	21	6631.89	7737.94	64.1	64.2	64.1	64.2	64.1
427	21	6630.63	7744.68	64.1	64.2	64.2	64.4	64.3
428	21	6635.19	7768.41	64.3	64.3	64.2	64.3	64.3
429	22	6575.47	7433.49	63.1	63.2	63.3	63.2	63.2
430	22	6564.77	7430.02	63.1	63.2	63.3	63.2	63.2
431	22	6594.08	7426.55	63.2	63.2	63.3	63.2	63.2
432	22	6601.75	7433.26	63.1	63.2	63.2	63.2	63.2
433	22	6609.43	7439.57	63.2	63.2	63.3	63.2	63.2
434	22	6624.71	7449.24	63.2	63.2	63.2	63.2	63.2
435	22	6640.00	7458.92	63.1	63.2	63.2	63.2	63.2
436	22	6685.26	7506.56	63.2	63.2	63.3	63.3	63.2
437	22	6679.93	7516.78	63.2	63.3	63.3	63.3	63.5
438	22	6674.61	7526.99	64.0	64.0	63.6	64.2	64.0
439	22	6678.30	7541.21	64.1	64.2	63.9	64.2	64.1

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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440	22	6682.18	7555.43	64.1	64.1	64.0	64.1	64.1
441	22	6689.76	7573.26	64.1	64.1	64.0	64.2	63.9
442	22	6697.35	7591.10	64.1	64.3	64.1	64.2	63.8
443	22	6700.58	7610.69	64.1	64.3	64.0	63.8	63.5
444	22	6703.81	7630.28	63.7	63.6	63.9	63.4	63.3
445	22	6707.77	7644.88	63.4	63.4	63.6	63.3	63.2
446	22	6711.74	7659.48	63.3	63.4	63.5	63.7	63.4
447	22	6711.16	7692.00	63.7	63.7	63.6	63.9	63.8
448	22	6711.40	7699.42	63.9	63.7	63.7	63.8	63.8
449	22	6711.65	7706.65	63.7	63.9	63.8	63.9	63.8
450	22	6709.12	7716.57	63.8	64.2	64.0	64.5	64.2
451	22	6706.59	7726.30	64.4	64.2	64.1	64.0	64.0
452	22	6705.43	7733.04	64.1	64.4	64.3	64.7	64.5
453	22	6704.27	7739.79	64.4	64.6	64.4	64.7	64.4
454	22	6701.49	7742.07	64.6	64.8	64.6	64.9	64.8
455	22	6696.71	7744.36	64.7	64.6	64.7	64.7	64.6
456	22	6695.03	7757.18	64.7	64.5	64.6	64.6	64.6
457	22	6691.36	7770.01	64.6	64.5	64.6	64.4	64.5
458	22	6693.03	7774.51	64.6	65.1	64.8	65.1	64.9
459	22	6694.71	7779.01	64.9	64.8	64.8	64.9	64.8
460	22	6680.85	7786.77	64.6	64.9	64.9	64.9	64.9
461	22	6681.31	7794.33	65.2	65.1	65.0	65.0	65.0
462	22	6681.77	7801.69	64.8	64.8	64.9	64.9	64.8
463	22	6682.17	7818.62	64.9	65.1	65.0	65.2	65.0
464	22	6682.56	7835.35	65.0	65.2	65.1	65.2	65.0
465	22	6676.66	7850.75	65.1	65.2	65.2	65.2	65.1
466	22	6670.75	7866.15	65.0	65.2	65.2	65.2	65.1
467	22	6670.38	7895.47	65.3	65.2	65.2	65.1	65.0
468	23	6622.01	7388.36	63.3	63.3	63.3	63.3	63.2
469	23	6630.56	7380.90	63.3	63.3	63.3	63.3	63.2
470	23	6644.21	7393.43	63.3	63.3	63.3	63.3	63.3
471	23	6657.66	7405.96	63.2	63.2	63.3	63.2	63.2
472	23	6673.73	7417.90	63.2	63.2	63.3	63.2	63.2
473	23	6689.60	7429.85	63.2	63.2	63.3	63.2	63.2
474	23	6697.02	7445.81	63.1	63.2	63.2	63.2	63.2
475	23	6705.65	7461.78	63.1	63.2	63.3	63.2	63.2
476	23	6712.24	7473.67	63.2	63.2	63.2	63.4	63.3
477	23	6718.63	7485.56	63.4	63.6	63.4	63.6	63.7
478	23	6724.36	7516.86	63.9	64.1	63.8	64.2	63.9
479	23	6726.47	7530.47	64.0	64.1	63.9	64.0	63.9

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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480	23	6725.58	7544.06	64.0	64.1	64.0	64.2	64.2
481	23	6735.20	7559.67	64.2	64.4	64.1	64.2	64.0
482	23	6741.82	7575.67	64.2	64.1	64.0	63.8	63.6
483	23	6748.46	7591.62	63.7	63.9	64.0	63.9	63.8
484	23	6755.11	7607.58	64.0	64.0	63.9	63.6	63.4
485	23	6754.47	7623.72	63.6	63.5	63.7	63.5	63.4
486	23	6753.83	7639.86	63.5	63.5	63.6	63.5	63.5
487	23	6756.14	7650.18	63.5	63.5	63.6	63.6	63.5
488	23	6756.45	7660.50	63.9	63.9	63.8	63.9	63.8
489	23	6754.45	7676.80	63.9	64.0	63.9	64.2	64.0
490	23	6753.90	7689.44	64.1	64.2	64.0	64.1	64.0
491	23	6753.45	7702.09	64.3	64.4	64.2	64.5	64.4
492	23	6752.29	7712.55	64.4	64.5	64.3	64.6	64.5
493	23	6751.14	7723.02	64.5	64.6	64.5	64.7	64.5
494	23	6753.76	7737.31	64.6	64.6	64.5	64.7	64.7
495	23	6756.39	7751.60	64.5	64.6	64.6	64.7	64.7
496	23	6754.24	7769.01	64.7	65.0	64.8	65.1	65.1
497	23	6752.09	7786.42	64.8	64.8	64.8	64.9	64.8
498	23	6742.65	7800.09	65.1	65.1	65.0	65.3	65.2
499	23	6733.61	7813.76	65.2	65.3	65.1	65.3	65.3
500	23	6734.94	7836.75	65.1	65.2	65.2	65.2	65.1
501	23	6725.40	7852.12	65.0	65.2	65.1	65.2	65.2
502	23	6715.87	7867.49	65.1	65.0	65.1	65.0	64.7
503	23	6710.89	7875.99	64.7	64.4	64.6	64.4	64.5
504	23	6705.92	7884.49	64.6	64.6	64.7	64.6	64.3
505	23	6709.20	7899.30	64.5	64.4	64.6	64.3	64.1
506	23	6712.48	7914.11	64.8	64.5	64.5	64.0	63.7

REC #	LINE #	X	Y	11 FT	13 FT	15 FT	17 FT	20 FT
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1	1	6237.97	7666.10	63.2	63.2	63.2	63.2	63.2
2	1	6241.16	7666.95	63.2	63.2	63.2	63.2	63.2
3	1	6244.35	7667.79	63.2	63.2	63.2	63.2	63.2
4	1	6246.34	7671.72	63.2	63.2	63.2	63.2	64.0
5	1	6248.33	7675.65	63.2	63.2	63.2	63.2	63.2
6	1	6249.15	7682.67	63.2	63.2	63.3	63.2	63.2
7	1	6249.96	7689.66	63.2	63.2	63.2	63.2	63.2
8	1	6249.63	7699.60	63.2	63.2	63.2	63.2	63.2
9	1	6249.36	7709.91	63.2	63.2	63.2	63.2	63.2
10	1	6251.76	7717.40	63.2	63.2	63.2	63.2	63.1
11	1	6254.22	7724.66	63.2	63.2	63.2	63.2	63.2
12	1	6250.80	7734.14	63.1	63.2	63.2	63.2	63.2
13	2	6235.63	7645.14	63.2	63.2	63.2	63.2	63.2
14	2	6233.42	7646.26	63.2	63.2	63.2	63.2	63.2
15	2	6231.21	7647.38	63.2	63.2	63.2	63.2	63.2
16	2	6242.03	7646.81	63.2	63.2	63.2	63.2	63.2
17	2	6244.74	7657.73	63.2	63.2	63.2	63.2	64.1
18	2	6247.54	7668.64	63.2	65.0	63.8	63.8	65.9
19	2	6246.75	7675.22	64.2	65.5	65.2	67.4	67.1
20	2	6245.46	7681.86	66.7	67.3	66.5	67.6	69.3
21	2	6250.97	7691.67	64.9	64.4	65.5	66.8	67.1
22	2	6255.97	7701.53	63.7	63.7	64.6	63.4	63.6
23	2	6257.69	7715.64	63.4	63.4	64.1	63.3	63.4
24	2	6259.41	7729.74	63.3	63.4	63.8	63.3	63.3
25	2	6259.17	7739.90	63.3	63.3	63.6	63.2	63.3
26	2	6259.06	7744.99	63.2	63.2	63.5	63.2	63.2
27	2	6258.95	7750.07	63.2	63.2	63.4	63.3	63.3
28	3	6251.61	7649.35	63.3	63.3	63.9	63.4	63.3
29	3	6257.99	7651.27	63.3	63.3	63.7	63.3	63.3
30	3	6256.77	7654.14	63.2	63.3	63.5	63.3	63.2
31	3	6254.95	7658.75	63.2	63.2	63.6	64.1	63.2
32	3	6253.13	7663.35	65.6	65.0	64.4	63.7	63.5
33	3	6259.52	7665.09	65.1	65.9	65.2	65.8	64.9
34	3	6265.87	7666.83	64.8	64.0	65.1	65.3	65.1
35	3	6264.66	7664.86	64.1	63.9	64.9	63.7	63.5
36	3	6263.89	7662.88	65.0	65.5	64.9	65.1	65.3
37	3	6264.66	7669.90	65.6	65.6	65.3	65.4	65.2
38	3	6262.06	7667.49	65.7	65.6	65.2	65.5	65.2
39	3	6259.50	7665.28	66.5	66.5	65.6	65.9	65.3

REC #	LINE #	X	Y	11 FT	13 FT	15 FT	17 FT	20 FT
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40	3	6255.72	7665.75	66.1	66.2	65.7	66.2	66.0
41	3	6251.93	7666.42	64.9	65.4	65.8	64.5	63.6
42	3	6253.92	7670.30	64.2	65.0	65.3	65.3	66.2
43	3	6255.90	7674.30	66.6	65.5	66.0	66.0	67.7
44	3	6253.93	7683.97	66.2	67.2	66.4	67.0	66.3
45	3	6251.96	7693.63	68.0	68.3	66.6	67.7	65.7
46	3	6261.54	7709.45	63.9	63.9	65.1	63.4	63.5
47	3	6271.21	7726.27	63.6	63.5	64.3	63.3	63.3
48	3	6266.66	7738.62	63.4	63.4	64.0	63.3	63.3
49	3	6262.11	7750.97	63.3	63.3	63.7	63.3	63.3
50	3	6262.87	7768.25	63.3	63.3	63.6	63.4	63.3
51	3	6260.74	7769.35	63.7	63.4	63.6	63.4	63.3
52	3	6258.60	7770.44	63.4	63.3	63.5	63.4	63.4
53	4	6253.07	7641.25	63.3	63.3	63.5	63.2	63.3
54	4	6250.80	7642.30	63.2	63.3	63.4	63.3	63.2
55	4	6260.43	7644.95	63.2	63.2	63.3	63.2	63.2
56	4	6269.99	7647.54	63.2	63.2	63.3	63.2	63.2
57	4	6266.32	7656.74	63.2	63.2	63.3	63.2	63.2
58	4	6267.08	7663.70	65.3	64.6	63.7	65.3	65.3
59	4	6267.84	7672.70	65.1	65.3	64.6	65.6	65.6
60	4	6276.61	7666.41	65.7	64.7	65.2	66.2	64.7
61	4	6269.05	7667.71	65.3	65.4	65.4	66.0	66.3
62	4	6269.65	7666.18	63.8	64.6	65.3	65.7	65.0
63	4	6270.25	7664.64	64.6	64.9	65.3	65.3	65.4
64	4	6270.64	7669.60	65.5	65.5	65.5	65.5	64.7
65	4	6269.62	7674.73	65.2	65.3	65.2	63.9	64.1
66	4	6272.19	7662.22	64.5	64.0	65.1	64.6	64.3
67	4	6274.50	7669.70	64.6	65.3	64.4	65.0	65.2
68	4	6275.63	7713.94	63.0	63.5	64.1	63.3	63.3
69	4	6277.55	7728.10	63.4	63.3	63.6	63.3	63.2
70	4	6279.27	7742.20	63.3	63.3	63.6	63.3	63.3
71	4	6277.93	7755.55	63.3	63.3	63.5	63.3	63.2
72	5	6252.29	7639.29	63.5	63.4	63.9	63.3	63.3
73	5	6261.47	7624.62	63.4	63.3	63.7	63.3	63.2
74	5	6267.23	7628.09	63.3	63.3	63.5	63.3	63.2
75	5	6272.98	7631.35	63.2	63.2	63.4	63.2	63.2
76	5	6272.10	7637.92	63.2	63.2	63.3	63.3	63.2
77	5	6271.22	7644.40	63.2	63.2	63.3	63.2	63.2
78	5	6271.95	7651.49	63.2	63.2	63.3	64.0	63.3
79	5	6272.66	7658.50	64.0	64.7	64.2	65.5	64.6

REC #	LINE #	X	Y	11 FT	13 FT	15 FT	17 FT	20 FT
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80	5	6277.45	7659.84	64.3	64.6	64.4	64.7	63.5
81	5	6282.21	7661.18	64.8	64.9	64.2	65.1	63.5
82	5	6290.51	7666.95	64.7	64.8	64.5	64.6	64.4
83	5	6290.06	7677.07	64.4	64.4	64.5	64.4	64.2
84	5	6289.61	7687.18	64.7	64.7	64.6	64.8	64.9
85	5	6290.99	7692.71	65.2	65.0	64.9	63.7	64.6
86	5	6292.36	7698.24	65.3	65.4	65.0	65.2	64.7
87	5	6293.75	7703.76	65.9	63.7	64.6	64.0	63.5
88	5	6295.14	7709.31	64.6	63.7	64.4	63.4	63.3
89	5	6294.97	7714.39	63.7	63.4	64.0	63.3	63.2
90	5	6294.79	7719.47	63.4	63.3	63.7	63.3	63.2
91	5	6293.05	7724.09	63.3	63.3	63.5	63.3	63.2
92	5	6291.31	7728.71	63.3	63.2	63.5	63.2	63.2
93	5	6286.72	7741.04	63.3	63.2	63.4	63.2	63.2

INTERMEDIATE-FLOW THERMAL SURVEY

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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1	1	6222.82	7641.55	63.5	63.7	63.6	63.6	63.6
2	1	6222.21	7643.39	63.5	63.7	63.7	63.6	63.6
3	1	6221.60	7644.93	63.6	63.7	63.6	63.6	63.6
4	1	6224.59	7650.77	63.5	63.7	63.6	63.6	63.6
5	1	6227.58	7656.61	63.5	63.7	63.6	63.6	63.6
6	1	6238.77	7673.09	63.6	63.7	63.7	63.6	63.6
7	1	6241.37	7675.46	63.6	63.7	63.6	63.6	63.6
8	1	6243.96	7677.87	63.6	63.7	63.7	63.6	63.6
9	1	6245.79	7686.86	63.6	63.7	63.6	63.6	63.6
10	1	6247.61	7695.84	63.5	63.7	63.6	63.6	63.6
11	1	6248.19	7713.01	63.6	63.7	63.6	63.6	63.6
12	1	6248.76	7730.17	63.6	63.7	63.6	63.6	63.6
13	1	6250.35	7730.61	63.5	63.7	63.6	63.6	63.6
14	1	6251.93	7731.05	63.5	63.7	63.7	63.6	63.6
15	1	6248.06	7736.80	63.5	63.7	63.6	63.6	63.6
16	1	6244.23	7742.54	63.6	63.7	63.6	63.6	63.6
17	1	6242.09	7743.65	63.5	63.7	63.6	63.6	63.6
18	1	6239.94	7744.76	63.6	63.7	63.6	63.6	63.6
19	1	6236.65	7756.02	63.5	63.7	63.6	63.6	63.6
20	1	6239.21	7756.47	63.6	63.7	63.6	63.6	63.6
21	1	6239.76	7754.92	63.5	63.7	63.6	63.6	63.6
22	2	6218.84	7634.08	63.5	63.7	63.6	63.6	63.6
23	2	6236.10	7635.09	63.5	63.7	63.6	63.6	63.6
24	2	6236.86	7642.07	63.6	63.7	63.6	63.7	63.6
25	2	6237.61	7649.04	63.6	63.7	63.6	63.6	63.6
26	2	6242.97	7662.35	63.6	63.7	63.7	63.6	63.6
27	2	6248.33	7675.65	63.6	63.7	63.7	63.6	67.0
28	2	6251.33	7681.56	63.6	63.7	63.7	63.6	64.0
29	2	6254.32	7687.47	63.6	63.7	63.7	63.7	63.7
30	2	6256.58	7700.01	63.6	63.7	63.7	63.6	63.6
31	2	6256.63	7712.54	63.6	63.7	63.6	63.6	63.6
32	2	6261.15	7725.13	63.6	63.7	63.7	63.6	63.6
33	2	6263.47	7737.71	63.6	63.7	63.7	63.6	63.6
34	2	6261.21	7743.89	63.6	63.7	63.6	63.6	63.6
35	2	6256.95	7750.07	63.5	63.7	63.6	63.6	63.6
36	2	6255.60	7759.35	63.6	63.7	63.7	63.6	63.6
37	2	6255.05	7760.90	63.6	63.9	63.7	63.8	63.6
38	2	6254.49	7762.44	63.7	63.8	63.9	63.8	63.6
39	2	6253.94	7763.99	63.6	63.8	63.8	63.7	63.6

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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40	2	6253.38	7765.54	63.6	63.7	63.7	63.7	63.6
41	2	6253.31	7770.64	63.6	63.7	63.7	63.7	63.6
42	3	6232.90	7634.27	63.5	63.7	63.6	63.6	63.6
43	3	6237.70	7635.52	63.6	63.7	63.7	63.6	63.6
44	3	6242.50	7636.76	63.6	63.7	63.7	63.6	63.6
45	3	6256.32	7664.21	63.6	63.7	63.7	63.6	63.6
46	3	6257.31	7666.16	63.6	63.7	63.7	63.6	63.6
47	3	6258.30	7668.15	63.6	63.7	63.7	65.6	64.3
48	3	6259.29	7670.12	63.6	63.7	64.2	69.5	67.0
49	3	6260.28	7672.09	63.6	65.8	66.7	68.1	68.7
50	3	6257.90	7678.24	63.6	63.9	66.2	68.7	69.8
51	3	6255.51	7684.39	63.6	63.9	65.9	66.2	65.2
52	3	6263.51	7700.26	63.6	63.8	64.9	63.9	64.0
53	3	6271.51	7716.12	63.6	63.7	64.5	63.8	63.6
54	3	6268.63	7723.83	63.6	63.7	64.2	63.7	63.7
55	3	6265.75	7731.53	63.5	63.7	64.0	63.7	63.7
56	3	6268.34	7733.96	63.6	63.7	63.9	63.7	63.6
57	3	6270.93	7736.43	63.6	63.7	63.8	63.6	63.7
58	3	6262.11	7750.97	63.5	63.7	63.6	63.6	63.6
59	3	6264.62	7758.52	63.6	63.7	63.8	63.6	63.6
60	3	6267.13	7766.07	63.6	63.7	63.8	63.8	63.7
61	3	6259.76	7762.26	63.6	63.9	63.9	63.8	63.7
62	3	6252.43	7758.45	63.6	63.7	63.8	63.6	63.6
63	3	6252.84	7767.09	63.5	63.7	63.7	63.7	63.7
64	4	6219.16	7607.10	63.6	63.7	63.7	63.6	63.6
65	4	6231.05	7616.91	63.5	63.7	63.7	63.6	63.6
66	4	6243.00	7626.72	63.6	63.7	63.7	63.6	63.6
67	4	6250.86	7642.36	63.6	63.7	63.7	63.6	63.6
68	4	6259.20	7648.62	63.6	63.7	63.7	63.7	63.6
69	4	6267.54	7653.67	63.6	63.7	63.7	63.6	66.5
70	4	6269.66	7661.13	65.0	67.0	65.2	67.1	67.3
71	4	6272.22	7668.59	67.6	67.9	66.2	67.0	67.3
72	4	6272.22	7668.59	67.4	64.5	65.7	66.4	66.4
73	4	6272.22	7668.59	64.4	64.6	65.7	69.0	69.0
74	4	6271.03	7665.30	67.3	66.2	66.5	67.8	68.2
75	4	6269.54	7702.00	64.1	64.2	65.7	64.1	64.0
76	4	6267.23	7718.31	63.9	64.0	64.9	63.8	63.8
77	4	6264.61	7734.62	63.6	63.6	64.4	63.7	63.7
78	4	6270.47	7756.79	63.7	63.8	64.1	63.7	63.7
79	4	6267.63	7769.63	63.7	63.8	64.0	63.8	63.7

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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80	4	6264.78	7782.47	63.8	63.8	63.9	63.8	63.7
81	4	6264.24	7764.02	63.9	64.1	64.0	64.2	64.2
82	5	6220.22	7587.10	63.8	63.7	63.7	63.6	63.6
83	5	6228.32	7597.59	63.6	63.7	63.7	63.6	63.6
84	5	6236.42	7608.07	63.6	63.7	63.7	63.6	63.6
85	5	6250.96	7620.37	63.6	63.7	63.7	63.6	63.6
86	5	6265.37	7632.67	63.6	63.7	63.7	63.6	63.6
87	5	6271.47	7661.57	63.8	65.5	64.2	64.4	65.3
88	5	6277.97	7671.93	64.2	65.4	64.8	66.0	66.0
89	5	6264.47	7682.29	66.5	66.7	65.6	66.1	65.6
90	5	6289.01	7688.73	67.4	66.4	65.3	64.1	66.5
91	5	6293.55	7695.17	64.5	64.6	65.2	64.1	64.1
92	5	6287.86	7705.47	63.9	65.2	65.5	64.4	63.8
93	5	6282.16	7715.77	63.8	63.9	64.5	63.7	63.7
94	5	6286.82	7728.87	63.7	63.9	64.1	63.7	63.7
95	5	6289.87	7741.97	63.8	63.8	64.0	63.7	63.6
96	5	6286.72	7741.84	63.7	63.7	63.9	63.6	63.6
97	5	6287.96	7756.82	63.8	63.7	63.8	63.6	63.6
98	5	6289.19	7772.59	63.8	63.7	63.8	63.6	63.7
99	5	6284.87	7779.86	63.8	63.7	63.7	63.7	63.7
100	5	6288.54	7787.12	63.8	63.7	63.7	63.7	63.7
101	5	6281.57	7789.14	63.8	63.7	63.7	63.8	63.8
102	6	6224.72	7584.63	63.8	63.7	63.7	63.6	63.6
103	6	6243.36	7582.76	63.8	63.7	63.6	63.6	63.6
104	6	6252.36	7595.29	63.8	63.7	63.7	63.6	63.6
105	6	6261.36	7607.81	63.8	63.7	63.7	63.6	63.6
106	6	6268.50	7625.06	63.8	63.7	63.7	63.6	63.6
107	6	6275.63	7642.30	63.8	63.7	63.6	63.6	63.9
108	6	6281.49	7654.17	64.8	64.9	63.9	64.6	65.5
109	6	6287.34	7666.44	66.1	65.6	65.2	65.7	65.4
110	6	6289.66	7673.55	66.2	66.6	65.4	65.2	64.5
111	6	6292.01	7681.05	65.8	66.3	65.9	66.6	65.2
112	6	6292.41	7696.26	66.5	66.8	66.1	66.2	65.2
113	6	6292.80	7715.46	64.1	64.1	64.9	63.8	63.7
114	6	6292.46	7725.63	63.9	63.9	64.4	63.7	63.6
115	6	6291.17	7733.80	63.7	63.8	64.1	63.7	63.6
116	6	6289.87	7741.97	63.6	63.7	64.0	63.6	63.6
117	6	6291.18	7757.76	63.7	63.9	63.9	63.9	63.8
118	6	6292.33	7773.54	63.8	63.7	63.8	63.6	63.6
119	6	6292.89	7772.00	63.9	64.2	64.2	64.3	64.2

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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120	6	6293.44	7770.45	64.1	64.2	64.1	63.9	64.0
121	6	6288.56	7779.26	64.0	64.4	64.2	64.3	64.1
122	7	6225.97	7564.86	63.6	63.7	63.6	63.6	63.6
123	7	6244.01	7572.76	63.6	63.6	63.6	63.6	63.6
124	7	6252.49	7585.27	63.5	63.6	63.6	63.6	63.6
125	7	6261.97	7597.78	63.5	63.7	63.6	63.6	63.6
126	7	6273.50	7612.84	63.5	63.7	63.6	63.6	63.5
127	7	6285.03	7627.89	63.5	63.7	63.6	63.6	63.5
128	7	6291.19	7643.20	63.5	63.7	63.6	63.8	63.8
129	7	6297.34	7658.60	65.7	65.8	64.7	66.0	66.1
130	7	6298.31	7666.67	65.8	65.9	65.3	65.9	65.3
131	7	6299.26	7662.66	66.5	66.8	65.8	64.7	65.5
132	7	6305.83	7681.73	65.4	66.1	65.9	64.7	65.5
133	7	6312.48	7700.80	64.5	64.4	65.2	63.9	63.8
134	7	6304.35	7713.57	63.9	63.9	64.5	63.7	63.7
135	7	6306.22	7726.33	63.7	63.8	64.2	63.6	63.6
136	7	6309.37	7727.29	63.7	63.8	64.0	63.6	63.6
137	7	6304.35	7736.65	63.7	63.7	63.9	63.6	63.6
138	7	6299.32	7744.81	63.6	63.7	63.8	63.6	63.6
139	7	6302.33	7750.67	63.7	63.9	63.8	63.7	63.6
140	7	6305.34	7756.93	63.7	63.9	63.9	63.9	63.9
141	7	6302.44	7769.77	63.7	63.9	63.9	64.1	64.1
142	8	6234.35	7570.32	63.5	63.7	63.6	63.6	63.6
143	8	6247.22	7573.59	63.5	63.6	63.6	63.6	63.6
144	8	6261.63	7585.86	63.5	63.7	63.6	63.6	63.6
145	8	6276.03	7598.17	63.5	63.7	63.7	63.6	63.6
146	8	6284.05	7617.43	63.5	63.7	63.6	63.6	63.5
147	8	6292.27	7636.69	63.6	63.7	63.6	63.6	63.7
148	8	6293.12	7647.23	65.4	66.2	64.7	66.4	65.3
149	8	6294.17	7657.77	65.7	66.0	65.4	65.9	65.6
150	8	6300.50	7659.61	65.4	66.1	65.5	65.6	65.6
151	8	6306.83	7661.45	65.5	65.7	65.5	65.4	65.5
152	8	6314.22	7673.94	66.1	66.2	65.9	66.1	65.6
153	8	6321.61	7686.43	65.7	65.0	65.5	64.6	64.4
154	8	6320.19	7694.57	66.0	65.5	65.5	64.1	63.8
155	8	6315.77	7702.71	64.0	64.0	64.0	63.7	63.7
156	8	6317.99	7723.06	63.8	63.9	64.2	63.7	63.6
157	8	6317.62	7728.16	63.7	63.8	64.0	63.7	63.7
158	8	6317.64	7733.26	63.7	63.8	63.9	63.7	63.6
159	8	6315.67	7749.64	63.6	63.8	63.8	63.6	63.6

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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160	8	6312.50	7766.02	63.0	63.8	63.8	64.0	63.9
161	8	6309.71	7773.74	63.9	64.1	64.0	64.1	63.9
162	8	6306.92	7781.46	64.1	64.1	64.0	64.0	64.0
163	8	6296.27	7791.92	64.3	64.6	64.2	64.2	64.2
164	9	6237.63	7554.26	63.6	63.7	63.7	63.6	63.6
165	9	6245.99	7559.73	63.6	63.7	63.6	63.6	63.6
166	9	6255.59	7570.70	63.5	63.7	63.6	63.6	63.6
167	9	6265.16	7581.67	63.5	63.7	63.6	63.6	63.6
168	9	6274.44	7597.76	63.6	63.7	63.6	63.6	63.6
169	9	6283.70	7613.89	63.5	63.7	63.6	63.6	63.6
170	9	6299.96	7621.93	63.6	63.7	63.6	63.6	63.8
171	9	6316.16	7629.96	65.2	65.5	64.6	65.7	65.7
172	9	6311.22	7659.33	65.2	65.7	65.1	65.7	65.3
173	9	6317.86	7664.75	65.7	65.5	65.2	65.3	65.5
174	9	6324.54	7676.17	65.8	66.1	65.6	65.4	64.7
175	9	6319.86	7691.65	65.2	66.0	65.1	63.9	64.4
176	9	6315.22	7711.92	64.3	64.1	64.5	63.7	63.7
177	9	6320.73	7720.49	63.9	63.9	64.2	63.7	63.6
178	9	6326.24	7729.06	63.0	63.8	64.0	63.6	63.6
179	9	6324.95	7729.14	63.7	63.8	63.9	63.6	63.7
180	9	6315.60	7729.21	63.0	63.7	63.8	63.6	63.6
181	9	6320.35	7749.59	63.0	63.8	63.8	63.8	63.8
182	9	6325.03	7769.97	64.0	64.1	63.9	64.0	63.9
183	9	6320.77	7772.06	64.0	64.1	64.0	64.1	64.1
184	10	6271.09	7559.47	63.0	63.7	63.7	63.6	63.6
185	10	6293.33	7582.52	63.0	63.7	63.7	63.6	63.6
186	10	6296.69	7599.36	63.6	63.7	63.7	63.6	63.6
187	10	6304.04	7616.23	63.0	63.7	63.6	63.6	63.6
188	10	6313.56	7627.56	63.6	63.7	63.9	65.0	65.0
189	10	6323.07	7638.89	65.3	65.4	64.7	65.5	65.7
190	10	6327.51	7645.37	65.6	65.7	65.1	65.7	65.7
191	10	6331.94	7651.85	65.4	65.5	65.3	65.7	65.0
192	10	6333.32	7666.00	65.5	65.6	65.3	64.3	65.6
193	10	6334.69	7660.15	64.3	64.2	64.7	63.8	64.1
194	10	6333.29	7710.65	63.9	63.9	64.3	63.7	63.7
195	10	6336.16	7720.81	63.7	63.6	64.0	63.7	63.7
196	10	6343.07	7730.96	63.7	63.7	63.9	63.7	63.6
197	10	6337.45	7741.22	63.0	63.7	63.8	63.6	63.6
198	10	6331.83	7751.46	63.0	63.7	63.8	63.7	63.7
199	10	6332.69	7758.64	63.0	63.8	63.7	63.6	63.7

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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200	10	6333.54	7765.60	63.6	63.8	63.8	63.9	63.9
201	10	6335.54	7769.90	64.3	64.6	64.2	64.2	63.9
202	10	6337.53	7773.99	64.2	64.3	64.1	64.4	64.2
203	10	6331.62	7780.70	64.3	64.5	64.3	64.5	64.0
204	11	6267.38	7567.29	63.6	63.7	63.7	64.1	63.6
205	11	6298.56	7570.35	63.6	63.7	63.7	64.1	63.6
206	11	6304.20	7582.18	63.6	63.7	63.7	64.1	63.6
207	11	6309.64	7594.00	63.6	63.7	63.7	64.1	63.6
208	11	6313.61	7601.92	63.5	63.7	63.7	64.1	63.6
209	11	6317.38	7609.84	63.6	63.8	63.8	64.6	63.6
210	11	6323.64	7620.27	64.5	64.8	64.3	65.6	64.5
211	11	6330.00	7630.70	65.4	65.7	64.7	65.1	65.0
212	11	6336.24	7653.76	65.4	65.8	65.1	66.0	65.6
213	11	6343.01	7663.86	65.4	65.7	65.3	65.9	65.4
214	11	6347.76	7673.93	65.6	66.0	65.5	66.0	64.8
215	11	6345.70	7683.60	65.5	65.4	65.2	65.7	64.1
216	11	6343.61	7693.26	64.3	64.1	64.7	64.3	63.7
217	11	6346.67	7708.01	63.9	63.9	64.2	64.2	63.7
218	11	6349.72	7722.76	63.7	63.8	64.1	64.0	63.7
219	11	6347.77	7732.48	63.7	63.8	63.9	63.9	63.7
220	11	6345.52	7742.19	63.7	63.7	63.8	63.8	63.7
221	11	6341.24	7754.50	63.6	63.7	63.8	63.7	63.6
222	11	6336.66	7766.61	63.6	63.7	63.8	63.7	63.7
223	11	6337.98	7777.60	63.7	63.8	63.8	63.9	63.9
224	11	6339.29	7788.36	63.9	64.2	64.0	64.0	63.9
225	11	6336.19	7791.47	63.7	63.8	63.9	63.9	63.8
226	12	6299.66	7567.34	63.6	63.7	63.7	63.6	63.6
227	12	6311.36	7573.94	63.6	63.7	63.7	63.6	63.6
228	12	6319.50	7583.24	63.6	63.7	63.7	63.6	63.6
229	12	6328.30	7592.53	63.6	63.7	63.7	63.6	63.6
230	12	6331.26	7607.85	63.6	63.7	63.7	63.6	64.9
231	12	6333.61	7621.56	66.0	65.6	64.4	65.7	65.6
232	12	6339.16	7630.65	65.6	65.6	65.1	65.8	64.7
233	12	6344.51	7638.54	65.9	65.8	65.4	65.4	65.2
234	12	6342.64	7651.70	65.6	65.8	65.5	65.8	65.6
235	12	6352.43	7666.84	65.6	65.7	65.5	64.4	64.9
236	12	6362.22	7681.96	64.9	65.3	65.2	63.9	63.9
237	12	6360.51	7695.22	66.2	65.0	64.7	63.8	63.8
238	12	6356.79	7708.46	64.2	64.0	64.3	63.7	63.7
239	12	6356.79	7718.16	63.4	63.9	64.1	63.7	63.7

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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240	12	6354.79	7727.86	63.8	63.8	64.0	63.7	63.7
241	12	6356.55	7737.07	63.7	63.8	63.9	63.7	63.7
242	12	6358.31	7746.28	63.8	63.8	63.8	63.7	63.6
243	12	6352.86	7751.40	64.1	64.1	64.0	63.8	63.7
244	12	6354.13	7762.19	63.7	63.8	63.9	63.7	63.7
245	12	6355.37	7772.97	64.0	64.0	63.9	64.1	63.9
246	13	6316.40	7537.87	63.7	63.7	63.6	63.7	63.6
247	13	6233.52	7550.10	63.8	63.7	63.8	63.7	63.6
248	13	6330.63	7562.44	63.8	63.7	63.7	63.7	63.6
249	13	6350.66	7582.11	63.6	63.7	63.7	63.7	63.6
250	13	6358.17	7589.57	63.8	63.7	63.7	63.7	63.6
251	13	6365.60	7597.82	63.8	63.7	63.7	63.7	63.6
252	13	6362.98	7611.65	64.3	65.1	64.3	65.0	63.8
253	13	6360.30	7626.28	65.5	65.1	64.4	64.4	64.3
254	13	6363.40	7644.48	64.9	64.9	64.5	65.1	65.1
255	13	6366.50	7662.68	65.2	65.9	65.0	65.6	65.5
256	13	6369.67	7672.33	65.3	65.2	65.3	65.0	64.8
257	13	6372.83	7681.98	66.0	65.4	65.1	64.2	64.1
258	13	6374.46	7691.10	64.0	63.9	64.4	63.7	63.8
259	13	6376.09	7700.33	63.8	63.8	64.1	63.7	63.7
260	13	6374.39	7713.60	63.7	63.8	64.0	63.7	63.7
261	13	6374.53	7722.30	63.7	63.8	63.9	63.7	63.7
262	13	6374.67	7730.99	63.7	63.8	63.8	63.7	63.8
263	13	6375.83	7741.78	63.7	63.8	63.9	63.7	63.7
264	13	6376.98	7752.56	63.8	63.7	63.8	63.9	63.9
265	13	6376.40	7754.10	63.7	63.7	63.9	63.9	63.9
266	14	6325.82	7526.86	63.8	63.7	63.7	63.6	63.6
267	14	6344.64	7541.27	63.6	63.7	63.7	63.6	63.6
268	14	6353.18	7552.47	63.8	63.7	63.7	63.6	63.6
269	14	6360.32	7562.67	63.8	63.7	63.7	63.6	63.6
270	14	6373.60	7576.91	63.8	63.7	63.7	63.6	63.6
271	14	6380.88	7594.94	63.8	63.7	63.7	63.6	63.7
272	14	6382.59	7607.55	63.8	64.0	63.8	63.6	63.8
273	14	6384.29	7620.15	65.2	65.4	64.6	64.8	64.8
274	14	6383.60	7633.82	65.3	65.6	65.0	65.3	65.0
275	14	6383.43	7647.46	65.4	65.7	65.2	65.4	65.2
276	14	6389.96	7661.76	65.2	65.1	65.1	64.6	63.9
277	14	6396.49	7676.03	64.7	64.3	64.7	63.7	63.7
278	14	6392.60	7702.52	63.9	63.9	64.2	63.7	63.7
279	14	6398.63	7709.77	63.7	63.8	64.1	63.7	63.7

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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280	14	6404.77	7717.02	63.7	63.8	63.9	63.7	63.7
281	14	6404.88	7725.75	63.7	63.8	63.9	63.7	63.7
282	14	6404.96	7734.48	63.7	63.8	63.8	63.8	63.7
283	14	6403.96	7746.30	63.8	63.7	63.8	63.7	63.8
284	14	6402.94	7758.11	63.8	64.0	63.9	64.0	63.7
285	14	6405.45	7760.75	64.2	64.4	64.0	63.8	63.9
286	15	6341.03	7507.42	63.8	63.7	63.7	63.6	63.6
287	15	6349.14	7513.22	63.8	63.7	63.7	63.6	63.6
288	15	6357.36	7519.02	63.6	63.7	63.7	63.6	63.6
289	15	6374.03	7537.78	63.8	63.7	63.7	63.6	63.6
290	15	6385.70	7551.78	63.6	63.7	63.7	63.7	63.6
291	15	6397.37	7565.77	63.6	63.7	63.7	63.8	63.7
292	15	6409.93	7594.03	64.5	64.0	64.0	63.7	64.2
293	15	6410.01	7606.15	64.8	65.2	64.6	65.4	64.8
294	15	6410.08	7618.29	64.9	65.2	64.7	65.1	64.9
295	15	6404.57	7635.40	65.3	65.6	65.1	65.4	65.4
296	15	6399.05	7652.68	65.4	65.6	65.2	65.0	64.8
297	15	6405.24	7663.43	65.4	65.1	65.1	65.2	64.1
298	15	6411.43	7674.19	64.9	64.4	64.8	63.9	63.8
299	15	6412.37	7684.93	63.4	63.9	64.3	63.7	63.7
300	15	6413.30	7695.67	63.7	63.8	64.1	63.7	63.7
301	15	6418.60	7704.50	63.7	63.8	63.9	63.7	63.7
302	15	6423.89	7713.33	63.7	63.8	63.9	63.7	63.8
303	15	6426.43	7724.70	63.6	63.8	63.8	63.6	63.7
304	15	6430.80	7731.52	63.8	63.7	63.7	63.6	63.7
305	15	6435.17	7738.34	63.8	63.8	63.8	63.7	63.6
306	15	6433.98	7741.40	63.9	63.9	63.9	64.0	64.0
307	15	6432.79	7744.46	64.1	64.3	64.1	64.1	64.1
308	15	6431.02	7749.05	64.3	64.5	64.2	64.4	64.2
309	15	6429.24	7753.64	63.9	64.0	64.1	64.1	64.0
310	15	6432.10	7759.94	63.9	64.0	64.1	64.0	63.9
311	15	6434.95	7766.24	64.0	64.1	64.0	64.0	63.9
312	15	6433.05	7762.03	64.2	64.2	64.0	63.9	63.9
313	15	6431.14	7757.83	63.9	64.1	64.1	64.3	64.1
314	15	6431.88	7765.10	64.2	64.2	64.2	64.2	64.4
315	15	6432.62	7772.37	64.2	64.4	64.1	64.4	64.2
316	15	6427.23	7777.37	64.2	64.3	64.2	64.2	64.3
317	16	6372.08	7502.89	63.8	63.7	63.7	63.6	63.6
318	16	6384.42	7518.28	63.8	63.7	63.7	63.6	63.6
319	15	6397.75	7517.58	63.8	63.7	63.7	63.6	63.6

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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320	16	6411.84	7549.76	63.6	63.7	63.7	63.6	63.6
321	16	6420.07	7559.40	63.6	63.7	63.7	63.6	63.6
322	16	6428.30	7569.03	63.6	63.7	63.7	63.7	63.6
323	16	6428.72	7588.23	63.5	64.4	63.9	64.2	63.7
324	16	6429.13	7607.42	64.7	65.1	64.4	65.1	65.1
325	16	6433.62	7617.65	65.1	65.3	64.8	65.4	65.1
326	16	6438.10	7627.88	65.5	65.4	64.8	64.8	64.8
327	16	6437.32	7638.24	65.0	65.2	64.6	64.5	64.6
328	16	6436.53	7648.19	65.0	65.3	65.0	64.5	64.6
329	16	6435.17	7659.89	65.1	64.4	64.7	64.1	63.8
330	16	6433.81	7671.59	64.6	63.9	64.3	63.7	63.7
331	16	6436.82	7690.08	63.8	63.8	64.1	63.7	63.7
332	16	6434.67	7699.77	63.7	63.8	63.9	63.7	63.6
333	16	6432.51	7709.45	63.7	63.8	63.8	63.7	63.6
334	16	6444.55	7719.12	63.7	63.8	63.8	63.8	63.7
335	16	6456.58	7728.78	63.6	63.7	63.8	63.7	63.6
336	16	6456.31	7733.94	63.7	63.9	63.8	63.8	63.8
337	16	6456.83	7739.09	63.8	64.0	63.9	64.0	63.9
338	16	6456.96	7741.19	63.9	63.9	63.9	63.8	63.8
339	16	6457.89	7743.30	63.6	63.6	63.9	63.7	63.8
340	16	6454.57	7747.31	63.6	63.8	63.8	63.7	63.7
341	16	6451.24	7751.31	63.6	64.0	63.9	63.9	63.8
342	16	6453.83	7762.81	63.7	63.8	63.8	63.8	64.0
343	16	6453.24	7764.34	64.1	64.2	64.0	64.3	64.2
344	16	6452.65	7765.87	64.3	64.5	64.2	64.5	64.5
345	17	6374.22	7462.97	63.7	63.7	63.8	63.7	63.7
346	17	6404.49	7495.73	63.6	63.8	63.7	63.7	63.6
347	17	6412.85	7508.75	63.6	63.7	63.7	63.7	63.7
348	17	6421.21	7521.76	63.5	63.7	63.7	63.7	63.7
349	17	6433.56	7537.99	63.6	63.7	63.7	63.7	63.6
350	17	6445.90	7554.21	63.6	63.7	63.7	63.7	63.6
351	17	6449.77	7569.44	63.7	63.7	63.7	63.7	63.7
352	17	6453.64	7584.66	64.5	64.1	64.0	64.0	64.0
353	17	6453.70	7593.41	64.8	65.0	64.4	65.1	65.0
354	17	6463.76	7602.15	65.2	65.3	64.9	65.1	64.7
355	17	6462.26	7613.79	65.2	65.5	65.0	65.4	65.1
356	17	6460.64	7625.43	65.4	65.6	65.2	65.2	64.7
357	17	6462.57	7654.04	65.5	65.1	65.0	64.3	64.5
358	17	6462.67	7660.64	64.2	64.5	64.5	64.0	63.8
359	17	6461.56	7667.65	64.5	64.5	64.4	64.1	63.8

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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360	17	6461.06	7674.45	63.8	63.9	64.1	63.7	63.7
361	17	6460.91	7691.88	63.7	63.8	64.0	63.7	63.7
362	17	6461.20	7695.46	63.7	63.8	63.9	63.7	63.7
363	17	6461.49	7699.10	63.7	63.8	63.8	63.7	63.7
364	17	6464.55	7709.01	63.7	63.8	63.8	63.7	63.7
365	17	6467.60	7718.91	63.8	63.7	63.8	63.8	63.7
366	17	6465.79	7732.26	63.8	63.8	63.8	63.8	63.8
367	17	6470.39	7734.02	63.8	63.7	63.8	63.7	63.7
368	17	6474.98	7735.77	63.8	64.0	63.9	63.9	63.9
369	17	6477.44	7738.48	64.2	64.3	64.0	64.2	64.0
370	17	6479.69	7741.19	64.0	64.0	64.0	64.0	64.0
371	17	6476.56	7745.16	63.8	64.1	64.0	64.0	63.9
372	17	6473.22	7749.16	63.8	63.9	63.9	63.8	64.2
373	17	6476.95	7757.88	63.9	64.0	63.9	63.9	63.8
374	18	6424.99	7483.37	63.7	63.7	63.7	63.7	63.6
375	18	6438.32	7485.94	63.8	63.7	63.7	63.7	63.6
376	18	6445.89	7502.85	63.8	63.7	63.7	63.7	63.6
377	18	6451.95	7518.15	63.7	63.7	63.7	63.7	63.7
378	18	6456.39	7531.61	63.8	63.7	63.7	63.7	63.6
379	18	6460.62	7545.47	63.8	63.7	63.7	63.7	63.7
380	18	6480.46	7573.28	63.8	64.2	64.0	63.9	63.7
381	18	6481.80	7583.95	63.7	63.8	63.8	63.7	63.7
382	18	6481.54	7594.61	64.0	64.9	64.4	65.0	64.8
383	18	6480.39	7601.17	64.8	65.3	64.7	65.3	65.1
384	18	6479.23	7607.73	65.1	65.3	65.0	65.2	65.0
385	18	6479.43	7623.53	65.2	65.4	65.1	65.4	65.4
386	18	6479.63	7639.34	65.4	65.5	65.2	65.3	65.3
387	18	6478.57	7652.95	65.5	65.3	65.0	64.3	64.2
388	18	6477.51	7666.58	64.4	64.1	64.5	63.8	63.8
389	18	6476.45	7680.17	63.8	63.9	64.2	63.7	63.7
390	18	6479.84	7688.17	63.8	63.8	64.0	63.7	63.7
391	18	6481.64	7696.16	63.7	63.8	63.9	63.7	63.7
392	18	6484.23	7704.18	63.7	63.8	63.9	63.8	63.8
393	18	6486.63	7715.65	63.7	63.9	63.9	63.8	63.8
394	18	6486.31	7720.81	63.7	63.9	63.9	64.2	64.2
395	18	6485.99	7725.96	64.3	64.4	64.2	64.5	64.5
396	18	6486.29	7729.60	64.4	64.3	64.2	64.1	64.1
397	18	6486.59	7733.24	64.4	64.5	64.3	64.3	64.3
398	18	6486.36	7738.41	63.9	63.9	64.1	63.9	63.9
399	18	6486.64	7743.57	64.3	64.4	64.3	64.5	64.4

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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400	18	6495.15	7757.20	63.9	64.1	64.3	64.2	64.2
401	18	6504.30	7750.83	64.2	64.3	64.3	64.4	64.1
402	18	6506.14	7755.11	64.0	64.4	64.3	64.4	64.4
403	18	6502.49	7755.41	64.4	64.4	64.3	64.3	64.3
404	18	6498.64	7755.71	64.4	64.6	64.4	64.6	64.4
405	19	6474.68	7482.59	63.6	63.7	63.7	63.7	63.6
406	19	6482.30	7489.72	63.7	63.7	63.7	63.7	63.7
407	19	6489.97	7503.57	63.6	63.7	63.7	63.7	63.7
408	19	6499.63	7517.42	63.7	63.7	63.7	63.7	63.7
409	19	6510.70	7528.46	63.6	63.8	63.7	63.7	63.7
410	19	6521.76	7539.49	64.2	64.5	64.0	64.1	64.0
411	19	6521.10	7563.76	65.0	65.2	64.5	65.4	65.1
412	19	6523.47	7575.04	65.2	65.3	64.8	65.3	64.8
413	19	6525.04	7586.31	65.2	65.4	65.0	65.2	64.8
414	19	6528.77	7601.62	64.9	65.1	65.0	65.0	64.9
415	19	6532.49	7617.32	65.2	65.3	65.1	64.9	64.7
416	19	6533.71	7626.61	65.3	65.6	65.2	65.4	65.1
417	19	6534.92	7635.90	65.4	65.5	65.3	65.3	65.1
418	19	6537.25	7650.96	65.1	64.3	64.6	63.9	63.9
419	19	6539.56	7666.01	63.9	64.0	64.4	63.8	63.8
420	19	6532.00	7675.34	63.6	63.9	64.1	63.8	63.7
421	19	6524.41	7684.67	63.8	63.8	64.0	63.8	63.7
422	19	6524.27	7693.45	63.8	63.8	63.9	63.8	63.7
423	19	6524.12	7702.23	63.7	63.8	63.9	63.7	63.7
424	19	6533.03	7723.55	63.7	63.8	63.9	63.8	63.7
425	19	6532.41	7725.07	64.0	64.2	63.9	64.1	63.8
426	19	6531.76	7726.58	64.1	64.2	64.1	64.2	64.3
427	19	6529.31	7732.66	64.1	64.2	64.2	64.1	64.2
428	19	6525.63	7738.73	64.4	64.3	64.3	64.3	64.3
429	19	6530.76	7742.13	64.1	64.4	64.3	64.2	64.3
430	19	6534.69	7745.53	64.3	64.4	64.3	64.6	64.5
431	19	6538.01	7750.48	64.0	64.6	64.5	64.4	64.4
432	19	6541.33	7755.42	64.5	64.5	64.5	64.3	64.2
433	19	6538.66	7757.83	64.5	64.5	64.5	64.5	64.4
434	19	6535.67	7762.24	64.0	64.7	64.6	64.7	64.6
435	19	6540.71	7765.84	64.7	64.8	64.7	64.8	64.5
436	19	6539.06	7763.66	64.7	64.7	64.7	64.5	64.5
437	19	6538.89	7761.51	64.5	64.6	64.7	64.8	64.3
438	20	6507.10	7436.54	63.7	63.6	63.8	63.7	63.7
439	20	6514.29	7447.76	63.7	63.8	63.6	63.7	63.7

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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440	20	6521.42	7459.01	63.7	63.7	63.8	63.7	63.7
441	20	6540.34	7475.13	63.6	63.8	63.7	63.7	63.7
442	20	6548.65	7488.34	63.6	63.7	63.7	63.7	63.7
443	20	6551.30	7501.55	63.6	63.7	63.7	63.7	63.7
444	20	6560.07	7517.21	63.7	63.7	63.7	63.7	63.7
445	20	6566.77	7532.87	63.6	63.8	63.7	63.7	63.7
446	20	6570.47	7540.59	64.6	64.8	64.1	64.7	64.3
447	20	6572.16	7548.31	64.4	64.5	64.2	64.5	64.5
448	20	6573.27	7561.12	64.4	65.0	64.6	64.9	64.8
449	20	6574.38	7573.92	64.4	65.1	64.6	65.0	65.0
450	20	6575.44	7583.19	64.6	65.1	64.9	65.2	65.3
451	20	6576.49	7592.46	65.3	65.2	65.0	65.0	64.7
452	20	6580.40	7629.73	65.0	65.0	64.8	64.2	64.0
453	20	6582.74	7637.60	64.7	64.7	64.6	64.0	63.9
454	20	6584.57	7645.47	63.9	63.9	64.2	63.8	63.8
455	20	6586.60	7652.52	63.8	63.8	64.0	63.8	63.7
456	20	6592.63	7659.56	63.7	63.8	63.9	63.7	63.7
457	20	6590.16	7669.21	63.7	63.8	63.9	63.7	63.7
458	20	6587.68	7678.85	63.7	63.8	63.9	63.7	63.7
459	20	6582.90	7685.73	63.7	63.9	63.9	63.9	63.8
460	20	6576.12	7692.61	64.6	64.2	63.9	64.1	64.0
461	20	6584.15	7695.20	64.1	64.3	64.1	64.1	64.1
462	20	6590.16	7697.76	64.2	64.4	64.2	64.3	64.1
463	20	6590.39	7701.45	64.2	64.3	64.2	64.1	63.9
464	20	6590.50	7705.11	64.0	64.3	64.2	64.3	64.1
465	20	6576.96	7707.25	64.5	64.7	64.4	64.6	64.5
466	20	6577.93	7713.94	64.2	64.4	64.4	64.5	64.3
467	20	6576.56	7720.63	64.4	64.6	64.5	64.6	64.4
468	20	6579.90	7721.93	64.4	64.5	64.5	64.5	64.4
469	20	6582.91	7723.23	64.5	64.7	64.5	64.6	64.5
470	20	6584.27	7732.77	64.5	64.7	64.6	64.7	64.5
471	20	6585.62	7742.31	64.5	64.6	64.6	64.7	64.5
472	21	6526.83	7409.40	63.7	63.7	63.7	63.7	63.7
473	21	6541.34	7417.40	63.7	63.7	63.7	63.7	63.7
474	21	6553.70	7425.39	63.7	63.7	63.7	63.7	63.7
475	21	6573.56	7440.02	63.7	63.8	63.7	63.7	63.7
476	21	6593.95	7454.65	63.0	63.8	63.7	63.7	63.7
477	21	6597.05	7477.01	63.0	63.8	63.7	63.7	63.7
478	21	6607.81	7491.94	63.0	63.8	63.7	63.7	63.7
479	21	6616.54	7506.86	63.7	63.8	63.8	63.8	63.7

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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480	21	6619.43	7519.64	64.0	64.0	63.9	64.1	64.2
481	21	6620.30	7532.41	64.2	64.4	64.1	64.5	64.5
482	21	6624.27	7546.52	64.6	64.8	64.3	64.6	64.5
483	21	6628.24	7560.63	64.7	65.0	64.5	64.6	64.9
484	21	6625.43	7570.13	65.0	65.3	64.8	65.2	65.0
485	21	6622.61	7579.62	65.0	65.0	64.8	65.3	64.7
486	21	6627.50	7596.00	65.1	65.1	65.0	65.0	64.7
487	21	6632.39	7612.38	65.1	65.1	65.0	65.1	64.8
488	21	6627.29	7638.79	64.6	64.4	64.5	63.9	63.9
489	21	6631.38	7649.56	63.9	64.0	64.2	63.8	63.6
490	21	6635.40	7660.33	63.6	63.9	64.1	63.8	63.7
491	21	6632.92	7669.97	63.6	63.8	64.0	63.8	63.7
492	21	6630.30	7679.61	63.6	63.9	63.9	63.8	63.8
493	21	6632.88	7686.13	63.7	63.9	64.0	64.1	64.1
494	21	6635.37	7692.65	63.9	64.1	64.0	64.1	64.0
495	21	6636.21	7694.83	64.2	64.3	64.1	64.3	64.1
496	21	6637.04	7697.00	64.3	64.4	64.2	64.3	64.3
497	21	6634.23	7699.33	64.1	64.2	64.2	64.3	64.4
498	21	6631.41	7701.00	64.1	64.2	64.3	64.5	64.5
499	21	6640.74	7713.12	64.2	64.5	64.4	64.7	64.6
500	21	6635.10	7717.78	64.4	64.6	64.5	64.6	64.5
501	21	6629.57	7722.44	64.6	64.7	64.6	64.7	64.6
502	21	6629.99	7729.85	64.6	64.7	64.6	64.7	64.8
503	21	6630.40	7737.20	64.7	64.9	64.6	64.7	64.7
504	21	6627.36	7741.12	64.7	64.8	64.8	64.8	64.7
505	21	6623.60	7744.97	64.7	64.7	64.7	64.7	64.6
506	21	6626.59	7746.34	64.7	64.8	64.7	64.8	64.8
507	21	6629.57	7747.71	64.9	64.9	64.8	65.0	64.7
508	21	6630.43	7755.16	64.6	64.8	64.8	64.7	64.7
509	21	6630.49	7762.00	64.6	64.9	64.9	64.9	64.9
510	21	6632.22	7767.03	64.8	65.0	64.9	64.9	64.9
511	21	6633.94	7771.45	64.9	65.0	64.9	65.1	65.1
512	21	6623.77	7774.33	65.0	65.4	65.2	65.5	65.5
513	22	6582.49	7386.91	63.7	63.8	63.9	63.8	63.6
514	22	6589.69	7400.32	63.7	63.8	63.8	63.8	63.7
515	22	6597.30	7413.73	63.7	63.8	63.8	63.8	63.7
516	22	6617.99	7427.19	63.7	63.8	63.8	63.8	63.7
517	22	6636.66	7440.00	63.7	63.8	63.8	63.7	63.7
518	22	6656.20	7466.40	63.7	63.8	63.8	63.7	63.7
519	22	6653.44	7488.28	63.7	63.8	63.8	63.8	63.8

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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520	22	6660.50	7510.00	63.6	63.9	63.8	63.9	63.8
521	22	6672.36	7520.60	64.1	64.4	64.1	64.4	64.5
522	22	6676.12	7531.23	64.7	64.8	64.4	64.9	64.7
523	22	6673.97	7550.00	64.6	64.7	64.5	64.7	64.8
524	22	6671.81	7568.77	64.6	64.8	64.6	64.9	64.8
525	22	6675.66	7579.46	65.0	65.3	64.9	65.1	65.0
526	22	6679.51	7590.19	64.7	64.3	64.6	64.4	64.4
527	22	6677.55	7605.51	64.4	64.4	64.4	64.0	64.1
528	22	6675.59	7620.83	63.9	64.0	64.2	63.9	63.9
529	22	6673.67	7632.58	63.9	64.0	64.1	64.0	63.9
530	22	6671.74	7644.32	63.9	64.0	64.0	63.9	63.9
531	22	6681.10	7663.12	63.9	64.0	64.0	64.0	64.0
532	22	6674.99	7676.50	64.2	64.4	64.2	64.5	64.4
533	22	6688.87	7689.99	64.3	64.4	64.3	64.4	64.4
534	22	6673.47	7695.76	64.5	64.6	64.4	64.5	64.4
535	22	6678.07	7701.57	64.5	64.5	64.5	64.5	64.5
536	22	6672.79	7713.59	64.7	65.0	64.7	64.8	64.6
537	22	6667.50	7725.61	64.7	64.8	64.7	64.6	64.6
538	22	6671.30	7729.24	64.6	64.7	64.7	64.7	64.7
539	22	6675.09	7732.67	64.7	64.8	64.8	64.8	64.7
540	22	6671.22	7741.93	64.5	64.7	64.7	64.8	64.8
541	22	6667.34	7750.98	64.6	64.6	64.7	64.6	64.7
542	22	6669.43	7762.92	64.6	64.9	64.8	64.9	64.9
543	22	6672.60	7768.11	64.7	64.8	64.8	64.7	64.8
544	22	6675.77	7773.30	64.9	65.1	64.9	65.2	65.0
545	22	6674.30	7772.50	65.1	65.2	65.0	65.1	65.1
546	22	6672.82	7771.86	65.1	65.2	65.1	65.3	65.3
547	22	6671.79	7778.60	65.2	65.1	65.1	65.0	65.0
548	22	6670.75	7785.40	64.9	65.1	65.0	65.1	65.1
549	22	6671.23	7793.01	65.1	65.2	65.1	65.2	65.2
550	23	6634.03	7306.10	63.7	63.8	63.8	63.6	63.8
551	23	6646.10	7300.01	63.7	63.8	63.8	63.8	63.7
552	23	6660.40	7394.69	63.7	63.8	63.8	63.6	63.7
553	23	6674.70	7409.37	63.7	63.8	63.8	63.6	63.7
554	23	6684.41	7422.35	63.7	63.8	63.8	63.8	63.7
555	23	6694.06	7435.32	63.7	63.8	63.8	63.7	63.7
556	23	6695.19	7453.68	63.7	63.8	63.6	63.9	63.7
557	23	6696.31	7472.23	64.5	64.6	64.2	64.5	64.2
558	23	6702.26	7478.24	64.5	64.2	64.2	64.3	64.2
559	23	6705.24	7484.44	64.5	64.4	64.3	64.4	64.4

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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560	23	6714.01	7499.97	64.7	64.8	64.5	64.8	64.6
561	23	6721.37	7515.50	64.7	64.9	64.7	64.8	64.9
562	23	6724.13	7538.41	65.0	65.2	64.9	65.0	65.0
563	23	6720.35	7552.93	65.0	65.2	64.9	65.2	65.0
564	23	6716.56	7567.44	65.1	65.2	65.0	65.2	64.8
565	23	6719.56	7579.71	64.3	64.2	64.6	64.0	64.1
566	23	6722.56	7591.97	64.1	64.1	64.3	63.9	63.9
567	23	6723.34	7597.76	63.9	64.0	64.2	63.9	63.8
568	23	6724.11	7603.59	64.6	64.4	64.2	63.9	63.8
569	23	6726.35	7610.12	64.0	64.1	64.1	63.8	63.9
570	23	6728.65	7616.65	63.8	63.9	64.0	63.8	63.8
571	23	6733.29	7637.10	63.6	63.9	63.9	63.8	63.6
572	23	6736.52	7636.70	63.9	64.0	64.0	63.9	63.8
573	23	6727.75	7656.29	63.4	63.9	63.9	64.0	63.9
574	23	6727.91	7663.67	63.9	64.1	64.0	64.0	64.1
575	23	6726.66	7671.05	63.4	63.9	64.0	64.0	64.2
576	23	6727.66	7683.66	64.3	64.4	64.2	64.5	64.4
577	23	6727.25	7696.26	64.4	64.6	64.4	64.6	64.5
578	23	6725.16	7697.63	64.5	64.7	64.5	64.6	64.5
579	23	6722.95	7697.79	64.6	64.8	64.6	64.7	64.7
580	23	6727.05	7712.56	64.0	64.8	64.7	64.7	64.8
581	23	6731.14	7727.56	64.7	64.9	64.7	64.8	64.8
582	23	6733.62	7739.54	64.8	64.9	64.8	64.8	64.9
583	23	6727.62	7747.64	64.8	64.9	64.9	65.0	65.0
584	23	6722.22	7756.14	65.0	65.2	65.0	65.2	65.2
585	23	6720.46	7764.44	65.1	65.3	65.1	65.2	65.3
586	23	6716.69	7772.75	65.1	65.3	65.2	65.2	65.3
587	24	5731.64	7813.11	63.6	63.8	63.7	63.7	63.7
588	24	5752.74	7846.73	63.7	63.8	63.7	63.7	63.7
589	24	5765.34	7877.10	63.6	63.8	63.7	63.7	63.6
590	24	5763.66	7907.47	63.6	63.8	63.7	63.7	63.8
591	24	5810.63	7930.62	63.6	63.8	63.7	63.7	63.6
592	24	5836.16	7954.16	63.6	63.8	63.7	63.9	64.2
593	24	5853.30	7960.61	63.6	63.9	63.7	63.7	65.3
594	24	5870.42	8007.06	63.6	63.8	63.7	63.8	63.9
595	24	5884.46	8033.54	63.7	65.5	64.1	64.8	65.8
596	24	5896.50	8060.61	64.6	65.1	64.7	64.9	67.0
597	24	5911.50	8085.62	63.8	64.6	64.3	64.4	64.6
598	24	5924.49	8110.62	64.0	64.1	64.4	64.1	64.1
599	24	5931.26	8142.63	63.6	64.0	64.1	63.9	63.9

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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600	24	5938.07	8175.23	63.0	64.1	64.0	63.9	63.9
601	24	5956.16	8221.59	63.0	64.0	64.0	63.9	63.9
602	24	5960.14	8257.37	63.0	64.1	64.0	63.9	63.9
603	24	5964.11	8293.15	63.9	64.1	64.0	63.9	63.9
604	24	5979.48	8322.98	63.9	64.1	64.0	64.0	63.9
605	25	5959.75	8369.19	64.0	64.2	64.1	64.1	64.0
606	25	5953.50	8342.93	64.0	64.2	64.1	64.0	64.0
607	25	5947.25	8316.68	63.9	64.2	64.1	64.0	63.9
608	25	5947.83	8281.76	63.9	64.1	64.0	63.9	63.9
609	25	5948.41	8246.87	63.9	64.1	64.0	63.9	63.9
610	25	5938.07	8175.23	63.0	64.0	63.9	63.9	63.8
611	25	5941.22	8144.14	63.8	64.0	63.9	63.8	63.8
612	25	5943.97	8113.04	63.0	63.9	63.9	63.8	63.8
613	25	5949.60	8079.10	63.0	64.2	64.2	66.6	66.0
614	25	5955.79	8045.15	63.9	64.3	64.5	64.5	64.9
615	25	5955.51	8011.69	63.9	64.2	64.5	64.1	64.3
616	25	5955.22	7978.63	64.4	64.8	64.5	64.5	64.4
617	25	5957.63	7944.15	64.5	64.4	64.6	64.4	64.9
618	25	5960.04	7909.67	64.5	64.7	64.6	64.6	63.8
619	25	5956.45	7879.58	63.9	64.0	64.1	63.8	63.7
620	25	5956.85	7849.48	63.7	63.9	64.0	63.7	63.8
621	25	5950.66	7813.83	63.7	63.9	63.9	63.7	63.7
622	25	5944.46	7776.17	63.7	63.9	63.8	63.7	63.7
623	25	5918.86	7708.80	63.7	63.9	63.8	63.7	63.7
624	25	5907.02	7677.78	63.7	63.8	63.8	63.7	63.7
625	25	5895.10	7646.75	63.7	63.8	63.8	63.7	63.7
626	25	5880.54	7612.93	63.7	63.9	63.8	63.7	63.7
627	25	5877.89	7579.10	63.7	63.9	63.7	63.7	63.7
628	26	5849.48	7599.71	63.7	63.9	63.8	63.7	63.7
629	26	5850.44	7626.94	63.7	63.9	63.8	63.7	63.7
630	26	5876.74	7654.80	63.7	63.9	63.8	63.7	63.7
631	26	5893.04	7682.81	63.7	63.8	63.7	63.7	63.7
632	26	5925.50	7712.29	63.7	63.8	63.8	63.7	63.7
633	26	5918.28	7741.77	63.7	63.9	63.7	63.7	63.7
634	26	5932.62	7771.76	63.7	63.9	63.7	63.7	63.7
635	26	5947.30	7801.75	63.0	63.9	63.8	63.7	63.6
636	26	5986.86	7844.86	63.0	63.8	63.7	63.7	63.7
637	26	6000.57	7860.64	63.0	63.8	63.7	63.7	63.6
638	26	6020.27	7880.67	63.0	63.8	63.7	63.7	63.6
639	26	6046.45	7896.62	64.1	64.5	63.9	64.6	64.5

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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640	26	6070.64	7916.36	64.7	64.9	64.3	64.4	64.8
641	26	6090.80	7932.36	64.3	64.6	64.2	64.3	64.7
642	26	6122.96	7946.36	64.7	64.9	64.5	65.1	65.3
643	26	6145.77	7964.36	65.1	65.2	64.9	65.1	65.5
644	26	6168.57	7980.35	65.0	64.3	64.9	65.3	65.8
645	26	6185.27	8000.41	66.3	66.2	65.6	65.8	65.7
646	26	6201.96	8020.47	66.4	66.6	65.9	65.9	65.9
647	26	6240.95	8053.29	64.9	64.7	65.2	64.2	64.1
648	26	6263.89	8069.51	64.2	64.2	64.7	64.0	63.9
649	26	6286.82	8085.92	64.0	64.1	64.3	63.9	63.9
650	26	6304.62	8102.97	63.9	64.1	64.2	63.9	63.9
651	26	6322.42	8120.01	63.9	64.0	64.1	63.9	63.9
652	26	6336.75	8136.01	63.9	64.0	64.1	63.9	63.9
653	27	6371.71	8139.67	63.9	64.0	64.0	63.9	63.9
654	27	6384.39	8088.11	63.8	64.0	63.9	63.8	63.8
655	27	6396.47	8055.83	63.8	64.0	63.9	63.8	63.8
656	27	6408.54	8023.55	63.8	63.9	63.9	63.9	63.8
657	27	6418.91	7994.12	64.5	64.4	64.1	64.8	65.2
658	27	6429.27	7964.68	65.7	65.8	65.0	65.9	65.7
659	27	6426.54	7930.83	65.7	65.9	65.3	65.8	65.5
660	27	6423.81	7895.39	65.5	65.8	65.3	65.3	65.2
661	27	6427.95	7856.31	65.0	65.0	65.1	64.8	64.9
662	27	6432.08	7821.23	64.4	64.6	64.8	64.5	64.6
663	27	6427.94	7789.93	64.5	64.7	64.7	64.6	64.4
664	27	6423.80	7756.64	64.5	64.4	64.5	63.9	63.8
665	27	6433.11	7699.20	63.9	64.0	64.2	63.7	63.7
666	27	6424.60	7671.98	63.7	63.9	64.0	63.7	63.7
667	27	6416.61	7644.75	65.0	65.4	64.6	65.2	65.2
668	27	6409.46	7607.78	64.9	65.1	64.9	65.2	64.4
669	27	6402.30	7570.81	64.2	64.2	64.4	63.8	63.8
670	27	6405.29	7540.70	63.9	64.0	64.1	63.7	63.8
671	27	6400.26	7510.70	63.6	63.9	64.0	63.7	63.7
672	27	6409.14	7471.42	63.7	63.9	63.9	63.7	63.7

REC #	LINE #	X	Y	11 FT	13 FT	15 FT	17 FT	20 FT
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1	1	6237.18	7659.10	63.7	63.9	63.8	0.0	63.8
2	1	6233.98	7658.27	63.7	63.9	63.8	0.0	63.7
3	1	6242.36	7663.86	63.7	63.9	63.8	0.0	63.7
4	1	6245.57	7678.31	63.7	63.8	63.8	0.0	63.7
5	1	6248.78	7692.76	63.7	63.8	63.8	0.0	63.7
6	1	6253.23	7704.19	63.7	63.9	63.8	0.0	63.7
7	1	6257.67	7715.62	63.7	63.8	63.8	0.0	63.7
8	1	6251.93	7731.05	63.7	63.8	63.8	0.0	63.7
9	1	6251.82	7736.13	63.7	63.9	63.8	0.0	63.7
10	1	6251.70	7741.21	63.7	63.8	63.8	0.0	63.7
11	1	6249.55	7742.32	63.7	63.8	63.8	0.0	63.7
12	1	6247.40	7743.42	63.7	63.8	63.7	0.0	63.7
13	1	6250.39	7754.48	63.7	63.8	63.8	0.0	63.7
14	2	6237.61	7649.04	63.7	63.9	63.9	0.0	63.8
15	2	6241.56	7656.67	63.7	63.9	63.9	0.0	63.7
16	2	6244.96	7666.26	63.7	63.9	63.8	0.0	63.7
17	2	6248.33	7675.65	63.7	63.9	63.8	0.0	63.8
18	2	6250.92	7678.05	63.8	63.9	64.6	0.0	66.8
19	2	6253.51	7680.45	64.1	68.2	67.2	0.0	72.3
20	2	6256.50	7690.34	67.3	69.2	66.2	0.0	67.9
21	2	6263.49	7700.22	65.1	65.0	66.7	0.0	64.7
22	2	6258.26	7714.10	64.2	64.4	65.5	0.0	64.1
23	2	6253.07	7727.97	64.0	64.1	64.8	0.0	63.9
24	2	6257.70	7734.38	63.9	64.0	64.5	0.0	63.9
25	2	6262.33	7740.79	63.8	64.0	64.3	0.0	63.8
26	2	6263.24	7747.67	63.8	63.9	64.1	0.0	63.8
27	2	6262.66	7749.42	63.8	63.9	64.0	0.0	63.8
28	2	6262.11	7750.97	63.8	63.9	64.0	0.0	63.8
29	2	6260.53	7750.52	63.8	63.9	63.9	0.0	63.8
30	2	6258.45	7750.07	63.8	64.0	63.9	0.0	63.8
31	2	6257.75	7758.26	63.8	63.9	63.9	0.0	63.8
32	2	6256.54	7766.44	63.8	63.9	63.9	0.0	63.8
33	3	6237.61	7649.04	63.9	64.0	64.3	0.0	63.8
34	3	6254.05	7643.21	63.8	63.9	64.1	0.0	63.8
35	3	6255.19	7653.71	63.8	63.9	64.0	0.0	63.8
36	3	6256.32	7664.21	63.8	63.9	64.0	0.0	63.8
37	3	6259.51	7665.08	63.8	63.9	63.9	0.0	63.8
38	3	6262.69	7665.95	63.8	64.0	64.0	0.0	65.1
39	3	6266.66	7668.81	65.4	66.4	65.2	0.0	66.5

REC #	LINE #	X	Y	11 FT	13 FT	15 FT	17 FT	20 FT
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40	3	6271.42	7671.66	65.9	67.7	66.4	0.0	67.6
41	3	6270.42	7673.19	67.3	67.2	66.6	0.0	66.6
42	3	6269.82	7674.73	68.3	68.3	67.0	0.0	66.6
43	3	6267.25	7685.93	70.0	70.9	68.4	0.0	67.2
44	3	6264.67	7697.14	66.0	65.5	66.8	0.0	64.2
45	3	6266.89	7728.45	64.5	64.6	65.7	0.0	64.0
46	3	6270.17	7748.16	64.2	64.2	65.0	0.0	63.9
47	3	6273.44	7767.91	64.0	64.1	64.6	0.0	63.9
48	3	6267.14	7766.08	64.0	64.0	64.4	0.0	63.8
49	3	6260.61	7764.24	63.9	63.9	64.2	0.0	63.8
50	3	6262.25	7774.91	63.8	63.9	64.1	0.0	63.8
51	3	6263.69	7785.57	63.8	63.9	64.0	0.0	63.8
52	3	6264.24	7784.02	63.8	63.9	63.9	0.0	63.8
53	3	6264.76	7782.47	63.8	63.9	63.9	0.0	63.7
54	3	6261.58	7786.60	63.8	63.9	63.9	0.0	63.8
55	3	6256.37	7790.85	63.9	64.2	64.0	0.0	63.8
56	3	6262.61	7788.67	63.9	64.0	64.0	0.0	63.8
57	4	6254.20	7629.67	63.9	63.9	64.1	0.0	64.1
58	4	6255.79	7630.29	63.8	63.9	64.0	0.0	63.9
59	4	6265.11	7659.61	63.6	63.9	63.9	0.0	63.8
60	4	6268.67	7664.20	63.6	63.9	64.1	0.0	64.5
61	4	6272.22	7666.59	66.0	66.4	65.4	0.0	66.9
62	4	6276.14	7680.50	65.6	66.3	65.7	0.0	66.5
63	4	6284.26	7692.41	66.0	65.9	65.6	0.0	65.9
64	4	6281.70	7696.56	66.9	65.3	65.8	0.0	64.7
65	4	6279.34	7704.71	66.0	65.3	65.4	0.0	64.0
66	4	6278.59	7711.32	64.1	64.1	64.7	0.0	63.8
67	4	6277.83	7717.93	63.9	64.0	64.4	0.0	63.8
68	4	6275.96	7727.64	63.9	63.9	64.2	0.0	63.6
69	4	6274.49	7737.34	63.6	63.9	64.1	0.0	63.8
70	4	6274.32	7751.08	63.6	63.9	64.0	0.0	63.9
71	4	6274.55	7764.61	63.6	63.9	63.9	0.0	63.9
72	4	6273.44	7767.91	63.6	63.9	63.9	0.0	63.9
73	4	6269.73	7766.54	63.6	63.9	63.9	0.0	63.8
74	4	6266.22	7769.16	64.6	64.3	64.0	0.0	63.9
75	4	6262.25	7774.90	63.9	64.1	64.0	0.0	63.9
76	4	6256.47	7780.64	63.9	64.1	64.2	0.0	64.1
77	4	6263.27	7776.91	63.9	64.0	64.0	0.0	64.1
78	5	6254.55	7633.16	64.0	64.1	64.4	0.0	63.9
79	5	6262.16	7631.81	63.9	64.0	64.2	0.0	64.0

REC #	LINE #	X	Y	11 FT	13 FT	15 FT	17 FT	20 FT
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80	5	6269.02	7645.60	63.8	63.9	64.1	0.0	63.8
81	5	6275.86	7659.39	63.8	63.9	64.0	0.0	63.8
82	5	6274.43	7667.51	65.7	65.4	64.1	0.0	64.7
83	5	6272.99	7675.62	65.0	65.8	65.0	0.0	65.4
84	5	6278.34	7689.08	65.4	66.2	65.2	0.0	64.1
85	5	6283.68	7702.54	66.5	66.2	65.6	0.0	64.0
86	5	6286.35	7718.71	64.7	64.4	64.9	0.0	63.8
87	5	6289.01	7734.87	64.1	64.1	64.5	0.0	63.8
88	5	6285.60	7744.13	63.9	64.0	64.2	0.0	63.8
89	5	6282.16	7753.38	63.9	64.0	64.1	0.0	63.8
90	5	6286.35	7756.33	63.9	63.9	64.0	0.0	63.8
91	5	6290.51	7759.28	63.9	63.9	63.9	0.0	63.8
92	5	6287.36	7758.34	63.9	63.9	63.9	0.0	63.8
93	5	6289.39	7762.38	63.9	63.9	63.9	0.0	63.8
94	5	6291.41	7766.41	63.0	63.9	63.9	0.0	63.8
95	5	6289.84	7765.94	64.1	64.1	64.0	0.0	63.9
96	5	6286.27	7765.46	64.3	64.2	64.1	0.0	64.0
97	5	6286.16	7770.57	64.0	64.1	64.1	0.0	63.9

LOW-FLOW THERMAL SURVEY

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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1	1	6189.87	7627.02	63.1	63.1	63.1	63.1	63.1
2	1	6211.65	7625.54	63.1	63.1	63.2	63.1	63.1
3	1	6205.22	7623.96	63.0	63.1	63.2	63.1	63.1
4	1	6211.65	7625.54	63.1	63.1	63.2	63.1	63.1
5	1	6218.45	7630.62	63.1	63.1	63.2	63.2	63.1
6	1	6225.26	7635.70	63.1	63.1	63.2	63.1	63.2
7	1	6229.83	7641.95	63.1	63.1	63.1	63.2	63.1
8	1	6234.41	7648.21	63.1	63.1	63.2	63.1	63.2
9	1	6239.96	7670.02	63.1	63.1	63.1	63.2	63.1
10	1	6242.76	7660.96	63.1	63.1	63.2	63.1	63.1
11	1	6245.60	7691.90	63.1	63.1	63.2	63.1	63.1
12	1	6243.84	7696.52	63.1	63.1	63.2	63.1	63.1
13	1	6242.09	7701.15	63.1	63.1	63.1	63.1	63.1
14	1	6243.96	7710.15	63.1	63.1	63.1	63.1	63.1
15	1	6245.84	7719.16	63.1	63.1	63.2	63.1	63.1
16	1	6245.60	7729.30	63.1	63.1	63.1	63.1	63.1
17	1	6245.36	7739.45	63.0	63.1	63.1	63.1	63.1
18	1	6244.23	7742.54	63.1	63.1	63.1	63.1	63.1
19	1	6243.11	7745.63	63.1	63.1	63.1	63.2	63.2
20	1	6242.93	7755.79	63.1	63.1	63.1	63.1	63.1
21	2	6187.10	7616.26	63.0	63.1	63.1	63.1	63.1
22	2	6194.79	7614.70	63.0	63.1	63.1	63.1	63.0
23	2	6200.24	7614.32	63.1	63.1	63.1	63.1	63.1
24	2	6205.70	7613.95	63.0	63.1	63.1	63.1	63.1
25	2	6213.74	7615.93	63.0	63.1	63.1	63.1	63.0
26	2	6221.79	7617.91	63.0	63.1	63.1	63.1	63.1
27	2	6228.94	7626.50	63.0	63.1	63.1	63.1	63.1
28	2	6236.10	7635.09	63.1	63.1	63.1	63.1	63.1
29	2	6245.22	7647.65	63.1	63.1	63.1	63.1	63.1
30	2	6243.79	7655.75	63.1	63.1	63.1	63.1	63.1
31	2	6242.36	7663.60	63.1	63.1	63.1	63.1	63.1
32	2	6246.94	7670.10	63.1	63.1	63.1	63.1	63.1
33	2	6251.52	7676.51	63.1	63.1	63.2	63.1	63.1
34	2	6251.92	7680.01	63.1	63.1	63.1	63.1	63.1
35	2	6252.33	7683.52	63.0	63.1	63.1	63.1	66.9
36	2	6251.14	7686.66	63.0	63.1	63.1	63.1	63.3
37	2	6249.96	7689.66	63.1	63.1	63.1	63.1	63.2
38	2	6250.37	7693.19	66.4	63.1	63.1	63.1	63.1
39	2	6250.79	7696.71	66.5	63.3	63.1	63.1	63.1

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	12 FT
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40	2	6251.21	7700.22	65.6	64.9	63.2	63.1	63.1
41	2	6251.63	7703.74	65.4	64.4	63.2	63.1	63.1
42	2	6262.86	7720.48	64.9	63.3	63.2	63.1	63.1
43	2	6253.09	7727.96	63.7	63.3	63.1	63.1	63.1
44	2	6243.32	7735.48	63.4	63.2	63.1	63.1	63.1
45	2	6248.99	7743.87	63.2	63.1	63.1	63.1	63.1
46	2	6254.67	7752.20	63.2	63.1	63.1	63.1	63.1
47	2	6254.02	7758.90	63.1	63.1	63.1	63.1	63.0
48	2	6253.30	7765.54	63.1	63.1	63.1	63.1	63.1
49	2	6254.89	7771.08	63.1	63.1	63.1	63.1	63.1
50	2	6256.00	7776.63	63.1	63.1	63.2	63.2	63.3
51	2	6248.89	7788.13	63.1	63.1	63.2	63.1	63.1
52	3	6213.75	7615.92	63.1	63.1	63.2	63.2	63.1
53	3	6218.58	7617.11	63.1	63.1	63.1	63.1	63.1
54	3	6230.70	7613.39	63.1	63.1	63.2	63.1	63.1
55	3	6236.23	7621.59	63.1	63.1	63.2	63.1	63.1
56	3	6241.76	7629.79	63.1	63.1	63.1	63.1	63.1
57	3	6245.94	7632.58	63.1	63.1	63.2	63.1	63.1
58	3	6254.13	7635.37	63.1	63.1	63.2	63.2	63.1
59	3	6250.87	7642.30	63.1	63.1	63.2	63.1	63.1
60	3	6251.61	7649.35	63.1	63.1	63.2	63.1	63.1
61	3	6255.55	7657.21	63.1	63.1	63.2	63.2	63.1
62	3	6259.50	7665.08	63.9	63.9	63.2	63.2	63.1
63	3	6257.91	7664.64	65.6	64.7	63.4	63.2	63.1
64	3	6256.32	7664.21	66.0	65.4	63.7	63.2	65.0
65	3	6255.51	7670.79	65.8	64.1	64.0	63.7	67.8
66	3	6254.70	7677.37	66.1	65.5	64.1	66.6	67.9
67	3	6256.69	7685.27	66.5	65.8	65.1	64.8	65.0
68	3	6258.42	7693.84	66.4	63.7	64.4	64.5	67.0
69	3	6259.15	7702.41	64.7	63.4	63.8	63.3	65.0
70	3	6262.45	7710.97	65.3	63.3	63.6	63.4	63.7
71	3	6265.75	7731.53	63.6	63.2	63.4	63.2	63.4
72	3	6264.04	7730.10	63.4	63.2	63.3	63.2	63.3
73	3	6262.33	7740.79	63.3	63.2	63.3	63.2	63.2
74	3	6258.33	7750.71	63.2	63.1	63.2	63.2	63.2
75	3	6254.34	7772.63	63.2	63.1	63.2	63.3	63.3
76	3	6254.77	7761.28	63.2	63.2	63.3	63.2	63.2
77	3	6255.21	7789.44	63.2	63.1	63.2	63.2	63.2
78	3	6253.09	7791.04	63.1	63.1	63.2	63.4	63.2
79	3	6250.97	7792.14	63.9	63.5	63.5	63.7	63.8

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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80	3	6246.73	7794.34	64.0	63.7	63.5	63.4	63.4
81	3	6251.97	7799.26	63.4	63.2	63.5	63.5	63.4
82	3	6257.22	7804.18	63.8	63.9	63.8	64.0	63.8
83	4	6222.67	7611.37	63.1	63.1	63.2	63.1	63.1
84	4	6227.44	7612.58	63.1	63.1	63.2	63.1	63.1
85	4	6235.51	7614.63	63.1	63.1	63.2	63.1	63.1
86	4	6243.53	7616.68	63.0	63.1	63.1	63.1	63.1
87	4	6253.84	7626.18	63.0	63.1	63.1	63.1	63.1
88	4	6259.71	7637.95	63.0	63.2	63.2	63.1	63.1
89	4	6265.58	7649.73	63.1	63.1	63.2	63.2	63.1
90	4	6264.13	7657.84	63.1	63.1	63.2	63.2	63.1
91	4	6262.69	7665.95	65.4	64.9	63.7	64.6	65.0
92	4	6269.65	7666.18	65.2	65.1	64.6	66.5	66.2
93	4	6276.61	7666.41	65.6	65.8	65.3	65.9	65.3
94	4	6272.83	7667.06	66.5	66.6	65.6	65.5	65.1
95	4	6269.05	7667.71	66.7	66.2	65.7	65.7	65.5
96	4	6270.03	7669.08	66.7	65.4	65.8	64.5	65.5
97	4	6271.02	7671.68	66.1	66.4	65.9	66.2	65.1
98	4	6280.11	7684.48	67.1	66.6	66.2	64.7	64.8
99	4	6289.20	7697.31	66.6	66.4	65.5	63.6	63.6
100	4	6283.94	7711.16	64.4	64.0	64.7	63.3	63.4
101	4	6278.68	7725.01	63.7	63.5	64.2	63.2	63.3
102	4	6274.29	7737.34	63.5	63.3	63.8	63.2	63.2
103	4	6274.98	7744.43	63.3	63.2	63.6	63.2	63.2
104	4	6275.88	7751.53	63.3	63.2	63.5	63.2	63.2
105	4	6276.23	7760.16	63.2	63.2	63.4	63.2	63.2
106	4	6276.59	7768.63	63.5	63.5	63.4	63.4	63.3
107	4	6274.38	7775.02	63.3	63.2	63.4	63.4	63.4
108	4	6272.16	7781.22	63.2	63.2	63.4	63.3	63.4
109	4	6271.04	7784.31	63.3	63.3	63.4	63.3	63.4
110	4	6270.00	7787.41	63.6	63.9	63.5	63.4	63.2
111	4	6265.22	7791.14	63.5	63.5	63.6	63.5	63.4
112	4	6260.44	7794.87	63.7	63.5	63.5	63.3	63.4
113	4	6262.02	7795.33	63.3	63.2	63.4	63.5	63.6
114	4	6263.60	7795.79	63.6	64.0	63.7	64.0	63.9
115	4	6260.44	7794.87	64.1	64.2	64.0	64.3	64.0
116	5	6224.82	7601.76	63.2	63.2	63.3	63.1	63.1
117	5	6229.30	7599.50	63.1	63.2	63.2	63.2	63.1
118	5	6233.78	7597.25	63.1	63.1	63.2	63.1	63.1
119	5	6240.20	7595.80	63.1	63.1	63.2	63.2	63.1

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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120	5	6249.86	7609.89	63.1	63.1	63.2	63.2	63.1
121	5	6259.33	7620.90	63.1	63.2	63.2	63.2	63.1
122	5	6262.19	7631.81	63.1	63.1	63.2	63.2	63.1
123	5	6264.85	7642.73	63.1	63.1	63.2	63.1	63.1
124	5	6270.35	7651.06	63.1	63.1	63.2	63.2	63.1
125	5	6275.86	7659.39	64.4	65.3	63.6	63.7	63.2
126	5	6272.45	7663.55	66.4	66.7	65.1	66.0	65.3
127	5	6269.85	7667.71	65.2	65.7	65.5	66.2	65.1
128	5	6277.15	7678.52	66.0	65.9	65.3	64.2	64.3
129	5	6285.25	7689.34	66.3	66.4	65.3	65.4	65.5
130	5	6288.44	7703.94	66.1	66.6	65.9	64.5	63.7
131	5	6291.63	7718.54	64.8	64.9	64.6	63.3	63.3
132	5	6274.04	7737.34	63.6	63.5	64.0	63.2	63.2
133	5	6281.29	7746.29	63.4	63.3	63.8	63.2	63.2
134	5	6288.49	7755.25	63.3	63.3	63.5	63.7	63.3
135	5	6289.95	7768.83	63.6	63.3	63.6	63.3	63.2
136	5	6291.41	7766.41	63.6	63.6	63.6	63.4	63.4
137	5	6282.96	7765.61	64.3	64.5	63.9	64.2	63.8
138	5	6274.55	7764.61	64.4	64.5	64.2	64.4	64.2
139	5	6277.61	7770.85	64.3	64.4	64.2	63.8	63.7
140	5	6280.66	7776.89	64.6	63.5	63.9	63.3	63.3
141	5	6280.13	7775.44	63.6	63.8	63.8	63.5	63.7
142	5	6279.56	7779.99	63.6	63.8	63.9	64.1	64.0
143	5	6280.26	7783.55	64.2	64.0	63.9	64.1	63.9
144	5	6280.54	7787.12	64.1	64.0	64.0	63.9	63.9
145	5	6277.27	7796.42	64.1	64.2	64.1	64.2	64.0
146	5	6274.62	7799.05	64.1	63.9	64.0	63.7	63.9
147	5	6271.97	7801.68	63.9	63.9	63.9	63.7	63.6
148	5	6269.32	7804.32	64.0	64.2	64.2	64.1	63.9
149	5	6266.68	7806.96	64.3	64.3	64.1	64.3	64.1
150	5	6267.19	7810.53	64.2	64.0	64.1	64.1	64.0
151	6	6195.65	7577.63	63.1	63.0	63.2	63.1	63.1
152	6	6199.87	7580.51	63.1	63.0	63.2	63.1	63.1
153	6	6204.09	7583.19	63.1	63.0	63.2	63.1	63.1
154	6	6213.09	7578.60	63.1	63.0	63.2	63.1	63.1
155	6	6224.70	7564.86	63.1	63.0	63.2	63.1	63.1
156	6	6236.31	7591.12	63.1	63.0	63.2	63.1	63.1
157	6	6248.83	7599.46	63.1	63.0	63.1	63.1	63.1
158	6	6261.36	7607.81	63.1	63.0	63.1	63.1	63.1
159	6	6265.86	7614.12	63.1	63.1	63.2	63.1	63.1

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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160	6	6270.36	7620.43	63.1	63.0	63.2	63.2	63.1
161	6	6277.41	7629.19	63.1	63.1	63.2	63.1	63.1
162	6	6284.47	7637.95	63.0	63.2	63.3	63.2	63.1
163	6	6283.59	7644.52	65.0	63.9	63.4	63.5	63.1
164	6	6281.71	7651.09	66.0	65.4	64.2	64.5	64.6
165	6	6282.01	7656.13	66.5	66.4	65.2	65.5	65.5
166	6	6282.21	7661.18	65.9	65.9	65.5	65.9	65.4
167	6	6290.37	7678.90	66.3	65.1	65.1	65.0	64.8
168	6	6294.17	7693.64	66.3	66.3	65.1	64.9	65.5
169	6	6291.98	7708.38	66.0	65.6	65.1	63.7	63.6
170	6	6295.22	7723.03	66.3	66.5	65.4	63.7	63.4
171	6	6298.46	7737.69	64.0	63.8	64.5	63.3	63.2
172	6	6294.83	7744.93	63.6	63.4	64.0	63.2	63.2
173	6	6289.61	7752.17	63.4	63.2	63.7	63.2	63.1
174	6	6293.20	7756.67	63.5	63.2	63.5	63.1	63.1
175	6	6296.80	7761.18	63.4	63.7	63.5	63.3	63.2
176	6	6292.53	7763.32	64.2	64.2	63.9	63.8	63.3
177	6	6286.27	7765.46	64.4	64.4	64.0	63.3	63.2
178	6	6288.17	7770.57	63.7	63.6	63.7	63.7	63.4
179	6	6288.06	7775.68	63.0	64.0	63.9	64.0	63.6
180	6	6283.68	7788.07	64.1	63.5	63.7	63.5	63.3
181	6	6285.60	7786.99	63.8	64.2	64.0	64.1	64.0
182	6	6287.92	7785.92	64.2	64.1	63.8	63.6	63.5
183	7	6225.99	7581.77	63.1	63.0	63.3	63.2	63.1
184	7	6227.60	7582.17	63.1	63.0	63.2	63.1	63.1
185	7	6224.21	7582.57	63.1	63.0	63.2	63.2	63.1
186	7	6234.35	7578.78	63.1	63.0	63.2	63.1	63.1
187	7	6239.50	7575.80	63.1	63.0	63.2	63.1	63.1
188	7	6240.57	7583.59	63.1	63.0	63.2	63.1	63.1
189	7	6253.64	7542.19	63.1	63.0	63.2	63.1	63.1
190	7	6276.67	7605.15	63.1	63.0	63.2	63.1	63.1
191	7	6281.81	7618.49	63.1	63.1	63.2	63.1	63.1
192	7	6286.96	7631.83	63.1	63.0	63.2	63.2	63.1
193	7	6292.41	7640.21	63.0	63.2	63.6	64.1	64.0
194	7	6297.86	7648.59	65.6	65.4	64.5	65.2	65.2
195	7	6295.16	7659.76	65.0	65.3	64.7	65.2	65.0
196	7	6292.46	7670.93	65.5	65.5	64.9	65.3	65.0
197	7	6294.04	7671.39	66.0	65.8	64.8	64.6	65.0
198	7	6295.63	7671.85	65.9	65.1	64.8	65.1	65.0
199	7	6300.40	7685.37	65.1	65.2	65.2	65.6	65.0

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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200	7	6306.18	7698.90	66.1	65.7	65.2	64.8	63.4
201	7	6311.35	7731.32	66.3	65.5	65.0	64.3	63.3
202	7	6305.90	7736.52	64.9	63.8	64.5	63.3	63.2
203	7	6300.46	7741.72	63.0	63.4	63.9	63.2	63.2
204	7	6301.89	7747.30	63.4	63.3	63.7	63.2	63.2
205	7	6303.33	7752.89	63.3	63.1	63.5	63.2	63.2
206	7	6301.53	7762.63	63.2	63.1	63.4	63.2	63.2
207	7	6299.73	7772.37	63.5	63.3	63.5	63.5	63.6
208	7	6299.08	7779.23	63.8	63.6	63.7	63.6	63.5
209	7	6298.44	7785.70	63.0	63.3	63.7	63.5	63.4
210	7	6299.38	7792.86	63.9	63.9	63.8	64.0	63.9
211	8	6236.28	7574.19	63.1	63.0	63.2	63.1	63.1
212	8	6227.91	7568.72	63.1	63.0	63.2	63.1	63.1
213	8	6243.99	7572.82	63.1	63.0	63.2	63.1	63.1
214	8	6260.86	7576.92	63.1	63.0	63.2	63.1	63.1
215	8	6265.82	7580.14	63.1	63.0	63.2	63.1	63.1
216	8	6271.56	7583.37	63.1	63.0	63.2	63.2	63.1
217	8	6277.00	7591.65	63.1	63.1	63.2	63.1	63.1
218	8	6282.41	7599.92	63.1	63.0	63.2	63.1	63.1
219	8	6288.44	7615.25	63.1	63.0	63.2	63.2	63.1
220	8	6294.50	7630.58	63.1	63.0	63.2	63.2	63.1
221	8	6296.21	7639.59	64.9	65.2	64.1	65.3	64.7
222	8	6297.86	7648.59	65.2	65.2	64.7	65.1	64.1
223	8	6296.11	7661.74	64.6	64.8	64.7	65.0	65.3
224	8	6297.34	7658.68	64.4	64.8	64.9	65.3	65.5
225	8	6296.50	7655.62	65.9	65.9	65.4	65.8	64.8
226	8	6298.50	7655.62	65.1	65.3	65.3	65.0	64.5
227	8	6298.50	7655.62	64.7	64.7	65.3	65.3	65.3
228	8	6299.53	7657.61	65.9	65.5	65.2	65.4	65.0
229	8	6300.53	7659.60	65.2	65.4	65.2	65.0	65.0
230	8	6306.11	7676.66	65.1	65.5	65.5	65.5	65.1
231	8	6311.71	7693.71	65.5	66.1	65.4	64.8	63.7
232	8	6315.44	7706.85	63.4	63.6	64.4	63.3	63.3
233	8	6319.16	7719.99	63.4	63.3	63.9	63.3	63.2
234	8	6313.69	7752.70	63.3	63.2	63.7	63.2	63.2
235	8	6315.66	7767.01	63.0	63.4	63.6	63.6	63.5
236	8	6317.43	7781.32	64.1	64.1	64.0	64.2	63.7
237	8	6311.62	7782.94	64.1	63.9	63.9	63.9	63.7
238	8	6305.81	7784.55	64.2	64.1	64.1	64.2	63.7
239	9	6252.42	7561.37	63.1	63.0	63.3	63.1	63.1

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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240	9	6256.94	7559.15	63.1	63.0	63.2	63.1	63.1
241	9	6264.01	7559.31	63.1	63.0	63.2	63.2	63.1
242	9	6271.09	7559.47	63.1	63.1	63.2	63.2	63.1
243	9	6275.53	7565.75	63.1	63.1	63.2	63.1	63.1
244	9	6279.97	7572.04	63.1	63.0	63.2	63.1	63.1
245	9	6288.54	7581.21	63.1	63.0	63.2	63.1	63.1
246	9	6297.12	7590.39	63.1	63.0	63.2	63.1	63.1
247	9	6311.60	7615.01	63.1	63.0	63.1	63.2	63.1
248	9	6313.68	7622.49	63.5	63.7	63.2	63.2	63.1
249	9	6310.10	7629.96	65.0	65.2	64.0	64.3	63.1
250	9	6316.16	7647.11	64.9	64.8	64.5	65.2	63.9
251	9	6316.16	7647.11	64.7	64.6	64.6	64.9	64.0
252	9	6316.64	7654.16	64.4	64.4	64.8	65.3	64.2
253	9	6317.53	7661.21	64.5	64.2	64.7	64.4	64.3
254	9	6318.60	7671.81	64.5	65.0	64.9	65.1	64.4
255	9	6319.67	7682.41	65.2	65.3	65.2	65.2	65.4
256	9	6321.57	7700.15	65.2	63.9	64.6	63.4	63.4
257	9	6323.47	7717.89	63.7	63.4	64.1	63.3	63.2
258	9	6327.56	7753.56	63.4	63.2	63.7	63.2	63.3
259	9	6327.85	7762.26	63.6	63.8	63.7	63.5	63.2
260	9	6328.15	7770.97	64.3	64.2	63.9	63.7	63.5
261	9	6322.61	7786.42	64.4	64.4	64.1	64.3	64.0
262	9	6317.06	7801.87	64.2	64.2	64.2	64.2	64.1
263	9	6321.76	7803.36	64.2	64.2	64.2	64.2	64.1
264	9	6326.45	7804.89	64.2	64.2	64.2	64.1	64.1
265	9	6322.16	7812.13	64.6	64.6	64.4	64.7	64.6
266	9	6317.92	7819.37	64.6	64.7	64.6	64.7	64.3
267	9	6312.47	7803.97	64.6	64.7	64.6	64.4	64.3
268	10	6284.47	7569.87	63.1	63.0	63.3	63.1	63.1
269	10	6285.41	7571.83	63.1	63.0	63.3	63.2	63.1
270	10	6286.36	7573.79	63.1	63.0	63.2	63.1	63.1
271	10	6306.36	7576.62	63.1	63.0	63.2	63.1	63.1
272	10	6330.36	7579.46	63.1	63.0	63.2	63.1	63.1
273	10	6312.43	7587.91	63.1	63.0	63.2	63.1	63.1
274	10	6313.60	7593.39	63.1	63.0	63.2	63.1	63.1
275	10	6314.90	7598.87	63.1	63.0	63.2	63.1	63.1
276	10	6321.62	7516.30	63.6	64.7	63.7	65.2	64.0
277	10	6328.74	7633.74	64.4	64.7	64.2	65.1	64.0
278	10	6330.96	7641.27	64.7	64.8	64.5	64.7	63.5
279	10	6333.19	7646.80	64.7	64.7	64.6	65.0	63.9

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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280	10	6326.51	7655.95	64.5	64.7	64.7	64.7	64.5
281	10	6323.84	7663.11	64.6	64.7	64.8	65.1	64.9
282	10	6334.24	7668.02	64.9	64.9	64.9	65.1	65.0
283	10	6344.64	7672.94	65.3	65.3	65.2	64.5	65.1
284	10	6335.40	7667.24	64.0	63.5	64.4	64.6	63.9
285	10	6339.64	7698.89	63.4	63.3	64.0	63.6	63.4
286	10	6343.68	7710.55	63.3	63.2	63.7	63.6	63.3
287	10	6342.30	7723.82	63.2	63.1	63.5	63.3	63.3
288	10	6340.73	7737.10	63.2	63.1	63.4	63.2	63.2
289	10	6340.40	7740.60	63.2	63.1	63.4	63.3	63.2
290	10	6352.07	7744.23	63.5	63.5	63.5	63.5	63.3
291	10	6340.27	7750.90	63.4	63.3	63.5	63.2	63.2
292	10	6340.07	7757.57	63.5	63.8	63.6	64.0	63.5
293	10	6341.46	7763.21	64.1	63.8	63.5	63.8	63.5
294	10	6342.90	7768.85	64.3	64.1	63.9	63.7	63.5
295	10	6347.16	7766.79	64.4	64.2	64.0	64.3	64.0
296	11	6289.74	7557.70	63.1	63.1	63.3	63.2	63.1
297	11	6284.28	7557.92	63.1	63.1	63.3	63.2	63.1
298	11	6278.82	7557.14	63.1	63.1	63.3	63.2	63.1
299	11	6290.44	7556.20	63.1	63.1	63.2	63.2	63.1
300	11	6301.96	7554.27	63.1	63.1	63.2	63.2	63.1
301	11	6306.64	7564.10	63.1	63.1	63.2	63.2	63.1
302	11	6311.30	7573.94	63.1	63.1	63.2	63.2	63.1
303	11	6319.53	7579.72	63.1	63.1	63.2	63.2	63.1
304	11	6322.91	7592.67	63.1	63.1	63.2	63.2	63.1
305	11	6326.29	7605.62	63.1	63.1	63.2	63.2	63.2
306	11	6331.93	7617.59	63.1	63.1	63.2	63.2	63.1
307	11	6337.58	7629.56	64.7	64.4	63.8	64.7	63.4
308	11	6337.91	7641.67	64.9	64.8	64.3	65.2	65.0
309	11	6338.24	7653.78	65.0	64.9	64.5	64.9	64.7
310	11	6337.95	7658.84	65.2	65.1	64.7	65.1	64.9
311	11	6337.67	7663.90	65.2	65.3	65.0	65.6	65.6
312	11	6342.40	7673.99	65.9	65.8	65.2	64.9	65.1
313	11	6347.25	7684.06	65.5	65.5	65.1	63.6	63.6
314	11	6346.96	7715.02	64.6	63.7	64.3	63.3	63.6
315	11	6350.11	7727.34	63.6	63.4	63.9	63.3	63.3
316	11	6351.27	7737.07	63.4	63.3	63.7	63.3	63.3
317	11	6351.07	7740.65	63.3	63.2	63.5	63.3	63.3
318	11	6352.07	7744.23	63.2	63.2	63.4	63.3	63.3
319	11	6346.62	7753.46	63.2	63.2	63.4	63.5	63.3

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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320	11	6345.17	7762.69	63.2	63.3	63.4	63.6	63.4
321	11	6346.66	7762.17	63.7	64.0	63.7	63.9	63.4
322	11	6352.55	7761.66	64.2	64.0	63.8	63.9	63.7
323	11	6353.54	7763.71	64.0	63.9	63.9	63.7	63.5
324	11	6354.53	7765.77	64.0	63.9	63.9	64.1	63.9
325	11	6351.13	7775.21	64.1	64.1	64.1	64.0	64.0
326	12	6267.31	7551.69	63.1	63.1	63.2	63.2	63.1
327	12	6270.40	7547.55	63.1	63.1	63.2	63.2	63.1
328	12	6274.50	7543.41	63.1	63.1	63.2	63.2	63.1
329	12	6290.52	7547.71	63.1	63.1	63.2	63.2	63.1
330	12	6297.72	7559.92	63.1	63.1	63.2	63.2	63.2
331	12	6304.93	7572.14	63.1	63.1	63.2	63.2	63.2
332	12	6315.32	7585.37	63.2	63.1	63.2	63.2	63.2
333	12	6325.71	7598.61	63.2	63.1	63.2	63.2	63.2
334	12	6332.26	7612.56	63.1	63.2	63.3	63.6	63.2
335	12	6338.85	7625.52	64.1	64.5	63.8	65.1	64.5
336	12	6336.64	7636.13	64.4	64.6	64.2	64.6	64.6
337	12	6334.44	7645.75	64.5	64.7	64.5	64.9	64.6
338	12	6339.20	7655.80	64.8	64.9	64.7	65.2	64.7
339	12	6343.96	7665.86	65.1	65.3	65.0	65.1	64.4
340	12	6348.47	7692.27	64.9	65.0	65.0	64.3	63.7
341	12	6347.63	7718.06	65.6	65.7	64.6	63.5	63.3
342	12	6354.79	7727.86	64.0	63.7	64.3	63.4	63.3
343	12	6351.29	7737.87	63.5	63.4	63.9	63.6	63.3
344	12	6347.79	7746.28	63.5	63.7	63.9	63.7	63.6
345	12	6350.59	7757.50	64.1	64.1	64.1	64.1	63.7
346	12	6353.39	7768.85	63.6	63.5	63.9	63.7	63.5
347	12	6352.40	7766.79	63.6	63.5	63.8	63.7	63.6
348	12	6351.41	7764.74	63.3	63.2	63.6	63.4	63.4
349	12	6351.70	7773.47	63.4	63.5	63.6	63.4	63.4
350	12	6351.99	7782.21	64.2	64.1	63.9	63.9	63.9
351	12	6347.76	7784.26	63.4	63.8	63.9	64.0	64.0
352	13	6329.71	7560.40	63.2	63.2	63.3	63.2	63.2
353	13	6330.13	7555.46	63.2	63.2	63.3	63.2	63.1
354	13	6339.23	7563.26	63.2	63.2	63.3	63.2	63.2
355	13	6348.33	7571.11	63.1	63.2	63.2	63.2	63.2
356	13	6348.64	7578.12	63.2	63.2	63.2	63.2	63.2
357	13	6349.36	7585.13	63.2	63.2	63.2	63.2	63.2
358	13	6355.55	7595.62	63.1	63.3	63.3	63.2	63.2
359	13	6361.75	7606.11	64.2	64.4	63.6	64.6	64.5

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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360	13	6364.75	7624.23	64.6	64.7	64.1	63.9	63.3
361	13	6362.46	7633.84	64.6	64.8	64.4	64.3	64.1
362	13	6360.23	7643.46	64.6	64.9	64.6	64.8	64.7
363	13	6367.12	7652.56	65.0	65.2	64.8	65.1	64.8
364	13	6374.01	7661.66	65.1	65.2	64.9	64.9	64.6
365	13	6373.75	7675.38	65.2	65.6	65.2	65.6	64.9
366	13	6373.50	7689.11	65.3	64.3	64.6	63.5	63.5
367	13	6376.70	7698.81	64.4	63.9	64.1	63.5	63.6
368	13	6379.91	7708.52	63.7	63.4	63.8	63.3	63.3
369	13	6375.36	7715.65	63.4	63.4	63.6	63.3	63.3
370	13	6370.81	7722.78	63.4	63.3	63.5	63.3	63.3
371	13	6383.58	7744.41	63.3	63.3	63.4	63.2	63.3
372	13	6380.20	7746.48	63.3	63.3	63.4	63.4	63.2
373	13	6370.98	7752.50	63.6	63.8	63.5	64.2	63.9
374	13	6374.67	7750.70	64.1	64.1	63.9	64.1	63.9
375	13	6372.37	7764.65	63.9	64.0	64.0	64.0	64.0
376	13	6374.33	7768.99	64.1	64.2	64.1	64.2	64.2
377	13	6370.29	7773.13	64.2	64.2	64.2	64.3	64.2
378	13	6377.27	7775.20	64.2	64.3	64.2	64.3	64.3
379	13	6370.20	7777.20	64.3	64.3	64.3	64.2	64.2
380	13	6375.57	7774.82	64.3	64.4	64.3	64.4	64.3
381	13	6372.69	7762.37	64.2	64.2	64.3	64.4	64.2
382	13	6372.62	7792.69	64.3	64.3	64.3	64.1	64.2
383	13	6373.16	7791.14	64.3	64.3	64.4	64.4	64.4
384	13	6373.74	7789.60	64.4	64.4	64.3	64.1	64.0
385	14	6346.64	7546.64	63.2	63.2	63.4	63.2	63.2
386	14	6349.11	7537.11	63.2	63.2	63.3	63.2	63.2
387	14	6350.46	7546.07	63.2	63.1	63.3	63.2	63.2
388	14	6351.85	7555.44	63.2	63.1	63.3	63.2	63.2
389	14	6360.46	7507.97	63.2	63.1	63.3	63.2	63.2
390	14	6364.11	7560.91	63.2	63.2	63.3	63.3	63.2
391	14	6374.59	7592.96	63.2	63.2	63.3	63.3	63.2
392	14	6360.06	7605.01	64.2	64.3	63.6	63.8	64.2
393	14	6362.99	7623.16	64.6	64.7	64.1	64.6	63.7
394	14	6383.84	7633.81	64.9	64.9	64.5	64.5	63.8
395	14	6384.70	7644.44	64.6	64.8	64.6	65.0	64.8
396	14	6380.54	7657.14	65.0	65.3	64.9	64.3	65.1
397	14	6368.39	7669.85	65.2	65.3	65.1	64.7	64.4
398	14	6366.57	7683.06	65.3	66.0	65.1	64.7	64.2
399	14	6364.76	7696.31	64.3	64.2	64.5	63.4	63.5

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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400	14	6385.80	7707.05	63.5	63.4	64.0	63.4	63.4
401	14	6386.64	7717.79	63.4	63.3	63.6	63.4	63.3
402	14	6389.71	7723.97	63.4	63.3	63.6	63.3	63.2
403	14	6392.58	7730.16	63.4	63.2	63.5	63.3	63.3
404	14	6399.69	7749.79	63.5	63.6	63.6	63.7	63.6
405	14	6398.31	7756.47	64.2	64.1	63.9	63.8	63.6
406	14	6397.53	7763.16	63.6	63.8	63.7	63.5	63.6
407	15	6346.67	7530.13	63.2	63.1	63.4	63.2	63.2
408	15	6351.00	7517.14	63.2	63.1	63.3	63.2	63.2
409	15	6356.45	7524.50	63.2	63.2	63.3	63.2	63.2
410	15	6365.91	7531.67	63.2	63.2	63.3	63.2	63.2
411	15	6373.34	7539.30	63.1	63.1	63.3	63.2	63.2
412	15	6380.77	7546.74	63.2	63.1	63.3	63.2	63.2
413	15	6387.50	7555.75	63.2	63.2	63.3	63.2	63.2
414	15	6394.23	7564.76	63.2	63.1	63.2	63.3	63.2
415	15	6403.20	7564.91	63.2	63.2	63.3	63.2	63.2
416	15	6403.26	7597.02	64.1	64.2	63.7	64.5	63.5
417	15	6403.33	7609.13	64.1	64.3	64.0	64.4	63.7
418	15	6408.76	7621.33	64.4	64.6	64.3	64.6	64.1
419	15	6414.24	7633.54	64.4	64.4	64.4	64.5	64.4
420	15	6412.24	7646.72	65.0	65.1	64.7	65.1	64.9
421	15	6410.24	7659.91	65.0	65.0	64.8	65.0	64.8
422	15	6410.73	7675.73	65.0	64.7	64.8	64.7	64.5
423	15	6411.43	7691.55	65.1	64.5	64.6	64.0	63.7
424	15	6407.42	7697.10	64.7	64.5	64.5	63.4	63.3
425	15	6403.42	7702.66	63.7	63.5	64.0	63.3	63.3
426	15	6406.59	7712.45	63.5	63.3	63.7	63.3	63.3
427	15	6409.77	7722.25	63.4	63.4	63.6	63.3	63.3
428	15	6406.57	7725.30	63.4	63.4	63.6	63.5	63.5
429	15	6414.86	7736.25	63.4	63.3	63.5	63.4	63.4
430	15	6421.10	7747.21	63.5	63.5	63.5	63.6	63.5
431	15	6424.24	7748.33	63.5	63.4	63.6	63.5	63.5
432	15	6427.33	7749.45	64.0	63.6	63.6	63.5	63.4
433	15	6427.11	7754.60	64.2	64.1	63.8	64.1	63.8
434	15	6426.69	7754.76	63.9	63.6	63.8	63.9	63.8
435	15	6426.30	7761.29	64.2	64.2	63.9	63.7	63.9
436	15	6425.72	7762.63	64.1	63.9	63.9	64.0	63.7
437	15	6422.43	7766.67	64.6	64.1	64.0	64.0	63.7
438	15	6419.15	7770.91	64.2	64.3	64.2	64.0	63.9
439	15	6416.84	7777.05	64.2	64.2	64.2	64.1	64.2

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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440	16	6358.74	7516.01	63.2	63.2	63.3	63.2	63.2
441	16	6370.67	7505.89	63.2	63.2	63.3	63.2	63.2
442	16	6376.83	7504.33	63.2	63.2	63.3	63.2	63.2
443	16	6383.00	7502.76	63.2	63.2	63.3	63.2	63.2
444	16	6390.56	7513.73	63.2	63.2	63.3	63.2	63.2
445	16	6398.12	7524.66	63.2	63.1	63.3	63.2	63.2
446	16	6409.00	7540.26	63.2	63.1	63.3	63.2	63.2
447	16	6419.88	7555.85	63.2	63.1	63.3	63.2	63.2
448	16	6424.29	7565.97	63.2	63.2	63.3	63.2	63.2
449	16	6428.71	7576.89	63.9	63.5	63.4	63.4	63.4
450	16	6430.45	7604.41	64.2	64.3	63.9	64.2	64.0
451	16	6434.93	7614.64	64.7	64.7	64.3	64.3	64.5
452	16	6439.41	7624.87	64.8	65.0	64.5	65.1	64.9
453	16	6435.13	7639.01	64.9	65.0	64.6	65.3	65.0
454	16	6430.86	7653.16	65.2	65.2	65.0	65.1	64.6
455	16	6431.07	7665.41	65.2	65.0	64.9	64.3	64.2
456	16	6431.29	7677.60	64.2	63.7	64.3	63.5	63.5
457	16	6430.65	7687.88	64.7	64.6	64.5	64.7	63.6
458	16	6430.01	7698.16	63.7	63.5	64.0	63.4	63.3
459	16	6427.86	7707.79	63.4	63.3	63.7	63.3	63.3
460	16	6425.76	7717.40	63.3	63.2	63.6	63.4	63.3
461	16	6427.12	7731.92	63.3	63.2	63.5	63.4	63.4
462	16	6425.00	7740.12	63.3	63.4	63.6	63.8	63.5
463	16	6424.25	7748.33	63.0	63.5	63.6	63.7	63.7
464	16	6426.84	7755.18	63.9	63.8	63.8	64.0	63.4
465	16	6433.04	7762.03	64.1	63.8	63.9	63.9	63.8
466	16	6433.79	7769.36	64.2	64.2	64.1	64.4	64.3
467	16	6434.54	7776.50	64.3	64.2	64.1	64.2	64.2
468	16	6430.80	7776.97	64.3	64.2	64.2	64.4	64.3
469	17	6378.56	7535.75	63.2	63.1	63.3	63.2	63.2
470	17	6390.79	7532.09	63.2	63.1	63.3	63.2	63.2
471	17	6397.46	7541.71	63.2	63.1	63.3	63.2	63.2
472	17	6404.10	7550.73	63.2	63.2	63.3	63.2	63.2
473	17	6417.12	7561.91	63.2	63.1	63.3	63.3	63.2
474	17	6430.00	7573.09	64.0	63.7	63.3	63.3	63.2
475	17	6438.00	7586.36	63.6	63.5	63.5	63.9	63.6
476	17	6446.90	7599.00	64.2	64.2	63.8	64.2	63.9
477	17	6457.52	7612.16	64.4	64.4	64.1	64.6	64.6
478	17	6468.15	7624.05	64.5	64.7	64.4	64.6	64.7
479	17	6477.49	7652.54	64.6	65.0	64.6	64.9	64.7

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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480	17	6481.95	7662.97	64.6	64.5	64.5	64.4	64.5
481	17	6486.42	7673.41	64.5	64.5	64.5	64.0	63.6
482	17	6479.19	7686.46	64.9	64.6	64.6	64.5	63.8
483	17	6471.96	7699.52	63.7	63.6	64.0	63.5	63.5
484	17	6474.08	7707.34	63.9	64.1	64.0	63.9	63.8
485	17	6476.20	7715.16	64.2	64.2	64.1	64.1	64.0
486	17	6477.73	7724.53	64.1	64.1	64.2	64.2	64.1
487	17	6479.26	7733.91	64.1	64.1	64.1	64.2	64.1
488	17	6480.50	7739.67	64.2	64.2	64.2	64.2	64.1
489	17	6481.74	7745.43	64.1	64.1	64.2	64.3	64.3
490	17	6474.56	7763.76	64.3	64.2	64.3	64.2	64.5
491	17	6474.32	7768.95	64.2	64.3	64.3	64.3	64.5
492	17	6474.08	7774.14	64.3	64.4	64.3	64.4	64.4
493	17	6472.91	7777.20	64.4	64.4	64.4	64.4	64.2
494	17	6471.74	7780.27	64.3	64.3	64.4	64.6	64.5
495	17	6472.32	7778.73	64.4	64.4	64.5	64.6	64.5
496	17	6472.91	7777.20	64.5	64.5	64.5	64.6	64.6
497	17	6469.63	7751.20	64.5	64.5	64.6	64.6	64.5
498	18	6388.65	7453.06	63.2	63.2	63.3	63.3	63.2
499	18	6411.12	7466.00	63.2	63.2	63.3	63.2	63.2
500	18	6415.94	7471.64	63.2	63.2	63.3	63.2	63.2
501	18	6431.15	7481.93	63.2	63.2	63.3	63.2	63.2
502	18	6446.31	7492.03	63.2	63.2	63.3	63.2	63.2
503	18	6449.98	7507.11	63.2	63.2	63.3	63.2	63.2
504	18	6453.66	7522.20	63.2	63.2	63.3	63.3	63.2
505	18	6460.35	7534.92	63.2	63.2	63.3	63.3	63.2
506	18	6467.05	7547.64	63.2	63.3	63.3	63.3	63.3
507	18	6469.26	7562.34	63.4	63.3	63.3	63.4	63.5
508	18	6471.51	7577.05	64.1	64.2	63.6	63.8	63.6
509	18	6474.30	7586.76	64.3	64.3	63.9	64.1	64.1
510	18	6477.09	7596.48	64.5	64.6	64.2	64.5	64.6
511	18	6476.37	7610.18	64.6	64.7	64.5	64.8	64.7
512	18	6475.65	7623.89	65.0	65.0	64.8	65.2	65.1
513	18	6471.33	7650.20	65.1	65.2	64.9	65.3	65.0
514	18	6473.36	7658.01	64.7	64.5	64.7	64.4	64.1
515	18	6475.46	7665.77	64.6	65.0	64.6	64.3	63.8
516	18	6474.63	7672.61	64.9	64.5	64.7	63.8	63.6
517	18	6483.86	7679.46	63.6	63.7	64.2	63.4	63.4
518	18	6480.35	7692.17	63.4	63.4	63.9	63.4	63.3
519	18	6476.65	7704.88	63.4	63.4	63.7	63.4	63.4

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	12 FT
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520	18	6476.21	7715.17	63.4	63.4	63.6	63.4	63.4
521	18	6475.56	7725.46	63.6	63.5	63.6	63.6	63.5
522	18	6474.96	7735.77	64.0	63.8	63.7	64.0	63.9
523	18	6476.23	7741.53	64.0	64.0	63.9	64.0	64.0
524	18	6477.46	7747.29	64.0	64.0	64.0	63.9	64.1
525	18	6476.55	7745.17	64.3	64.3	64.2	64.4	64.3
526	18	6475.62	7743.25	64.4	64.5	64.3	64.3	64.1
527	18	6482.72	7756.41	64.7	64.4	64.4	64.3	64.3
528	19	6444.63	7443.19	63.2	63.2	63.3	63.3	63.3
529	19	6455.93	7452.32	63.3	63.2	63.3	63.3	63.2
530	19	6467.03	7457.45	63.2	63.2	63.3	63.3	63.3
531	19	6473.56	7472.66	63.2	63.2	63.3	63.3	63.3
532	19	6480.10	7482.71	63.3	63.2	63.3	63.3	63.3
533	19	6491.26	7493.57	63.2	63.2	63.3	63.3	63.3
534	19	6502.31	7504.44	63.3	63.2	63.3	63.3	63.3
535	19	6508.48	7515.22	63.3	63.3	63.4	63.3	63.3
536	19	6513.64	7526.01	63.3	63.3	63.4	63.4	63.4
537	19	6522.24	7553.60	63.9	64.0	63.6	64.1	63.7
538	19	6527.26	7566.11	64.3	63.7	63.7	63.7	63.7
539	19	6532.26	7578.54	63.9	63.9	63.8	64.1	64.1
540	19	6536.51	7592.16	64.1	64.5	64.1	64.6	64.4
541	19	6528.75	7601.79	64.7	64.9	64.5	65.0	64.7
542	19	6527.66	7613.45	64.9	65.0	64.7	65.3	65.3
543	19	6525.37	7625.11	65.2	65.2	65.0	65.2	65.0
544	19	6529.67	7639.22	65.1	64.8	64.9	64.1	64.0
545	19	6534.36	7653.33	64.3	64.0	64.4	64.0	63.9
546	19	6533.92	7670.61	64.3	63.9	64.2	63.7	63.7
547	19	6530.04	7679.66	63.0	63.6	63.9	63.5	63.5
548	19	6526.17	7688.91	64.3	64.4	64.2	64.2	64.2
549	19	6526.92	7699.62	64.1	63.8	64.0	63.7	63.6
550	19	6527.66	7714.74	63.7	63.9	64.0	63.7	63.7
551	19	6526.27	7716.94	64.1	64.1	64.0	64.0	63.9
552	19	6524.46	7727.14	64.1	64.1	64.1	64.0	64.1
553	19	6523.51	7733.53	64.2	64.1	64.1	64.1	64.0
554	19	6522.56	7740.53	64.0	63.8	64.0	63.9	63.9
555	19	6520.12	7746.62	64.1	64.1	64.1	64.3	64.3
556	19	6517.60	7752.71	64.2	64.2	64.2	64.3	64.2
557	19	6516.16	7760.96	64.3	64.4	64.3	64.5	64.5
558	19	6514.69	7769.22	64.5	64.5	64.4	64.7	64.6
559	19	6519.63	7765.21	65.0	65.1	64.7	64.9	65.0

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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560	20	6490.67	7424.30	63.3	63.2	63.4	63.3	63.3
561	20	6505.46	7425.53	63.4	63.2	63.3	63.3	63.3
562	20	6515.66	7434.36	63.3	63.2	63.3	63.3	63.3
563	20	6525.89	7443.19	63.2	63.2	63.3	63.3	63.3
564	20	6529.63	7449.65	63.3	63.2	63.4	63.3	63.3
565	20	6533.77	7456.51	63.2	63.2	63.3	63.3	63.2
566	20	6539.30	7467.29	63.3	63.3	63.3	63.3	63.2
567	20	6544.64	7476.67	63.2	63.2	63.3	63.3	63.2
568	20	6552.62	7484.49	63.2	63.2	63.3	63.3	63.3
569	20	6556.21	7498.91	63.3	63.2	63.3	63.3	63.3
570	20	6563.80	7513.33	63.3	63.3	63.3	63.3	63.3
571	20	6568.54	7522.22	63.3	63.3	63.4	63.3	63.4
572	20	6573.29	7531.12	63.5	63.7	63.5	64.0	64.0
573	20	6578.07	7540.59	64.2	64.2	63.9	64.1	64.0
574	20	6567.50	7550.06	64.4	64.3	64.1	64.4	64.1
575	20	6572.54	7562.60	64.5	64.5	64.2	64.5	64.4
576	20	6577.43	7575.14	64.4	64.2	64.2	64.2	64.3
577	20	6574.73	7584.67	64.5	64.7	64.5	64.9	64.8
578	20	6572.04	7594.20	64.9	64.9	64.7	65.0	64.9
579	20	6577.26	7614.64	64.9	64.6	64.7	64.9	64.6
580	20	6579.89	7621.66	64.9	64.8	64.7	64.7	63.8
581	20	6580.90	7629.73	65.0	64.8	64.7	64.5	63.7
582	20	6581.39	7640.59	64.7	64.4	64.6	64.5	64.2
583	20	6581.88	7651.46	64.7	64.2	64.4	63.6	63.5
584	20	6582.89	7657.22	63.7	63.6	64.1	63.5	63.5
585	20	6583.91	7662.99	63.7	63.5	63.9	63.5	63.5
586	20	6579.29	7673.56	63.5	63.4	63.7	63.7	63.5
587	20	6574.66	7684.02	63.5	63.4	63.6	63.5	63.4
588	20	6574.89	7687.67	63.9	63.7	63.7	63.8	63.7
589	20	6575.10	7691.33	63.5	63.4	63.6	63.5	63.6
590	20	6575.52	7696.64	63.5	63.4	63.6	63.5	63.5
591	20	6576.11	7705.16	63.4	63.3	63.5	63.4	63.4
592	21	6546.84	7398.14	63.3	63.2	63.4	63.3	63.3
593	21	6551.48	7401.86	63.3	63.2	63.3	63.3	63.3
594	21	6556.93	7405.59	63.2	63.2	63.4	63.3	63.2
595	21	6564.63	7425.92	63.2	63.2	63.4	63.3	63.3
596	21	6580.84	7437.36	63.3	63.2	63.4	63.3	63.3
597	21	6547.65	7448.81	63.2	63.2	63.3	63.3	63.3
598	21	6594.75	7463.76	63.2	63.2	63.3	63.3	63.3
599	21	6592.46	7476.72	63.3	63.2	63.3	63.3	63.3

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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600	21	6601.71	7493.01	63.3	63.3	63.3	63.3	63.3
601	21	6617.96	7507.30	63.3	63.3	63.4	63.4	63.4
602	21	6612.63	7522.16	63.3	63.3	63.4	63.4	63.4
603	21	6614.31	7537.63	63.9	64.0	63.7	63.9	64.0
604	21	6615.21	7546.28	64.1	64.1	63.9	64.1	64.0
605	21	6616.11	7555.54	64.4	64.5	64.2	64.6	64.4
606	21	6619.36	7567.58	64.6	64.6	64.5	64.9	64.8
607	21	6622.61	7579.62	64.8	64.9	64.7	65.0	64.9
608	21	6621.54	7590.99	64.9	64.8	64.8	65.2	65.1
609	21	6627.07	7608.30	64.6	64.8	64.7	64.8	64.7
610	21	6632.60	7619.62	64.4	64.3	64.5	64.3	64.2
611	21	6628.44	7628.54	64.6	64.4	64.5	64.6	64.0
612	21	6624.28	7637.47	64.0	63.6	64.2	63.6	63.6
613	21	6626.05	7645.41	64.1	63.7	64.1	63.6	63.5
614	21	6627.62	7653.35	63.7	63.7	63.9	63.6	63.6
615	21	6624.44	7660.62	63.9	63.6	64.0	63.6	63.5
616	21	6621.07	7668.30	63.9	63.7	63.9	63.6	63.8
617	21	6620.73	7677.12	63.9	63.7	63.9	64.1	64.1
618	21	6622.40	7685.44	64.1	64.1	64.1	64.3	64.0
619	21	6622.43	7697.62	64.4	64.4	64.2	64.0	64.2
620	21	6622.47	7702.13	64.4	64.3	64.3	64.4	64.2
621	21	6618.51	7706.65	64.5	64.4	64.4	64.3	64.1
622	21	6610.56	7711.17	64.5	64.3	64.4	64.3	64.3
623	21	6614.62	7715.69	64.4	64.3	64.4	64.3	64.3
624	21	6615.68	7721.50	64.3	64.4	64.4	64.3	64.4
625	21	6610.74	7727.44	64.4	64.3	64.4	64.5	64.5
626	21	6617.62	7733.32	64.5	64.5	64.5	64.5	64.4
627	21	6610.90	7739.21	64.5	64.5	64.6	64.6	64.6
628	21	6610.26	7740.72	64.6	64.9	64.7	64.7	64.6
629	22	6561.55	7370.90	63.3	63.3	63.4	63.3	63.3
630	22	6591.64	7376.40	63.3	63.3	63.4	63.3	63.3
631	22	6600.60	7387.00	63.3	63.2	63.3	63.3	63.3
632	22	6609.97	7397.52	63.3	63.2	63.3	63.3	63.3
633	22	6619.89	7406.70	63.3	63.3	63.4	63.3	63.3
634	22	6629.81	7415.86	63.3	63.3	63.4	63.3	63.3
635	22	6634.24	7428.27	63.3	63.2	63.3	63.3	63.3
636	22	6638.66	7440.60	63.3	63.2	63.3	63.3	63.3
637	22	6643.65	7460.17	63.3	63.2	63.4	63.3	63.3
638	22	6648.26	7474.76	63.3	63.3	63.4	63.4	63.4
639	22	6653.52	7489.39	63.4	63.6	63.5	63.7	63.5

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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640	22	6659.54	7502.65	63.4	63.9	63.8	64.0	63.7
641	22	6665.57	7515.92	64.1	64.0	63.9	64.1	64.1
642	22	6665.60	7530.23	64.4	64.4	64.1	64.1	64.3
643	22	6665.63	7544.55	64.4	64.3	64.2	64.4	64.4
644	22	6669.45	7555.19	64.5	64.4	64.4	64.8	64.6
645	22	6673.27	7565.83	64.7	64.8	64.6	64.9	64.8
646	22	6661.52	7582.16	64.6	64.8	64.6	64.8	64.6
647	22	6660.92	7590.86	64.6	64.5	64.6	64.4	64.4
648	22	6660.33	7599.57	64.5	64.4	64.5	64.3	64.2
649	22	6668.13	7617.49	64.5	64.5	64.6	64.6	64.5
650	22	6675.93	7635.42	64.6	64.2	64.5	63.8	63.7
651	22	6676.92	7644.90	63.9	63.8	64.1	64.0	63.7
652	22	6677.91	7654.39	64.3	64.1	64.2	64.0	64.0
653	22	6677.45	7663.22	64.1	63.8	64.0	63.8	63.7
654	22	6676.99	7672.06	63.8	63.7	63.9	63.9	63.8
655	22	6671.44	7680.33	64.2	64.2	64.1	64.4	64.3
656	22	6665.69	7686.61	64.3	64.4	64.2	64.4	64.2
657	22	6666.19	7695.99	64.3	64.3	64.2	64.2	64.1
658	22	6666.50	7703.37	64.4	64.5	64.4	64.4	64.2
659	22	6665.84	7721.20	64.5	64.5	64.5	64.5	64.5
660	22	6661.94	7730.24	64.4	64.4	64.5	64.5	64.5
661	22	6658.05	7739.29	64.7	64.9	64.7	64.9	64.7
662	22	6660.37	7742.21	65.0	65.1	64.9	64.9	65.0
663	22	6662.70	7745.13	65.1	65.1	64.9	65.3	65.1
664	22	6662.26	7750.37	64.8	64.8	64.9	65.1	65.2
665	23	6628.26	7351.63	63.3	63.3	63.4	63.4	63.3
666	23	6632.59	7364.07	63.3	63.3	63.4	63.3	63.3
667	23	6647.86	7373.70	63.3	63.3	63.4	63.3	63.3
668	23	6663.16	7383.32	63.3	63.3	63.4	63.3	63.3
669	23	6669.41	7393.91	63.3	63.3	63.4	63.3	63.3
670	23	6675.66	7404.50	63.3	63.3	63.4	63.3	63.3
671	23	6681.91	7415.09	63.3	63.3	63.4	63.3	63.3
672	23	6688.16	7425.68	63.3	63.3	63.4	63.4	63.3
673	23	6692.47	7436.22	63.3	63.3	63.4	63.4	63.3
674	23	6696.75	7450.76	63.3	63.3	63.4	63.3	63.4
675	23	6698.63	7460.61	63.3	63.4	63.4	63.5	63.4
676	23	6700.90	7470.45	63.3	63.5	63.5	63.5	63.5
677	23	6701.51	7479.66	64.0	63.9	63.7	63.9	63.9
678	23	6702.11	7468.96	64.1	63.9	63.9	64.1	63.8
679	23	6707.92	7505.64	64.3	64.2	64.1	64.1	64.0

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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680	23	6706.58	7515.13	64.3	64.1	64.2	64.3	64.2
681	23	6709.24	7524.42	64.3	64.5	64.5	64.6	64.8
682	23	6708.44	7533.06	64.7	64.8	64.6	64.9	64.8
683	23	6707.64	7541.69	64.9	64.9	64.8	64.9	64.8
684	23	6702.40	7551.93	65.1	65.0	64.8	64.6	64.2
685	23	6697.16	7562.16	64.8	64.6	64.6	64.2	64.1
686	23	6706.14	7573.51	64.7	64.4	64.5	64.6	64.1
687	23	6715.11	7584.86	64.6	64.7	64.7	64.5	64.4
688	23	6718.13	7593.52	64.7	64.8	64.7	64.4	64.1
689	23	6721.15	7602.16	64.9	64.1	64.5	64.0	63.7
690	23	6715.35	7613.90	64.2	63.8	64.2	63.7	63.7
691	23	6717.70	7624.10	63.6	63.7	64.0	63.6	63.6
692	23	6720.05	7634.36	63.9	63.8	64.0	63.9	63.7
693	23	6722.30	7637.20	63.8	63.5	63.9	63.7	63.6
694	23	6724.54	7640.15	63.7	63.6	63.8	63.7	63.6
695	23	6724.67	7647.51	63.6	63.5	63.8	63.7	63.7
696	23	6724.80	7654.80	63.6	63.8	63.9	64.1	63.9
697	23	6723.40	7657.63	64.0	63.9	64.0	64.3	64.4
698	23	6722.20	7660.79	64.0	64.5	64.4	64.5	64.2
699	23	6716.53	7668.23	64.2	64.2	64.3	64.2	64.1
700	23	6715.06	7675.66	64.2	64.2	64.3	64.4	64.3
701	23	6708.21	7690.57	64.2	64.1	64.3	64.3	64.3
702	23	6710.61	7697.22	64.3	64.3	64.4	64.5	64.6
703	23	6713.00	7703.86	64.5	64.6	64.6	64.8	64.7
704	23	6712.74	7716.54	64.7	64.7	64.6	64.7	64.7
705	23	6712.47	7729.21	64.6	64.7	64.7	64.8	64.8
706	23	6710.34	7729.99	64.6	64.9	64.8	64.8	64.8
707	23	6708.21	7736.76	64.6	64.9	64.9	65.2	65.1
708	23	6704.94	7738.29	65.0	65.0	65.0	65.1	65.0
709	24	6671.16	7337.61	63.3	63.3	63.4	63.3	63.3
710	24	6680.30	7340.70	63.3	63.3	63.4	63.4	63.3
711	24	6689.61	7344.51	63.3	63.3	63.4	63.4	63.3
712	24	6698.46	7355.26	63.3	63.3	63.4	63.4	63.3
713	24	6706.63	7364.05	63.3	63.2	63.4	63.3	63.3
714	24	6714.79	7372.82	63.3	63.3	63.4	63.3	63.3
715	24	6721.24	7384.52	63.3	63.2	63.4	63.3	63.3
716	24	6727.69	7396.23	63.3	63.3	63.4	63.3	63.3
717	24	6731.11	7406.66	63.3	63.3	63.4	63.3	63.3
718	24	6734.53	7417.14	63.3	63.3	63.4	63.4	63.3
719	24	6738.70	7426.21	63.3	63.3	63.4	63.4	63.4

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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720	24	6743.04	7435.29	63.3	63.3	63.4	63.4	63.4
721	24	6744.07	7450.16	63.4	63.5	63.5	63.6	63.7
722	24	6745.11	7465.03	63.4	64.0	63.7	64.1	63.9
723	24	6753.49	7490.54	64.1	64.0	63.9	64.1	64.1
724	24	6753.45	7503.42	64.4	64.4	64.2	64.5	64.5
725	24	6754.42	7516.31	64.0	64.5	64.3	64.8	64.6
726	24	6754.24	7523.50	64.0	64.8	64.6	65.0	64.9
727	24	6754.10	7530.70	64.9	64.9	64.7	64.9	64.6
728	24	6759.17	7545.81	64.9	64.8	64.7	64.7	64.5
729	24	6764.19	7560.93	64.7	64.3	64.6	64.0	64.0
730	24	6762.41	7571.10	64.4	64.5	64.5	64.2	63.8
731	24	6756.85	7582.04	64.2	64.1	64.3	63.9	63.7
732	24	6755.10	7592.96	63.9	63.9	64.1	63.9	63.6
733	24	6763.43	7600.97	64.0	64.0	64.1	63.8	63.7
734	24	6772.70	7608.90	63.6	63.7	63.9	63.6	63.5
735	24	6771.24	7611.89	63.6	63.6	63.8	63.6	63.6
736	24	6769.62	7614.83	63.7	63.6	63.8	63.7	63.6
737	24	6769.11	7623.64	63.6	63.6	63.8	63.6	63.6
738	24	6768.41	7632.45	64.0	63.9	63.9	63.8	63.8
739	24	6765.44	7634.00	63.7	63.6	63.6	63.7	63.8
740	24	6762.56	7636.68	63.7	63.5	63.7	63.6	63.7
741	24	6766.29	7644.25	63.7	63.8	63.7	63.7	63.6
742	24	6770.00	7651.62	64.3	64.3	64.1	64.5	64.3
743	24	6761.38	7661.97	64.4	64.3	64.2	64.4	64.3
744	24	6763.60	7664.93	64.2	64.1	64.2	64.2	64.2
745	24	6765.63	7667.89	64.3	64.1	64.2	64.0	63.9
746	24	6766.71	7677.55	64.2	64.2	64.2	64.3	64.2
747	24	6767.59	7687.21	64.2	64.2	64.3	64.4	64.3
748	24	6764.62	7693.16	64.3	64.3	64.4	64.4	64.5
749	25	6769.42	7324.29	63.3	63.3	63.4	63.4	63.3
750	25	6733.60	7334.59	63.3	63.3	63.4	63.4	63.4
751	25	6746.24	7346.92	63.3	63.3	63.4	63.4	63.3
752	25	6750.70	7363.25	63.3	63.3	63.4	63.4	63.3
753	25	6764.35	7372.96	63.3	63.3	63.4	63.4	63.3
754	25	6770.00	7382.06	63.3	63.3	63.4	63.4	63.4
755	25	6775.28	7399.49	63.3	63.3	63.3	63.3	63.3
756	25	6780.56	7416.31	63.3	63.3	63.4	63.3	63.3
757	25	6784.55	7429.02	63.3	63.3	63.4	63.5	63.3
758	25	6788.53	7441.72	63.5	63.7	63.7	63.7	63.6
759	25	6792.55	7454.51	64.3	64.3	63.9	64.4	64.1

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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760	25	6796.56	7467.29	64.4	64.4	64.1	64.2	64.0
761	25	6794.15	7491.60	64.5	64.4	64.3	64.5	64.3
762	25	6799.72	7505.26	64.7	64.7	64.5	64.7	64.6
763	25	6805.29	7518.91	64.7	64.8	64.6	64.9	64.7
764	25	6805.09	7526.13	64.4	65.0	64.8	65.2	65.1
765	25	6804.88	7533.34	64.6	64.6	64.7	64.5	64.4
766	25	6806.10	7544.94	64.3	64.3	64.5	64.0	64.0
767	25	6807.31	7556.54	63.6	63.7	64.1	63.8	63.7
768	25	6806.47	7561.62	63.9	64.0	64.0	63.8	63.8
769	25	6805.63	7566.70	63.9	64.0	64.1	63.8	63.7
770	25	6809.84	7579.88	64.1	64.1	64.1	63.8	63.7
771	25	6814.05	7593.05	63.8	63.8	64.0	63.7	63.7
772	25	6812.46	7603.29	63.6	63.6	63.8	63.6	63.6
773	25	6811.66	7608.42	63.7	63.7	63.8	63.8	63.8
774	25	6810.89	7613.55	64.0	63.8	63.9	64.1	63.9
775	25	6814.52	7617.26	64.0	63.9	63.9	63.9	63.9
776	25	6816.14	7621.00	64.1	64.0	64.0	64.1	63.9
777	25	6816.63	7631.31	64.0	64.0	64.0	63.8	63.7
778	25	6815.12	7641.02	64.1	64.0	64.0	64.0	63.8
779	25	6815.12	7641.62	64.1	64.2	64.1	64.2	64.2
780	25	6815.12	7641.62	64.3	64.2	64.2	64.3	64.3
781	25	6813.66	7644.56	64.2	64.1	64.2	64.0	63.9
782	25	6812.20	7647.50	63.9	63.6	64.0	63.5	63.6
783	25	6815.11	7656.46	63.6	63.6	63.8	63.8	63.8
784	25	6818.82	7665.41	64.2	64.3	64.1	64.4	64.3
785	25	6812.29	7677.22	64.5	64.4	64.3	64.5	64.4
786	25	6813.06	7683.21	64.4	64.5	64.4	64.5	64.4
787	25	6813.83	7689.19	64.4	64.4	64.4	64.4	64.4
788	25	6813.21	7698.17	64.4	64.7	64.5	64.6	64.7
789	25	6812.59	7707.15	64.6	64.3	64.5	64.6	64.5
790	25	6810.51	7711.62	64.5	64.9	64.7	65.1	65.0
791	26	6791.56	7324.59	63.4	63.4	63.5	63.5	63.4
792	26	6713.26	7356.24	63.4	63.4	63.5	63.5	63.4
793	26	6724.96	7387.89	63.4	63.4	63.5	63.4	63.4
794	26	6735.51	7412.27	63.4	63.4	63.5	63.4	63.4
795	26	6746.05	7436.64	63.4	63.4	63.5	63.5	63.5
796	26	6754.44	7458.53	63.9	63.9	63.7	63.6	63.6
797	26	6762.83	7480.41	64.1	64.1	63.9	64.3	64.3
798	26	6751.75	7504.22	64.5	64.5	64.2	64.7	64.6
799	26	6740.72	7528.02	64.7	64.7	64.5	64.9	64.8

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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800	26	6745.70	7557.61	64.6	64.5	64.5	64.4	64.3
801	26	6750.66	7567.19	64.5	64.2	64.4	64.0	63.8
802	26	6752.94	7608.36	63.8	63.7	64.1	63.7	63.7
803	26	6755.21	7629.56	63.4	63.8	64.0	63.9	63.8
804	26	6762.74	7651.69	63.7	63.8	63.9	63.9	63.9
805	26	6770.27	7673.83	64.2	64.2	64.2	64.5	64.5
806	26	6780.15	7707.54	64.6	64.6	64.5	64.7	64.6
807	26	6790.02	7741.24	64.6	64.6	64.6	65.0	65.0
808	26	6799.89	7774.94	65.2	65.3	65.1	65.7	65.6
809	26	6815.90	7808.55	65.6	65.6	65.4	65.8	65.8
810	26	6831.91	7842.15	65.6	65.6	65.5	65.6	65.5
811	26	6839.33	7867.56	65.3	65.2	65.4	65.1	64.6
812	26	6846.75	7893.01	64.5	64.0	64.7	63.7	63.7
813	26	6857.78	7919.19	63.8	63.7	64.2	63.6	63.6
814	26	6868.80	7945.36	63.7	63.6	64.0	63.6	63.6
815	27	7064.05	7859.16	63.5	63.4	63.6	63.5	63.5
816	27	7088.04	7807.84	64.1	63.9	63.8	64.2	63.9
817	27	7101.89	7769.52	64.0	64.6	64.3	64.7	64.2
818	27	7115.75	7731.21	65.0	65.0	64.7	65.4	65.3
819	27	7128.04	7701.85	65.3	65.4	65.1	65.7	65.4
820	27	7140.34	7672.49	65.5	65.4	65.3	65.6	65.4
821	27	7148.74	7638.58	65.5	65.6	65.4	65.6	65.3
822	27	7157.15	7604.67	65.5	65.6	65.5	65.3	64.9
823	27	7167.13	7564.06	64.9	64.7	65.1	64.6	64.6
824	27	7177.12	7523.49	64.7	64.5	64.9	64.4	64.2
825	27	7181.64	7487.35	64.2	64.0	64.5	63.9	63.8
826	27	7186.16	7451.22	64.0	64.0	64.3	63.9	63.9
827	28	7431.67	7105.90	63.5	63.5	63.6	63.5	63.5
828	28	7436.21	7116.69	63.4	63.4	63.6	63.4	63.4
829	28	7426.76	7127.48	63.4	63.4	63.6	63.4	63.4
830	28	7456.00	7156.57	63.4	63.4	63.5	63.4	63.4
831	28	7475.57	7180.48	63.4	63.4	63.5	63.5	63.5
832	28	7493.15	7202.39	63.5	63.5	63.6	63.7	63.7
833	28	7506.76	7226.04	64.0	64.1	63.8	64.0	63.9
834	28	7520.36	7249.70	64.3	64.3	64.0	64.4	64.3
835	28	7535.09	7274.66	64.5	64.5	64.3	64.5	64.5
836	28	7549.81	7299.62	64.2	64.3	64.2	64.1	64.1
837	26	7566.16	7351.89	64.2	64.2	64.2	64.0	63.9
838	26	7605.11	7377.26	63.9	63.0	64.0	63.9	63.9
839	28	7624.05	7402.67	64.6	64.0	64.4	64.1	64.1

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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840	28	7653.20	7426.72	64.2	64.3	64.2	64.4	64.3
841	28	7682.36	7450.78	64.7	64.7	64.4	64.7	64.6
842	28	7709.55	7472.13	65.0	65.1	64.7	65.2	65.1
843	28	7736.75	7493.49	65.2	65.3	65.0	65.5	65.3
844	28	7759.98	7516.66	65.4	65.5	65.2	65.4	65.4
845	28	7783.21	7539.87	65.3	65.3	65.3	65.4	65.2
846	28	7807.89	7562.37	65.3	65.3	65.2	65.0	65.0
847	28	7830.97	7584.67	65.2	65.3	65.2	65.2	65.1
848	28	7846.43	7609.20	65.0	64.8	64.9	64.2	64.1
849	28	7861.69	7633.54	65.2	65.1	64.7	64.4	64.0
850	28	7914.66	7682.76	65.1	65.0	64.8	64.3	63.7
851	28	7927.17	7705.59	63.9	63.8	64.2	63.6	63.6
852	28	7939.66	7728.43	63.7	63.7	64.0	63.6	63.6
853	29	8141.92	7678.72	63.6	63.5	63.6	63.5	63.6
854	29	8169.50	7665.43	63.5	63.5	63.6	63.5	63.5
855	29	8185.77	7629.23	63.5	63.5	63.6	63.6	63.5
856	29	8202.05	7593.03	63.5	63.5	63.6	63.6	63.6
857	29	8217.93	7559.06	63.6	63.6	63.6	63.7	63.8
858	29	8233.82	7525.15	63.7	63.8	63.8	64.1	64.2
859	29	8251.65	7493.50	64.3	64.6	64.1	64.5	64.5
860	29	8269.49	7461.67	64.7	64.6	64.4	64.8	64.6
861	29	8278.12	7422.66	65.0	65.0	64.7	65.0	65.0
862	29	8286.75	7393.45	65.0	65.1	64.9	65.2	65.1
863	29	8299.55	7361.56	65.2	65.2	65.1	65.4	65.3
864	29	8312.36	7329.67	65.1	65.1	65.1	65.2	65.1
865	29	8323.30	7296.00	65.2	65.2	65.1	65.0	64.9
866	29	8334.24	7262.33	64.9	64.9	65.0	64.7	64.6
867	29	8350.67	7199.23	64.6	64.6	64.8	64.5	64.4
868	29	8356.64	7165.65	64.5	64.4	64.6	64.3	64.2
869	29	8362.62	7132.07	64.3	64.3	64.5	64.2	64.1
870	29	8366.36	7103.47	64.2	64.1	64.4	64.2	64.2
871	29	8370.11	7074.66	64.2	64.3	64.4	64.3	64.2
872	29	8374.97	7040.75	64.2	64.1	64.3	64.3	64.1
873	29	8379.83	7006.63	64.2	64.1	64.2	63.9	63.9
874	29	8373.67	6973.70	64.3	64.3	64.2	63.9	63.7
875	29	8367.52	6940.77	64.2	64.1	64.1	63.7	63.6
876	29	8377.01	6907.06	63.7	63.6	63.9	63.5	63.5
877	29	8366.51	6873.40	63.6	63.6	63.7	63.5	63.5
878	29	8385.76	6843.89	63.5	63.4	63.6	63.5	63.5
879	29	8365.82	6814.39	63.5	63.4	63.6	63.5	63.4

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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880	30	8617.47	6675.91	63.4	63.4	63.5	63.5	63.5
881	30	8645.35	6666.48	63.4	63.4	63.5	63.5	63.5
882	30	8673.24	6697.06	63.4	63.4	63.5	63.5	63.4
883	30	8697.90	6725.47	63.4	63.4	63.5	63.4	63.4
884	30	8714.95	6753.88	63.4	63.4	63.5	63.5	63.4
885	30	8732.00	6782.30	63.4	63.4	63.5	63.5	63.5
886	30	8752.48	6810.23	63.4	63.4	63.5	63.5	63.5
887	30	8772.96	6838.16	63.7	63.6	63.7	64.0	63.8
888	30	8767.57	6860.64	63.8	63.8	63.7	63.7	63.6
889	30	8802.19	6883.12	64.0	64.0	63.9	64.0	63.8
890	30	8819.19	6908.67	63.9	64.0	63.9	64.0	63.9
891	30	8836.14	6934.23	64.0	64.0	64.0	64.0	64.0
892	30	8850.19	6957.07	64.1	64.1	64.1	64.2	64.1
893	30	8864.20	6979.91	64.1	64.2	64.1	64.2	64.1
894	30	8890.31	7029.39	64.1	64.1	64.2	64.2	64.2
895	30	8902.44	7051.64	64.1	64.2	64.2	64.4	64.3
896	30	8914.58	7072.70	64.3	64.3	64.3	64.4	64.4
897	30	8935.42	7100.18	64.3	64.4	64.4	64.4	64.4
898	30	8956.26	7127.60	64.4	64.5	64.4	64.6	64.6
899	30	8971.77	7149.36	64.7	64.8	64.6	64.9	64.9
900	30	8987.29	7171.00	64.9	64.9	64.8	65.0	65.0
901	30	9001.34	7191.44	65.1	65.1	65.0	65.2	65.1
902	30	9015.40	7211.62	65.1	65.2	65.1	65.2	65.2
903	30	9031.68	7235.59	65.2	65.2	65.1	65.2	65.1
904	30	9047.97	7259.36	65.1	65.1	65.1	65.1	65.0
905	30	9063.99	7283.44	65.0	65.1	65.0	64.8	64.8
906	30	9080.22	7307.53	64.8	64.7	64.9	64.5	64.5
907	30	9106.25	7335.27	64.5	64.4	64.7	64.3	64.3
908	30	9132.46	7363.01	64.2	64.2	64.5	64.1	64.0
909	30	9167.10	7406.54	64.0	64.0	64.3	63.9	63.9
910	30	9189.84	7434.09	63.9	63.7	64.1	63.7	63.7
911	30	9212.58	7461.65	63.6	63.7	64.0	63.7	63.6
912	31	9376.77	7430.65	63.6	63.6	63.6	63.6	63.6
913	31	9387.64	7342.55	63.6	63.7	63.7	63.8	63.7
914	31	9397.41	7354.45	63.7	63.7	63.7	63.9	63.8
915	31	9402.09	7320.26	63.6	63.8	63.8	64.0	64.0
916	31	9406.77	7286.07	64.0	64.0	64.0	64.2	64.2
917	31	9410.33	7255.12	64.1	64.2	64.2	64.7	64.6
918	31	9431.90	7224.17	64.0	64.7	64.5	64.8	64.9
919	31	9444.71	7196.67	64.9	64.9	64.7	65.1	65.1

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	10 FT
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920	31	9457.53	7109.10	65.0	65.1	64.9	65.1	65.1
921	31	9467.77	7104.20	65.1	65.2	65.0	65.2	65.1
922	31	9473.99	7073.74	65.0	65.1	65.1	65.1	65.0
923	31	9480.22	7043.20	64.9	64.9	65.0	64.9	64.9
924	31	9483.34	7017.03	64.8	64.8	64.9	64.8	64.8
925	31	9486.46	6990.87	64.8	64.6	64.8	64.5	64.5
926	31	9490.06	6954.77	64.5	64.5	64.6	64.5	64.4
927	31	9493.71	6918.60	64.4	64.4	64.6	64.4	64.3
928	31	9496.29	6892.43	64.3	64.2	64.4	64.2	64.2
929	31	9498.88	6866.18	64.2	64.2	64.4	64.2	64.2
930	31	9502.16	6838.39	64.1	64.2	64.3	64.2	64.2
931	31	9505.45	6810.61	64.1	64.1	64.3	64.1	64.0
932	31	9508.71	6777.62	64.0	64.0	64.2	63.9	63.9
933	31	9511.97	6745.03	64.0	63.9	64.1	63.9	63.9
934	31	9526.10	6684.27	63.9	63.9	64.0	63.6	63.7
935	31	9526.20	6650.80	63.7	63.7	63.9	63.6	63.6
936	31	9526.31	6617.49	63.6	63.5	63.7	63.5	63.5
937	31	9531.96	6584.51	63.5	63.5	63.7	63.5	63.4
938	31	9537.62	6559.53	63.5	63.4	63.6	63.5	63.4
939	32	5831.53	7521.01	63.7	63.5	63.7	63.5	63.5
940	32	5840.15	7539.71	63.6	63.5	63.9	63.5	63.5
941	32	5851.65	7560.39	63.6	63.5	63.9	63.5	63.5
942	32	5863.15	7581.07	63.5	63.5	63.6	63.5	63.5
943	32	5874.14	7606.45	63.5	63.4	63.6	63.5	63.4
944	32	5885.13	7635.83	63.5	63.5	63.6	63.5	63.4
945	32	5896.87	7656.80	63.4	63.5	63.6	63.5	63.4
946	32	5908.61	7677.90	63.4	63.5	63.5	63.5	63.4
947	32	5925.44	7707.73	63.5	63.5	63.5	63.5	63.4
948	32	5942.37	7731.50	63.4	63.5	63.5	63.5	63.5
949	32	5960.24	7760.94	63.4	63.5	63.5	63.5	63.4
950	32	5979.93	7796.62	63.4	63.5	63.5	63.5	63.4
951	32	5995.62	7812.30	63.4	63.5	63.5	63.5	63.4
952	32	6012.90	7826.60	63.4	63.5	63.5	63.5	63.4
953	32	6030.19	7844.90	63.4	63.5	63.5	63.5	63.4
954	32	6045.34	7862.84	63.4	63.5	63.5	63.5	63.5
955	32	6060.50	7880.76	63.7	64.1	63.8	63.9	63.9
956	32	6066.54	7894.10	64.1	64.2	64.0	64.3	64.3
957	32	6076.59	7907.55	64.4	64.2	64.1	64.0	63.9
958	32	6082.62	7922.29	63.9	64.3	64.1	64.8	65.0
959	32	6088.65	7937.03	64.4	65.3	64.0	64.2	64.1

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	12 FT
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962	32	6095.62	7960.55	64.0	64.9	64.7	65.6	65.7
961	32	6102.99	7964.07	64.8	65.5	65.0	65.5	65.4
962	32	6111.48	8016.47	65.7	66.3	65.7	66.5	66.3
963	32	6120.63	8040.78	66.6	66.6	66.0	66.5	66.5
964	32	6129.79	8065.09	64.7	64.3	65.1	64.2	64.2
965	32	6133.95	8083.17	64.0	63.9	64.5	63.7	63.7
966	32	6138.11	8101.26	63.7	63.8	64.2	63.6	63.6
967	32	6144.69	8123.59	63.7	63.7	63.9	63.6	63.6
968	32	6151.67	8145.93	63.6	63.7	63.8	63.6	63.6
969	32	6150.45	8167.78	63.6	63.6	63.7	63.6	63.5
970	32	6149.24	8189.63	63.5	63.8	63.7	63.6	63.6
971	32	6140.48	8234.93	63.6	63.8	63.7	63.6	63.6

REC #	LINE #	X	Y	11 FT	13 FT	15 FT	17 FT	20 FT
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1	1	6235.97	7662.18	63.4	63.3	63.5	0.0	63.4
2	1	6239.59	7652.96	63.4	63.3	63.5	0.0	63.4
3	1	6239.16	7663.02	63.4	63.3	63.4	0.0	63.4
4	1	6236.77	7673.09	63.4	63.3	63.5	0.0	63.4
5	1	6241.37	7675.43	63.5	63.3	63.6	0.0	63.4
6	1	6243.96	7677.87	63.4	63.3	63.5	0.0	63.4
7	1	6244.36	7681.37	63.4	63.3	63.5	0.0	63.4
8	1	6244.77	7684.88	63.4	63.3	63.5	0.0	63.4
9	1	6244.42	7694.98	63.4	63.3	63.5	0.0	63.4
10	1	6247.29	7705.96	63.4	63.3	63.5	0.0	63.4
11	1	6250.17	7716.95	63.4	63.3	63.5	0.0	63.4
12	1	6265.29	7728.06	63.4	63.3	63.5	0.0	63.4
13	1	6280.41	7739.18	63.4	63.3	63.4	0.0	63.4
14	1	6266.05	7740.19	63.4	63.3	63.5	0.0	63.4
15	1	6251.70	7741.21	63.4	63.3	63.4	0.0	63.4
16	1	6254.30	7743.64	63.4	63.3	63.5	0.0	63.4
17	1	6256.91	7746.06	63.4	63.3	63.5	0.0	63.5
18	1	6254.76	7747.18	63.4	63.3	63.5	0.0	63.4
19	1	6252.62	7748.28	63.4	63.3	63.5	0.0	63.4
20	1	6244.94	7759.77	63.4	63.3	63.5	0.0	63.5
21	2	6236.62	7647.09	63.5	63.3	63.6	0.0	63.4
22	2	6238.83	7645.98	63.5	63.3	63.5	0.0	63.4
23	2	6241.04	7644.86	63.4	63.3	63.6	0.0	63.4
24	2	6243.25	7643.74	63.4	63.3	63.5	0.0	63.4
25	2	6241.42	7648.35	63.5	63.3	63.5	0.0	65.8
26	2	6239.59	7652.96	63.5	63.3	63.5	0.0	67.6
27	2	6256.32	7664.21	63.7	63.6	64.5	0.0	66.8
28	2	6254.73	7663.76	63.6	63.7	64.4	0.0	66.9
29	2	6253.13	7663.35	66.1	66.4	65.2	0.0	66.4
30	2	6250.34	7666.00	64.3	67.1	66.0	0.0	69.7
31	2	6247.54	7668.64	66.7	72.0	68.5	0.0	66.6
32	2	6247.75	7677.19	65.7	65.1	66.7	0.0	65.0
33	2	6247.96	7685.74	63.9	63.9	65.4	0.0	63.9
34	2	6252.97	7695.62	63.7	63.6	64.7	0.0	63.7
35	2	6257.98	7705.49	63.6	63.5	64.3	0.0	63.6
36	2	6256.54	7718.72	63.6	63.4	64.0	0.0	63.6
37	2	6255.10	7731.94	63.5	63.4	63.9	0.0	63.6
38	2	6255.45	7740.56	63.5	63.4	63.8	0.0	63.6
39	2	6255.79	7749.17	63.5	63.3	63.7	0.0	63.6

REC #	LINE #	X	Y	11 FT	13 FT	15 FT	17 FT	20 FT
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40	2	6255.14	7755.81	63.5	63.4	63.7	0.0	63.6
41	2	6254.49	7762.44	63.5	63.3	63.6	0.0	63.5
42	2	6246.92	7773.94	63.5	63.4	63.7	0.0	63.7
43	2	6249.54	7776.39	64.0	63.9	63.9	0.0	63.7
44	2	6252.15	7778.83	63.7	63.7	63.8	0.0	63.7
45	2	6249.98	7785.03	63.6	63.6	63.8	0.0	63.7
46	2	6247.81	7791.24	63.6	63.5	63.7	0.0	63.9
47	2	6244.59	7802.56	63.6	63.5	63.7	0.0	63.7
48	2	6247.81	7791.24	63.6	63.5	63.7	0.0	63.5
49	2	6255.31	7779.73	63.6	63.5	63.7	0.0	63.8
50	3	6250.39	7652.42	63.7	63.6	64.2	0.0	63.6
51	3	6256.54	7659.16	63.6	63.5	64.1	0.0	63.6
52	3	6262.69	7665.95	65.9	65.6	65.5	0.0	67.0
53	3	6263.29	7664.41	66.4	66.8	65.9	0.0	66.3
54	3	6263.89	7662.88	66.0	65.7	65.7	0.0	66.1
55	3	6264.60	7664.90	65.6	65.7	65.8	0.0	65.9
56	3	6265.44	7676.92	65.1	65.0	65.5	0.0	65.5
57	3	6269.22	7689.91	67.3	64.8	65.2	0.0	64.5
58	3	6273.91	7702.90	66.0	64.2	65.2	0.0	63.8
59	3	6263.73	7727.55	63.9	63.6	64.4	0.0	63.6
60	3	6260.76	7740.35	63.7	63.5	64.1	0.0	63.5
61	3	6257.63	7753.16	63.6	63.4	63.9	0.0	63.5
62	3	6258.65	7755.15	63.5	63.4	63.8	0.0	63.5
63	3	6259.88	7757.15	63.6	63.4	63.7	0.0	63.5
64	3	6260.27	7765.79	63.5	63.3	63.7	0.0	63.7
65	4	6248.69	7638.44	63.6	63.5	63.9	0.0	63.5
66	4	6258.99	7630.95	63.6	63.4	63.8	0.0	63.5
67	4	6262.90	7638.61	63.5	63.4	63.7	0.0	63.5
68	4	6266.81	7646.67	63.5	63.3	63.6	0.0	63.5
69	4	6270.12	7656.14	63.5	63.3	63.6	0.0	63.8
70	4	6273.43	7665.52	65.6	65.0	64.4	0.0	65.7
71	4	6273.43	7665.52	66.1	65.7	64.7	0.0	65.5
72	4	6273.43	7665.52	65.9	65.2	65.1	0.0	65.9
73	4	6272.23	7668.59	65.6	65.4	65.3	0.0	65.5
74	4	6271.02	7671.66	65.6	65.4	65.5	0.0	65.1
75	4	6275.96	7681.50	64.4	65.1	65.2	0.0	64.4
76	4	6280.90	7691.50	65.2	64.9	65.2	0.0	64.0
77	4	6276.21	7707.80	65.5	65.4	64.9	0.0	63.6
78	4	6275.52	7724.69	63.9	63.6	64.2	0.0	63.6
79	4	6273.67	7733.60	63.7	63.5	64.0	0.0	63.6

REC #	LINE #	X	Y	1 FT	3 FT	5 FT	7 FT	14 FT
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80	4	6271.82	7743.51	63.7	63.5	63.9	0.0	63.6
81	4	6275.87	7761.72	63.6	63.5	63.8	0.0	63.7
82	4	6278.18	7769.31	63.5	63.4	63.7	0.0	63.7
83	4	6280.65	7776.89	63.5	63.5	63.7	0.0	63.7

HIGH-FLOW DYE SURVEY

REC #	LINE #	X	Y	I FT	S FT
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1	23	6735.41	7844.45	0.0	0.0
2	23	6736.18	7833.70	0.0	0.0
3	23	6736.96	7822.96	0.0	0.0
4	23	6758.27	7763.70	0.0	0.0
5	23	6762.48	7738.14	0.0	0.0
6	23	6766.69	7712.58	0.0	0.0
7	23	6760.21	7679.76	0.0	0.0
8	23	6762.17	7664.21	0.1	0.0
9	23	6764.14	7648.67	0.0	0.0
10	23	6753.71	7625.16	0.0	0.0
11	23	6750.71	7609.10	0.0	0.0
12	23	6747.72	7593.05	0.0	0.0
13	23	6743.28	7583.66	0.1	0.0
14	23	6738.85	7574.27	3.6	2.0
15	23	6740.46	7549.64	3.7	2.4
16	23	6730.84	7539.74	3.4	2.9
17	23	6721.21	7529.85	3.3	3.2
18	23	6715.30	7519.95	2.5	2.3
19	23	6704.91	7504.55	3.1	2.4
20	23	6694.52	7489.15	1.7	1.3
21	23	6692.39	7479.27	1.4	1.0
22	23	6690.27	7469.40	0.6	0.0
23	23	6679.62	7468.39	0.6	0.0
24	23	6678.16	7464.20	0.6	0.0
25	23	6672.20	7454.50	0.2	0.0
26	23	6666.25	7444.92	0.5	0.2
27	22	6692.69	7605.54	0.0	0.0
28	22	6691.36	7795.69	0.6	0.0
29	22	6715.25	7750.19	0.0	0.0
30	22	6716.42	7736.69	0.0	0.0
31	22	6717.80	7717.20	0.0	0.0
32	22	6715.84	7701.61	0.2	0.0
33	22	6713.89	7686.03	0.0	0.0
34	22	6717.49	7654.97	0.0	0.0
35	22	6711.49	7648.46	0.0	0.0
36	22	6705.50	7641.96	0.0	0.0
37	22	6703.66	7622.97	0.0	0.0
38	22	6700.51	7607.03	0.4	0.2
39	22	6697.35	7591.10	1.4	1.0

REC #	LINE #	X	Y	1 FT	5 FT
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40	22	6677.68	7578.66	2.5	3.1
41	22	6677.85	7569.31	3.0	3.6
42	22	6676.22	7559.96	3.2	3.4
43	22	6673.10	7547.80	3.0	2.8
44	22	6670.10	7535.76	3.2	3.1
45	22	6656.50	7519.10	2.4	3.1
46	22	6658.21	7516.24	2.0	1.5
47	22	6659.52	7513.32	2.4	2.3
48	22	6656.52	7497.76	1.2	0.8
49	22	6650.40	7491.66	1.0	1.3
50	22	6644.41	7485.50	0.0	0.2
51	22	6639.40	7481.60	0.0	0.2
52	22	6633.70	7477.03	0.1	0.0
53	22	6627.69	7468.00	0.0	0.0
54	21	6659.23	7703.60	0.0	0.0
55	21	6662.28	7688.74	0.0	0.0
56	21	6665.34	7673.66	0.0	0.2
57	21	6664.39	7644.57	0.1	0.0
58	21	6670.95	7642.10	0.0	0.1
59	21	6677.51	7639.75	0.4	1.7
60	21	6664.57	7624.91	0.0	3.1
61	21	6651.64	7610.07	1.0	1.8
62	21	6646.60	7582.70	3.1	3.9
63	21	6642.08	7580.82	3.0	2.6
64	21	6637.56	7578.87	3.7	4.1
65	21	6631.39	7569.09	3.2	3.1
66	21	6626.72	7562.00	3.9	3.4
67	21	6622.00	7552.91	4.2	4.7
68	21	6615.80	7541.25	3.0	3.4
69	21	6609.70	7531.59	2.0	2.6
70	21	6604.99	7519.05	1.0	1.5
71	21	6596.52	7510.30	1.5	0.8
72	21	6588.65	7501.67	0.4	0.2
73	21	6583.41	7496.32	0.7	0.5
74	21	6580.27	7488.25	0.0	0.0
75	21	6577.13	7479.79	0.0	0.0
76	21	6570.92	7470.36	0.0	0.0
77	20	6606.13	7744.25	0.0	0.0
78	20	6611.21	7736.99	0.0	0.0
79	20	6612.60	7695.14	0.0	0.2

REC #	LINE #	X	Y	1 FT	5 FT
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80	20	6614.40	7683.29	0.0	0.0
81	20	6609.04	7663.04	0.0	0.1
82	20	6608.75	7657.25	0.0	0.0
83	20	6607.36	7651.47	1.4	0.2
84	20	6601.53	7624.14	2.5	2.8
85	20	6601.27	7616.91	1.7	0.2
86	20	6601.02	7609.68	2.8	2.8
87	20	6597.29	7609.90	3.3	0.5
88	20	6593.57	7610.12	2.2	1.0
89	20	6588.65	7597.43	1.7	2.3
90	20	6585.49	7592.59	4.1	4.4
91	20	6582.33	7587.75	3.1	3.1
92	20	6575.60	7570.95	4.0	4.1
93	20	6573.35	7564.67	3.0	3.4
94	20	6570.41	7558.40	3.7	3.6
95	20	6567.75	7553.62	3.2	3.4
96	20	6564.60	7548.85	3.1	2.8
97	20	6553.59	7534.01	3.1	1.3
98	20	6551.90	7529.87	1.4	1.3
99	20	6550.34	7525.73	1.1	1.7
100	20	6541.10	7522.22	0.7	1.7
101	20	6539.39	7514.56	0.0	0.1
102	20	6537.68	7506.91	0.0	0.0
103	20	6535.25	7500.75	0.0	0.0
104	19	6553.41	7760.54	0.0	0.0
105	19	6555.30	7747.28	0.0	0.1
106	19	6557.23	7730.00	0.0	0.1
107	19	6558.77	7712.92	0.0	0.0
108	19	6560.41	7692.27	0.0	0.0
109	19	6559.32	7686.49	0.0	0.1
110	19	6558.24	7682.71	0.0	0.0
111	19	6557.02	7658.92	0.0	0.1
112	19	6553.41	7646.84	0.0	0.0
113	19	6549.81	7634.76	0.0	0.5
114	19	6547.09	7624.85	0.0	0.0
115	19	6544.38	7614.94	3.1	2.3
116	19	6537.62	7598.19	3.7	3.9
117	19	6533.71	7594.92	4.0	3.9
118	19	6529.80	7591.65	3.0	3.9
119	19	6526.15	7576.19	3.1	3.9

REC #	LINE #	X	Y	1 FT	5 FT
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120	19	6521.37	7570.89	3.2	2.8
121	19	6516.61	7565.59	2.2	2.1
122	19	6514.22	7562.95	1.5	0.8
123	19	6511.64	7560.31	3.2	2.3
124	19	6503.45	7539.74	2.0	1.0
125	19	6501.77	7535.64	3.0	1.3
126	19	6500.10	7531.54	0.4	0.0
127	19	6495.32	7526.33	0.0	0.0
128	19	6488.96	7520.59	0.0	0.2
129	19	6482.64	7514.86	0.0	0.1
130	19	6480.96	7510.80	0.0	0.0
131	18	6507.65	7746.88	0.0	0.0
132	18	6515.26	7741.10	0.0	0.0
133	18	6519.06	7714.34	0.0	0.0
134	18	6515.88	7700.71	2.0	0.0
135	18	6512.69	7687.08	0.0	0.0
136	18	6512.20	7679.64	0.0	0.0
137	18	6508.66	7671.42	0.0	0.0
138	18	6505.13	7663.01	0.0	1.0
139	18	6505.98	7652.79	3.7	2.3
140	18	6504.66	7647.14	3.9	2.6
141	18	6503.79	7641.41	4.3	4.4
142	18	6501.17	7635.15	4.1	3.9
143	18	6498.55	7628.89	2.4	2.3
144	18	6490.24	7615.26	3.6	3.9
145	18	6486.48	7615.64	4.6	5.2
146	18	6482.73	7616.00	4.4	3.6
147	18	6483.67	7605.66	4.3	4.9
148	18	6478.83	7600.61	3.0	4.4
149	18	6474.00	7595.37	3.7	3.1
150	18	6466.73	7587.56	2.0	2.8
151	18	6459.46	7579.75	2.2	1.5
152	18	6457.35	7566.58	2.9	1.8
153	18	6457.69	7564.01	1.5	0.2
154	18	6458.03	7551.45	0.5	0.0
155	18	6456.03	7551.45	0.2	0.0
156	18	6450.92	7547.28	0.0	0.0
157	18	6443.82	7543.11	0.0	0.0
158	16	6446.29	7530.69	0.0	0.0
159	17	6468.64	7772.64	0.0	0.1

REC #	LINE #	X	Y	1 FT	5 FT
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160	17	6476.28	7750.34	0.0	0.0
161	17	6482.66	7738.74	0.0	0.0
162	17	6489.04	7727.15	0.0	0.0
163	17	6489.80	7699.29	0.0	0.0
164	17	6486.40	7694.50	0.0	0.0
165	17	6483.13	7689.71	0.0	0.0
166	17	6480.79	7678.30	0.0	0.0
167	17	6483.35	7672.25	0.0	0.0
168	17	6485.91	7666.21	0.0	0.0
169	17	6482.35	7657.86	0.0	0.2
170	17	6478.79	7649.52	1.7	1.0
171	17	6479.27	7656.70	5.9	2.3
172	17	6477.25	7648.95	6.1	5.7
173	17	6475.24	7641.21	5.1	5.2
174	17	6467.29	7634.81	4.3	3.1
175	17	6467.06	7631.23	4.3	3.6
176	17	6466.83	7627.66	5.0	5.2
177	17	6462.85	7612.28	3.0	3.6
178	17	6456.43	7606.52	4.2	4.4
179	17	6450.91	7600.77	3.0	2.1
180	17	6441.80	7590.99	4.1	3.4
181	17	6433.60	7581.22	3.7	3.4
182	17	6434.15	7564.08	3.7	3.9
183	17	6430.64	7555.96	1.4	1.0
184	17	6427.14	7547.89	0.0	0.0
185	17	6426.78	7540.86	0.0	0.0
186	17	6423.46	7536.31	0.0	0.2
187	17	6420.15	7531.77	0.0	0.0
188	17	6422.94	7525.78	0.0	0.0
189	16	6459.01	7722.69	0.0	0.0
190	16	6463.31	7720.80	0.0	0.0
191	16	6457.17	7700.99	0.0	0.0
192	16	6460.65	7688.29	0.0	0.0
193	16	6464.14	7675.59	0.0	0.0
194	16	6452.54	7660.87	0.0	0.0
195	16	6449.44	7659.75	1.9	0.0
196	16	6446.35	7658.64	1.9	0.5
197	16	6448.00	7654.44	2.0	4.1
198	16	6444.66	7645.85	3.0	3.6
199	16	6442.92	7646.26	5.1	4.4

REC #	LINE #	X	Y	1 FT	5 FT
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200	16	6444.16	7638.71	5.6	6.0
201	16	6447.41	7631.16	4.4	5.4
202	16	6439.41	7624.87	4.6	5.4
203	16	6430.73	7620.14	4.6	4.4
204	16	6422.06	7615.41	5.7	5.7
205	16	6414.86	7599.13	5.3	5.2
206	16	6414.40	7592.06	3.5	2.1
207	16	6413.94	7584.99	1.0	0.5
208	16	6413.71	7581.46	3.1	2.6
209	16	6413.49	7577.93	3.5	1.3
210	16	6409.93	7569.85	1.2	0.8
211	16	6410.40	7564.82	0.0	0.0
212	16	6410.87	7559.80	0.0	0.0
213	16	6398.87	7538.69	0.0	0.0
214	16	6395.52	7534.19	0.0	0.0
215	15	6437.46	7714.73	0.0	0.0
216	15	6436.20	7700.31	0.0	0.0
217	15	6436.51	7695.19	0.0	0.0
218	15	6436.82	7690.08	0.0	0.0
219	15	6438.17	7669.66	0.0	0.0
220	15	6436.34	7665.53	0.0	0.0
221	15	6434.51	7661.40	1.7	0.9
222	15	6427.76	7652.07	4.8	1.3
223	15	6424.38	7647.43	2.9	2.1
224	15	6421.00	7642.79	5.9	5.7
225	15	6415.41	7639.15	5.9	5.7
226	15	6409.83	7635.52	4.4	4.4
227	15	6414.24	7633.54	5.3	5.2
228	15	6409.94	7626.90	4.9	3.4
229	15	6405.65	7620.27	4.5	4.4
230	15	6401.02	7598.06	4.0	3.4
231	15	6400.54	7590.94	2.1	0.8
232	15	6400.07	7583.66	0.0	1.0
233	15	6391.53	7570.79	0.0	0.0
234	15	6389.51	7563.26	0.0	0.0
235	15	6387.50	7555.73	0.0	0.0
236	14	6413.08	7740.82	0.0	0.0
237	14	6412.86	7723.34	0.0	0.0
238	14	6412.52	7719.74	0.0	0.0
239	14	6412.16	7716.14	0.0	0.0

REC #	LINE #	X	Y	1 F1	5 F1
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240	14	6417.64	7723.94	0.0	0.0
241	14	6413.92	7694.16	0.0	0.0
242	14	6410.80	7664.39	0.0	0.0
243	14	6406.45	7677.69	1.4	0.5
244	14	6402.10	7671.00	2.5	0.0
245	14	6406.46	7669.02	6.0	6.0
246	14	6402.12	7602.35	2.1	1.0
247	14	6397.75	7655.69	4.0	3.9
248	14	6397.20	7646.58	5.5	5.2
249	14	6393.50	7640.44	5.0	4.9
250	14	6389.81	7632.31	7.4	5.2
251	14	6386.13	7624.21	4.4	4.7
252	14	6382.45	7616.11	5.1	4.4
253	14	6365.14	7589.98	5.1	3.1
254	14	6365.55	7584.95	0.7	1.8
255	14	6365.96	7579.93	0.0	0.0
256	14	6360.46	7567.94	0.0	0.0
257	14	6356.64	7559.98	0.0	0.0
258	13	6345.65	7722.85	0.0	0.0
259	13	6341.15	7715.79	0.0	0.0
260	13	6387.45	7706.45	0.0	0.0
261	13	6384.76	7696.31	0.0	0.0
262	13	6384.66	7678.98	0.0	0.0
263	13	6381.21	7674.36	0.5	0.2
264	13	6377.77	7669.79	1.0	0.0
265	13	6361.52	7660.66	1.5	0.4
266	13	6379.65	7656.59	3.9	1.3
267	13	6377.76	7652.53	3.3	2.3
268	13	6371.20	7646.97	6.3	4.7
269	13	6364.63	7641.41	5.0	4.4
270	13	6365.59	7628.26	5.7	5.2
271	13	6358.14	7616.75	4.7	4.4
272	13	6349.70	7609.25	2.7	4.1
273	13	6347.28	7596.22	4.6	2.3
274	13	6340.60	7592.81	3.5	1.5
275	13	6334.08	7587.40	0.0	0.0
276	13	6336.71	7581.33	0.0	0.0
277	13	6339.34	7575.27	0.0	0.0
278	13	6331.15	7569.43	0.0	0.0
279	13	6326.64	7560.99	0.0	0.0

REC #	LINE #	X	Y	1 FT	5 FT
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280	12	6350.58	7757.55	0.0	0.0
281	12	6363.38	7751.43	0.0	0.0
282	12	6360.88	7742.22	0.0	0.0
283	12	6370.38	7733.01	0.0	0.0
284	12	6362.21	7726.84	0.0	0.0
285	12	6360.13	7714.08	0.0	0.0
286	12	6358.06	7701.32	0.0	0.0
287	12	6357.01	7692.64	1.0	0.0
288	12	6355.96	7679.97	2.1	4.2
289	12	6355.28	7672.86	9.5	8.3
290	12	6352.76	7670.34	0.3	0.8
291	12	6350.24	7667.83	3.2	1.3
292	12	6347.10	7666.84	5.4	4.4
293	12	6344.24	7660.79	5.6	4.7
294	12	6341.39	7654.75	3.0	6.5
295	12	6330.00	7630.70	4.7	5.5
296	12	6322.75	7618.29	4.7	4.9
297	12	6315.50	7605.88	2.6	0.0
298	12	6313.61	7601.91	1.4	0.0
299	12	6314.13	7597.50	0.0	0.0
300	12	6306.00	7593.09	0.0	0.0
301	12	6304.77	7589.14	0.0	0.0
302	11	6355.44	7712.55	0.0	0.0
303	11	6359.99	7705.40	0.0	0.0
304	11	6340.75	7694.25	0.0	0.0
305	11	6340.56	7689.66	0.0	0.0
306	11	6350.36	7685.08	0.0	0.0
307	11	6347.78	7673.93	3.3	0.0
308	11	6347.16	7675.45	5.0	1.0
309	11	6346.55	7676.98	3.5	1.0
310	11	6341.50	7671.90	3.2	2.1
311	11	6343.35	7667.36	4.2	1.3
312	11	6345.20	7662.80	0.1	4.7
313	11	6342.05	7661.82	6.7	6.2
314	11	6338.91	7660.85	7.0	6.0
315	11	6336.04	7647.84	4.2	4.9
316	11	6323.07	7630.30	5.4	5.2
317	11	6316.11	7612.69	3.9	4.9
318	11	6306.92	7610.13	0.0	4.1
319	11	6306.59	7605.10	0.0	0.0

REC #	LINE #	X	Y	1 FT	5 FT
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320	11	6307.26	7600.06	0.0	0.0
321	11	6308.55	7597.04	0.0	0.0
322	10	6341.11	7726.89	0.0	0.0
323	10	6340.33	7719.75	0.0	0.0
324	10	6334.84	7724.89	0.0	0.0
325	10	6334.86	7711.15	0.0	0.0
326	10	6334.93	7697.41	0.0	0.0
327	10	6339.27	7695.33	0.0	0.0
328	10	6336.55	7688.23	0.9	0.0
329	10	6337.83	7681.13	0.1	0.0
330	10	6339.05	7678.07	8.2	4.4
331	10	6336.17	7672.03	6.3	2.6
332	10	6333.29	7665.94	8.2	7.0
333	10	6331.37	7661.97	7.0	3.4
334	10	6329.46	7657.95	8.6	7.3
335	10	6323.07	7638.69	4.0	5.2
336	10	6315.46	7631.52	6.5	6.5
337	10	6307.86	7624.16	1.6	4.9
338	10	6301.51	7605.27	0.0	3.6
339	10	6299.25	7606.34	0.0	0.0
340	10	6297.06	7607.41	0.0	0.0
341	10	6296.44	7600.42	0.0	0.0
342	9	6336.82	7715.19	0.0	0.0
343	9	6337.62	7708.57	0.0	0.0
344	9	6336.13	7694.34	0.0	0.0
345	9	6333.36	7696.91	0.0	0.0
346	9	6330.59	7699.49	0.0	0.0
347	9	6317.19	7715.95	0.0	0.0
348	9	6322.10	7696.61	0.0	0.0
349	9	6327.16	7681.27	3.0	1.6
350	9	6330.64	7672.16	7.1	3.9
351	9	6325.50	7672.19	6.1	7.3
352	9	6320.17	7672.26	3.2	5.4
353	9	6320.78	7670.75	7.6	5.7
354	9	6321.39	7669.22	5.2	4.9
355	9	6329.31	7657.00	5.2	6.3
356	9	6321.86	7650.52	6.0	4.4
357	9	6317.41	7644.05	5.1	4.7
358	9	6305.34	7630.20	7.0	6.8
359	9	6302.79	7627.82	0.0	0.6

REC #	LINE #	X	Y	1 FT	5 FT
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360	9	6300.25	7625.38	0.0	0.0
361	9	6296.42	7617.46	0.0	0.0
362	8	6321.36	7732.69	0.0	0.0
363	8	6323.10	7728.08	0.0	0.0
364	8	6327.02	7708.69	0.0	0.0
365	8	6324.47	7706.16	0.0	0.0
366	8	6321.92	7703.68	0.0	0.0
367	8	6316.52	7681.46	0.0	0.0
368	8	6317.49	7683.40	4.5	0.0
369	8	6318.47	7685.47	3.6	0.0
370	8	6315.55	7679.45	2.4	2.6
371	8	6312.64	7673.44	8.0	5.5
372	8	6309.48	7672.50	9.6	9.4
373	8	6311.67	7671.44	6.5	4.2
374	8	6313.86	7670.36	5.3	3.9
375	8	6310.70	7669.44	3.0	7.0
376	8	6306.48	7657.94	5.9	7.3
377	8	6302.27	7646.45	4.7	5.5
378	8	6286.96	7631.03	1.9	4.6
379	8	6287.25	7626.66	0.5	0.0
380	8	6287.54	7621.77	0.0	0.0
381	8	6283.39	7616.91	0.0	0.0
382	7	6314.75	7740.95	0.0	0.0
383	7	6316.48	7736.33	0.0	0.0
384	7	6312.51	7728.25	0.0	0.0
385	7	6311.90	7716.06	0.0	0.0
386	7	6311.29	7703.87	0.0	0.0
387	7	6305.41	7691.83	0.0	0.0
388	7	6309.10	7691.24	0.4	0.0
389	7	6312.91	7690.65	7.5	6.5
390	7	6309.96	7684.64	12.1	6.8
391	7	6307.06	7678.63	1.9	1.6
392	7	6304.36	7667.57	9.6	11.7
393	7	6298.56	7656.64	9.3	8.1
394	7	6292.75	7643.71	7.6	6.8
395	7	6286.41	7641.90	5.2	2.6
396	7	6279.98	7631.06	0.9	1.0
397	7	6273.55	7621.30	0.5	0.0
398	7	6261.36	7607.81	0.0	0.0
399	7	6255.59	7604.59	0.0	0.0

REC #	LINE #	X	Y	1 FT	5 FT
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400	6	6303.08	7725.36	0.0	0.0
401	6	6306.22	7726.33	0.0	0.0
402	6	6308.16	7716.63	0.0	0.0
403	6	6310.11	7706.94	0.0	0.0
404	6	6300.29	7686.89	0.0	0.0
405	6	6296.75	7682.43	0.0	1.0
406	6	6293.21	7677.98	8.6	1.3
407	6	6293.21	7677.98	7.9	9.9
408	6	6289.67	7673.54	7.6	9.1
409	6	6286.13	7669.11	13.3	9.2
410	6	6276.67	7656.74	12.1	11.2
411	6	6271.22	7644.48	0.5	1.8
412	6	6274.23	7628.29	0.0	0.0
413	6	6269.45	7626.96	0.0	0.0
414	6	6264.67	7625.88	0.0	0.0
415	6	6256.33	7620.25	0.0	0.0
416	5	6292.04	7722.09	0.0	0.0
417	5	6288.47	7717.61	0.0	0.0
418	5	6296.32	7706.24	0.0	0.0
419	5	6290.59	7702.85	0.0	0.0
420	5	6284.86	7699.47	0.0	0.0
421	5	6280.11	7684.45	14.6	14.2
422	5	6276.36	7675.43	15.2	12.2
423	5	6276.61	7666.41	6.1	7.5
424	5	6272.45	7641.41	8.2	5.7
425	5	6266.69	7638.14	0.2	0.0
426	5	6260.94	7634.67	0.0	0.0
427	4	6283.56	7740.11	0.0	0.0
428	4	6279.84	7721.93	0.0	0.0
429	4	6279.00	7714.85	0.0	0.0
430	4	6278.17	7707.70	0.0	0.0
431	4	6272.19	7695.65	0.0	0.0
432	4	6268.81	7686.38	0.0	0.0
433	4	6265.44	7676.92	0.0	0.0
434	4	6262.71	7662.01	12.2	8.4
435	4	6258.61	7649.54	0.9	11.4
436	4	6250.51	7637.06	0.0	0.0
437	4	6250.73	7633.85	0.0	0.0
438	4	6244.96	7630.62	0.0	0.0
439	4	6241.70	7629.79	0.0	0.0

REC #	LINE #	X	Y	1 FT	5 FT
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440	3	6259.17	7739.90	0.0	0.0
441	3	6270.93	7736.43	0.0	0.0
442	3	6270.06	7729.35	0.0	0.0
443	3	6269.19	7722.28	0.0	0.0
444	3	6268.34	7715.21	0.0	0.0
445	3	6266.92	7709.70	0.0	0.0
446	3	6265.50	7704.19	0.0	0.0
447	3	6264.67	7697.14	0.0	0.0
448	3	6264.26	7693.02	0.0	0.0
449	3	6263.86	7690.10	0.0	0.0
450	3	6265.09	7673.42	0.0	0.0
451	3	6266.32	7656.74	2.1	18.7
452	3	6253.13	7663.35	0.0	0.0
453	3	6252.74	7659.85	0.0	0.0
454	2	6256.91	7746.00	0.0	0.0
455	2	6261.90	7737.20	0.0	0.0
456	2	6260.89	7728.45	0.0	0.0
457	2	6254.81	7704.01	0.0	0.0
458	2	6254.16	7692.53	0.0	0.0
459	2	6253.51	7680.45	0.0	0.0
460	2	6248.53	7670.62	0.0	0.0
461	2	6243.56	7660.79	0.0	0.0
462	2	6231.21	7647.30	0.0	0.0
463	2	6233.80	7649.75	0.0	0.0
464	2	6230.40	7652.12	0.0	0.0
465	2	6226.01	7646.56	0.0	0.0
466	1	6250.11	7740.77	0.0	0.0
467	1	6254.87	7742.09	0.0	0.0
468	1	6250.17	7716.45	0.0	0.0
469	1	6247.29	7705.46	0.0	0.0
470	1	6244.42	7694.96	0.0	0.0
471	1	6241.90	7673.94	0.0	0.0
472	1	6237.37	7667.64	0.0	0.0
473	1	6232.78	7661.35	0.0	0.0
474	1	6239.17	7663.02	0.0	0.0
475	1	6231.17	7660.94	0.0	0.0
476	1	6223.18	7658.87	0.0	0.0
477	1	6224.38	7655.79	0.0	0.0
478	1	6225.59	7652.71	0.0	0.0
479	1	6222.38	7651.90	0.0	0.0

LOW-FLOW DYE SURVEY

REC #	LINE #	X	Y	2 FT	5 FT
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1	23	6761.47	7732.05	0.0	0.0
2	23	6759.90	7727.54	0.0	0.0
3	23	6761.06	7717.06	0.0	0.0
4	23	6762.22	7706.58	0.0	0.0
5	23	6756.98	7698.38	0.0	0.0
6	23	6751.73	7690.17	0.0	0.1
7	23	6758.56	7667.89	1.0	1.2
8	23	6754.61	7660.52	0.5	0.3
9	23	6751.06	7653.14	0.0	1.9
10	23	6743.57	7636.46	1.8	1.0
11	23	6741.25	7624.56	1.3	1.0
12	23	6738.92	7610.66	1.1	1.2
13	23	6735.96	7609.24	1.8	1.7
14	23	6733.00	7607.82	3.5	3.0
15	23	6713.65	7587.79	3.3	3.8
16	23	6706.92	7579.27	4.0	4.3
17	23	6700.18	7570.74	3.2	3.6
18	23	6694.17	7560.81	3.7	4.1
19	23	6687.42	7555.99	3.4	3.8
20	23	6680.66	7551.16	3.4	4.1
21	23	6677.63	7542.66	3.1	3.5
22	23	6674.61	7534.15	2.5	2.8
23	23	6650.45	7516.59	2.5	2.0
24	23	6653.49	7507.19	2.4	2.8
25	23	6656.52	7497.78	1.0	2.0
26	23	6655.02	7493.59	0.4	2.2
27	23	6648.19	7488.96	0.7	0.9
28	23	6641.30	7484.32	0.4	0.2
29	23	6636.64	7471.50	0.0	0.1
30	23	6634.57	7469.10	0.0	0.1
31	22	6706.96	7766.86	0.0	0.0
32	22	6703.65	7757.61	0.0	0.0
33	22	6708.67	7745.75	0.0	0.0
34	22	6714.09	7733.66	0.0	0.0
35	22	6707.63	7715.84	0.0	0.0
36	22	6706.57	7706.19	0.0	0.4
37	22	6705.50	7696.54	0.0	0.1
38	22	6704.48	7686.94	1.9	2.9
39	22	6703.45	7677.33	1.9	0.9

REC #	LINE #	X	Y	Z FT	S FT
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40	22	6695.73	7662.75	3.8	4.0
41	22	6693.19	7648.87	2.3	1.1
42	22	6690.65	7634.99	1.7	1.1
43	22	6686.11	7629.27	3.1	2.7
44	22	6677.79	7620.06	2.9	2.9
45	22	6669.46	7610.85	2.8	2.9
46	22	6660.47	7606.64	2.9	2.9
47	22	6651.46	7602.63	2.9	3.2
48	22	6637.71	7586.06	3.0	3.2
49	22	6635.41	7583.31	2.9	3.2
50	22	6633.11	7580.53	2.6	2.9
51	22	6631.39	7569.09	2.5	2.9
52	22	6626.85	7567.17	2.9	2.9
53	22	6622.31	7565.25	3.0	3.2
54	22	6619.23	7549.64	3.4	3.7
55	22	6613.68	7545.66	3.4	3.7
56	22	6608.33	7541.67	3.3	3.5
57	22	6606.76	7537.48	3.3	3.5
58	22	6605.16	7533.24	2.7	2.7
59	22	6603.42	7514.87	2.5	2.7
60	22	6600.41	7517.20	0.2	1.1
61	22	6597.40	7519.52	0.0	0.2
62	22	6585.07	7507.55	0.0	0.0
63	22	6584.24	7501.94	0.1	0.0
64	21	6637.75	7805.93	2.0	0.0
65	21	6648.55	7796.55	0.0	0.0
66	21	6653.24	7780.63	0.0	0.0
67	21	6658.02	7764.71	2.0	0.0
68	21	6660.81	7749.64	0.0	0.0
69	21	6663.60	7734.66	0.0	0.0
70	21	6661.57	7722.81	0.0	0.0
71	21	6660.40	7713.21	0.0	0.0
72	21	6659.23	7703.60	0.0	0.0
73	21	6658.31	7681.48	0.0	0.9
74	21	6657.36	7675.63	0.3	0.3
75	21	6656.40	7669.77	2.7	3.2
76	21	6653.16	7661.10	3.8	4.5
77	21	6649.91	7652.42	3.4	2.4
78	21	6634.67	7636.44	3.3	3.5
79	21	6624.59	7625.14	3.1	2.9

REC #	LINE #	X	Y	2 FT	5 FT
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80	21	6614.51	7611.83	3.6	3.7
81	21	6613.12	7614.80	3.0	2.9
82	21	6608.36	7605.67	4.2	4.0
83	21	6603.59	7596.53	3.4	3.5
84	21	6596.83	7587.45	3.2	3.2
85	21	6594.27	7578.37	2.9	2.9
86	21	6587.79	7568.72	3.2	2.7
87	21	6583.22	7566.87	3.2	3.2
88	21	6578.65	7565.22	3.1	2.9
89	21	6563.17	7551.81	3.0	2.9
90	21	6561.54	7547.66	2.4	2.2
91	21	6559.91	7543.50	2.5	2.9
92	21	6547.26	7524.56	2.3	1.4
93	21	6546.45	7522.50	0.5	1.1
94	21	6545.63	7520.43	1.0	0.0
95	21	6541.66	7513.67	0.3	0.4
96	21	6537.65	7506.91	0.0	0.1
97	21	6536.25	7496.41	0.0	0.0
98	21	6523.53	7491.19	7.6	0.0
99	20	6594.62	7607.56	2.0	0.0
100	20	6597.82	7790.90	0.0	0.1
101	20	6606.32	7778.56	0.0	0.0
102	20	6614.82	7766.21	0.0	0.0
103	20	6601.86	7745.93	0.0	0.0
104	20	6627.61	7732.32	0.0	0.0
105	20	6613.33	7718.71	0.0	0.0
106	20	6611.43	7710.66	1.1	0.0
107	20	6609.52	7702.65	2.5	1.0
108	20	6606.75	7687.97	2.7	0.8
109	20	6603.68	7678.76	2.9	2.8
110	20	6599.80	7669.43	2.1	0.8
111	20	6592.63	7659.50	2.3	1.9
112	20	6592.36	7652.36	3.3	2.4
113	20	6591.97	7645.23	3.1	2.9
114	20	6584.09	7634.64	3.5	3.7
115	20	6576.20	7624.24	3.9	4.0
116	20	6566.76	7613.30	2.7	2.9
117	20	6558.32	7606.15	2.4	2.7
118	20	6549.66	7602.99	2.4	2.2
119	20	6536.42	7584.90	2.7	2.4

REC #	LINE #	X	Y	2 FT	5 FT
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120	20	6537.45	7575.26	2.0	3.5
121	20	6536.40	7569.61	3.0	3.2
122	20	6532.44	7562.81	2.7	2.9
123	20	6528.40	7556.00	2.2	3.2
124	20	6519.16	7552.53	0.0	2.6
125	20	6514.28	7543.73	0.0	0.3
126	20	6509.39	7534.92	0.3	0.8
127	20	6507.90	7537.89	0.1	0.5
128	20	6504.75	7533.23	0.0	0.1
129	19	6559.42	7780.99	0.0	0.0
130	19	6560.62	7777.94	0.0	0.0
131	19	6563.12	7754.00	0.0	0.0
132	19	6562.58	7746.63	0.0	0.0
133	19	6562.04	7739.25	0.0	0.0
134	19	6562.28	7721.53	0.2	0.0
135	19	6562.67	7716.35	0.4	0.1
136	19	6563.06	7711.17	2.1	0.0
137	19	6554.80	7697.04	3.0	3.0
138	19	6550.67	7690.02	4.1	4.5
139	19	6546.54	7682.99	2.7	3.2
140	19	6544.80	7678.74	2.1	2.4
141	19	6543.06	7674.49	3.2	1.6
142	19	6533.07	7656.33	2.7	3.0
143	19	6527.02	7652.42	3.1	3.5
144	19	6522.17	7646.51	3.1	3.5
145	19	6514.31	7641.93	2.7	2.9
146	19	6507.76	7632.41	2.6	3.2
147	19	6501.21	7622.69	2.8	2.9
148	19	6494.39	7622.09	2.3	2.7
149	19	6487.56	7621.26	2.5	2.4
150	19	6476.14	7606.61	2.7	3.2
151	19	6472.17	7603.44	2.4	2.7
152	19	6468.20	7600.26	2.6	2.9
153	19	6451.68	7580.57	2.9	3.2
154	19	6453.06	7574.03	3.5	4.0
155	19	6454.24	7567.49	2.5	1.6
156	19	6450.07	7560.85	0.0	0.0
157	19	6445.90	7554.21	0.0	0.0
158	19	6439.36	7545.04	0.0	0.1
159	19	6433.56	7537.94	0.0	0.0

REC #	LINE #	X	Y	2 FT	5 FT
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160	18	6498.50	7806.90	0.0	0.0
161	18	6497.50	7804.74	0.0	0.0
162	18	6504.38	7768.50	0.0	0.0
163	18	6509.82	7763.69	0.0	0.1
164	18	6515.26	7758.81	0.0	0.0
165	18	6508.58	7731.34	0.9	0.1
166	18	6507.11	7721.93	2.0	1.6
167	18	6505.04	7712.52	2.1	0.3
168	18	6500.70	7707.09	5.2	4.8
169	18	6495.92	7701.06	3.3	3.5
170	18	6490.68	7678.10	3.5	3.2
171	18	6488.50	7672.51	3.2	3.0
172	18	6478.40	7666.92	4.4	4.8
173	18	6459.48	7652.92	3.3	3.5
174	18	6464.04	7642.36	2.7	2.9
175	18	6460.60	7631.79	3.0	2.7
176	18	6460.87	7629.01	2.9	3.2
177	18	6453.13	7620.23	2.4	2.4
178	18	6438.47	7610.64	3.2	2.9
179	18	6431.79	7601.42	3.2	3.2
180	18	6425.10	7592.19	4.2	2.9
181	18	6415.20	7581.90	3.2	2.7
182	18	6412.60	7575.92	3.4	2.7
183	18	6409.93	7569.85	3.9	1.4
184	18	6401.87	7563.77	0.0	0.0
185	18	6393.11	7559.20	0.0	0.0
186	18	6384.35	7554.74	0.0	0.0
187	18	6372.00	7540.79	0.0	0.0
188	17	6481.70	7800.14	0.0	0.1
189	17	6490.70	7794.89	0.0	0.0
190	17	6484.91	7764.30	0.0	0.1
191	17	6484.25	7756.99	0.0	0.2
192	17	6463.59	7749.60	3.0	0.5
193	17	6484.49	7742.98	0.0	1.5
194	17	6485.36	7736.20	1.4	1.5
195	17	6470.80	7722.42	2.4	2.5
196	17	6474.05	7716.11	4.4	4.1
197	17	6471.30	7704.79	4.0	3.6
198	17	6465.25	7689.99	4.0	4.3
199	17	6459.72	7686.20	2.5	2.5

REC #	LINE #	X	Y	2 FT	5 FT
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200	17	6454.16	7682.41	2.4	2.5
201	17	6447.45	7673.00	2.2	2.8
202	17	6440.71	7663.59	3.1	3.5
203	17	6435.25	7651.22	3.2	3.0
204	17	6426.31	7642.91	2.5	2.8
205	17	6417.36	7634.60	2.5	2.5
206	17	6406.96	7617.25	2.6	2.5
207	17	6401.77	7608.63	3.6	2.8
208	17	6396.57	7600.00	3.6	2.5
209	17	6392.46	7584.87	3.5	3.5
210	17	6389.75	7576.84	4.9	3.0
211	17	6387.24	7572.80	0.3	0.8
212	17	6375.79	7565.81	0.0	0.0
213	17	6369.92	7558.65	0.0	0.0
214	17	6364.85	7551.88	0.0	0.0
215	17	6361.80	7540.91	0.0	0.0
216	16	6455.67	7795.14	0.0	0.0
217	16	6464.46	7780.95	0.0	0.0
218	16	6466.86	7767.51	0.0	0.0
219	16	6461.39	7756.93	0.0	0.2
220	16	6456.70	7746.35	0.0	0.0
221	16	6456.58	7726.76	2.6	0.9
222	16	6454.72	7724.59	2.0	2.5
223	16	6452.86	7720.39	4.0	4.6
224	16	6453.77	7713.73	3.5	2.8
225	16	6454.70	7707.07	2.9	3.6
226	16	6446.09	7693.43	4.1	3.8
227	16	6442.71	7688.72	2.6	3.8
228	16	6439.32	7684.01	4.4	4.9
229	16	6427.61	7669.40	3.9	4.0
230	16	6421.75	7662.10	5.5	4.6
231	16	6415.69	7654.91	4.3	4.6
232	16	6402.87	7643.56	4.1	4.3
233	16	6396.55	7636.94	2.7	2.8
234	16	6394.22	7630.31	2.0	2.2
235	16	6384.55	7623.72	3.0	3.0
236	16	6374.86	7617.13	3.2	3.5
237	16	6368.04	7608.08	3.4	2.8
238	16	6362.40	7604.60	3.9	4.6
239	16	6356.75	7601.12	1.0	1.7

REC #	LINE #	X	Y	2 FT	5 FT
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240	16	6346.24	7584.16	1.3	0.4
241	16	6344.76	7575.19	0.0	0.0
242	16	6343.32	7566.19	0.0	0.0
243	16	6347.83	7564.11	0.0	0.0
244	16	6338.98	7564.55	0.0	0.0
245	15	6415.77	7794.13	0.0	0.0
246	15	6420.71	7785.46	0.0	0.0
247	15	6429.96	7774.89	0.0	0.0
248	15	6439.20	7764.31	0.0	0.0
249	15	6430.90	7740.27	0.0	0.0
250	15	6437.57	7732.23	0.0	0.8
251	15	6436.59	7721.40	3.6	3.6
252	15	6435.60	7710.56	1.6	2.2
253	15	6429.16	7704.75	5.0	4.4
254	15	6422.59	7698.94	6.0	6.5
255	15	6425.39	7687.75	6.0	6.2
256	15	6428.19	7676.50	4.4	3.6
257	15	6416.83	7667.45	5.6	5.9
258	15	6404.94	7659.86	5.2	5.2
259	15	6394.85	7652.66	4.6	4.3
260	15	6390.30	7639.40	2.4	2.8
261	15	6376.78	7637.37	3.0	2.5
262	15	6367.17	7635.33	3.5	3.6
263	15	6361.59	7623.26	3.0	3.8
264	15	6356.01	7611.19	2.5	3.6
265	15	6339.66	7599.34	4.7	3.8
266	15	6334.63	7594.42	0.3	0.7
267	15	6329.60	7589.50	0.0	0.0
268	15	6325.86	7581.56	0.0	0.1
269	15	6326.21	7573.06	0.0	0.0
270	14	6403.99	7766.11	0.0	0.0
271	14	6401.86	7761.62	0.0	0.0
272	14	6405.09	7771.07	0.0	0.0
273	14	6429.12	7760.31	0.0	0.0
274	14	6406.89	7738.63	3.6	1.5
275	14	6405.56	7732.95	0.5	1.2
276	14	6404.27	7727.27	5.0	3.9
277	14	6402.86	7712.89	4.3	5.1
278	14	6401.27	7703.66	2.4	3.0
279	14	6399.65	7694.43	2.4	2.5

REC #	LINE #	X	Y	2 FT	5 FT
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280	14	6396.49	7676.03	2.0	2.3
281	14	6387.17	7681.50	2.9	3.0
282	14	6377.85	7687.09	5.3	4.9
283	14	6372.18	7674.89	4.0	4.9
284	14	6360.50	7662.68	4.4	4.9
285	14	6354.57	7648.55	2.0	2.5
286	14	6350.49	7645.56	2.0	2.2
287	14	6346.40	7642.50	2.9	2.8
288	14	6333.81	7621.50	4.1	4.6
289	14	6331.64	7614.06	4.9	4.3
290	14	6329.46	7586.50	0.5	0.0
291	14	6326.43	7588.50	0.0	0.0
292	14	6319.80	7583.23	0.0	0.0
293	14	6313.17	7577.89	0.0	0.0
294	14	6315.29	7564.84	0.0	0.0
295	13	6373.74	7789.00	0.0	0.0
296	13	6379.84	7777.83	0.0	0.0
297	13	6385.93	7766.05	0.0	0.0
298	13	6385.73	7757.30	0.0	0.0
299	13	6385.52	7740.55	0.5	0.0
300	13	6385.93	7738.28	5.0	4.6
301	13	6384.60	7732.63	5.0	4.4
302	13	6383.20	7726.97	7.4	7.8
303	13	6380.15	7725.92	5.5	6.2
304	13	6377.04	7724.87	4.3	3.9
305	13	6374.39	7713.60	6.4	4.1
306	13	6374.24	7704.93	4.0	2.3
307	13	6374.19	7696.25	5.3	3.1
308	13	6356.65	7687.00	6.0	3.6
309	13	6352.22	7680.51	5.0	5.4
310	13	6347.70	7673.93	3.5	5.6
311	13	6340.44	7659.75	3.1	4.0
312	13	6339.49	7650.75	1.7	0.7
313	13	6332.54	7641.74	2.2	1.0
314	13	6318.61	7632.49	3.5	4.1
315	13	6304.68	7623.24	3.4	2.0
316	13	6295.15	7603.47	0.1	0.0
317	13	6296.20	7588.43	0.0	0.0
318	13	6297.25	7573.39	0.0	0.0
319	13	6289.74	7557.70	0.0	0.0

REC #	LINE #	X	Y	2 FT	5 FT
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320	12	6344.23	7603.83	0.0	0.0
321	12	6350.87	7785.30	0.0	0.0
322	12	6354.26	7776.06	0.0	0.0
323	12	6357.64	7766.81	0.0	0.0
324	12	6364.54	7748.36	0.0	0.0
325	12	6362.01	7745.79	3.3	4.8
326	12	6359.47	7743.21	6.5	6.0
327	12	6357.13	7735.54	6.7	4.6
328	12	6354.79	7727.86	2.9	1.0
329	12	6354.02	7720.71	7.2	3.1
330	12	6351.71	7713.07	5.3	4.9
331	12	6349.40	7705.43	7.8	5.1
332	12	6341.68	7689.21	9.0	8.6
333	12	6336.26	7680.65	2.7	3.0
334	12	6330.84	7672.10	3.2	5.2
335	12	6309.29	7655.34	3.6	3.8
336	12	6301.93	7642.96	4.1	3.8
337	12	6294.56	7630.58	5.6	5.5
338	12	6289.44	7617.22	0.0	0.4
339	12	6284.32	7603.85	0.0	0.0
340	12	6277.97	7585.10	0.0	0.0
341	12	6267.70	7575.00	0.0	0.0
342	11	6340.76	7794.05	0.0	0.0
343	11	6346.64	7787.35	0.0	0.0
344	11	6351.10	7775.02	0.0	0.0
345	11	6355.67	7762.69	0.0	0.0
346	11	6354.64	7755.51	5.3	0.5
347	11	6350.00	7752.44	4.7	0.7
348	11	6357.15	7749.36	7.0	3.9
349	11	6353.23	7741.10	4.0	4.9
350	11	6348.35	7730.90	5.1	7.3
351	11	6343.40	7720.75	7.3	3.8
352	11	6343.88	7710.55	7.0	3.3
353	11	6337.84	7703.49	6.8	6.5
354	11	6331.79	7696.43	7.4	7.2
355	11	6327.31	7689.90	5.2	6.5
356	11	6322.82	7683.37	5.2	4.8
357	11	6305.60	7664.51	4.2	2.7
358	11	6293.45	7650.79	4.5	4.4
359	11	6281.29	7637.06	8.7	6.1

REC #	LINE #	X	Y	2 FT	5 FT
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360	11	6275.40	7608.20	0.5	0.4
361	11	6271.25	7596.89	0.0	0.0
362	10	6327.92	7781.23	0.0	0.0
363	10	6330.66	7766.81	0.0	0.0
364	10	6337.38	7760.15	0.0	0.0
365	10	6338.29	7753.48	0.0	0.1
366	10	6343.86	7738.11	2.9	1.4
367	10	6339.17	7736.61	6.0	3.9
368	10	6334.47	7735.10	7.9	5.1
369	10	6333.09	7729.50	8.3	7.3
370	10	6331.71	7723.90	8.1	8.4
371	10	6330.16	7709.00	6.0	6.9
372	10	6323.71	7699.10	2.1	0.4
373	10	6317.26	7688.54	6.0	5.7
374	10	6300.50	7659.60	5.1	5.7
375	10	6288.62	7640.89	2.4	1.8
376	10	6276.73	7622.16	9.3	5.1
377	10	6280.50	7595.99	0.0	0.0
378	10	6267.39	7589.09	0.0	0.0
379	10	6254.27	7582.19	0.0	0.0
380	10	6242.00	7568.89	0.0	0.0
381	9	6327.95	7781.25	0.0	0.0
382	9	6335.53	7769.90	0.0	0.0
383	9	6335.81	7759.64	0.0	0.0
384	9	6337.69	7749.91	0.0	0.0
385	9	6339.57	7740.10	0.0	0.0
386	9	6334.47	7735.10	8.4	8.7
387	9	6328.21	7733.13	7.0	0.2
388	9	6321.94	7731.10	8.4	8.1
389	9	6322.91	7719.44	6.1	4.5
390	9	6323.87	7707.71	7.3	6.8
391	9	6307.37	7695.84	6.0	5.5
392	9	6300.90	7685.38	7.3	8.1
393	9	6294.42	7674.91	2.3	5.4
394	9	6273.69	7638.35	8.4	4.2
395	9	6270.09	7625.47	0.3	0.4
396	9	6266.49	7612.58	0.4	0.0
397	9	6249.15	7594.42	0.0	0.0
398	8	6300.95	7765.53	0.0	0.0
399	8	6316.12	7774.07	0.0	0.0

REC #	LINE #	X	Y	2 FT	5 FT
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400	8	6327.26	7763.80	0.0	0.1
401	8	6318.16	7750.60	0.0	0.2
402	8	6321.94	7731.16	0.0	0.0
403	8	6320.36	7716.94	5.9	1.3
404	8	6318.77	7702.71	6.9	7.7
405	8	6310.90	7700.34	8.9	5.9
406	8	6303.02	7697.96	6.9	8.0
407	8	6293.97	7685.03	6.0	7.7
408	8	6290.29	7672.02	5.0	6.8
409	8	6286.60	7659.01	5.4	3.7
410	8	6277.41	7629.17	7.2	6.4
411	8	6267.16	7619.60	0.0	2.0
412	8	6256.90	7610.02	0.0	0.0
413	8	6247.22	7590.53	0.0	0.0
414	7	6278.36	7793.32	0.0	0.0
415	7	6300.84	7769.20	0.0	0.0
416	7	6304.66	7763.59	0.0	0.1
417	7	6328.46	7757.90	0.0	0.0
418	7	6313.34	7735.37	0.0	0.0
419	7	6309.96	7725.76	7.2	1.0
420	7	6306.58	7716.15	10.0	7.9
421	7	6302.25	7690.89	9.6	8.0
422	7	6291.40	7682.62	8.0	12.3
423	7	6280.54	7674.34	5.2	7.3
424	7	6270.50	7637.48	14.0	4.5
425	7	6260.85	7626.39	1.1	0.2
426	7	6251.19	7615.30	0.0	0.0
427	7	6245.35	7603.60	0.0	0.0
428	6	6292.33	7773.54	0.0	0.0
429	6	6304.21	7760.02	2.2	0.0
430	6	6303.48	7747.79	0.2	0.0
431	6	6302.75	7735.50	0.0	0.0
432	6	6301.09	7721.35	13.5	9.8
433	6	6296.14	7711.33	9.9	6.5
434	6	6291.16	7701.31	12.2	11.6
435	6	6287.62	7696.86	7.7	10.7
436	6	6284.06	7692.41	9.6	9.6
437	6	6279.34	7677.41	6.4	3.6
438	6	6264.85	7642.73	4.6	4.2
439	6	6256.37	7632.50	3.1	3.6

REC #	LINE #	X	Y	2 FT	5 FT
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440	6	6251.89	7622.27	0.0	0.0
441	6	6247.36	7616.00	0.0	0.0
442	5	6263.82	7775.35	0.0	0.0
443	5	6287.60	7748.14	0.0	0.0
444	5	6287.30	7739.50	0.0	0.0
445	5	6287.00	7730.80	0.0	0.0
446	5	6286.51	7701.63	4.7	0.0
447	5	6279.33	7691.00	14.0	8.9
448	5	6278.10	7680.48	10.5	10.4
449	5	6267.69	7662.20	15.0	5.0
450	5	6257.24	7644.07	2.4	3.1
451	5	6245.70	7637.60	0.0	0.0
452	5	6239.19	7627.44	0.0	0.0
453	5	6232.67	7617.27	0.0	0.0
454	5	6231.25	7603.36	0.0	0.0
455	4	6271.87	7767.45	0.0	0.0
456	4	6275.67	7761.72	0.0	0.0
457	4	6273.22	7730.20	0.0	0.0
458	4	6269.20	7722.29	0.0	0.0
459	4	6265.17	7714.32	12.4	11.7
460	4	6267.03	7690.49	15.5	12.7
461	4	6258.10	7673.24	15.1	13.4
462	4	6249.17	7655.49	4.3	6.0
463	4	6243.01	7648.70	0.0	0.0
464	4	6236.85	7642.07	0.0	0.0
465	4	6234.63	7621.10	0.0	0.0
466	4	6224.38	7620.28	0.0	0.0
467	3	6260.37	7757.89	0.0	0.0
468	3	6274.90	7744.43	0.0	0.0
469	3	6272.52	7736.89	0.0	0.0
470	3	6270.00	7729.35	0.0	0.0
471	3	6263.10	7710.35	0.0	0.0
472	3	6255.80	7700.61	1.1	0.2
473	3	6248.45	7702.07	0.0	0.0
474	3	6235.97	7602.10	0.0	0.0
475	3	6235.42	7650.17	0.0	0.0
476	2	6257.60	7768.44	0.0	0.0
477	2	6259.86	7757.15	0.0	0.0
478	2	6262.50	7730.63	0.0	0.0
479	2	6260.87	7716.52	0.0	0.0

REC #	LINE #	X	Y	2 FT	5 FT
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480	2	6259.15	7742.41	0.2	0.0
481	2	6251.79	7698.69	0.0	0.0
482	2	6244.42	7694.96	0.0	0.0
483	2	6232.76	7661.35	0.0	0.0
484	2	6227.19	7653.14	0.0	0.0
485	1	6234.15	7780.60	0.0	0.0
486	1	6247.21	7753.58	0.0	0.7
487	1	6246.97	7739.90	0.0	0.0
488	1	6246.73	7726.21	0.0	0.0
489	1	6240.07	7697.21	0.0	0.0
490	1	6237.23	7666.27	0.0	0.0
491	1	6234.39	7675.33	0.0	0.0
492	1	6217.97	7654.16	0.0	0.0
493	1	6219.16	7651.09	0.0	0.0