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PR87-69

SOIL GAS ALKANE SURVEY
EP 9

PEDIRKA BASIN, N.T.

for
EP 9 Joint Venture
Base Resources Ltd (Operator)

January 1987

Petrofocus Pty. Ltd.
44 Margaret Street
SYDNEY NSW 2000

[redacted]

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1. SUMMARY

A first-pass, helicopter supported, soil gas survey was carried out from widely spaced lines over the majority of EP 9 to ascertain the petroleum potential of the permit.

Throughout the survey area ethane, propane and butane concentrations are low with no anomalous samples present. Methane concentrations are low to moderate with one zone of anomalous concentrations and one zone of elevated concentrations, both located in the central region of the permit.

The ratios of the alkane concentrations suggest a gas-rich source for the hydrocarbons. However, it is possible that high methane concentrations observed in some samples may be derived from a remote source. Also heavy rain during July and August 1986 may have preferentially removed the heavier alkanes as it moved downwards through the soil suggesting that potentially anomalous areas would not be as gas rich as the ratios indicate.

The results of the soil gas survey indicate the permit to have a low prospectivity for the discovery of large oilfields.

2. INTRODUCTION

Base Resources Limited, operator of the EP 9 Joint Venture, commissioned Petrofocus to carry out a soil gas alkane survey as a first pass appraisal of the permit area. The aim of the present survey was to evaluate the petroleum prospectivity of the region. The area has received little seismic survey coverage, although a limited regional survey carried out in the 1960's has identified some poorly defined structural highs in the southwest. Two other lines are located to the central-eastern section of the permit. No subsequent exploration activity has occurred in the area.

Because of navigational difficulties in the monotonous sand dune terrain, sampling locations could be determined only to ± 5 km. The western extent of the permit could be located fairly accurately with respect to a 1960's seismic survey line and some topographic features but the eastern limit was not accurately positioned on the ground.

Some of the samples contained very high methane levels, and prompted the sampling of a north-south cross-section through the zone. It is suggested that at least some methane may have migrated some considerable distance from gas-rich parts of the basin. This would have the effect of raising the proportion of methane with respect to the heavier alkanes, and thus give rise to ratios that indicate a source that is less oil rich.

Since 1981, Petrofocus, and its predecessor Petrosearch, have carried out soil gas geochemical surveys, both in a broad-spaced reconnaissance mode in wildcat regions, and detailed, intensive sampling surveys over seismic survey leads and prospects. In addition, over 15 orientation surveys have been carried out over and adjacent to known oil and gas fields in the Surat, Eromanga, Canning and Amadeus Basins, and these show enhanced concentrations of the light alkane gases to be present in soils above or peripheral to the fields.

3. SURVEY METHODS

3.1 Introduction

Although success has been claimed over the past thirty or more years for various geochemical exploration techniques, enthusiasm for their employment is not widely shared by professionals in the petroleum industry.

Anomalous concentrations of hydrocarbon gases were first reported above petroleum reservoirs in the 1930's (Laubmeyer, 1933; Sokolov, 1933; Horvitz, 1939). These results quickly lead to the development of techniques for use in petroleum exploration, and in 1959 Sokolov summarised successful applications of the techniques in the U.S.S.R. as follows:

> "Under favourable geological conditions, the proportion of correct predictions (from geochemical surveys) is rather high - about 70 percent. For instance, in the North Caucasus (Kuban), predictions made by gas surveys were confirmed in thirteen cases out of seventeen."

Although successful uses of geochemical techniques have been documented in the western literature results obtained by industry users in the course of normal exploration have commonly produced negative or, at best, equivocal results which have led the techniques to disfavour. In many instances the unsatisfactory results can be attributed to poor sample collection, storage, preparation and analytical procedures. Most importantly, however, results of many surveys have not been interpreted properly. There is, in general, a poor understanding of what can be expected from geochemical methods and, particularly, of their limitations.

Within the past few years there has been, however, renewed interest in geochemical exploration techniques following the successful identification of surface anomalies above petroleum reservoirs by the Geosat Committee's study in which the Multispectral Scanner and the Thematic Mapper, now aboard Landsat 4, were flown over three test sites in the USA. The alteration features, verified on the ground, in soils, rocks and/or vegetation have been shown to result from leakage of light hydrocarbon gases from the moderately deep reservoirs (Rock, 1984; Patton and Manwaring, 1984; Matthews et al., 1984).

3.2 Microseeps

Successful employment of geochemical exploration techniques relies upon the phenomenon of vertical migration of light hydrocarbons that leak in trace amounts from petroleum reservoirs. This has been a hotly disputed issue, but the weight of evidence from reliable sources clearly demonstrates that vertical migration does, in fact, occur. It must now be conceded that light hydrocarbon gases do leak from at least some moderately deep to deep petroleum reservoirs and can be detected as microseeps located vertically above, or peripheral to, the surface projection of the reservoir as -

(i) free gas in the soil or absorbed to soil minerals (Debnam, 1969; Devine and Sears, 1977; Horvitz, 1972, 1979; Jones and Drozd, 1983; Richers et al., 1982; Rock, 1984; Matthews et al., 1984), or

(ii) as a chemical or mineralogical alteration of soil and surface rocks (Karstev, 1959; Donovan, 1974), or

(iii) in vegetation as either morphological or chemical effects (Donovan and Dalziel, 1977; Richers et al., 1982; Rock, 1984).

In addition, case studies conducted by Petrofocus since 1980 unambiguously show anomalous concentrations of light hydrocarbon gases directly above or immediately peripheral to the surface projection of 14 known petroleum reservoirs in the Surat, Cooper, Eromanga and Amadeus Basins.

3.3 Detection of Hydrocarbon Gas Microseeps

There are now in use several indirect techniques which exploit various manifestations of the vertical migration of hydrocarbons or associated gases leaking from deep petroleum reservoirs. These include magnetic, electrical (electromagnetic and induced polarization), radiometric and helium emanometry methods. However, the principal disadvantage in employing these methods is that the effects they respond to can also be produced by causes unrelated to the leakage of hydrocarbon gases.

Clearly, it is advantageous to detect and quantify the hydrocarbon microseeps themselves - this is the approach adopted by Petrosearch in which the light hydrocarbon gases in the soil gas are detected.

The detection of the light hydrocarbon gases was selected as the most reliable sampling medium since only gaseous hydrocarbons can pass directly through aquifers which are commonly present above petroleum reservoirs in many Australian sedimentary basins. On the other hand, hydrocarbons transported in solution, including dissolved gases, will be entrained in the aquifer or in the surficial groundwater system and may be released at some remote location which cannot be related to the parent petroleum reservoir.

In Petrofocus surveys soil gas samples are carefully collected from depths ranging from 0.5 to 1 metres using a probe of proprietary design and pre-prepared microsyringes. The gas samples are carefully packed in airtight containers for shipment to the analytical facility, which is located at the field base camp. Samples are analysed for the light alkanes methane through pentane by a gas chromatographic technique. The sensitivity of the chromatograph, as presently employed, is approximately 0.5 ppmv methane, 0.05 ppmv ethane, 0.02 ppmv propane, and 0.005 ppmv butane. The alkane concentrations of samples are determined by comparison with known concentrations in a specially prepared gas standard. Reproducibility of results is typically better than $\pm 5\%$.

3.4 Interpretation of Results

Because of differences in the proportion of oil and gas from reservoir to reservoir, and in the composition of the oil and gas phases, together with differences in reservoir parameters and in soil characteristics from region to region, an attempt is always made to carry out orientation surveys over known reservoirs as close as possible to the survey area. By comparing results from the survey area with those from the known reservoir an estimate can be made of the type of hydrocarbons giving rise to the microseeps detected in the survey area. Estimates of the size of the hydrocarbon reservoir in the survey area are difficult to establish and can only be attempted within areas having closely similar reservoir and soil characteristics because the magnitude of an anomaly may be determined by the ease of the migration of gases from the reservoir, rather than by the volume of gas in the reservoir. There is emerging some confidence that the ratios of the various alkanes present in soil gas can be an indication of the type of parent hydrocarbons in the reservoir (Jones and Drozd, 1983; Richers et al., 1982). The various ratios which may indicate the "oilyness" of a reservoir are determined for each anomaly detected, but this serves only as a non-definitive indicator, since the parameters which govern the amount and type of hydrocarbon gases present in near-surface environments are only imperfectly understood. They include the following:

(i) Depth of the reservoir and the nature of the overlying rocks.

(ii) Reservoir characteristics relating to the form of the reservoir, the integrity of its seal, the proportion of gas and the pressure under which it is constrained.

(iii) Soil properties, particularly the clay content, degree of compaction and moisture content of the soil.

(iv) Atmospheric variables, particularly atmospheric pressure, ambient temperature and rainfall.

When an area is re-surveyed it is commonly found that the location and intensity of soil gas anomalies has changed somewhat. The reasons for this are not always simple, but commonly conditions under which the later surveys are conducted are different from those pertaining during the original survey. The greatest effects are experienced after substantial rainfall when soil gas concentrations are greatly reduced due to their being flushed out of the near-surface zone. Anomalous areas defined by the original survey are much subdued after rainfall but generally can still be distinguished over depressed background readings.

However, the interpretation of results of soil gas surveys is more concerned the with anomaly to background contrast rather than with the absolute magnitude of anomalies. Comparison with results obtained from over known reservoirs considerably facilitates interpretation of those obtained from survey areas, but when comparisons with known reservoirs in the same region is not undertaken estimates of the commercial significance of soil gas anomalies cannot be reliably given.

4. OPERATIONS

Field operations, including the analytical facilities, were based at the Old Andado station, which is located some 80km south-west of the edge of the survey area.

The survey was carried out during the period 16-29 November 1986, inclusive. Mobilisation and demobilisation from and to Sydney involved two days. Because there is only one track into the permit area, located near the western boundary, sampling was carried out from a Bell Long Ranger helicopter chartered from Central Australian Helicopters of Alice Springs. Jet fuel was positioned at Old Andado station and at North Bore, situated some 40km southwest of the permit area.

Sampling was carried out at approximately 2km intervals from sites at the sides of dunes about 1 to 2 metres above the general level of the interdune troughs. This permitted easy entry of the probe to the sampling depth of 0.8 to 1.0 metres and provided a good seal around the probe without encountering the cemented horizons that are developed between the dunes.

A total of 625 samples were collected from 20 lines oriented at about 150°, following dune corridors, and spaced at approximately 10km intervals; and one line, oriented at 180°, through the centre of the permit. Surface features, such as overgrown, but still recognisable, 1960's seismic survey lines, scattered play lakes and the Hale, Plenty and Hay Rivers facilitated navigation. However, in the easternmost regions of the permit, and in central areas where the sand dune terrain was monotonous, there were no such navigational aids to assist in spot locations. In these circumstances, sample stations could only be estimated to about ± 5km. Sample locations are shown on Figure 1.

Soils in the survey area are very poorly developed and the entire area is covered by stabilised longitudinal sand dunes, generally trending about 150°, supporting sparse native grasses and shrubs. Between the dunes, playa lakes are extensively developed and are characterised by the presence of insipient calcrete. There is no development of organic horizons in the sand soils, and there is no reason to suspect the presence of microbially derived alkanes in soil gas samples.

During the survey, the weather was fine to hot, with maximum daily temperatures ranging from 28°C to 50°C. Local thunderstorm activity occurred on the evening of November 16, but falls were patchy and did not impede sampling. Heavy rains fell in the area during July and August, and although the period since then has remained relatively dry, some longterm effect of this rain could still persist.

There are no nearby oil or gas fields over which to carry out orientation surveys to permit calibration and interpretation of results from the present survey.

Considerable operational difficulties were experienced with the helicopter during the survey. These showed up as lack of power and endurance. The survey was interrupted on the 27 November and finally terminated on the 29 November. The cause of the problems is reported to be due to excessive dust intake into the turbine compressor, despite the insertion of dust filters, during take-offs and landings for sample collection.

5. RESULTS

The methane, ethane, propane and butane contents of the soil gas samples are listed in Table 1 and locations are shown on Figure 1.

Over the entire survey area the concentrations of ethane, propane and butane in the soil gas samples are low. Most of the methane concentrations are low to medium with a few higher concentrations being recorded from one line in the centre of the permit.

Inspection of Table 1 indicates the range of methane concentrations to be extreme, from 0.10 to 187.80 ppm, with 95% of the gas samples having concentrations of less than 20 ppm. Ethane concentrations range from 0.02 to 0.74 ppm, propane from 0.01 to 0.19 ppm and butane from 0.01 to 0.30 ppm.

None of the gas samples contain concentrations of ethane, propane or butane that are high enough above the background concentrations to be considered anomalous. There is also no clustering of samples with higher concentrations that could suggest a suppressed geochemical anomaly.

Samples 340 to 363 on Line L contain contain clearly anomalous concentrations of methane. The concentration of ethane, propane and butane in these samples do not show a corresponding increase in value which suggests a portion of the methane may be from a remote source. Some methane may have migrated a considerable distance from gas rich parts of the basin and been trapped in structures developed in this area. Line U was sampled to test the anomalous methane results, however the high methane concentrations were not reproduced. This may be due to the navigational difficulties experienced in the area.

Of the remaining samples only four (276, 278, 470 and 519) have methane concentrations above an anomalous threshold of 25.0 ppm. Elevated levels of methane are present in other samples on Line J near samples 276 and 278 suggesting either a suppressed anomaly or more than one source for the methane.

Overall, the results of the present survey are considerably lower than results from previous surveys conducted in nearby permits. This is most likely a consequence of the heavy rains which fell in the area during July and August 1986. The porous nature of the soil allows the gases present to be flushed out more easily than from a more clay rich and well developed soil. The ratios of the alkane concentrations $C_1/C_1+C_2+C_3+C_4$ for the present survey are high and the % wetness is low, suggesting a gas rich source. However, it is possible that the heavier alkanes have been removed preferentially by the heavy rain. This effect has been observed in previous surveys.

6. CONCLUSIONS

The present first pass survey achieved its prime objective of sampling almost all of EP 9 except for a couple of small areas in the southeast of the permit.

The results of the survey indicate one zone of anomalous methane concentrations and one zone of elevated methane concentrations in the central region of the permit. No anomalous zones are evident from the ethane, propane and butane concentrations which are all low.

The relative low concentrations of ethane, propane and butane encountered in the present survey would suggest a gas rich source, however, it is possible that these heavier gases have been removed preferentially by the heavy rain that fell prior to the survey. The very high concentrations of methane in some samples suggest that there may be more than one source for the methane. It is possible that the methane may, in part, be derived from deep within the basin.

Due to the absence of known petroleum fields in the region over which calibration surveys can be carried out, the results of the present survey cannot be interpreted reliably.

The results of the present survey do not indicate the presence of either oil or gas fields of substantial size. It is recommended no further soil gas surveys be carried out in EP 9, but if additional surveys are considered by Base Resources Limited they should be carried out only after a prolonged period of dry weather.

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TABLE 1. Methane, ethane, propane, butane concentrations (ppmv) and derived ratios for soil gas samples

SOIL GAS ALKANE SURVEY EP 9 NOV 86

REF NO.	LINE	SAMPLE NUMBER	C1	C2	C3	C4	C1 / C1+C2+C3+C4	C1 / C2	% Wetness C2+C3+C4 / C1+C2+C3+C4
1	LINE A	1	5.30	.02	.02	.02	.989	265.00	1.12
2		2	3.30	.02	.01	.01	.988	165.00	1.20
3		3	1.90	.02	.02	.01	.974	95.00	2.56
4		4	4.70	.02	.01	.02	.989	235.00	1.05
5		5	4.80	.02	.01	.01	.992	240.00	.83
6		6	2.00	.02	.01	.01	.980	100.00	1.96
7		7	3.30	.02	.02	.05	.973	165.00	2.65
8		8	14.60	.02	.03	.07	.992	730.00	.82
9		9	9.80	.02	.04	.04	.990	490.00	1.01
10		10	4.80	.02	.02	.03	.986	240.00	1.44
11		11	6.70	.02	.03	.03	.988	335.00	1.18
12		12	6.50	.02	.02	.03	.989	325.00	1.07
13		13	4.80	.02	.02	.05	.982	240.00	1.84
14		14	4.30	.02	.01	.03	.986	215.00	1.38
15	LINE B	15	5.80	.02	.01	.01	.993	290.00	.68
16		16	4.20	.02	.01	.03	.986	210.00	1.41
17		17	10.40	.02	.03	.08	.988	520.00	1.23
18		18	8.40	.02	.03	.03	.991	420.00	.94
19		19	10.60	.05	.05	.07	.984	212.00	1.58
20		20	7.60	.02	.02	.04	.990	380.00	1.04
21		21	7.30	.02	.02	.03	.991	365.00	.95
22		22	10.20	.03	.03	.05	.989	340.00	1.07
23		23	9.10	.02	.03	.03	.991	455.00	.87
24		24	7.50	.02	.02	.03	.991	375.00	.92
25		25	5.10	.02	.01	.03	.988	255.00	1.16
26		26	7.80	.02	.02	.02	.992	390.00	.76
27		27	7.30	.02	.02	.03	.991	365.00	.95
28		28	8.60	.02	.02	.03	.992	430.00	.81
29		29	7.40	.02	.01	.01	.995	370.00	.54
30		30	9.70	.03	.03	.04	.990	323.33	1.02
31		31	7.70	.02	.02	.02	.992	385.00	.77
32	LINE C	32	6.10	.10	.07	.07	.962	61.00	3.79
33		33	1.30	.03	.03	.02	.942	43.33	5.80
34		34	3.90	.02	.03	.04	.977	195.00	2.26
35		35	1.90	.02	.01	.03	.969	95.00	3.06
36		36	2.00	.02	.02	.04	.962	100.00	3.85
37		37	.60	.02	.01	.01	.938	30.00	6.25
38		38	.20	.02	.01	.01	.833	10.00	16.67
39		39	.40	.02	.01	.01	.909	20.00	9.09
40		40	.40	.02	.01	.01	.909	20.00	9.09
41		41	.20	.02	.01	.01	.833	10.00	16.67
42		42	.60	.02	.01	.01	.938	30.00	6.25
43		43	.70	.02	.02	.03	.909	35.00	9.09
44		44	.50	.02	.02	.04	.862	25.00	13.79
45		45	2.10	.02	.02	.02	.972	105.00	2.78
46		46	.30	.02	.02	.02	.833	15.00	16.67
47		47	2.40	.02	.03	.04	.964	120.00	3.61
48		48	.70	.02	.03	.01	.921	35.00	7.89
49		49	.80	.02	.02	.02	.930	40.00	6.98
50		50	.90	.02	.01	.03	.938	45.00	6.25
51		51	1.70	.02	.03	.04	.950	85.00	5.03
52		52	1.80	.02	.03	.02	.963	90.00	3.74
53		53	.20	.02	.02	.02	.769	10.00	23.08
54		54	1.40	.02	.02	.03	.952	70.00	4.76
55		55	2.00	.02	.03	.02	.966	100.00	3.38
56		56	1.30	.02	.02	.02	.956	65.00	4.41
57		57	.50	.02	.01	.02	.909	25.00	9.09
58		58	.50	.02	.01	.02	.909	25.00	9.09
59		59	2.00	.02	.02	.02	.971	100.00	2.91
60		60	1.20	.02	.02	.02	.952	60.00	4.76
61		61	1.00	.02	.02	.02	.943	50.00	5.66
62		62	.90	.02	.03	.02	.928	45.00	7.22
63		63	2.80	.02	.02	.04	.972	140.00	2.78
64	LINE D	64	5.20	.02	.02	.03	.987	260.00	1.33
65		65	6.50	.02	.02	.02	.991	325.00	.91

66		66	18.10	.02	.02	.04	.996	905.00	.44
67		67	13.90	.02	.02	.03	.995	695.00	.50
68		68	11.10	.02	.01	.03	.995	555.00	.54
69		69	10.80	.02	.01	.01	.996	540.00	.37
70		70	8.40	.02	.01	.01	.995	420.00	.47
71		71	9.90	.02	.01	.01	.996	495.00	.40
72		72	9.60	.02	.01	.01	.996	480.00	.41
73		73	11.40	.02	.02	.01	.996	570.00	.44
74		74	11.20	.02	.01	.01	.996	560.00	.36
75		75	7.40	.02	.02	.02	.992	370.00	.80
76		76	9.60	.02	.01	.02	.995	480.00	.52
77		77	12.00	.02	.01	.02	.996	600.00	.41
78		78	12.10	.02	.01	.02	.996	605.00	.41
79		79	13.40	.02	.01	.02	.996	670.00	.37
80		80	10.70	.02	.01	.01	.996	535.00	.37
81		81	11.90	.02	.02	.02	.995	595.00	.50
82		82	10.50	.02	.01	.02	.995	525.00	.47
83		83	9.30	.02	.01	.03	.994	465.00	.64
84		84	11.20	.02	.01	.02	.996	560.00	.44
85		85	12.80	.02	.01	.02	.996	640.00	.39
86		86	11.10	.02	.01	.02	.996	555.00	.45
87		87	10.60	.02	.01	.01	.996	530.00	.38
88		88	10.10	.02	.01	.02	.995	505.00	.49
89		89	10.80	.02	.01	.01	.996	540.00	.37
90		90	7.60	.02	.02	.02	.992	380.00	.78
91		91	10.90	.02	.01	.02	.995	545.00	.46
92	LINE E	92	2.50	.02	.02	.02	.977	125.00	2.34
93		93	2.10	.02	.01	.01	.981	105.00	1.87
94		94	2.90	.02	.01	.06	.970	145.00	3.01
95		95	.70	.02	.01	.02	.933	35.00	6.67
96		96	1.60	.02	.01	.02	.970	80.00	3.03
97		97	4.10	.02	.01	.03	.986	205.00	1.44
98		98	2.50	.02	.02	.02	.977	125.00	2.34
99		99	1.50	.02	.01	.01	.974	75.00	2.60
100		100	.60	.02	.01	.01	.938	30.00	6.25
101		101	.90	.02	.01	.01	.957	45.00	4.26
102		102	.80	.02	.01	.01	.952	40.00	4.76
103		103	1.00	.02	.01	.01	.962	50.00	3.85
104		104	3.10	.02	.01	.02	.984	155.00	1.59
105		105	1.70	.02	.01	.01	.977	85.00	2.30
106		106	2.50	.02	.01	.02	.980	125.00	1.96
107		107	3.60	.02	.02	.02	.984	180.00	1.64
108		108	2.20	.02	.01	.01	.982	110.00	1.79
109		109	5.30	.02	.02	.04	.985	265.00	1.49
110		110	3.40	.02	.03	.02	.980	170.00	2.02
111		111	.60	.02	.01	.03	.909	30.00	9.09
112		112	.80	.02	.02	.01	.941	40.00	5.88
113		113	2.90	.02	.01	.02	.983	145.00	1.69
114		114	1.20	.02	.01	.01	.968	60.00	3.23
115		115	1.80	.02	.01	.01	.978	90.00	2.17
116		116	1.90	.02	.02	.02	.969	95.00	3.06
117		117	1.20	.02	.01	.01	.968	60.00	3.23
118		118	1.30	.02	.01	.01	.970	65.00	2.99
119		119	2.60	.02	.01	.01	.985	130.00	1.52
120		120	2.60	.02	.01	.01	.985	130.00	1.52
121		121	1.40	.02	.01	.01	.972	70.00	2.78
122		122	1.50	.02	.01	.01	.974	75.00	2.60
123		123	1.90	.02	.01	.01	.979	95.00	2.06
124		124	5.50	.02	.02	.04	.986	275.00	1.43
125		125	2.50	.02	.02	.04	.969	125.00	3.10
126	LINE F	126	3.30	.02	.02	.01	.985	165.00	1.49
127		127	4.50	.02	.01	.01	.991	225.00	.88
128		128	6.00	.02	.01	.01	.993	300.00	.66
129		129	6.90	.02	.01	.01	.994	345.00	.58
130		130	11.00	.02	.02	.02	.995	550.00	.54
131		131	12.40	.02	.01	.01	.997	620.00	.32
132		132	11.40	.02	.01	.01	.997	570.00	.35
133		133	10.30	.02	.01	.02	.995	515.00	.48
134		134	9.80	.02	.01	.01	.996	490.00	.41
135		135	11.60	.02	.01	.01	.997	580.00	.34
136		136	9.90	.02	.01	.01	.996	495.00	.40
137		137	6.20	.02	.01	.01	.994	310.00	.64
138		138	7.40	.02	.01	.01	.995	370.00	.54
139		139	7.60	.02	.01	.01	.995	380.00	.52
140		140	9.70	.02	.01	.01	.996	485.00	.41

141		141	6.80	.02	.01	.01	.994	340.00	.58
142		142	7.00	.02	.01	.01	.994	350.00	.57
143		143	8.40	.02	.01	.01	.995	420.00	.47
144		144	12.40	.02	.01	.02	.996	620.00	.40
145		145	12.70	.02	.01	.01	.997	635.00	.31
146		146	6.90	.02	.01	.02	.993	345.00	.72
147		147	10.60	.02	.01	.01	.996	530.00	.38
148		148	5.40	.02	.01	.01	.993	270.00	.74
149		149	9.00	.02	.01	.01	.996	450.00	.44
150		150	13.70	.02	.01	.01	.997	685.00	.29
151		151	16.10	.02	.01	.02	.997	805.00	.31
152		152	18.00	.02	.01	.01	.998	900.00	.22
153		153	17.20	.02	.01	.01	.998	860.00	.23
154		154	16.10	.02	.01	.02	.997	805.00	.31
155		155	14.90	.02	.01	.01	.997	745.00	.27
156		156	16.10	.02	.01	.02	.997	805.00	.31
157		157	17.00	.02	.01	.02	.997	850.00	.29
158		158	13.10	.02	.01	.02	.996	655.00	.38
159		159	13.90	.02	.01	.02	.996	695.00	.36
160	LINE G	160	7.20	.03	.03	.05	.985	240.00	1.50
161		161	2.00	.02	.01	.04	.966	100.00	3.38
162		162	1.60	.02	.01	.01	.976	80.00	2.44
163		163	.60	.02	.01	.02	.923	30.00	7.69
164		164	.20	.02	.01	.02	.800	10.00	20.00
165		165	6.50	.02	.03	.03	.988	325.00	1.22
166		166	3.50	.02	.01	.01	.989	175.00	1.13
167		167	2.90	.02	.01	.02	.983	145.00	1.69
168		168	3.80	.02	.01	.04	.982	190.00	1.81
169		169	4.40	.02	.01	.03	.987	220.00	1.35
170		170	3.00	.02	.02	.01	.984	150.00	1.64
171		171	6.30	.02	.02	.01	.992	315.00	.79
172		172	5.90	.02	.01	.03	.990	295.00	1.01
173		173	7.50	.02	.02	.03	.991	375.00	.92
174		174	6.80	.02	.01	.02	.993	340.00	.73
175		175	5.80	.02	.01	.01	.993	290.00	.68
176		176	5.00	.02	.01	.01	.992	250.00	.79
177		177	5.80	.02	.01	.01	.993	290.00	.68
178		178	10.20	.02	.02	.03	.993	510.00	.68
179		179	4.40	.02	.01	.01	.991	220.00	.90
180		180	3.20	.02	.01	.01	.988	160.00	1.23
181		181	6.30	.02	.01	.01	.994	315.00	.63
182		182	10.40	.02	.01	.03	.994	520.00	.57
183		183	4.60	.02	.02	.01	.989	230.00	1.08
184		184	5.10	.02	.01	.01	.992	255.00	.78
185		185	3.00	.02	.01	.01	.987	150.00	1.32
186		186	9.40	.02	.01	.02	.995	470.00	.53
187		187	7.00	.02	.01	.01	.994	350.00	.57
188		188	8.90	.02	.01	.01	.996	445.00	.45
189		189	6.50	.02	.01	.01	.994	325.00	.61
190		190	4.80	.02	.01	.01	.992	240.00	.83
191		191	4.20	.02	.01	.01	.991	210.00	.94
192		192	12.20	.02	.01	.02	.996	610.00	.41
193		193	4.80	.02	.01	.01	.992	240.00	.83
194	LINE H	194	.90	.02	.01	.01	.957	45.00	4.26
195		195	.60	.02	.01	.01	.938	30.00	6.25
196		196	4.40	.02	.01	.01	.991	220.00	.90
197		197	.70	.02	.01	.01	.946	35.00	5.41
198		198	8.60	.02	.01	.01	.995	430.00	.46
199		199	5.50	.02	.01	.01	.993	275.00	.72
200		200	5.10	.02	.01	.01	.992	255.00	.78
201		201	9.70	.02	.01	.01	.996	485.00	.41
202		202	11.30	.02	.01	.03	.995	565.00	.53
203		203	18.50	.02	.01	.02	.997	925.00	.27
204		204	15.40	.02	.01	.03	.996	770.00	.39
205		205	18.80	.02	.01	.02	.997	940.00	.27
206		206	10.50	.02	.01	.01	.996	525.00	.38
207		207	7.50	.02	.01	.01	.995	375.00	.53
208		208	9.90	.02	.02	.03	.993	495.00	.70
209		209	10.40	.02	.01	.01	.996	520.00	.38
210		210	11.30	.02	.03	.02	.994	565.00	.62
211		211	10.20	.02	.01	.01	.996	510.00	.39
212		212	8.60	.02	.01	.01	.995	430.00	.46
213		213	9.30	.02	.01	.01	.996	465.00	.43
214		214	8.50	.02	.01	.01	.995	425.00	.47
215		215	8.30	.02	.01	.01	.995	415.00	.48

216		216	10.60	.02	.01	.01	.996	530.00	.38
217		217	12.80	.02	.01	.01	.997	640.00	.31
218		218	12.30	.02	.01	.01	.997	615.00	.32
219		219	9.60	.02	.01	.01	.996	480.00	.41
220		220	9.30	.02	.01	.01	.996	465.00	.43
221		221	12.20	.02	.01	.02	.996	610.00	.41
222		222	9.10	.02	.01	.02	.995	455.00	.55
223		223	10.90	.02	.01	.01	.996	545.00	.37
224		224	7.40	.02	.01	.01	.995	370.00	.54
225		225	5.50	.02	.01	.01	.993	275.00	.72
226		226	6.50	.02	.01	.01	.994	325.00	.61
227		227	15.10	.02	.02	.02	.996	755.00	.40
228		228	9.30	.02	.01	.02	.995	465.00	.53
229		229	9.90	.02	.01	.02	.995	495.00	.50
230		230	10.90	.02	.02	.02	.995	545.00	.55
231	LINE I	231	3.10	.02	.02	.01	.984	155.00	1.59
232		232	8.90	.02	.04	.04	.989	445.00	1.11
233		233	3.70	.02	.02	.02	.984	185.00	1.60
234		234	3.70	.02	.01	.04	.981	185.00	1.86
235		235	1.60	.02	.01	.01	.976	80.00	2.44
236		236	1.30	.02	.01	.01	.970	65.00	2.99
237		237	.40	.02	.01	.02	.889	20.00	11.11
238		238	8.60	.02	.03	.04	.990	430.00	1.04
239		239	.40	.02	.01	.03	.870	20.00	13.04
240		240	3.60	.04	.03	.01	.978	90.00	2.17
241		241	5.70	.02	.04	.03	.984	285.00	1.55
242		242	8.40	.04	.06	.04	.984	210.00	1.64
243		243	6.00	.02	.02	.01	.992	300.00	.83
244		244	5.20	.02	.02	.03	.987	260.00	1.33
245		245	5.50	.03	.04	.01	.986	183.33	1.43
246		246	5.90	.02	.03	.02	.988	295.00	1.17
247		247	4.90	.02	.04	.02	.984	245.00	1.61
248		248	3.90	.02	.01	.02	.987	195.00	1.27
249		249	4.00	.02	.04	.01	.983	200.00	1.72
250		250	8.80	.02	.01	.01	.995	440.00	.45
251		251	7.70	.02	.02	.01	.994	385.00	.65
252		252	6.20	.02	.02	.03	.989	310.00	1.12
253		253	2.30	.02	.01	.01	.983	115.00	1.71
254		254	2.80	.02	.02	.01	.982	140.00	1.75
255		255	2.30	.02	.01	.03	.975	115.00	2.54
256		256	2.30	.02	.01	.01	.983	115.00	1.71
257		257	3.80	.02	.01	.01	.990	190.00	1.04
258		258	3.50	.02	.02	.01	.986	175.00	1.41
259		259	.60	.02	.02	.01	.923	30.00	7.69
260	LINE J	260	14.20	.03	.06	.06	.990	473.33	1.05
261		261	5.80	.02	.01	.03	.990	290.00	1.02
262		262	5.20	.02	.01	.01	.992	260.00	.76
263		263	5.10	.02	.01	.02	.990	255.00	.97
264		264	4.30	.02	.01	.01	.991	215.00	.92
265		265	3.80	.02	.01	.02	.987	190.00	1.30
266		266	7.50	.02	.01	.01	.995	375.00	.53
267		267	7.80	.02	.01	.01	.995	390.00	.51
268		268	7.40	.02	.01	.01	.995	370.00	.54
269		269	7.80	.02	.01	.01	.995	390.00	.51
270		270	9.20	.02	.01	.01	.996	460.00	.43
271		271	10.60	.02	.01	.02	.995	530.00	.47
272		272	12.90	.02	.01	.02	.996	645.00	.39
273		273	13.40	.02	.01	.02	.996	670.00	.37
274		274	8.90	.02	.01	.02	.994	445.00	.56
275		275	14.50	.02	.01	.02	.997	725.00	.34
276		276	27.90	.02	.02	.01	.998	1395.00	.18
277		277	23.10	.02	.01	.01	.998	1155.00	.17
278		278	28.90	.02	.01	.02	.998	1445.00	.17
279		279	17.90	.02	.01	.01	.998	895.00	.22
280		280	19.50	.02	.01	.01	.998	975.00	.20
281		281	19.20	.02	.01	.02	.997	960.00	.26
282		282	19.50	.02	.02	.03	.996	975.00	.36
283		283	17.30	.02	.01	.03	.997	865.00	.35
284		284	18.50	.02	.02	.01	.997	925.00	.27
285		285	14.80	.02	.03	.04	.994	740.00	.60
286		286	19.70	.02	.03	.03	.996	985.00	.40
287		287	21.60	.02	.02	.02	.997	1080.00	.28
288		288	22.70	.02	.02	.04	.996	1135.00	.35
289		289	23.30	.02	.02	.02	.997	1165.00	.26
290		290	19.00	.02	.01	.02	.997	950.00	.26

291		291	19.50	.02	.03	.03	.996	975.00	.41
292		292	12.70	.02	.02	.01	.996	635.00	.39
293		293	7.80	.02	.01	.01	.995	390.00	.51
294	LINE K	294	5.00	.02	.07	.05	.973	250.00	2.72
295		295	.20	.02	.01	.04	.741	10.00	25.93
296		296	1.00	.02	.03	.03	.926	50.00	7.41
297		297	.10	.02	.02	.06	.500	5.00	50.00
298		298	.10	.02	.01	.03	.625	5.00	37.50
299		299	.10	.02	.02	.04	.556	5.00	44.44
300		300	.80	.02	.02	.04	.909	40.00	9.09
301		301	.50	.02	.02	.04	.862	25.00	13.79
302		302	.50	.02	.02	.04	.862	25.00	13.79
303		303	2.80	.02	.02	.05	.969	140.00	3.11
304		304	5.40	.02	.03	.06	.980	270.00	2.00
305		305	4.10	.02	.02	.05	.979	205.00	2.15
306		306	.80	.02	.01	.03	.930	40.00	6.98
307		307	3.10	.02	.02	.06	.969	155.00	3.12
308		308	5.30	.02	.03	.06	.980	265.00	2.03
309		309	.50	.02	.02	.03	.877	25.00	12.28
310		310	4.20	.02	.02	.04	.981	210.00	1.87
311		311	8.80	.02	.02	.03	.992	440.00	.79
312		312	4.40	.02	.04	.06	.973	220.00	2.65
313		313	1.20	.02	.02	.05	.930	60.00	6.98
314		314	5.60	.02	.02	.06	.982	280.00	1.75
315		315	4.60	.02	.02	.03	.985	230.00	1.50
316		316	5.40	.02	.02	.05	.984	270.00	1.64
317		317	3.10	.02	.02	.04	.975	155.00	2.52
318		318	5.40	.02	.02	.05	.984	270.00	1.64
319		319	6.40	.02	.01	.05	.988	320.00	1.23
320		320	1.10	.02	.02	.03	.940	55.00	5.98
321		321	3.30	.02	.02	.04	.976	165.00	2.37
322		322	6.60	.02	.02	.06	.985	330.00	1.49
323		323	.90	.02	.02	.04	.918	45.00	8.16
324		324	4.70	.02	.01	.02	.989	235.00	1.05
325		325	6.50	.02	.02	.05	.986	325.00	1.37
326		326	.10	.02	.02	.04	.556	5.00	44.44
327		327	6.10	.02	.01	.02	.992	305.00	.81
328		328	5.20	.02	.01	.02	.990	260.00	.95
329	LINE L	329	5.60	.02	.01	.03	.989	280.00	1.06
330		330	8.20	.02	.01	.04	.992	410.00	.85
331		331	6.70	.02	.01	.02	.993	335.00	.74
332		332	5.30	.02	.01	.02	.991	265.00	.93
333		333	3.70	.02	.01	.01	.989	185.00	1.07
334		334	19.10	.02	.04	.05	.994	955.00	.57
335		335	8.30	.02	.02	.02	.993	415.00	.72
336		336	7.20	.02	.01	.02	.993	360.00	.69
337		337	8.00	.02	.01	.01	.995	400.00	.50
338		338	7.60	.02	.01	.01	.995	380.00	.52
339		339	7.90	.02	.01	.04	.991	395.00	.88
340		340	38.30	.02	.02	.05	.998	1915.00	.23
341		341	78.10	.02	.01	.01	.999	3905.00	.05
342		342	59.10	.02	.01	.02	.999	2955.00	.08
343		343	57.70	.02	.01	.03	.999	2885.00	.10
344		344	69.20	.02	.01	.01	.999	3460.00	.06
345		345	89.80	.02	.01	.02	.999	4490.00	.06
346		346	107.60	.02	.01	.01	1.000	5380.00	.04
347		347	90.50	.02	.01	.01	1.000	4525.00	.04
348		348	55.90	.02	.01	.01	.999	2795.00	.07
349		349	80.40	.02	.01	.01	1.000	4020.00	.05
350		350	71.20	.02	.01	.01	.999	3560.00	.06
351		351	90.30	.02	.01	.01	1.000	4515.00	.04
352		352	76.40	.02	.02	.03	.999	3820.00	.09
353		353	119.60	.02	.01	.02	1.000	5980.00	.04
354		354	187.80	.02	.01	.01	1.000	9390.00	.02
355		355	112.50	.02	.01	.01	1.000	5625.00	.04
356		356	116.50	.02	.04	.03	.999	5825.00	.08
357		357	106.30	.02	.02	.01	1.000	5315.00	.05
358		358	128.10	.02	.01	.02	1.000	6405.00	.04
359		359	96.30	.02	.01	.02	.999	4815.00	.05
360		360	137.00	.02	.01	.02	1.000	6850.00	.04
361		361	130.20	.02	.01	.01	1.000	6510.00	.03
362		362	142.40	.02	.02	.02	1.000	7120.00	.04
363		363	166.70	.02	.01	.01	1.000	8335.00	.02
364	LINE P	364	3.50	.02	.05	.05	.967	175.00	3.31
365		365	5.40	.03	.05	.06	.975	180.00	2.53

366		366	8.80	.02	.08	.08	.980	440.00	2.00
367		367	3.90	.02	.03	.04	.977	195.00	2.26
368		368	5.30	.02	.02	.05	.983	265.00	1.67
369		369	11.30	.02	.04	.05	.990	565.00	.96
370		370	7.00	.02	.05	.10	.976	350.00	2.37
371		371	8.20	.02	.03	.07	.986	410.00	1.44
372		372	3.70	.02	.03	.03	.979	185.00	2.12
373		373	1.50	.02	.03	.06	.932	75.00	6.83
374		374	3.40	.02	.01	.07	.971	170.00	2.86
375		375	4.30	.02	.02	.05	.979	215.00	2.05
376		376	5.30	.02	.02	.05	.983	265.00	1.67
377		377	3.50	.02	.04	.04	.972	175.00	2.78
378		378	2.80	.02	.01	.03	.979	140.00	2.10
379		379	2.10	.02	.01	.07	.955	105.00	4.55
380		380	2.60	.02	.02	.05	.967	130.00	3.35
381		381	3.20	.02	.01	.04	.979	160.00	2.14
382		382	2.30	.02	.01	.03	.975	115.00	2.54
383		383	3.20	.02	.01	.02	.985	160.00	1.54
384		384	1.90	.02	.01	.03	.969	95.00	3.06
385		385	2.30	.02	.01	.03	.975	115.00	2.54
386		386	1.10	.02	.01	.02	.957	55.00	4.35
387		387	1.70	.02	.01	.01	.977	85.00	2.30
388		388	1.70	.02	.01	.02	.971	85.00	2.86
389		389	2.50	.02	.02	.04	.969	125.00	3.10
390	LINE M	390	6.40	.02	.03	.03	.988	320.00	1.23
391		391	7.00	.02	.02	.04	.989	350.00	1.13
392		392	12.40	.02	.02	.05	.993	620.00	.72
393		393	9.80	.02	.05	.07	.986	490.00	1.41
394		394	15.80	.02	.04	.06	.992	790.00	.75
395		395	14.10	.02	.02	.07	.992	705.00	.77
396		396	9.10	.02	.01	.01	.996	455.00	.44
397		397	19.80	.02	.02	.04	.996	990.00	.40
398		398	17.40	.02	.02	.02	.997	870.00	.34
399		399	11.40	.02	.01	.02	.996	570.00	.44
400		400	18.80	.02	.03	.02	.996	940.00	.37
401		401	20.10	.02	.01	.02	.998	1005.00	.25
402		402	12.50	.02	.03	.03	.994	625.00	.64
403		403	12.40	.02	.01	.02	.996	620.00	.40
404		404	5.20	.02	.01	.05	.985	260.00	1.52
405		405	6.00	.02	.01	.02	.992	300.00	.83
406		406	22.10	.02	.03	.05	.995	1105.00	.45
407		407	14.20	.02	.04	.04	.993	710.00	.70
408		408	4.70	.02	.03	.05	.979	235.00	2.08
409		409	4.60	.02	.04	.04	.979	230.00	2.13
410		410	6.40	.02	.03	.04	.986	320.00	1.39
411		411	7.50	.02	.02	.04	.989	375.00	1.06
412		412	7.60	.02	.03	.03	.990	380.00	1.04
413		413	4.90	.02	.01	.06	.982	245.00	1.80
414		414	10.00	.02	.04	.05	.989	500.00	1.09
415		415	9.30	.04	.07	.06	.982	232.50	1.80
416		416	6.50	.03	.08	.07	.973	216.67	2.69
417		417	7.40	.02	.06	.09	.978	370.00	2.25
418		418	6.60	.05	.09	.08	.968	132.00	3.23
419		419	7.40	.03	.06	.06	.980	246.67	1.99
420	LINE T	420	1.70	.02	.08	.06	.914	85.00	8.60
421		421	1.10	.02	.03	.04	.924	55.00	7.56
422		422	.40	.02	.01	.03	.870	20.00	13.04
423		423	2.40	.02	.02	.03	.972	120.00	2.83
424		424	7.80	.02	.09	.10	.974	390.00	2.62
425		425	3.10	.02	.03	.05	.969	155.00	3.12
426		426	6.10	.02	.05	.07	.978	305.00	2.24
427		427	6.70	.02	.04	.07	.981	335.00	1.90
428		428	1.00	.02	.03	.05	.909	50.00	9.09
429		429	4.70	.02	.03	.04	.981	235.00	1.88
430		430	2.90	.02	.03	.06	.963	145.00	3.65
431		431	3.50	.02	.02	.03	.980	175.00	1.96
432		432	3.00	.02	.02	.04	.974	150.00	2.60
433		433	7.60	.02	.02	.04	.990	380.00	1.04
434		434	3.80	.02	.01	.02	.987	190.00	1.30
435	LINE S	435	7.20	.02	.01	.03	.992	360.00	.83
436		436	2.90	.02	.01	.03	.980	145.00	2.03
437		437	2.20	.02	.01	.03	.973	110.00	2.65
438		438	4.90	.02	.02	.03	.986	245.00	1.41
439		439	1.70	.02	.02	.03	.960	85.00	3.95
440		440	7.20	.02	.03	.05	.986	360.00	1.37

441		441	7.90	.02	.01	.03	.992	395.00	.75
442		442	3.80	.02	.02	.02	.984	190.00	1.55
443		443	9.40	.02	.01	.04	.993	470.00	.74
444		444	8.10	.02	.01	.05	.990	405.00	.98
445		445	5.50	.02	.02	.02	.989	275.00	1.08
446	LINE U	446	6.20	.02	.03	.01	.990	310.00	.96
447		447	9.10	.02	.03	.04	.990	455.00	.98
448		448	11.10	.02	.03	.06	.990	555.00	.98
449		449	9.80	.02	.03	.05	.990	490.00	1.01
450		450	15.00	.02	.04	.05	.993	750.00	.73
451		451	14.40	.02	.03	.01	.996	720.00	.41
452		452	18.90	.02	.03	.04	.995	945.00	.47
453	LINE R	453	.90	.02	.02	.08	.882	45.00	11.76
454		454	.30	.02	.02	.06	.750	15.00	25.00
455		455	4.00	.02	.06	.08	.962	200.00	3.85
456		456	.40	.02	.03	.06	.784	20.00	21.57
457		457	1.50	.02	.03	.06	.932	75.00	6.83
458		458	3.50	.02	.01	.07	.972	175.00	2.78
459		459	3.40	.05	.05	.08	.950	68.00	5.03
460		460	2.90	.02	.02	.06	.967	145.00	3.33
461		461	3.00	.02	.03	.07	.962	150.00	3.85
462		462	.30	.02	.02	.07	.732	15.00	26.83
463		463	1.10	.02	.02	.05	.924	55.00	7.56
464		464	1.40	.02	.01	.04	.952	70.00	4.76
465		465	2.50	.02	.03	.05	.962	125.00	3.85
466		466	1.70	.02	.03	.05	.944	85.00	5.56
467		467	4.70	.02	.01	.06	.981	235.00	1.88
468		468	3.50	.04	.03	.06	.964	87.50	3.58
469		469	1.50	.02	.01	.06	.943	75.00	5.66
470		470	30.60	.02	.02	.03	.998	1530.00	.23
471		471	5.00	.02	.01	.05	.984	250.00	1.57
472		472	1.40	.02	.03	.05	.933	70.00	6.67
473		473	2.60	.02	.01	.05	.970	130.00	2.99
474		474	1.20	.03	.05	.07	.889	40.00	11.11
475		475	1.10	.02	.03	.07	.902	55.00	9.84
476		476	.70	.02	.04	.07	.843	35.00	15.66
477		477	3.80	.02	.03	.07	.969	190.00	3.06
478		478	2.70	.02	.04	.04	.964	135.00	3.57
479		479	.70	.02	.03	.05	.875	35.00	12.50
480		480	.70	.02	.03	.03	.897	35.00	10.26
481		481	2.40	.02	.04	.05	.956	120.00	4.38
482		482	.80	.02	.02	.04	.909	40.00	9.09
483		483	1.60	.09	.06	.05	.889	17.78	11.11
484		484	1.70	.06	.05	.07	.904	28.33	9.57
485		485	1.10	.02	.03	.07	.902	55.00	9.84
486		486	1.40	.02	.09	.05	.897	70.00	10.26
487		487	2.80	.06	.05	.05	.946	46.67	5.41
488		488	6.50	.02	.07	.08	.975	325.00	2.55
489		489	2.70	.02	.01	.04	.975	135.00	2.53
490		490	7.10	.03	.01	.04	.989	236.67	1.11
491	LINE S	491	2.70	.02	.02	.03	.975	135.00	2.53
492		492	.90	.02	.01	.04	.928	45.00	7.22
493		493	3.60	.02	.05	.04	.970	180.00	2.96
494		494	4.40	.05	.10	.09	.948	88.00	5.17
495		495	.50	.02	.03	.02	.877	25.00	12.28
496		496	6.00	.06	.08	.07	.966	100.00	3.38
497		497	.70	.02	.01	.03	.921	35.00	7.89
498		498	2.60	.05	.08	.08	.925	52.00	7.47
499		499	3.00	.07	.09	.07	.929	42.86	7.12
500		500	1.10	.02	.03	.03	.932	55.00	6.78
501		501	16.20	.14	.11	.08	.980	115.71	2.00
502		502	3.20	.06	.01	.03	.970	53.33	3.03
503		503	2.00	.06	.01	.02	.957	33.33	4.31
504		504	4.40	.04	.02	.04	.978	110.00	2.22
505		505	2.90	.02	.01	.03	.980	145.00	2.03
506	LINE Q	506	14.90	.07	.14	.12	.978	212.86	2.17
507		507	5.30	.09	.05	.07	.962	58.89	3.81
508		508	2.90	.04	.09	.09	.929	72.50	7.05
509		509	5.90	.06	.14	.09	.953	98.33	4.68
510		510	.80	.02	.03	.04	.899	40.00	10.11
511		511	1.20	.02	.04	.04	.923	60.00	7.69
512		512	4.50	.07	.01	.02	.978	64.29	2.17
513		513	3.10	.09	.09	.07	.925	34.44	7.46
514		514	3.10	.15	.03	.04	.934	20.67	6.63
515		515	24.00	.32	.19	.14	.974	75.00	2.64

516		516	4.80	.07	.05	.05	.966	68.57	3.42
517		517	1.90	.08	.01	.04	.936	23.75	6.40
518		518	7.80	.04	.01	.02	.991	195.00	.89
519		519	35.60	.74	.15	.09	.973	48.11	2.68
520		520	3.10	.02	.03	.05	.969	155.00	3.12
521		521	2.30	.08	.01	.04	.947	28.75	5.35
522		522	7.60	.02	.04	.06	.984	380.00	1.55
523		523	8.50	.02	.03	.04	.990	425.00	1.05
524		524	6.50	.02	.04	.06	.982	325.00	1.81
525		525	.60	.02	.02	.05	.870	30.00	13.04
526		526	.60	.07	.03	.04	.811	8.57	18.92
527		527	3.10	.02	.02	.06	.969	155.00	3.12
528		528	.60	.02	.02	.04	.882	30.00	11.76
529		529	3.50	.08	.03	.06	.954	43.75	4.63
530		530	2.80	.03	.02	.03	.972	93.33	2.78
531		531	2.10	.02	.04	.11	.925	105.00	7.49
532		532	4.20	.02	.03	.06	.974	210.00	2.55
533		533	2.10	.02	.03	.05	.955	105.00	4.55
534		534	4.30	.02	.05	.07	.968	215.00	3.15
535		535	16.30	.02	.06	.07	.991	815.00	.91
536		536	4.80	.02	.08	.15	.950	240.00	4.95
537		537	11.30	.02	.07	.06	.987	565.00	1.31
538		538	9.00	.02	.05	.04	.988	450.00	1.21
539		539	5.80	.02	.10	.16	.954	290.00	4.61
540		540	4.20	.03	.08	.09	.955	140.00	4.55
541	LINE O	541	3.20	.06	.10	.14	.914	53.33	8.57
542		542	4.10	.06	.14	.11	.930	68.33	7.03
543		543	1.10	.02	.08	.12	.833	55.00	16.67
544		544	4.30	.03	.12	.11	.943	143.33	5.70
545		545	2.20	.05	.09	.14	.887	44.00	11.29
546		546	4.60	.02	.11	.13	.947	230.00	5.35
547		547	.90	.05	.10	.09	.789	18.00	21.05
548		548	3.70	.07	.11	.15	.918	52.86	8.19
549		549	.60	.02	.07	.08	.779	30.00	22.08
550		550	5.90	.07	.15	.13	.944	84.29	5.60
551		551	.10	.02	.07	.08	.370	5.00	62.96
552		552	4.70	.02	.10	.08	.959	235.00	4.08
553		553	1.80	.02	.07	.07	.918	90.00	8.16
554		554	.70	.02	.05	.04	.864	35.00	13.58
555		555	4.40	.03	.10	.07	.957	146.67	4.35
556		556	.80	.02	.03	.06	.879	40.00	12.09
557		557	.80	.02	.04	.06	.870	40.00	13.04
558		558	.70	.02	.05	.04	.864	35.00	13.58
559		559	.40	.02	.06	.04	.769	20.00	23.08
560		560	.40	.02	.04	.03	.816	20.00	18.37
561		561	.50	.02	.05	.05	.806	25.00	19.35
562		562	.50	.02	.04	.04	.833	25.00	16.67
563		563	.60	.02	.07	.06	.800	30.00	20.00
564		564	4.60	.04	.09	.09	.954	115.00	4.56
565		565	2.50	.02	.09	.05	.940	125.00	6.02
566		566	.60	.02	.05	.04	.845	30.00	15.49
567		567	.70	.02	.05	.07	.833	35.00	16.67
568		568	.90	.02	.05	.04	.891	45.00	10.89
569		569	.40	.03	.04	.07	.741	13.33	25.93
570		570	.40	.02	.04	.03	.816	20.00	18.37
571		571	8.60	.14	.10	.08	.964	61.43	3.59
572		572	.50	.02	.01	.03	.893	25.00	10.71
573		573	4.30	.02	.04	.07	.971	215.00	2.93
574		574	4.40	.07	.07	.06	.957	62.86	4.35
575		575	5.80	.05	.08	.07	.967	116.00	3.33
576		576	4.30	.07	.06	.08	.953	61.43	4.66
577		577	.40	.02	.04	.04	.800	20.00	20.00
578		578	2.50	.03	.06	.06	.943	83.33	5.66
579		579	1.50	.02	.05	.04	.932	75.00	6.83
580		580	2.10	.02	.03	.05	.955	105.00	4.55
581		581	.80	.03	.03	.02	.909	26.67	9.09
582		582	4.60	.03	.05	.04	.975	153.33	2.54
583		583	1.20	.03	.02	.06	.916	40.00	8.40
584		584	6.40	.03	.08	.18	.957	213.33	4.33
585		585	1.60	.04	.05	.15	.870	40.00	13.04
586	LINE M	586	.40	.02	.09	.29	.500	20.00	50.00
587		587	3.30	.04	.11	.30	.880	82.50	12.00
588		588	9.20	.10	.08	.16	.964	92.00	3.56
589		589	6.80	.12	.16	.28	.924	56.67	7.61
590		590	8.30	.03	.10	.20	.962	276.67	3.82

591		591	7.00	.02	.10	.19	.958	350.00	4.24
592		592	6.80	.06	.10	.17	.954	113.33	4.63
593		593	10.00	.09	.13	.18	.962	111.11	3.85
594		594	2.60	.05	.10	.16	.893	52.00	10.65
595		595	11.20	.13	.16	.17	.961	86.15	3.95
596		596	8.20	.05	.09	.17	.964	164.00	3.64
597		597	3.60	.02	.05	.16	.940	180.00	6.01
598		598	9.50	.17	.10	.21	.952	55.88	4.81
599		599	8.90	.07	.09	.21	.960	127.14	3.99
600		600	8.80	.06	.09	.18	.964	146.67	3.61
601	LINE N	601	3.40	.04	.09	.14	.926	85.00	7.36
602		602	2.10	.02	.02	.17	.909	105.00	9.09
603		603	1.20	.02	.02	.10	.896	60.00	10.45
604		604	.90	.02	.02	.13	.841	45.00	15.89
605		605	.70	.02	.02	.14	.795	35.00	20.45
606		606	.70	.02	.02	.09	.843	35.00	15.66
607		607	7.90	.04	.07	.13	.971	197.50	2.95
608		608	3.40	.02	.04	.10	.955	170.00	4.49
609		609	2.20	.02	.03	.12	.928	110.00	7.17
610		610	2.60	.02	.03	.10	.945	130.00	5.45
611		611	1.30	.02	.02	.11	.897	65.00	10.34
612		612	1.50	.02	.03	.10	.909	75.00	9.09
613		613	2.60	.03	.02	.15	.929	86.67	7.14
614		614	1.80	.02	.02	.11	.923	90.00	7.69
615		615	7.80	.02	.08	.13	.971	390.00	2.86
616		616	6.20	.02	.06	.11	.970	310.00	2.97
617		617	7.30	.02	.06	.16	.968	365.00	3.18
618		618	2.50	.02	.05	.15	.919	125.00	8.09
619		619	2.70	.02	.04	.11	.941	135.00	5.92
620		620	6.50	.02	.07	.17	.962	325.00	3.85
621		621	2.90	.02	.03	.13	.942	145.00	5.84
622		622	5.50	.03	.08	.21	.945	183.33	5.50
623		623	7.40	.02	.08	.17	.965	370.00	3.52
624		624	2.90	.02	.04	.14	.935	145.00	6.45
625		625	8.30	.02	.07	.14	.973	415.00	2.70
	MAXIMUM		187.80	.74	.19	.30			
	MINIMUM		.10	.02	.01	.01			
	MEAN		9.69	.03	.03	.04			
	STD. DEVN.		20.09	.04	.03	.04			