

El Cajon Valley

Pipe Line

No 2

Document No. 9042

Filed - March 6th 1905.

H. W. Vincent

City Clerk.

By Percy L. Day Deputy

Level Book - No 2.

El Cajon Valley - Pipe line.

Presented to Council - and

Ordered filed - Mar 6th 1905.

W34

Table showing the difference of latitude and departure in running 80 chains at any course from 1 to 60 minutes.

MINUTES	LKS.	MINUTES	LKS.	MINUTES	LKS.
1	2 $\frac{1}{3}$	21	49	41	95 $\frac{2}{3}$
2	4 $\frac{2}{3}$	22	51 $\frac{1}{3}$	42	98
3	7	23	53 $\frac{2}{3}$	43	100 $\frac{1}{3}$
4	9 $\frac{1}{3}$	24	56	44	102 $\frac{2}{3}$
5	11 $\frac{2}{3}$	25	58 $\frac{1}{3}$	45	105
6	14	26	60 $\frac{2}{3}$	46	107 $\frac{1}{3}$
7	16 $\frac{1}{3}$	27	63	47	109 $\frac{2}{3}$
8	18 $\frac{2}{3}$	28	65 $\frac{1}{3}$	48	112
9	21	29	67 $\frac{2}{3}$	49	114 $\frac{1}{3}$
10	23 $\frac{1}{3}$	30	70	50	116 $\frac{2}{3}$
11	25 $\frac{2}{3}$	31	72 $\frac{1}{3}$	51	119
12	28	32	74 $\frac{2}{3}$	52	121 $\frac{1}{3}$
13	30 $\frac{1}{3}$	33	77	53	123 $\frac{2}{3}$
14	32 $\frac{2}{3}$	34	79 $\frac{1}{3}$	54	126
15	35	35	81 $\frac{2}{3}$	55	128 $\frac{1}{3}$
16	37 $\frac{1}{3}$	36	84	56	130 $\frac{2}{3}$
17	39 $\frac{2}{3}$	37	86 $\frac{1}{3}$	57	133
18	42	38	88 $\frac{2}{3}$	58	135 $\frac{1}{3}$
19	44 $\frac{1}{3}$	39	91	59	137 $\frac{2}{3}$
20	46 $\frac{2}{3}$	40	93 $\frac{1}{3}$	60	140

TABLE FOR RUNNING ON SLOPES.

In the following table the first column shows the angle, the second the number of links to be added to a chain on the slopes, to make one chain, horizontal measurement.

Angle	COR. IN LINKS	Angle	COR. IN LINKS	Angle	COR. IN LINKS	Angle	COR. IN LINKS
0		0		0		0	
4	0.24	11	1.88	18	5.14	25	10.54
5	0.38	12	2.24	19	5.76	26	11.26
6	0.55	13	2.63	20	6.42	27	12.24
7	0.76	14	3.06	21	7.11	28	13.37
8	0.98	15	3.53	22	7.85	29	14.34
9	1.24	16	4.02	23	8.64	30	15.47
10	1.55	17	4.56	24	9.47	35	22.07

JAN 6 1965

MICROFILMED

Primary
Kern
14/11/64

Levels from proposed Reservoir South of Old Mission Lane, to
the site of the proposed Pumping Plant, El Cajon Valley

Sta.	+	0	-	Pod	Alto.
B.M. No. 33	8.72	436.73			428.01
482+65 = 0				End discharge Pipe 0.7	436.0
1				6.2	430.5
+14				5.9	430.8
+60				10.3	426.4
2				12.2	424.5
T.P.	0.39	425.41	11.71		425.02
+12				1.6	423.8
+24				4.3	421.1
3				13.1	412.3
T.P.	0.16	413.82	11.75		413.66
" "	0.26	402.07	12.01		401.81
4				6.6	395.5
T.P.	0.46	390.71	11.82		390.25
+66				8.9	381.8
T.P.	0.09	379.06	11.74		378.97
5				4.9	374.2
	10.08		59.03		

(2)

Sta	+	-	Pod	Elw.
T. P.	0.53	367.87	11.72	367.34
+66			7.5	360.5
+90			14.3	353.6
6			17.8	350.1
+05			18.0	349.9
+10			17.4	350.5
+30			14.2	353.7
+50			7.2	360.7
+67			2.4	365.5
T. P.	11.86	379.02	0.71	367.16
7			10.4	368.6
+13			9.1	369.9
+33			0.2	378.8
T. P.	11.86	390.58	0.30	378.72
" "	11.89	402.22	0.25	390.33
8			2.3	399.9
T. P.	11.55	413.09	0.68	401.54
	47.69		13.60	

(3)

Sta	+	o	-	Prod	Elev
+25				6.2	406.9
T. P.	6.82	415.86	4.05		409.04
+65				3.4	412.5
+79				0.6	415.3
9				2.0	413.9
+50				1.2	414.7
10				3.3	412.6
sub +20				5.88	409.98
+51				11.5	404.4
+72				10.8	405.1
T. P.	0.76	404.95	11.67		404.19
11				4.3	400.6
+30				5.9	399.0
12				12.1	392.8
T. P.	5.52	398.96	11.51		393.44
+50				8.3	390.7
+65				4.2	394.8
	13.10		27.23		

(4)

 398.96
 F. 2.2
 390.74

Sta	+	0	-	Cor	Elev.
+87				4.6	394.4
13				2.2	396.8
+12				1.3	397.7
R. +64				4.5	394.5
B.M. No. 34				6.22	390.74
14				5.7	393.3
+40				7.7	391.3
+52				11.2	387.8
T. P.	0.55	387.71	11.80		387.16
15				7.9	379.8
+20				11.4	376.3
T. P.	0.13	376.19	11.65		376.06
+73				3.7	372.5
16				6.8	369.4
T. P.	0.39	365.15	11.43		364.76
17				9.5	355.6
T. P.	0.14	353.63	11.93		353.22
	1.21		46.81		

(5)

$$\begin{array}{r} 320.27 \\ 6.32 \\ \hline 313.88 \end{array}$$

Sta.	+	0	-	Pod	Elev.
		(353.63)			
+54				7.5	346.1
T. P.	0.33	341.80	11.89		341.47
18				5.6	336.2
T. P.	0.40	330.27	11.93		329.87
+45				2.6	327.7
19				10.1	320.2
T. P.	1.47	320.27	11.47		318.80
+58				5.9	314.4
20				7.3	313.0
21				6.5	313.8
B.M. 76.35				6.39	313.88
+20				7.4	312.9
T. P.	6.92	326.13	1.06		319.21
+46				11.6	314.5
22				6.2	319.9
+40				2.8	323.3
23				1.6	324.5
	9.12		36.35		

(6)

Sta	+	0	-	Pod	Elev.
T.P.	9.19	334.39	0.93		325.20
24				5.4	329.0
+30				4.5	329.9
25				5.7	328.7
+50				4.2	330.2
26				7.5	326.9
+30				10.5	323.9
+40				12.0	322.4
27				12.5	321.9
28				8.5	325.9
T.P.	11.43	337.82	8.00		326.39
+75				9.9	327.9
29				9.5	328.3
30				7.4	330.4
+60				4.0	333.8
31				3.7	334.1
32				4.5	333.3

20.62

8.93

Sta.	+	-	Pod	Elar
+70			5.0	332.8
33			3.4	334.4
T. P.	10.84	347.92	0.74	337.08
+25			11.4	336.5
34			9.8	338.1
+35			7.2	340.7
35			7.3	340.6
36			4.8	343.1
+35			3.8	344.1
37			1.6	346.3
+55			0.7	347.2
38			1.1	346.8
T. P.	1.16	345.34	3.74	344.18
39			0.7	344.6
40			2.5	342.8
41			4.2	341.1
42			6.0	339.3
	12.00		4.48	

(8)

Sta.	+	0	-	Red	Elev
+50				7.5	337.8
43				7.0	338.3
44				5.5	339.8
45				6.1	339.2
B.M. No. 36	0.68	339.52	6.50		338.84
46				3.8	335.7
47				6.1	333.4
48				8.0	331.5
49				9.4	330.1
T. P.	2.82	333.51	8.83		330.69
50				4.6	328.9
51				6.0	327.5
52				7.1	326.4
+90				9.1	324.4
53				9.1	324.4
54				6.0	327.5
+42				4.8	328.7
	3.50		15.33		

(9)

Sta.	+	0	-	Prod	Ellev
+72				2.5	330.0
55				2.3	331.2
T.P.	1.58	333.22	1.87		331.64
+60				1.4	331.8
on hill 56				2.20	331.02
57				6.0	327.2
B.M. No. 37				7.11	326.11
58				9.8	323.4
+50				9.5	323.7
59				10.7	322.5
+45				11.2	322.0
T.P.	1.03	322.66	11.59		321.63
60				2.9	319.8
+60				7.3	315.4
61				9.6	313.1
+70				9.4	313.3
62				8.7	314.0
	2.61		13.46		

333.22
 7.11
 326.11

(10)

Sta.	+	0	-	Pod	Elev.
+20				6.9	315.8
+65				7.0	315.7
63				8.4	314.3
+50				11.0	311.7
64				10.8	311.9
+40				9.9	312.8
65				10.3	312.4
+60				11.6	311.1
T. P.	3.89	315.18	11.97		311.29
66				5.1	318.1
+65				8.5	306.7
67				7.9	307.3
68				7.7	307.5
69				7.5	307.7
70				6.6	308.6
71				5.3	309.9
72				4.6	310.6

(11)

Sta	+	0	-	Red	Elev
T.R	1.79	312.12	4.85		310.33
+50				1.7	310.4
73				3.3	308.8
74				7.9	304.2
75				10.9	301.2
T.R	2.71	303.31	11.52		300.60
76				5.0	298.3
77				5.7	297.6
+15				7.0	296.3
+30				6.9	296.4
+45				4.3	299.0
78				5.4	297.9
B.M. No. 38				3.37	299.94
79				6.6	296.7
+55				7.6	295.7
80				6.8	296.5
81				3.1	300.2
	4.50		16.37		

303.31
 3.07
 299.94

(12)

Sta.	+	⊖	-	Rod	Elev
T.P.	6.97	307.63	2.65		300.66
82				5.9	301.7
83				4.2	303.4
84				3.1	304.5
Out plug 85				2.75	304.88
86				5.3	302.3
87				8.5	299.1
T.P.	9.47	309.06	8.04		299.59
88				9.6	299.5
89				7.8	301.3
90				6.5	302.6
+40				7.0	302.1
91				4.1	305.0
+40				3.1	306.0
92				2.9	306.2
93				3.6	305.5
T.P.	7.26	313.19	3.13		305.93
	23.70		13.82		

(13)

Sta.	+	0	-	Pod	Elev.
+75				8.8	304.4
94				10.2	303.0
+30				7.7	305.5
95				6.8	306.4
B.M. No. 39				5.16	308.03
+47.5 ₂				6.4	306.8
96				5.8	307.4
97				6.0	307.2
+35				6.3	306.9
+60				5.1	308.1
98				6.6	306.6
+60				3.4	309.8
99				2.9	310.3
T.P. 15/11/64	3.88	314.40	2.67		310.52 [✓]
100				4.3	310.1
101				4.0	310.4
+20				4.8	309.6

313.19
5.16
 308.03

Sta.	+	0	-	Red	Elev.
102				5.4	309.0
103				5.1	309.3
104				5.8	308.6
+60				5.2	309.2
105				6.3	308.1
T. P.	6.34	315.19	5.55		308.85
+30				8.4	306.8
106				6.4	308.8
107				6.1	309.1
Back outcrops at this point for → +50 10' or 15' each side				5.6	309.6
108				6.0	309.2
109				6.0	309.2
+91.5				4.7	310.5
110				4.7	310.5
111				4.2	311.0
T. P.	5.36	316.84	3.71		311.48
112				5.4	311.4
	11.70		9.26		

(15)

Sta.	+	0	-	Red	Elev.
113				4.8	312.0
114				4.5	312.3
115				4.3	312.5
116				3.9	312.9
117				3.2	313.6
T. P.	5.61	319.90	2.55		314.29
118				5.7	314.2
119				5.7	314.2
120				4.8	315.1
121				4.0	315.9
122				3.0	316.9
123				1.9	318.0
T. P.	4.76	323.49	1.17		318.73
124				4.6	318.9
125				5.0	318.5
126				5.1	318.4
127				5.0	318.5
	10.37		3.72		

(15)

Sta.	+	0	-	Red	Eller
128				4.7	318.8
129				4.1	318.4
T.P.	4.31	324.53	3.27		320.22
130				5.2	319.3
131				5.1	319.4
132				5.4	319.1
133				5.4	319.1
134				5.3	319.2
+13				6.0	318.5
B.M. 10140	2.87	321.56	5.84		318.69
135				4.3	317.3
136				4.8	316.8
+05				5.0	316.6
+20	5			7.7	313.9
+27				5.0	316.6
137				6.4	315.2
+45				8.3	313.3
	7.18		9.11		

(17)

320
58
377.2

Sta.	+	0	-	Pod	Elev.
+50				10.2	311.4
+75				10.3	311.3
+88				6.6	315.0
138				6.4	315.2
139				6.0	315.6
T. P.	6.65	322.76	5.45		316.11
140				7.2	315.6
141				6.2	316.6
142				5.4	317.4
143				5.8	317.0
144				6.0	316.8
+40	about South end propound Engine house			5.8	317.0
B.M. No. 41			2.36		320.40

6.65

7.81

Levels for Suction Main from Pump House, Northerly across River

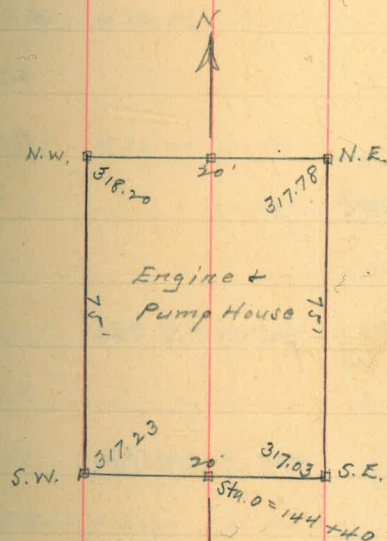
Sta.	+	0	-	Rod	Elev.
R.M. No 41	0.31	320.71		320.71	320.4
144+40 0				3.7	317.0
1				3.2	317.5
+12				4.5	316.2
+27				8.5	312.2
Water Surface in Lagoon +30				14.7	306.0
2+10				14.5	306.2
+58				7.2	313.5
3				8.0	312.7
4				8.1	312.8
T.P.	4.46	317.39	7.78		312.93
5				4.5	312.9
6				4.4	313.0
7				4.7	312.7
+50				5.3	312.1
+75				5.8	311.6
8				4.6	312.8
	4.77		7.78		

(19)

Elevations at corners of Engine House

Sta.	+	-	Pod	Elev.
9			5.3	312.1
T. P.	5.80	318.23	4.96	312.43
+25			8.7	309.5
+45			9.2	309.0
+60			5.4	312.8
10			4.5	313.7
11			4.4	313.8
+90			6.0	312.2
+95			8.0	310.2
12			8.1	310.1
+85			8.9	309.3
13			7.4	310.8
Plug +80		1.30		316.93

Corner	+	-	Pod	Elev.
B.M. No. 41	1.77	322.17		320.40
S.W. Cor.			4.94	317.23
N.W. Cor.			3.97	318.20
N.E. Cor.			4.39	317.78
S.E. Cor.			5.14	317.03



Levels along (20) axis of New Mass Dam 10/11/04

Sta.	+	0	-	Rod	Elev.	Sta.	+	0	-	Rod	Elev.
B.M. 70.33	12.01	440.02			428.01	+80				5.2	413.0
T.P.	11.89	451.65	0.26		439.76	+87				8.17	410.00
0 Plug - Part end of axis				1.65	450.00	+94				10.5	407.7
+32.5				5.65	445.00	3+12				8.7	409.5
+60.5	1.09	441.09	11.65		440.00	+17				8.17	410.00
1 +01.5				6.09	435.00	+49	11.86	426.86	3.17		415.00
+50.				7.8	433.3	+73				6.86	420.00
+85				7.9	433.2	+84.5	11.47	436.47	1.86		425.00
2 Top rock ledge				7.0	434.1	4				9.4	427.1
+15.3				11.09	430.00	+12				6.47	430.00
T.P.	0.37	429.49	11.97		429.12	+27	11.45	446.45	1.47		435.00
+28				3.5	426.0	+42				6.45	440.00
T.P.	0.07	429.19	0.37		429.12	+57	8.86	453.86	1.45		445.00
+33				4.19	425.00	Plug +73	Next end of axis		3.86		450.00
+51.5				9.19	420.00						
T.P.	0.81	418.17	11.83		417.36						
+69				3.17	415.00						

(21)

(22)

(23)

(24)

(25)

193

2 1/2

5

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(26)

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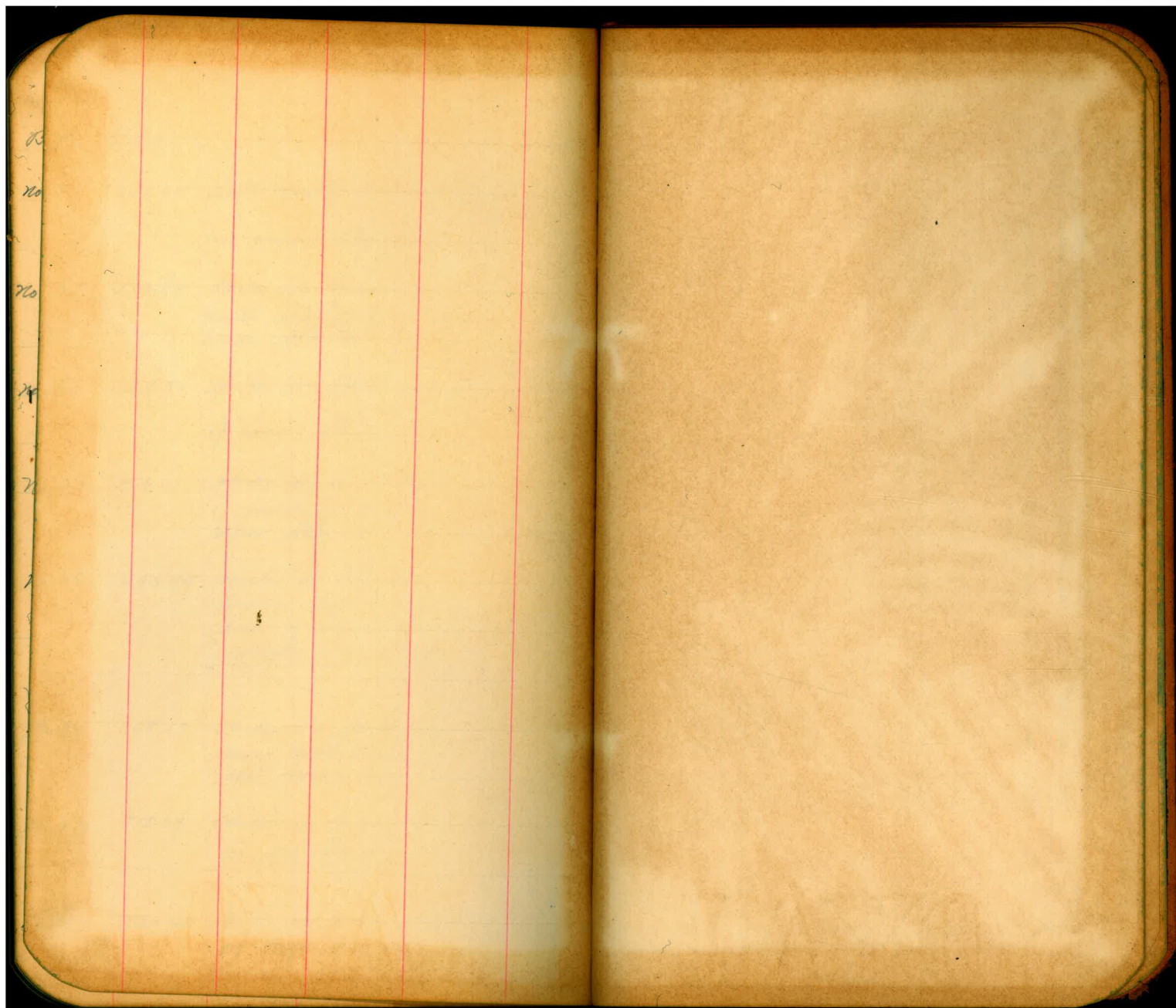
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48

- | B.M. | Elev. | |
|--------|--------|---|
| No. 34 | 390.74 | Knot, marked with blue crayon
(P. 4)
on small boulder 25' S Sta. 13 |
| No. 35 | 313.88 | Spike in sycamore tree on the
North side of road at the turn
near Sta. 21 (P. 5) |
| No. 36 | 338.84 | Spike in fence post west side
of road, Sta. 44+80 |
| No. 37 | 326.11 | Spike in fence post, East side
of gateway, North side road
near Sta. 57 (P. 9) |
| No. 38 | 299.94 | Spike at the root of large
hollow sycamore on South
side of road opp. Sta. 77+50
(C.S. B.M. "305") (P. 11) |
| No. 39 | 308.03 | Spike in post at angle in
fence, North side of road opp.
Sta. 95+47.5 (P. 13) |
| No. 40 | 318.69 | Spike in East gate post
"Famtu Ranch" (P. 16) |
| No. 41 | 320.40 | Spike in post at cor. fence
50' Left Sta. 144 (P. 17) |



25

TRAVERSE TABLE FOR TRANSIT BOOK.

From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0			100.00	0.44	100.00	0.87	99.99	1.31	89
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	88
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	87
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	86
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	85
5	99.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	84
6	99.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	83
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	82
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	81
9	98.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	80
10	98.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	79
11	98.16	19.08	98.08	19.51	97.99	19.94	97.90	20.36	78
12	97.81	20.79	97.72	21.22	97.63	21.64	97.53	22.07	77
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	76
14	97.03	24.19	96.92	24.62	96.81	25.04	96.70	25.46	75
15	96.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	74
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.52	73
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	72
18	95.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	71
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	70
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	69
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	68
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	67
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	66
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	65
25	90.63	42.26	90.45	42.66	90.26	43.05	90.07	43.44	64
26	89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	63
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	62
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	61
29	87.46	48.48	87.25	48.86	87.04	49.24	86.82	49.62	60
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	59
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	58
32	84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	57
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	56
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	55
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	54
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	53
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	52
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	51
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	50
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	49
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	48
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	47
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	46
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	45
45	70.71	70.71							
Degrees.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		

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