CRA, INC.

Woodward CH-2

Dipmeter Report

SCHLUMBERGER WELL SURVEYING CORPORATION

HOUSTON, TEXAS

November 26, 1965

PLEASE REPLY TO:
SUITE 1120 WICHITA PLAZA BLDG.
WICHITA, KANSAS 67202

CRA, Inc.
Box 445
Wellington, Kansas

Gentlemen:

This report is intended to summarize our interpretation on the Continuous Dipmeter Survey ran on your Woodward CH-2, Bourbon County, Kansas. Included in this report is the graphic presentation of dip calculations, the tabular presentation of dip calculations and a series of dip frequency polar diagrams the interpretation of which is discussed below.

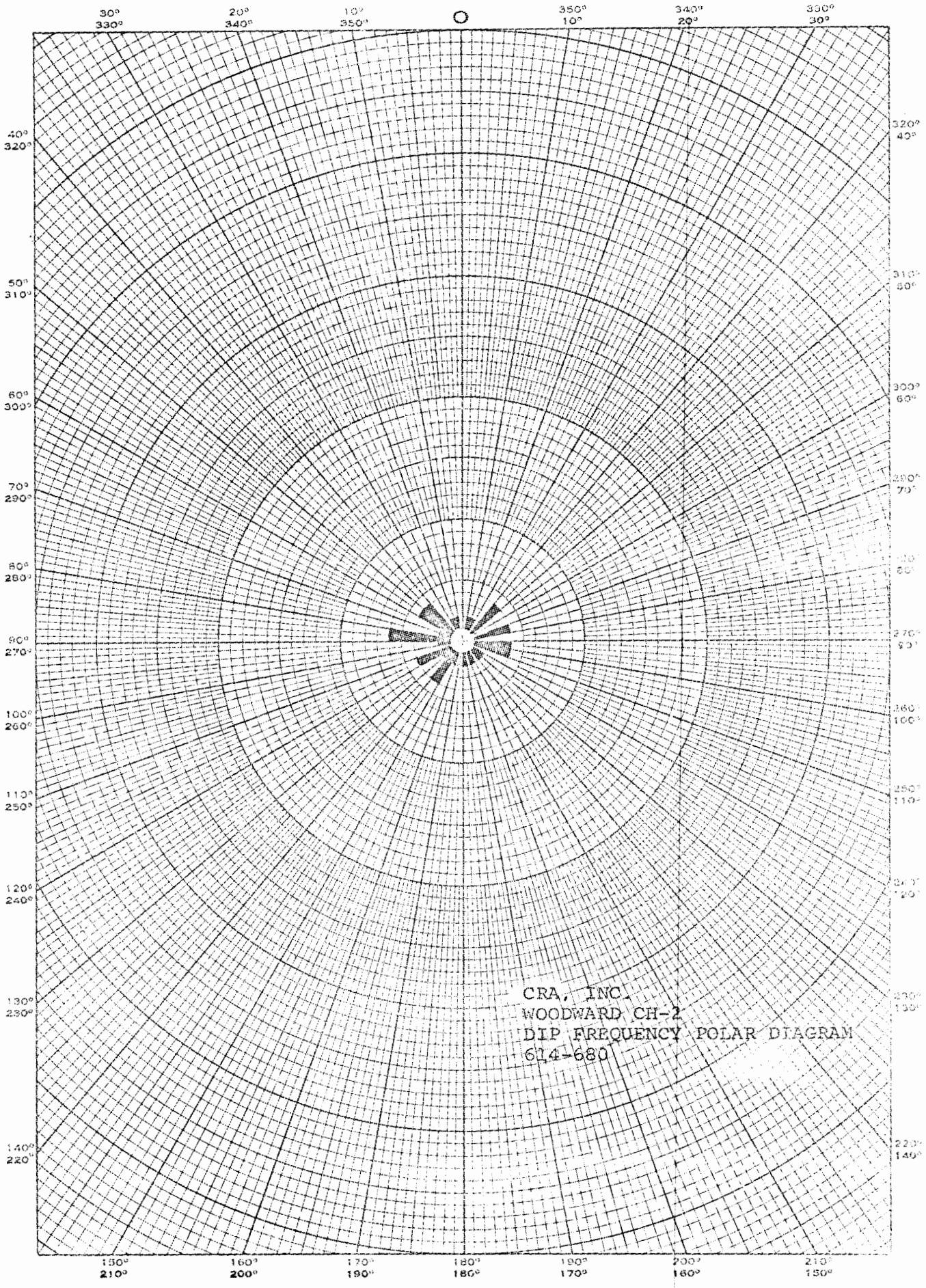
The Bartlesville sand from 650-679 is a bar-type sand striking N10E-S10W with thicker sand being N80E of this well. A location along strike is recommended with slight trending toward the axis of the system. A location to find both this sand and the lower sand in the CH-1 would be approximately SE-SE-NW of Section 13. The width of the two sand systems cannot be approximated until the axis of both systems has been crossed. The correlative sand section with CH-1 has a strike of N70E-S70W with thicker sand being south of this well.

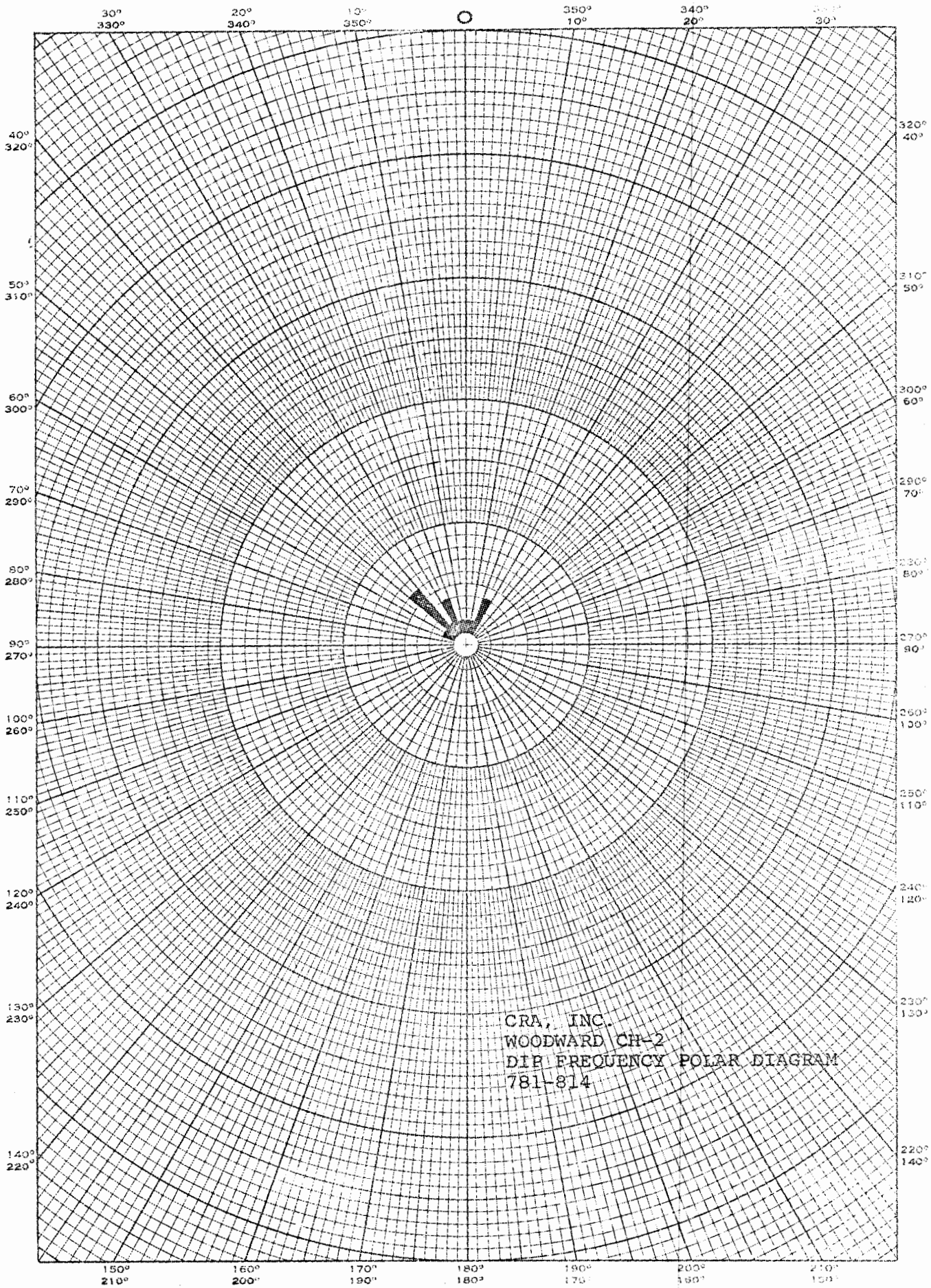
The above interpretations represent our best judgement, and we are happy to give them to you. Nevertheless, since all interpretations are based on inferences from electrical and other measurements, we cannot and do not guarantee their accuracy or correctness, and we shall not be liable or responsible, except in the case of willful negligence on our part, for any loss, costs, damages or expenses that may be incurred or sustained from such interpretations.

Thank you for calling Schlumberger on this well. If we can be of further assistance, please feel free to call on us at any time.

Sam Fain

Sam Fain


CRA, INC.
WOODWARD CH-2
DIP FREQUENCY POLAR DIAGRAM
614-680



JOB NO. 418

SCHLUMBERGER WELL SURVEYING CORPORATION
CONTINUOUS DIPMETER CALCULATIONS

CRA, INC.
WOODWARD CORE TEST 2
BOURBON CO. KAN.

DEPTH	DIP	DIP AZM	DIP BRG	DEV	DEV AZM
397	8.7	194	S 14 W	0.3	290
398	4.3	225	S 45 W	0.3	288
401	3.8	305	N 55 W	0.3	290
403	7.3	97	S 83 E	0.3	292
405	1.3	64	N 64 E	0.3	292
407	3.2	95	S 85 E	0.3	292
409	2.3	164	S 16 E	0.3	290
411	1.9	191	S 11 W	0.3	290
413	3.8	195	S 15 W	0.3	290
415	0.3			0.3	288
418	0.3			0.3	288
420	3.5	317	N 43 W	0.3	285
421	3.8	187	S 7 W	0.3	282
423	1.6	247	S 67 W	0.3	282
425	0.8	279	N 81 W	0.3	282
427	1.9	280	N 80 W	0.3	283
428	1.0	347	N 13 W	0.3	276
429	0.3			0.3	275
433	0.3			0.3	275
435	2.4	134	S 46 E	0.3	270
437	3.4	283	N 77 W	0.3	267
440	2.4	125	S 55 E	0.3	270
443	1.1	174	S 6 E	0.3	275
445	0.3			0.3	276
447	8.9	127	S 53 E	0.3	278
449	5.5	289	N 71 W	0.3	281
451	12.3	164	S 16 E	0.3	283
453	0.3			0.3	288
455	5.8	72	N 72 E	0.3	290
457	4.8	129	S 51 E	0.3	290
459	4.6	74	N 74 E	0.2	292
462	4.1	102	S 78 E	0.2	292
464	3.2	92	S 88 E	0.2	292
467	0.2			0.2	290
469	0.2			0.2	290
471	4.9	245	S 65 W	0.2	292
473	24.2	118	S 62 E	0.2	292
475	8.0	12	N 12 E	0.2	297
479	0.2			0.2	300
483	3.3	206	S 26 W	0.2	298

485	27.2	61	N	61	E		0.2	296
493	17.5	221	S	41	W		0.2	299
495	4.8	231	S	51	W		0.2	290
501	3.0	187	S	7	W		0.2	280
507	2.1	334	N	26	W		0.2	280
509	4.7	88	N	88	E		0.2	278
512	0.2						0.2	276
514	0.9	262	S	82	W		0.2	274
515	0.2						0.2	274
518	1.2	31	N	31	E		0.2	275
520	2.3	25	N	25	E		0.2	274
525	2.2	195	S	15	W		0.2	275
528	1.3	134	S	46	E		0.2	275
531	2.0	155	S	25	E		0.2	270
534	5.9	202	S	22	W		0.2	275
537	5.7	258	S	78	W		0.2	280
539	1.3	117	S	63	E		0.2	280
542	2.2	0	N				0.2	275
544	5.8	203	S	23	W		0.2	275
546	1.2	165	S	15	E		0.2	275
549	2.2	355	N	5	W		0.2	270
551	2.1	211	S	31	W		0.2	255
553	1.0	340	N	20	W		0.2	270
555	0.0						0.2	270
559	7.4	239	S	59	W		0.2	270
561	5.8	197	S	17	W		0.2	250
563	3.6	218	S	38	W		0.2	250
565	4.1	141	S	39	E		0.2	250
566	9.9	93	S	87	E		0.2	250
569	1.8	216	S	36	W		0.2	260
573	2.8	201	S	21	W		0.2	255
575	1.3	62	N	62	E		0.2	250
579	5.0	162	S	18	E		0.2	245
581	2.0	234	S	54	W		0.2	245
583	4.3	235	S	55	W		0.2	235
586	3.7	262	S	82	W		0.2	220
593	4.0	333	N	27	W		0.2	220
599	9.0	90			E		0.2	210
604	6.1	8	N	8	E		0.2	208
608	7.9	303	N	57	W		0.2	200
609	6.7	278	N	82	W		0.2	192
610	4.0	48	N	48	E		0.2	183
611	3.7	162	S	18	E		0.2	178
614	5.3	312	N	48	W		0.2	175
614	5.2	271	N	89	W		0.2	160
617	13.5	283	N	77	W		0.2	173
619	17.7	235	S	55	W		0.2	173
622	20.3	314	N	46	W		0.2	173
624	8.7	222	S	42	W		0.2	168
626	9.7	276	N	84	W		0.2	168
628	8.3	270			W		0.2	165
629	11.6	266	S	86	W		0.2	167
635	24.0	92	S	88	E		0.2	170
637	5.5	108	S	72	E		0.2	167
638	5.8	212	S	32	W		0.2	168
640	2.4	41	N	41	E		0.2	165
642	4.4	248	S	68	W		0.2	155

643	2.9	108	S	72	E		0.2	164
644	2.1	214	S	34	W		0.2	162
645	6.0	291	N	69	W		0.2	163
647	0.2						0.2	165
649	1.3	24	N	24	E		0.2	167
651	10.9	206	S	26	W		0.2	163
653	1.7	171	S	9	E		0.2	158
655	15.2	123	S	57	E		0.2	165
657	7.2	13	N	13	E		0.2	170
659	19.8	302	N	58	W		0.2	170
661	9.7	303	N	57	W		0.2	172
662	3.8	245	S	65	W		0.2	172
664	2.5	332	N	28	W		0.3	152
666	0.3						0.3	152
668	8.6	152	S	28	E		0.3	152
670	6.0	99	S	81	E		0.3	152
672	7.1	46	N	46	E		0.3	152
674	7.8	138	S	42	E		0.3	152
676	10.5	344	N	16	W		0.3	153
677	10.8	76	N	76	E		0.3	153
680	1.0	77	N	77	E		0.3	152
683	15.9	115	S	65	E		0.3	151
685	5.8	27	N	27	E		0.3	150
688	5.0	98	S	82	E		0.3	160
690	5.8	28	N	28	E		0.3	160
692	9.9	293	N	67	W		0.3	168
693	4.7	23	N	23	E		0.3	165
695	6.2	3	N	3	E		0.3	165
697	4.2	352	N	8	W		0.3	167
700	9.0	349	N	11	W		0.3	177
702	2.5	326	N	34	W		0.3	182
704	1.4	328	N	32	W		0.3	180
706	8.4	90			E		0.3	183
707	0.3						0.3	186
708	12.0	204	S	24	W		0.3	185
711	18.2	180	S				0.3	187
714	3.2	27	N	27	E		0.3	185
716	2.4	59	N	59	E		0.3	185
718	5.3	47	N	47	E		0.3	180
720	4.1	60	N	60	E		0.3	172
724	36.0	18	N	18	E		0.3	165
726	5.7	192	S	12	W		0.3	160
729	28.5	21	N	21	E		0.2	162
730	2.1	215	S	35	W		0.2	163
731	6.4	322	N	38	W		0.2	164
737	13.6	4	N	4	E		0.2	165
739	15.5	350	N	10	W		0.2	168
740	7.9	355	N	5	W		0.2	170
742	9.8	352	N	8	W		0.2	172
745	17.2	46	N	46	E		0.2	180
751	7.2	332	N	28	W		0.2	177
752	25.1	291	N	69	W		0.2	175
755	6.9	10	N	10	E		0.2	180
757	7.9	39	N	39	E		0.2	182
761	13.7	331	N	29	W		0.2	184
763	15.4	340	N	20	W		0.2	186
768	20.8	5	N	5	E		0.3	188

773	11.4	321	N	39	W	0.3	190
778	8.1	341	N	19	W	0.4	192
781	8.3	326	N	34	W	0.4	194
785	3.3	334	N	26	W	0.4	196
787	14.6	304	N	56	W	0.5	198
790	10.4	27	N	27	E	0.5	200
793	8.0	328	N	32	W	0.6	245
797	8.8	332	N	28	W	0.6	244
799	7.1	13	N	13	E	0.7	242
801	7.3	356	N	4	W	0.7	241
804	6.6	29	N	29	E	0.8	239
805	22.9	6	N	6	E	0.8	237
807	9.9	278	N	82	W	0.9	234
809	5.2	346	N	14	W	0.9	232
811	10.1	336	N	24	W	0.9	215
814	9.0	324	N	36	W	0.9	212
815	11.0	264	S	84	W	0.9	210
817	5.5	298	N	62	W	0.9	209
819	6.2	327	N	33	W	1.0	209
821	1.3	240	S	60	W	1.0	209
823	3.0	105	S	75	E	1.0	208
825	2.7	121	S	59	E	1.0	204
827	4.6	222	S	42	W	1.0	204
829	4.3	291	N	69	W	1.0	206
830	3.9	4	N	4	E	1.0	207
831	2.3	331	N	29	W	1.0	206
832	9.8	303	N	57	W	1.0	204
835	50.2	337	N	23	W	1.0	202
840	10.5	146	S	34	E	1.0	202