

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Data Report for the July-August 1983 Seismic-refraction
Experiment in the Mono Craters-Long Valley Region, California

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Open-File Report 85-708

This report is preliminary and has not been reviewed
for conformity with U.S. Geological Survey editorial standards
and stratigraphic nomenclature. Any use of trade names is for
descriptive purposes only and does not imply endorsement by the USGS.

1985

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INTRODUCTION

The U.S. Geological Survey conducted a seismic-refraction survey in the Mono Craters-Long Valley region of eastern California during the months of July and August, 1983, as part of a multi-disciplinary investigation of the Mono Craters area sponsored by the Office of Basic Energy Science of the Department of Energy. This experiment is part of a continuing investigation to evaluate the Mono Craters structure as a possible site for deep scientific drilling and, in particular, to assess the possibility that a youthful magma chamber may reside in the upper crust beneath the Mono Craters structure.

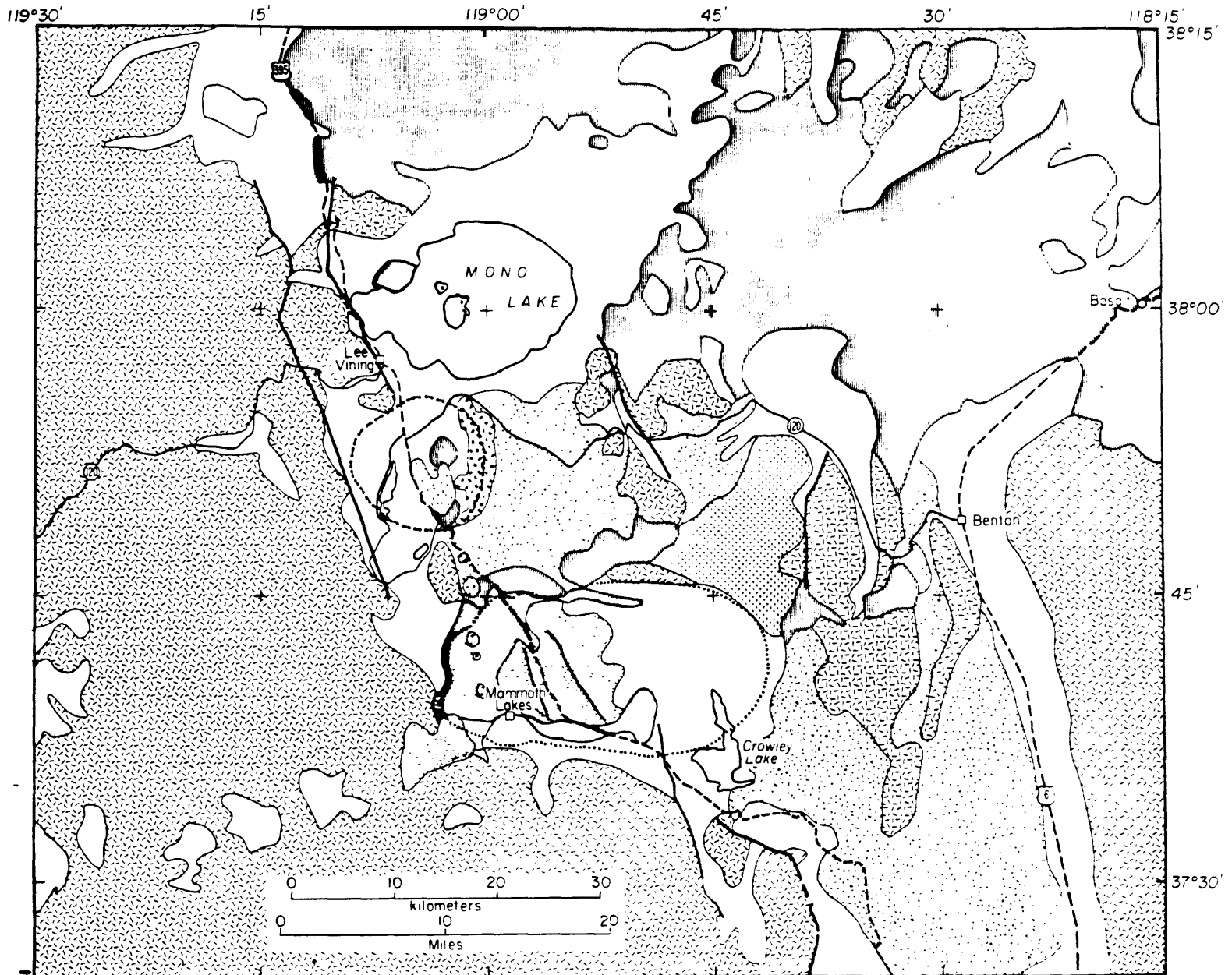
This seismic-refraction survey focused on Long Valley caldera with the main objective of improving resolution of the velocity structure in the seismically active south moat (the moat is the topographic depression that surrounds the resurgent dome), the caldera-bounding ring-fracture system, and the resurgent dome. Additional objectives included seeking further evidence for the 6-to 7-km-deep reflecting boundary beneath the northwestern margin of the resurgent dome found in the 1973 seismic refraction data (Hill, 1976) and seeking evidence for a cupola-shaped protrusion of the magma chamber extending to within 4.5 to 5 km of the surface beneath the southwestern margin of the resurgent dome indicated by Sander's (1984) analysis of anomalous attenuation patterns of P- and S-waves from local earthquakes.

This report is a compilation of the data obtained from the July and August, 1983, seismic-refraction survey. Data from the seismic-refraction experiment conducted in the Mono Craters-Long Valley region during the month of August 1982 were presented by Meador and Hill (1983). An interpretation of the 1982 experiment and profiles BB and BC of the 1983 experiment is in press (Hill, et al., 1985). Interpretation of remaining seismic-refraction data from the 1983 experiment is in preparation.

DESCRIPTION OF THE SURVEY

The 1983 survey consisted of four deployments of seismic recorders within Long Valley and extending to the north, northeast, east and south of the caldera. Shotpoint 1, within Long Valley and shotpoint 9, north of Long Valley, were also used in the 1982 experiment (Meador & Hill, 1983), providing a means for combining the data sets (figs. 1 & 2). A total of twelve shots ranging in size from 500 to 2000 pounds of Atlas Apex 320 explosives were fired in 100-to 180-foot-deep holes. Locations of shotpoints and recording sites are plotted in Plate 1 and listed in Tables 1 and 2, respectively. Recorders were deployed approximately every .5 km on deployments 1, 2 and 3 and approximately every 1 km on deployment 4. Shotpoints and profiles for each deployment are listed in the following table along with the figure depicting the deployment and the plates displaying the data in record-section format.

Deployment	Shotpoints	Profiles	Figure showing map	Plates showing record sections
1	1, 18	AA, AB, AC, BD	3	2, 3, 4
2	9, 15, 16	AC, BB, BC, BD	4	2, 4, 5, 6
3	1, 11, 12, 13, 14	BC, CC	5	2, 6, 7, 8
4	17, 20	BB, CC, DD, NS	6	2, 5, 8, 9



EXPLANATION

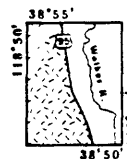
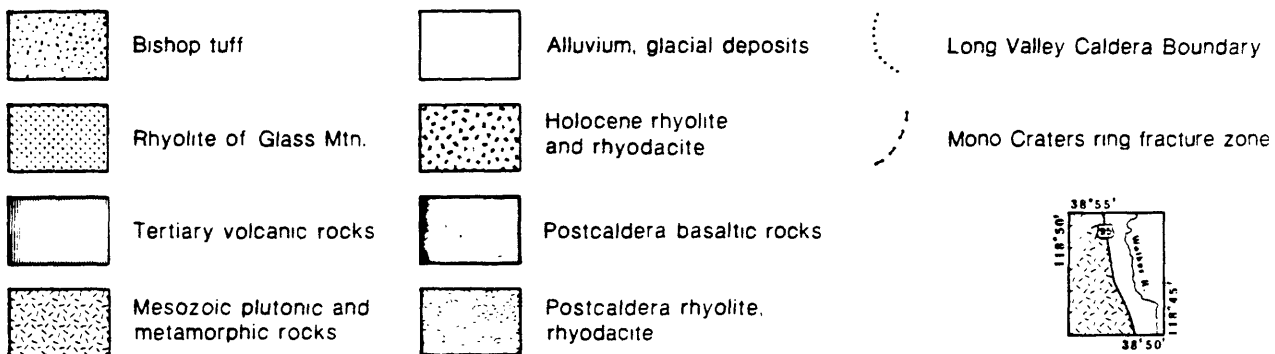


Figure 1: A geologic map of Mono Craters-Long Valley region

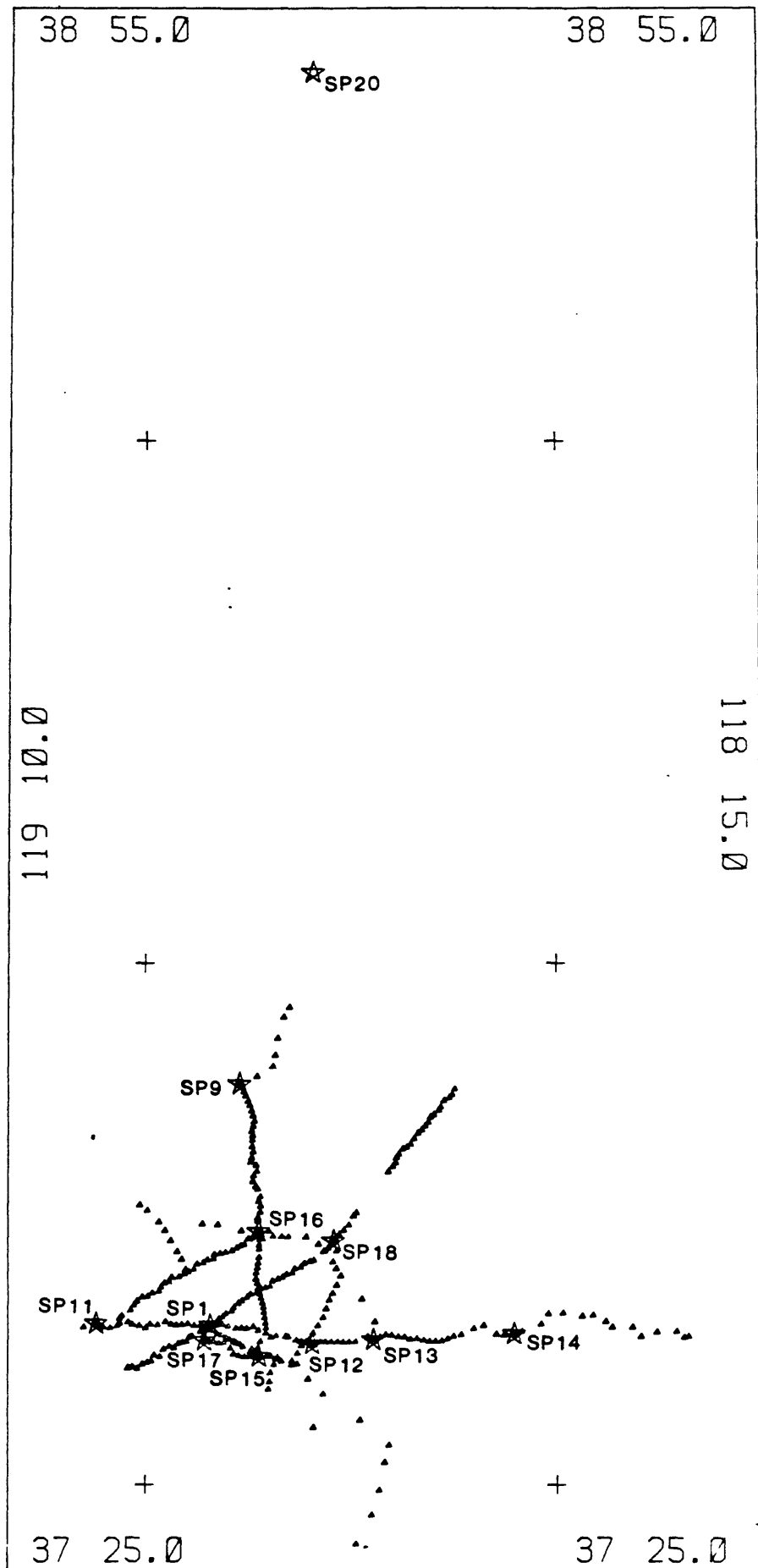


Figure 2: Map of recorder locations and shotpoints in the Mono Craters-Long Valley Region

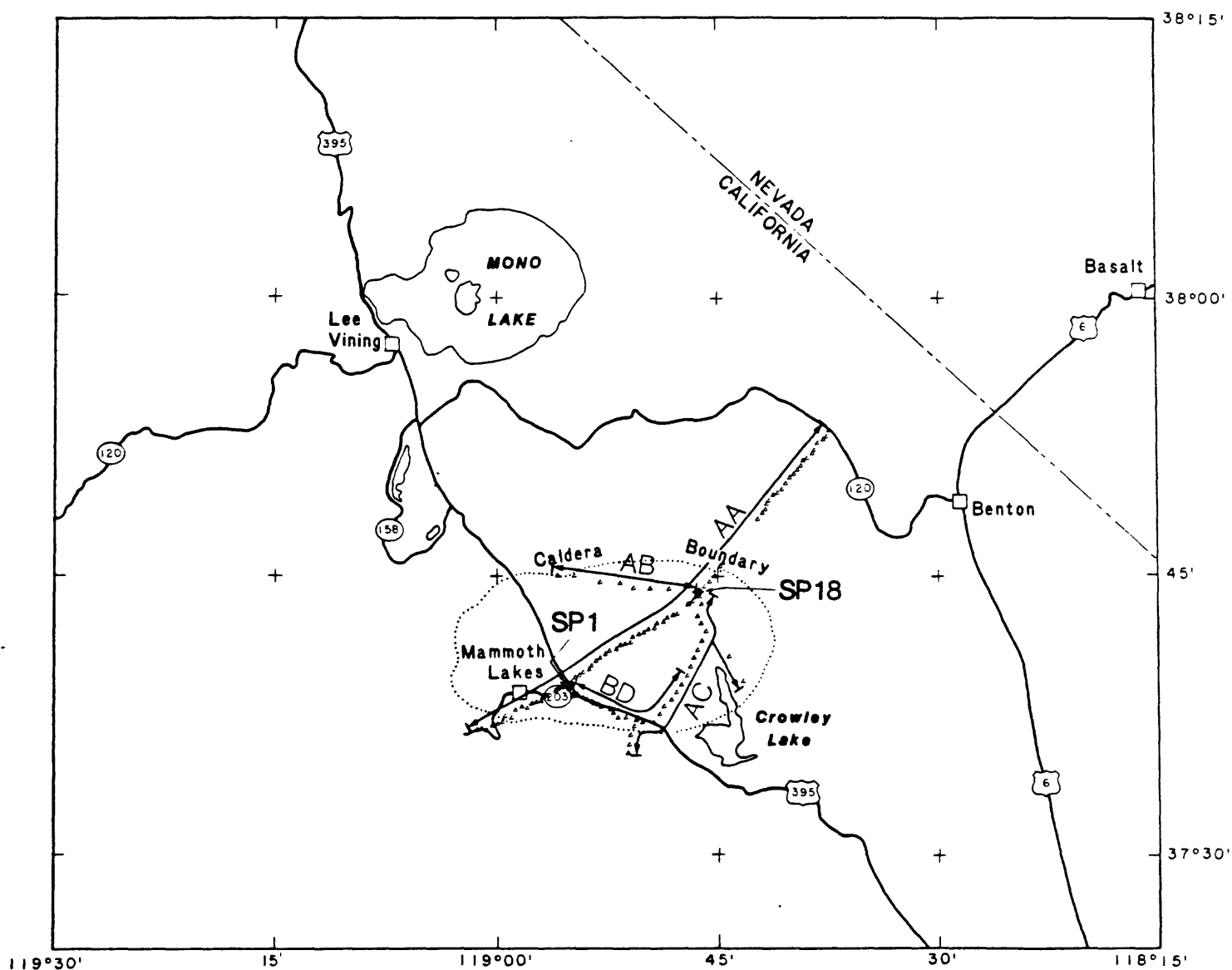


Figure 3: Map of recorder locations and shotpoints - Deployment 1

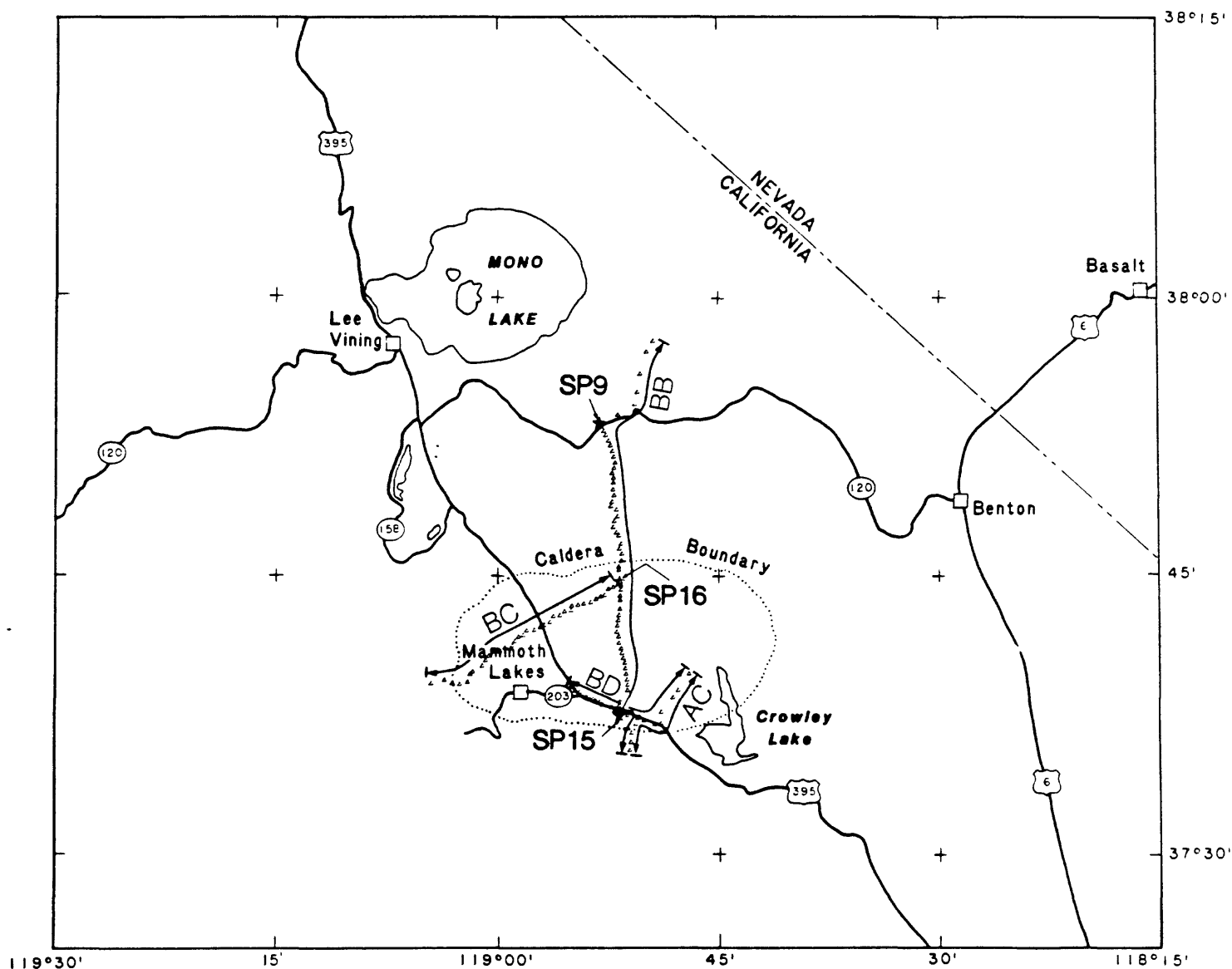


Figure 4: Map of recorder locations and shotpoints - Deployment 2

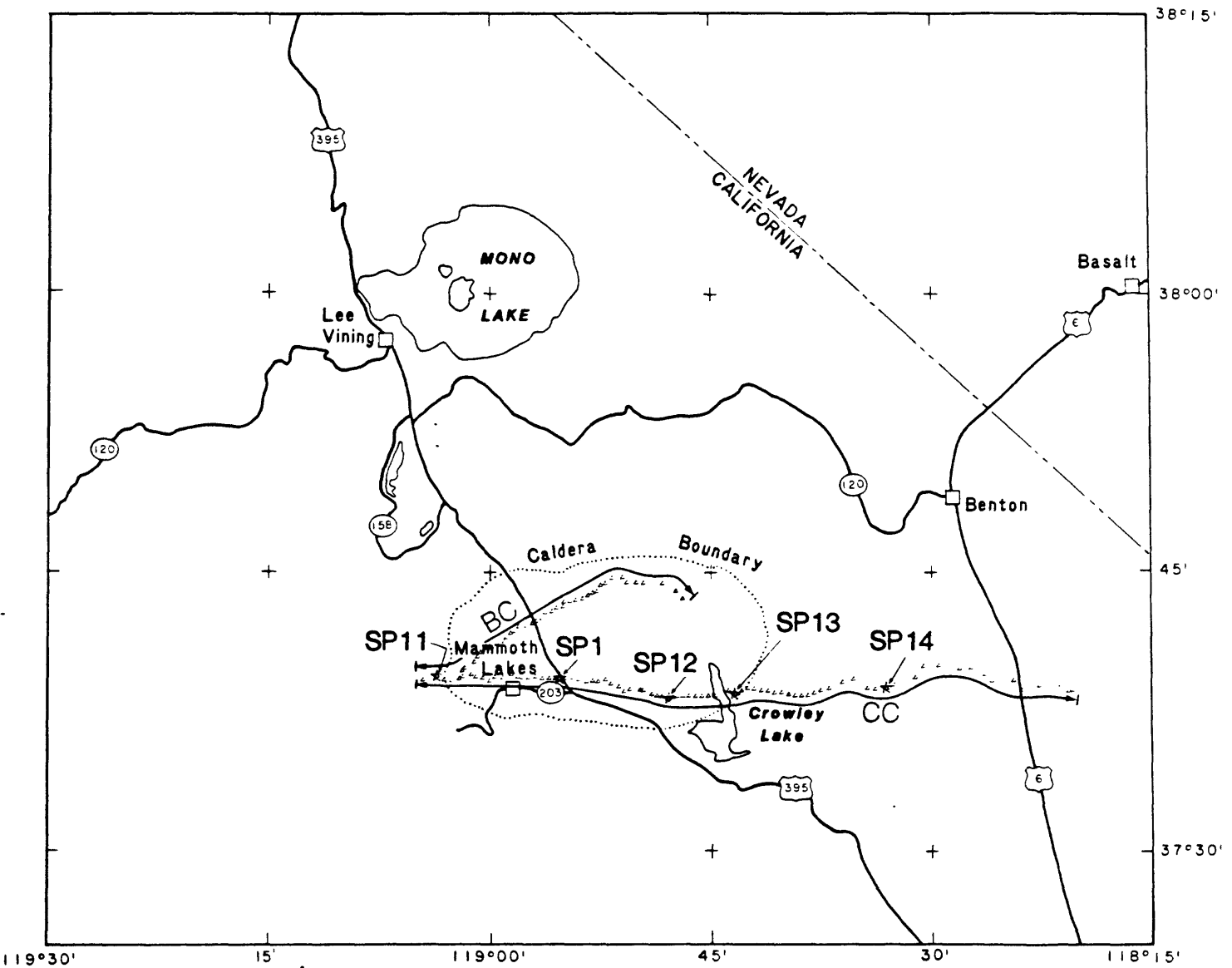


Figure 5: Map of recorder locations and shotpoints - Deployment 3

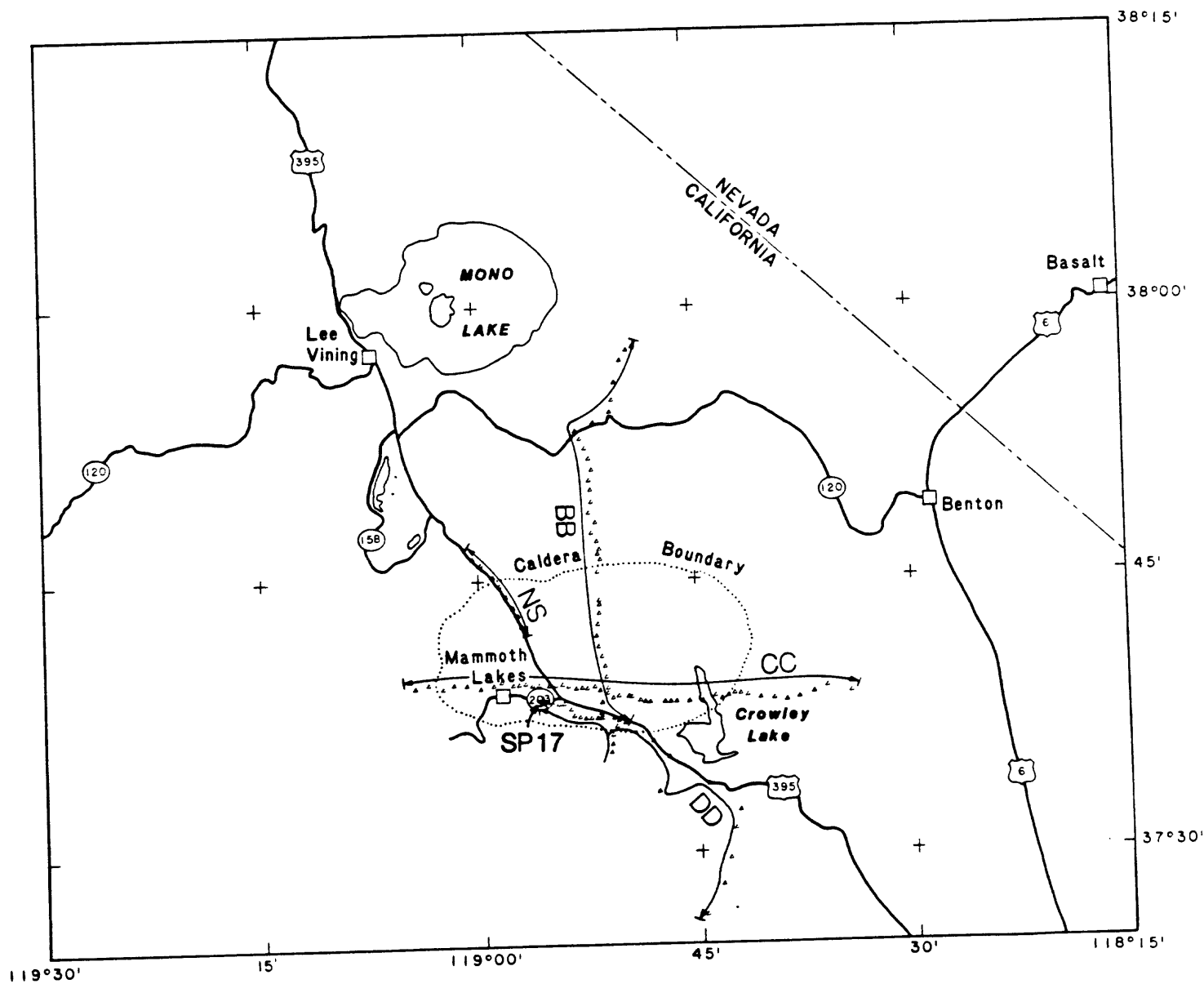


Figure 6: Map of recorder locations and shotpoints - Deployment 4
See figure 2 for location of shotpoint 20

The data consist of four major reversed profiles and five secondary profiles which are generally not reversed and serve primarily as broadside (fan) profiles. The four major profiles are: AA - southwest-northeast across the center of Long Valley and extending to the northeast of the caldera, BB - north-south across the center of Long Valley and extending to the north of the caldera, CC - east-west across southern Long Valley and extending to the east of the caldera, and BC - southwest-northeast across the northwest quadrant of Long Valley. The five secondary profiles are: AB - east-west in northern Long Valley, AC - north-south in eastern Long Valley, BD - east-west in southern Long Valley, DD - extending to the south of Long Valley, and NS - a reoccupation of selected sites from the 1982 north-south profile. In addition, the spatial complexity of the experiment resulted in numerous broadside or fan profiles, providing records at similar distances over a range of azimuths.

We present record sections for all the shots in Plates 2 - 9. The two shots at shotpoints 17 and 20 (deployment 4) were weaker than expected, and the resulting signals are near or below ambient noise levels. These record sections are shown for completeness.

INSTRUMENTATION AND DATA REDUCTION

Seismic Recorders

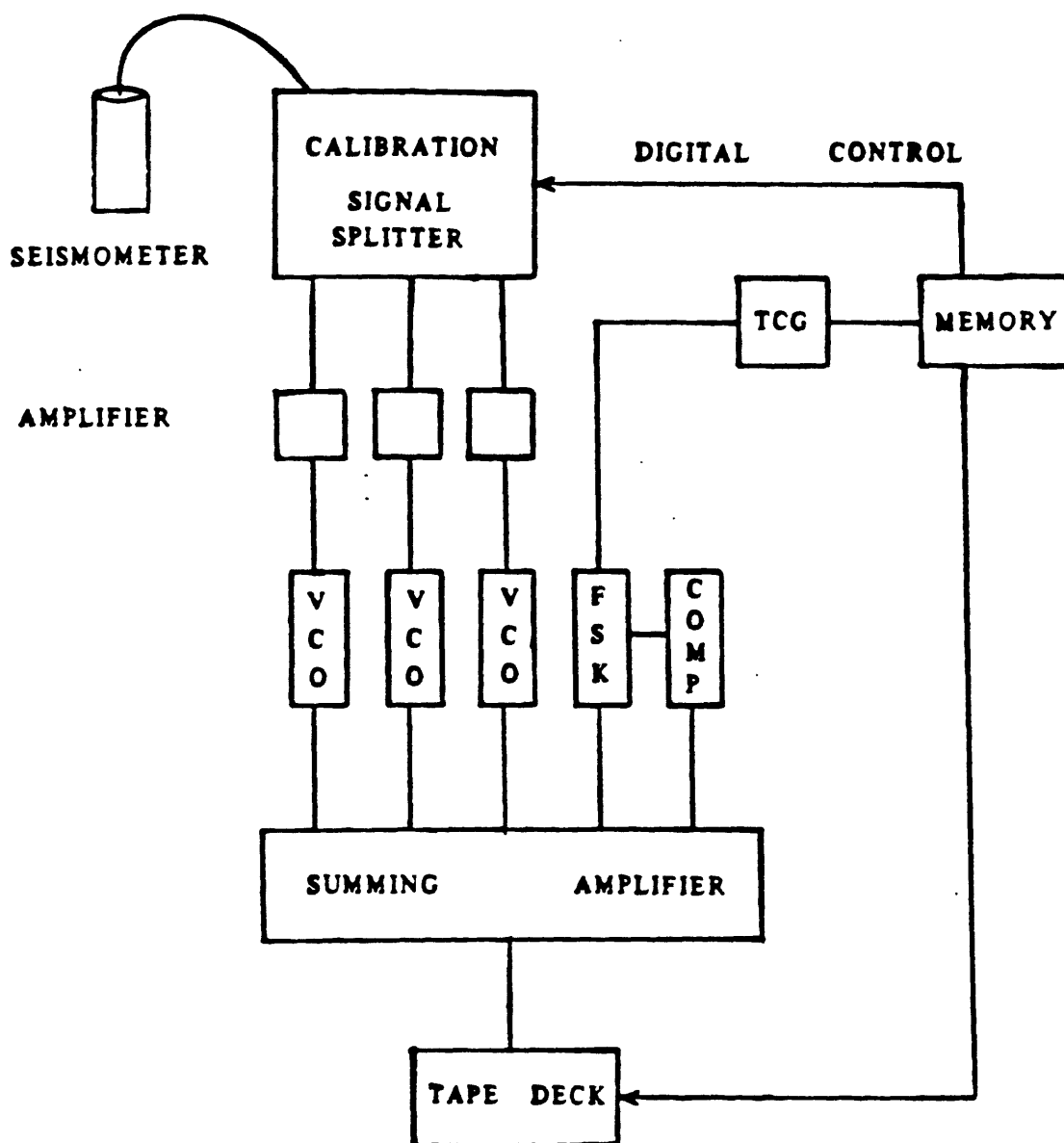
Field operations involved the deployment of 120 seismic recorders by six observers, each of whom was responsible for 20 instruments. The seismic recorders (Healy and others, 1982) are portable, weigh approximately 40 pounds, are powered by two 6-volt rechargeable batteries, and contain 30-minute cassette tapes to record data. Packaged with each seismic recorder is a single vertical-component 2 Hz geophone, which is removed and buried when the seismograph is deployed. Each recorder also includes a chronometer, three amplifiers with pre-set attenuation settings, calibrator, tape deck, and a tape-speed-compensation tone generator (fig. 7). Ten minutes prior to the expected energy arrival time, a pre-programmed microprocessor in the seismic recorder performs a geophone release, an amplification check, and a calibration sequence of 1, 10, 100, and 1000 mv, with a 10 Hz signal. The response curve for the system peaks at about 20 Hz (fig. 8).

Observers are responsible, before shots are fired, for synchronizing the clock in the seismic recorders, preprogramming the microprocessors with up to 10 distinct recording times, and establishing accurate site locations. For this experiment recording locations were surveyed prior to deployment of seismic recorders.

After shots have been fired observers retrieve the seismic recorders, record chronometer drifts, and remove the tapes.

Data Reduction

Shot times are picked from a paper record on which WWVB, the master clock time code, and the detonation pulse are recorded. Shot times are accurate to ± 2 milliseconds. Recorder locations and elevations were determined with an accuracy of ± 15 meters using 1:24000 orthophoto and 1:62500 topographic maps (Tables 1 and 2).



COMP = COMPENSATION
 FSK = FREQUENCY SHIFT KEYING
 TCG = TIME CODE GENERATOR
 VCO = VOLTAGE-CONTROLLED OSCILLATOR

Figure 7: Schematic diagram of seismic recorders

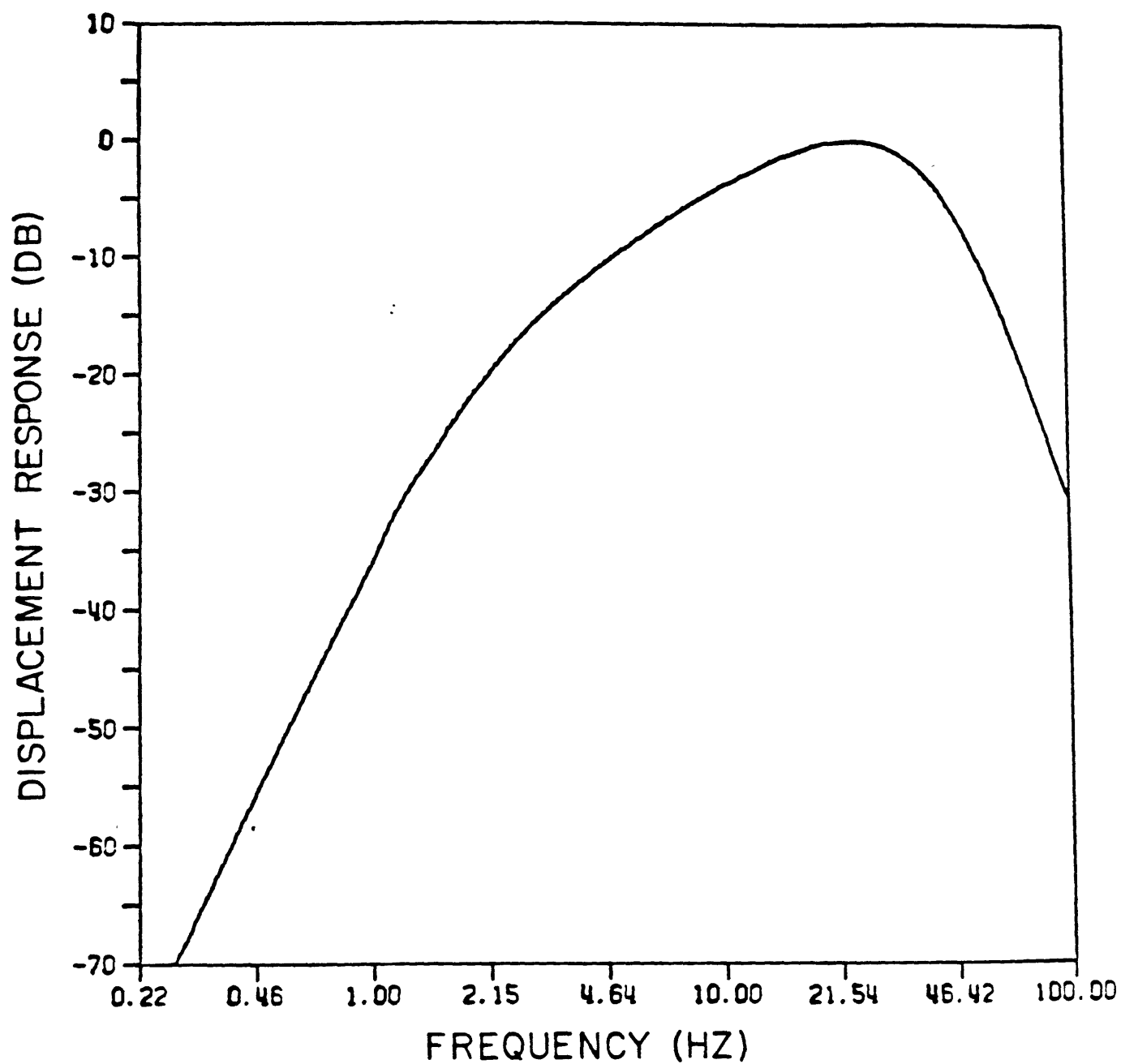


Figure 8: System response curve for cassette recording units with 2 Hz seismometers

Information pertaining to operation of the seismic recorders is summarized in the Field Data Tables (Appendix A). After checking for errors in time and site locations the field observers digitize the analog data from the cassette tapes for a total of 20 seconds at a rate of 200 samples/sec. Digitization begins at time = shot time - 2.0 sec. + distance/6.0 km/s.

The record sections in Plates 2 - 9 are plotted with maximum trace amplitudes normalized to a common value. The horizontal axis represents distance from the shot, in kilometers, and the vertical axis is traveltime, in seconds, reduced by (distance/6.0 km/s), or $T = t - x/6.0$ where T = reduced time, t = total traveltime, and x = distance. Negative distances indicate positions south and west of shotpoints. The record sections listed in the following table are plotted in a similar manner but with the horizontal axis representing distance along the profile with zero distance assigned to locations as indicated. For fan profiles the horizontal axis represents distance along the line of recorders referenced to a particular station site rather than distance from the shot, as indicated in the following table. (We use fan profile in a loose sense here to include broad-side recordings of shots on quasi-linear profiles.) For these profiles, the distance axes are labeled "Relative Distance".

Plate	Shotpoint	Profile	Relative to Location
2	1	AB	330
3	9	AC	301
3	1	AC	334
3	16	AC	301
3	15	AC	301
4	9	BD	405
4	18	BD	420
4	16	BD	405
4	15	BD	405
6	9	BC	562
6	14	BC	561
6	13	BC	562
6	15	BC	561
6	12	BC	561
6	1	BC	561
8	20	CC	561
8	17	CC	561
9	20	DD	935

First-arrival times (Appendix B) were picked using a display of the digitized traces on a computer graphic terminal with cross-hairs to pinpoint the arrival on each trace. For impulsive first-arrivals, times could be determined to within 10 to 100 milliseconds.

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Table 1. The "Master Shot List" contains the shot number, shotpoint number, date and shot time (Julian day GMT), latitude and longitude, charge of each shot, and notes pertaining to each shot. Shots 1 through 11 are shots for 1982 experiment. For shots 1 through 6 shot times refer to master clock which was approximately .40 seconds faster than WWVB time.

Shot Number	Shot Point	Date Shot Time	Latitude Longitude	Size (lbs)	Notes	Shot Number	Shot Point	Date Shot Time	Latitude Longitude	Size (lbs)	Notes
1	1	AUG 5, 1982 217 6 30 0.426	37 39.1683 118 55.2347	2000	WWVB TIME - 217 6 30 0.019	12	18	JUL 28, 1983 209 7 0 0.012	37 44.0115 118 46.2749	2000	
2	3	AUG 5, 1982 217 6 45 0.017	37 44.2827 118 58.4381	2000	WWVB TIME - 217 6 44 59.610	13	1	JUL 28, 1983 209 7 15 0.009	37 38.1683 118 55.2347	2000	
3	5	AUG 5, 1982 217 7 0 0.421	37 52.4661 119 5.0583	2000	WWVB TIME - 217 7 0 0.014	14	9	JUL 31, 1983 212 7 0 0.014	37 53.0319 118 53.0800	1200	
4	2	AUG 5, 1982 217 7 30 0.422	37 41.4958 118 56.3420	2000	WWVB TIME - 217 7 30 0.015	15	16	JUL 31, 1983 212 7 15 0.018	37 44.5434 118 51.7241	2000	
5	4	AUG 5, 1982 217 7 45 0.029	37 46.3401 119 0.9096	2000	WWVB TIME - 217 7 45 59.622	16	15	JUL 31, 1983 212 7 30 0.004	37 37.3611 118 51.7090	1500	
6	6	AUG 5, 1982 217 8 0 0.427	37 55.4347 119 6.0635	2000	WWVB TIME - 217 8 0 0.020	17	14	AUG 3, 1983 215 7 0 0.788	37 38.6488 118 33.0881	2000	MANUAL FIRE +/-0.010 SEC
7	7	AUG 10, 1982 222 7 45 0.016	37 52.0329 119 8.2191	2000		18	12	AUG 3, 1983 215 7 15 0.015	37 38.0772 118 47.8468	1350	
8	9	AUG 10, 1982 222 8 0 0.015	37 53.0319 118 53.0800	2000		19	11	AUG 3, 1983 215 8 0 0.011	37 39.2839 119 3.5477	1300	
9	10	AUG 10, 1982 222 8 15 0.072	37 55.1129 118 42.1083	2000		20	13	AUG 3, 1983 215 9 0 0.013	37 38.2173 118 43.3768	1500	
10	5	AUG 10, 1982 222 8 45 0.016	37 52.4661 119 5.0583	2000		21	1	AUG 3, 1983 215 9 30 0.015	37 39.1683 118 55.2347	1100	
11	8	AUG 10, 1982 222 9 0 0.313	37 53.4496 118 58.4088	2000		22	20	AUG 18, 1983 230 6 45 0.012	38 51.2666 118 47.7969	4000	
						23	17	AUG 18, 1983 230 7 0 0.011	37 38.2915 118 55.6805	500	

1982 Shots 1983 Shots

Table 2. The Seismic Recorder Locations give location number (see Plate 1), latitude, longitude, and elevation of each station.

LOCATION# NUMBER	LATITUDE (DEG,MIN)	LONGITUDE (DEG,MIN)	ELEV (FT)	LOCATION NUMBER	LATITUDE (DEG,MIN)	LONGITUDE (DEG,MIN)	ELEV(FT)
301	37 35.480	118 51.032	2330	351	37 50.405	118 39.830	2268
302	37 35.928	118 50.951	2310	352	37 50.219	118 40.101	2292
303	37 36.433	118 50.894	2290	353	37 49.916	118 40.357	2317
304	37 36.907	118 50.625	2210	354	37 49.595	118 40.613	2341
305	37 37.348	118 50.355	2168	355	37 49.409	118 40.911	2365
306	37 37.121	118 49.307	2145	356	37 49.308	118 41.209	2390
307	37 37.552	118 48.907	2140	357	37 49.003	118 41.495	2438
308	37 37.980	118 48.605	2140	358	37 48.818	118 41.666	2463
309	37 38.337	118 48.116	2135	359	37 48.514	118 41.743	2438
310	37 38.733	118 47.781	2125	360	37 48.311	118 41.951	2463
311	37 39.141	118 47.434	2125	361	37 39.961	118 53.657	2120
312	37 39.615	118 47.035	2100	362	37 40.156	118 53.523	2130
313	37 40.097	118 46.806	2097	363	37 40.402	118 53.213	2299
314	37 40.597	118 46.602	2100	364	37 40.558	118 52.943	2220
315	37 40.986	118 46.349	2080	365	37 40.765	118 52.576	2190
316	37 41.479	118 46.039	2079	366	37 40.941	118 52.312	2210
317	37 41.992	118 45.744	2078	367	37 41.038	118 51.839	2220
318	37 42.420	118 46.104	2080	368	37 41.258	118 51.569	2207
319	37 42.811	118 46.349	2088	369	37 41.317	118 51.251	2210
320	37 43.447	118 46.062	2098	370	37 41.395	118 50.892	2150
321	37 39.329	118 43.246	2110	371	37 41.693	118 50.728	2165
322	37 40.655	118 44.216	2080	372	37 41.823	118 50.323	2170
323	37 43.428	118 46.896	2100	373	37 41.920	118 49.975	2165
324	37 44.252	118 48.285	2100	374	37 42.089	118 49.685	2150
325	37 44.265	118 49.567	2110	375	37 42.160	118 49.274	2140
326	37 44.297	118 50.687	2134	376	37 42.416	118 49.110	2140
327	37 44.576	118 51.593	2123	377	37 42.500	118 48.661	2105
328	37 44.621	118 52.950	2155	378	37 42.714	118 48.408	2105
329	37 44.959	118 54.681	2160	379	37 42.850	118 48.008	2098
330	37 44.997	118 55.825	2230	380	37 42.922	118 47.722	2100
331	37 43.421	118 46.994	2095	381	37 48.007	118 42.249	2560
332	37 43.603	118 46.667	2110	382	37 39.018	118 55.517	2240
333	37 43.856	118 46.430	2115	383	37 38.914	118 55.762	2320
334	37 43.986	118 46.283	2115	384	37 38.832	118 55.958	2310
335	37 44.141	118 46.136	2120	385	37 38.577	118 56.578	2325
336	37 44.381	118 45.891	2140	386	37 38.473	118 56.806	2345
337	37 44.641	118 45.539	2170	387	37 38.246	118 56.937	2365
338	37 44.946	118 45.172	2220	388	37 38.194	118 57.263	2385
339	37 45.456	118 44.809	2317	389	37 38.123	118 57.561	2385
340	37 45.642	118 44.596	2365	390	37 37.876	118 57.855	2395
341	37 52.770	118 37.400	2024	391	37 37.967	118 58.214	2405
342	37 52.432	118 37.596	2024	392	37 37.785	118 58.646	2410
343	37 52.274	118 37.805	2027	393	37 37.374	118 58.907	2440
344	37 52.078	118 38.193	2073	394	37 37.461	118 59.341	2545
345	37 51.706	118 38.423	2121	395	37 37.115	118 59.543	2590
346	37 51.520	118 38.551	2143	396	37 37.030	118 59.861	2640
347	37 51.267	118 38.922	2170	397	37 36.933	119 0.217	2640
348	37 51.132	118 39.173	2195	398	37 36.693	119 0.584	2720
349	37 50.844	118 39.331	2219	399	37 36.790	119 0.942	2725
350	37 50.625	118 39.574	2243	400	37 36.719	119 1.244	2750

LOCATION NUMBER	LATITUDE (DEG,MIN)	LONGITUDE (DEG,MIN)	ELEV(FT)	LOCATION NUMBER	LATITUDE (DEG,MIN)	LONGITUDE (DEG,MIN)	ELEV(FT)
401	37 39.277	118 54.861	2275	554	37 44.148	118 52.467	2160
402	37 39.524	118 54.624	2295	555	37 44.245	118 52.149	2150
403	37 39.641	118 54.336	2345	556	37 44.543	118 51.699	2135
404	37 39.809	118 54.078	2345	557	37 43.545	118 51.667	2170
405	37 38.908	118 55.037	2230	558	37 43.791	118 51.675	2150
406	37 38.713	118 54.716	2230	559	37 44.109	118 51.629	2150
407	37 38.622	118 54.429	2205	560	37 44.323	118 51.593	2150
408	37 38.479	118 54.096	2200	561	37 39.096	119 4.470	2350
409	37 38.369	118 53.822	2190	562	37 39.284	119 3.548	2810
410	37 38.250	118 53.505	2190	563	37 39.115	119 3.034	2755
411	37 38.146	118 53.314	2185	564	37 39.050	119 2.536	2750
412	37 38.096	118 53.055	2180	565	37 39.161	119 2.010	2705
413	37 37.948	118 52.833	2180	566	37 39.589	119 1.822	2650
414	37 37.814	118 52.221	2170	567	37 39.725	119 1.659	2650
415	37 37.604	118 52.030	2170	568	37 40.039	119 1.014	2550
416	37 37.360	118 51.709	2180	569	37 40.331	119 0.786	2530
417	37 37.368	118 51.182	2185	570	37 40.558	119 0.574	2500
418	37 37.229	118 50.484	2175	571	37 40.804	119 0.190	2470
419	37 37.102	118 50.070	2165	572	37 40.824	118 59.804	2460
501	37 39.158	118 55.246	2230	573	37 41.025	118 59.469	2440
502	37 45.162	118 51.757	2146	574	37 42.115	118 57.091	2315
503	37 45.337	118 52.099	2682	575	37 41.129	118 58.980	2490
504	37 45.668	118 51.765	2131	576	37 41.362	118 58.816	2470
505	37 46.029	118 51.593	2158	577	37 41.596	118 58.563	2400
506	37 46.306	118 51.552	2219	578	37 41.687	118 58.245	2390
507	37 46.570	118 51.727	2280	579	37 41.933	118 58.016	2395
508	37 47.011	118 51.601	2353	580	37 41.959	118 57.502	2355
509	37 47.179	118 51.764	2609	581	37 47.439	118 49.451	2603
510	37 47.465	118 51.911	2634	582	37 56.862	118 49.902	2548
511	37 47.772	118 52.132	2621	583	37 55.668	118 50.330	2512
512	37 48.026	118 52.059	2621	584	37 54.686	118 50.519	2390
513	37 48.382	118 51.903	2701	585	37 54.044	118 50.691	2396
514	37 48.570	118 51.838	2669	586	37 53.473	118 51.837	2481
515	37 48.804	118 52.288	2695	587	37 53.032	118 53.085	2402
535	37 36.894	118 49.331	2147	588	37 52.954	118 52.962	2411
536	37 36.926	118 48.923	2153	589	37 52.604	118 52.790	2448
541	37 42.235	118 56.814	2310	590	37 52.381	118 52.651	2478
542	37 42.381	118 56.446	2330	591	37 52.082	118 52.467	2512
543	37 42.695	118 56.210	2315	592	37 51.829	118 52.337	2545
544	37 42.740	118 55.768	2250	593	37 51.518	118 52.206	2570
545	37 42.941	118 55.450	2245	594	37 51.219	118 52.115	2600
546	37 43.000	118 54.992	2265	595	37 50.901	118 52.018	2612
547	37 43.246	118 54.943	2265	596	37 50.614	118 52.091	2621
548	37 43.292	118 54.531	2265	597	37 50.344	118 52.222	2615
549	37 43.356	118 54.134	2285	598	37 50.084	118 52.124	2637
550	37 43.434	118 53.660	2235	599	37 49.829	118 52.140	2646
551	37 43.603	118 53.301	2195	600	37 49.465	118 52.173	2658
552	37 43.739	118 52.999	2190	602	37 49.630	118 51.684	2175
553	37 43.817	118 52.729	2180	603	37 37.870	118 51.782	2165
				604	37 38.226	118 51.603	2163

LOCATION NUMBER	LATITUDE (DEG,MIN)	LONGITUDE (DEG,MIN)	ELEV (FT)	LOCATION NUMBER	LATITUDE (DEG,MIN)	LONGITUDE (DEG,MIN)	ELEV (FT)
301	37 35.480	118 51.032	2330	351	37 50.405	118 39.830	2268
302	37 35.928	118 50.951	2310	352	37 50.219	118 40.101	2292
303	37 36.433	118 50.894	2290	353	37 49.916	118 40.357	2317
304	37 36.907	118 50.625	2210	354	37 49.595	118 40.613	2341
305	37 37.348	118 50.355	2168	355	37 49.409	118 40.911	2365
306	37 37.121	118 49.307	2145	356	37 49.308	118 41.209	2390
307	37 37.552	118 48.907	2140	357	37 49.003	118 41.495	2438
308	37 37.980	118 48.605	2140	358	37 48.818	118 41.666	2463
309	37 38.337	118 48.116	2135	359	37 48.514	118 41.743	2438
310	37 38.733	118 47.781	2125	360	37 48.311	118 41.951	2463
311	37 39.141	118 47.434	2125	361	37 39.961	118 53.657	2120
312	37 39.615	118 47.035	2100	362	37 40.156	118 53.523	2130
313	37 40.097	118 46.806	2097	363	37 40.402	118 53.213	2299
314	37 40.597	118 46.602	2100	364	37 40.558	118 52.943	2220
315	37 40.986	118 46.349	2080	365	37 40.765	118 52.576	2190
316	37 41.479	118 46.039	2079	366	37 40.941	118 52.312	2210
317	37 41.992	118 45.744	2078	367	37 41.038	118 51.839	2220
318	37 42.420	118 46.104	2080	368	37 41.258	118 51.569	2207
319	37 42.811	118 46.349	2088	369	37 41.317	118 51.251	2210
320	37 43.447	118 46.062	2098	370	37 41.395	118 50.892	2150
321	37 39.329	118 43.246	2110	371	37 41.693	118 50.728	2165
322	37 40.655	118 44.216	2080	372	37 41.823	118 50.323	2170
323	37 43.428	118 46.896	2100	373	37 41.920	118 49.975	2165
324	37 44.252	118 48.285	2100	374	37 42.089	118 49.685	2150
325	37 44.265	118 49.567	2110	375	37 42.160	118 49.274	2140
326	37 44.297	118 50.687	2123	376	37 42.416	118 49.110	2140
327	37 44.576	118 51.593	2134	377	37 42.500	118 48.661	2105
328	37 44.621	118 52.950	2155	378	37 42.714	118 48.408	2105
329	37 44.959	118 54.681	2160	379	37 42.850	118 48.008	2098
330	37 44.997	118 55.825	2230	380	37 42.922	118 47.722	2100
331	37 43.421	118 46.994	2095	381	37 48.007	118 42.249	2560
332	37 43.603	118 46.667	2110	382	37 39.018	118 55.517	2240
333	37 43.856	118 46.430	2115	383	37 38.914	118 55.762	2320
334	37 43.986	118 46.283	2115	384	37 38.832	118 55.958	2310
335	37 44.141	118 46.136	2120	385	37 38.577	118 56.578	2325
336	37 44.381	118 45.891	2140	386	37 38.473	118 56.806	2345
337	37 44.641	118 45.539	2170	387	37 38.246	118 56.937	2365
338	37 44.946	118 45.172	2220	388	37 38.194	118 57.263	2385
339	37 45.456	118 44.809	2317	389	37 38.123	118 57.561	2385
340	37 45.642	118 44.596	2365	390	37 37.876	118 57.855	2395
341	37 52.770	118 37.400	2024	391	37 37.967	118 58.214	2405
342	37 52.432	118 37.596	2024	392	37 37.785	118 58.646	2410
343	37 52.274	118 37.805	2027	393	37 37.374	118 58.907	2440
344	37 52.078	118 38.193	2073	394	37 37.461	118 59.341	2545
345	37 51.706	118 38.423	2121	395	37 37.115	118 59.543	2590
346	37 51.520	118 38.551	2143	396	37 37.030	118 59.861	2640
347	37 51.267	118 38.922	2170	397	37 36.933	119 0.217	2640
348	37 51.132	118 39.173	2195	398	37 36.633	119 0.584	2720
349	37 50.844	118 39.331	2219	399	37 36.790	119 0.942	2775
350	37 50.625	118 39.574	2243	400	37 36.719	119 1.244	2750

LOCATION NUMBER	LATITUDE (DEG, MIN)	LONGITUDE (DEG, MIN)	ELEV(FT)	LOCATION NUMBER	LATITUDE (DEG, MIN)	LONGITUDE (DEG, MIN)	ELEV(FT)
605	37 38.726	118 51.211	2160	740	37 38.538	118 37.528	2270
606	37 39.011	118 51.194	2190	762	37 39.154	118 54.788	2265
607	37 39.290	118 51.227	2200	763	37 39.206	118 54.339	2395
608	37 39.602	118 51.292	2200	764	37 39.109	118 53.923	2335
609	37 39.907	118 51.333	2200	765	37 38.985	118 53.384	2275
610	37 40.195	118 51.362	2215	766	37 39.031	118 52.985	2185
611	37 40.454	118 51.472	2215	767	37 38.992	118 52.609	2165
612	37 40.720	118 51.562	2220	768	37 39.089	118 52.116	2160
613	37 40.967	118 51.618	2220	769	37 38.875	118 51.758	2160
614	37 41.258	118 51.774	2210	771	37 38.467	118 50.860	2160
615	37 41.602	118 51.806	2230	772	37 38.577	118 50.468	2158
616	37 41.836	118 51.904	2170	773	37 38.551	118 49.772	2205
617	37 42.180	118 51.871	2200	774	37 38.512	118 49.568	2205
618	37 42.472	118 51.806	2210	775	37 38.317	118 48.997	2200
619	37 42.747	118 51.757	2200	776	37 38.240	118 48.646	2126
620	37 43.077	118 51.692	2240	777	37 38.207	118 48.303	2126
705	37 39.271	119 1.790	2670	778	37 38.155	118 47.545	2110
706	37 39.375	119 1.219	2630	779	37 38.058	118 47.879	2117
707	37 39.238	119 0.909	2690	780	37 38.214	118 47.271	2104
708	37 39.187	119 0.419	2670	781	37 38.649	118 36.962	2225
709	37 39.040	118 59.946	2280	782	37 38.598	118 33.831	2121
710	37 39.251	118 59.620	2545	783	37 38.970	118 36.048	2265
711	37 39.199	118 59.070	2470	784	37 39.139	118 35.304	2121
712	37 39.381	118 58.510	2620	785	37 38.649	118 34.384	2048
713	37 39.245	118 58.082	2470	786	37 38.649	118 33.088	2067
714	37 39.193	118 57.724	2420	787	37 38.818	118 32.536	2100
715	37 39.219	118 57.320	2370	788	37 39.223	118 31.133	2012
716	37 39.264	118 56.872	2355	789	37 39.814	118 30.580	1932
717	37 39.161	118 56.402	2345	790	37 39.848	118 29.533	1817
718	37 39.174	118 55.938	2325	791	37 39.679	118 28.130	1652
719	37 39.161	118 55.517	2235	792	37 39.730	118 27.344	1609
721	37 38.214	118 46.480	2097	793	37 39.375	118 26.401	1515
722	37 38.214	118 46.024	2088	794	37 39.037	118 25.920	1487
723	37 38.214	118 45.599	2185	795	37 39.054	118 24.447	1387
724	37 38.220	118 45.167	2075	796	37 38.530	118 23.831	1384
725	37 38.226	118 44.674	2070	797	37 38.784	118 22.706	1420
726	37 38.512	118 43.801	2070	798	37 38.818	118 21.260	1615
727	37 38.343	118 43.352	2080	799	37 38.480	118 20.708	1756
728	37 38.505	118 42.895	2105	800	37 38.547	118 20.390	1829
729	37 38.642	118 42.483	2125	801	37 38.214	118 46.888	2102
730	37 38.603	118 42.059	2140	814	37 44.582	118 50.981	2125
731	37 38.519	118 41.570	2160	817	37 44.290	118 50.058	2114
732	37 38.492	118 41.113	2205	819	37 43.836	118 47.361	2100
733	37 38.376	118 40.681	2225	923	37 37.361	118 50.804	2180
734	37 38.415	118 40.199	2225	924	37 37.368	118 51.567	2183
735	37 38.324	118 39.714	2250	925	37 37.355	118 51.953	2178
736	37 38.246	118 39.290	2290	926	37 37.361	118 52.378	2172
737	37 38.240	118 38.858	2270	927	37 37.355	118 52.765	2175
738	37 38.253	118 38.417	2250	928	37 37.426	118 53.149	2175
739	37 38.382	118 37.977	2260	929	37 37.500	118 53.540	2190

LOCATION NUMBER	LATITUDE (DEG, MIN)	LONGITUDE (DEG, MIN)	ELEV (FT)
930	37 37.850	118 53.768	2190
931	37 38.168	118 54.241	2200
932	37 38.149	118 54.624	2205
933	37 38.259	118 55.000	2220
934	37 38.265	118 55.362	2260
935	37 38.285	118 55.697	2285
936	37 42.381	118 57.042	2310
937	37 42.974	118 57.312	2325
938	37 43.415	118 57.640	2343
939	37 44.025	118 58.105	2292
940	37 44.628	118 58.546	2280
981	37 45.123	118 58.979	2291
982	37 45.798	118 59.812	2393
983	37 46.115	119 0.361	2439
992	37 36.077	118 48.125	2088
993	37 35.203	118 47.049	2110
994	37 33.311	118 47.793	2378
995	37 33.700	118 44.350	2146
996	37 32.247	118 42.242	2439
997	37 31.267	118 42.582	2543
998	37 29.646	118 42.986	2738
999	37 28.210	118 43.516	2854
1000	37 26.554	118 44.682	3097

APPENDIX A

The "Field Data Tables" contain all the information related to the seismic recorders. Each set of 20 recorders is given a designated team number under which data is stored and referenced. Each table contains shot number, shotpoint, team number, and shot time given in Julian day, hour, minute, and second. Column headings for the table are explained below:

Loc	- location number from the seismic recorder location file
Dist (km)	- distance in kilometers from the shotpoint to the recorder location
Azim	- azimuth north from the shotpoint to the recorder location (in degrees clockwise from north)
Unit	- I.D. number of the recording unit
Chron	- chronometer correction for the recorder at shot time (calculated from the total clock drift)
Chan	- channel number (1, 2, or 3) which was selected to be digitized by the computer
C1, C2, C3	- amplifier attenuation setting (db) for each data-recording channel
Tape Grade	- value used to rate the performance quality of the seismic recorder (see Tape Grade Scale)

The "Tape Grade Scale" is a listing of all tape grade numbers used on the Field Data Tables. Each number corresponds to a specific problem with the recording unit.

Tape Grade Scale

- 0 - Good
- 1 - Tape did not run
- 2 - Tape ran, no signal
- 3 - Skipped record time
- 6 - Weak signal - low record level
- 12 - Noise, random
- 16 - Incomplete record, recorder stopped
- 17 - Bad time code
- 20 - In for repair; not deployed
- 21 - Geophone disconnected or shorted
- 29 - Wrong program time
- 30 - Digitized without calibrations

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 12 SHOT POINT 18 TEAM 1

SHOT TIME: 209: 7: 0: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	301	17.263	203.9	1	4	1	48	12	30	0
2	302	16.459	204.7	2	0	1	48	12	30	0
3	303	15.576	205.9	3	1		48	12	30	17
4	304	14.615	206.0	4	-7	1	48	12	30	0
5	305	13.708	206.0	5	23	1	48	12	30	0
6	306	13.503	199.3	6	1	1	48	12	30	0
7	307	12.560	197.9	7	-3	1	48	12	30	0
8	308	11.671	197.1	8	1	1	48	12	30	0
9	309	10.840	194.5	9	10	1	48	12	30	0
10	310	10.013	192.8	10	3	1	48	12	30	0
11	311	9.169	190.7	11	11	1	48	12	30	0
12	312	8.210	187.8	12	1		48	12	30	17
13	313	7.282	186.2	13	-3	1	48	12	30	0
14	314	6.335	184.4	14	22		48	12	30	6
15	315	5.597	181.1	15	0	1	48	12	30	0
16	316	4.697	175.8	16	-2	1	48	12	30	0
17	317	3.817	168.2	17	12	1	48	12	30	0
18	318	2.955	175.1	18	-4		68	12	30	17
19	319	2.222	182.8	19	-10		68	12	30	17
20	320	1.086	163.4	20	7	1	88	12	30	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 12 SHOT POINT 18 TEAM 2

SHOT TIME: 209: 7: 0: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	321	9.739	152.8	21	2		30	12	48	17
2	322	6.906	154.0	22	11	3	30	12	48	0
3	323	1.413	220.2	23	29	3	30	12	88	0
4	324	2.986	278.6	24	-4	3	30	12	68	0
5	325	4.859	275.5	25	24	3	30	12	48	0
6	326	6.503	274.7	26	3		30	12	48	21
7	327	7.863	277.6	27	--		30	12	48	1
8	328	9.870	276.6	28	16	3	30	12	48	0
9	329	12.473	278.1	29	11	3	30	12	48	0
10	330	14.147	277.4	30	6	1	30	12	48	0
11	331	1.519	224.0	31	7		30	12	88	2
12	332	0.950	217.3	32	10	3	30	12	88	0
13	333	0.367	218.4	33	48	3	30	12	88	0
14	334	0.049	193.4	34	9	3	30	12	88	0
15	335	0.315	40.4	35	-28	3	30	12	88	0
16	336	0.887	39.5	36	0		30	12	88	21
17	337	1.588	42.9	37	33	3	30	12	88	0
18	338	2.369	43.2	38	3	3	30	12	68	0
19	339	3.432	38.9	39	2	3	30	12	68	0
20	340	3.891	39.3	40	6	3	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 12 SHOT POINT 18 TEAM 3

SHOT TIME: 209: 7: 0: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	341	20.790	38.8	41	--		30	12	48	21
2	342	20.123	39.3	42	--		30	12	48	21
3	343	19.702	39.1	43	-12	3	30	12	48	0
4	344	19.062	38.5	44	-7	3	30	12	48	0
5	345	18.315	39.0	45	1	3	30	12	48	0
6	346	17.930	39.2	46	-29	3	30	12	48	0
7	347	17.223	38.8	47	22	3	30	12	48	0
8	348	16.798	38.4	48	-17		30	12	48	21
9	349	16.238	38.9	49	2	3	30	12	48	0
10	350	15.699	38.8	50	-5	3	30	12	48	0
11	351	15.147	38.7	51	12		30	12	48	1
12	352	14.630	38.3	52	2	3	30	12	48	0
13	353	13.956	38.5	53	1		30	12	48	21
14	354	13.258	38.8	54	-8	3	30	12	48	0
15	355	12.717	38.3	55	0		30	12	48	3
16	356	12.300	37.2	56	0	3	30	12	48	0
17	357	11.599	37.2	57	-99	1	30	12	48	0
18	358	11.173	37.3	58	5	3	30	12	48	0
19	359	10.661	38.6	59	-2	3	30	12	48	0
20	360	10.176	38.6	60	-4	3	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 12 SHOT POINT 18 TEAM 4

SHOT TIME: 209: 7: 0: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	361	13.186	235.4	61	5		30	12	48	1
2	362	12.820	236.2	62	2		30	12	48	17
3	363	12.188	236.8	63	3		30	12	48	1
4	364	11.699	236.9	64	7	3	30	12	48	0
5	365	11.037	237.0	65	3		30	12	48	1
6	366	10.536	237.4	66	-2	3	30	12	48	0
7	367	9.855	236.1	67	2	3	30	12	48	0
8	368	9.299	236.8	68	-4	3	30	12	48	0
9	369	8.851	235.7	69	3	3	30	12	48	0
10	370	8.335	234.5	70	11	3	30	12	48	0
11	371	7.825	236.8	71	7		30	12	48	1
12	372	7.196	235.8	72	7	3	30	12	48	0
13	373	6.674	234.6	73	-5		30	12	48	21
14	374	6.145	234.6	74	3	3	30	12	48	0
15	375	5.581	232.1	75	7	3	30	12	48	0
16	376	5.106	234.7	76	0		30	12	48	6
17	377	4.464	231.4	77	1	3	30	12	48	0
18	378	3.948	232.6	78	2	3	30	12	48	0
19	379	3.331	229.8	79	11	2	30	12	48	0
20	380	2.930	226.5	80	6		30	12	48	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 12 SHOT POINT 18 TEAM 5

SHOT TIME: 209: 7: 0: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	381	9.464	38.7	81	1	3	30	12	48	2
2	382	16.429	235.8	82	-8	1	30	12	88	0
3	383	16.835	235.9	83	14	1	30	12	88	0
4	384	17.158	236.1	84	13	1	30	12	88	0
5	385	18.179	236.4	85	-18	1	30	12	68	0
6	386	18.565	236.5	86	-9		30	12	68	1
7	387	18.959	235.8	87	8		30	12	68	17
8	388	19.410	236.3	88	17	1	30	12	48	0
9	389	19.849	236.7	89	6	3	30	12	48	0
10	390	20.461	236.3	90	13	3	30	12	48	0
11	391	20.811	237.5	91	6		30	12	48	17
12	392	21.528	237.7	92	7	3	30	12	48	0
13	393	22.265	236.5	93	-2	1	30	12	48	0
14	394	22.713	237.8	94	14	1	30	12	48	0
15	395	23.310	236.8	95	19	1	30	12	48	0
16	396	23.787	237.1	96	0		30	12	48	17
17	397	24.324	237.4	97	5	1	30	12	48	0
18	398	25.019	237.2	98	23	1	30	12	48	0
19	399	25.368	238.2	99	9	1	30	12	48	0
20	400	25.816	238.5	100	7	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 12 SHOT POINT 18 TEAM 6

SHOT TIME: 209: 7: 0: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	401	15.362	235.2	101	14	1	30	12	88	0
2	402	14.817	235.9	102	7	1	30	12	88	0
3	403	14.344	235.7	103	4	1	30	12	88	0
4	404	13.856	235.9	104	2	1	30	12	68	0
5	405	15.971	233.8	105	22	1	30	12	88	0
6	406	15.813	231.7	106	-9	1	30	12	88	0
7	407	15.590	230.3	107	-42	1	30	12	88	0
8	408	15.392	228.3	108	10		30	12	68	1
9	409	15.233	226.8	109	2	1	30	12	68	0
10	410	15.053	224.9	110	19	1	30	12	68	0
11	411	14.994	223.6	111	--		30	12	48	17
12	412	14.803	222.3	112	6	3	30	12	48	0
13	413	14.791	220.7	113	0	3	30	12	48	0
14	414	14.417	217.3	114	2	3	30	12	48	0
15	415	14.564	215.5	115	5	3	30	12	48	0
16	416	14.670	213.0	116	19		30	12	48	1
17	417	14.251	210.4	117	25	3	30	12	48	0
18	418	13.990	206.3	118	18	3	30	12	48	0
19	419	13.946	203.6	119	2	3	30	12	48	0
20	420	15.954	235.8	120	1	1	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 13 SHOT POINT 1 TEAM 1

SHOT TIME: 209: 7:15: 0.009

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	301	9.208	137.8	1	4	1	48	12	30	0
2	302	8.698	133.6	2	0	1	48	12	30	0
3	303	8.147	128.4	3	1	1	48	12	30	0
4	304	7.968	121.7	4	-7	1	48	12	30	0
5	305	7.929	115.1	5	23	1	48	12	30	0
6	306	9.507	113.5	6	1	1	48	12	30	0
7	307	9.777	107.8	7	-3	1	48	12	30	0/30
8	308	9.996	102.7	8	1	1	48	12	30	0
9	309	10.583	98.4	9	10	1	48	12	30	0
10	310	10.993	94.2	10	3	1	48	12	30	0
11	311	11.473	90.3	11	11	1	48	12	30	0
12	312	12.088	86.1	12	1		48	12	30	2
13	313	12.514	82.1	13	-3	1	48	12	30	0
14	314	12.967	78.2	14	22		48	12	30	21
15	315	13.492	75.6	15	0	1	48	12	30	0
16	316	14.181	72.5	16	-2	1	48	12	30	0
17	317	14.899	69.5	17	12	1	48	12	30	0/17
18	318	14.710	65.9	18	-4	1	68	12	30	0
19	319	14.700	62.7	19	-10	1	68	12	30	0
20	320	15.625	59.6	20	7	1	88	12	30	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 13 SHOT POINT 1 TEAM 2

SHOT TIME: 209: 7:15: 0.009

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	321	17.635	89.0	21	2	3	30	12	48	0
2	322	16.435	80.4	22	11	3	30	12	48	0
3	323	14.573	57.3	23	29	1	30	12	88	0
4	324	13.884	47.4	24	-4	1	30	12	68	0
5	325	12.581	41.5	25	25	3	30	12	48	0
6	326	11.606	35.2	26	3		30	12	48	1
7	327	11.345	28.2	27	--		30	12	48	1
8	328	10.631	18.4	28	16	3	30	12	48	0
9	329	10.742	4.3	29	11	3	30	12	48	0
10	330	10.818	355.4	30	6	3	30	12	48	0
11	331	14.445	57.0	31	7		30	12	88	17
12	332	15.031	56.9	32	11	1	30	12	88	0
13	333	15.579	56.2	33	49	1	30	12	88	0
14	334	15.893	55.9	34	9	1	30	12	88	0
15	335	16.233	55.5	35	-28	1	30	12	88	0
16	336	16.782	54.9	36	0		30	12	88	1
17	337	17.480	54.6	37	34	1	30	12	88	0
18	338	18.248	54.2	38	3	1	30	12	68	0
19	339	19.238	52.8	39	2	1	30	12	68	0
20	340	19.695	52.6	40	6	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 13 SHOT POINT 1 TEAM 3

SHOT TIME: 209: 7:15: 0.009

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	341	36.319	46.1	41	--		30	12	48	21
2	342	35.679	46.6	42	--		30	12	48	21
3	343	35.255	46.6	43	-12	1	30	12	48	0
4	344	34.593	46.3	44	-7	1	30	12	48	0
5	345	33.875	46.6	45	1		30	12	48	21
6	346	33.504	47.0	46	-30	1	30	12	48	0
7	347	32.786	47.0	47	23	1	30	12	48	0
8	348	32.347	46.8	48	-17		30	12	48	3
9	349	31.815	47.2	49	2	1	30	12	48	0
10	350	31.278	47.3	50	-5	1	30	12	48	0
11	351	30.727	47.4	51	12		30	12	48	2
12	352	30.201	47.4	52	2	1	30	12	48	0
13	353	29.545	47.7	53	1		30	12	48	21
14	354	28.868	48.1	54	-8	1	30	12	48	0
15	355	28.313	48.0	55	0	1	30	12	48	0
16	356	27.863	47.7	56	0	1	30	12	48	0
17	357	27.175	48.0	57	-101	1	30	12	48	0
18	358	26.759	48.2	58	5	1	30	12	48	0
19	359	26.302	48.9	59	-2	1	30	12	48	0
20	360	25.825	49.1	60	-4	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 13 SHOT POINT 1 TEAM 4

SHOT TIME: 209: 7:15: 0.009

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	361	2.745	57.7	61	5		30	12	48	29
2	362	3.110	54.0	62	2	3	30	12	48	0
3	363	3.748	52.5	63	3		30	12	48	1
4	364	4.238	52.7	64	7	3	30	12	48	0
5	365	4.901	52.9	65	3		30	12	48	1
6	366	5.405	52.7	66	-2	3	30	12	48	0
7	367	6.074	55.3	67	2	3	30	12	48	0
8	368	6.633	54.3	68	-4	3	30	12	48	0
9	369	7.078	55.8	69	3	3	30	12	48	0
10	370	7.599	57.2	70	11	3	30	12	48	0
11	371	8.106	54.8	71	7		30	12	48	1
12	372	8.733	55.8	72	7	3	30	12	48	0
13	373	9.258	56.6	73	-5		30	12	48	17
14	374	9.786	56.5	74	3		30	12	48	1
15	375	10.365	57.7	75	7	3	30	12	48	0
16	376	10.824	56.3	76	0	3	30	12	48	0
17	377	11.463	57.5	77	1	3	30	12	48	0
18	378	11.990	56.8	78	2	3	30	12	48	0
19	379	12.621	57.3	79	12	3	30	12	48	0
20	380	13.046	57.8	80	6		30	12	48	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 13 SHOT POINT 1 TEAM 5

SHOT TIME: 209: 7:15: 0.009

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	381	25.127	49.4	81	1	3	30	12	48	0
2	382	0.500	236.2	82	-8	3	30	12	88	0
3	383	0.907	238.8	83	14	3	30	12	88	0
4	384	1.232	239.7	84	13	3	30	12	88	0
5	385	2.258	241.0	85	-18	3	30	12	68	0
6	386	2.645	240.9	86	-9		30	12	68	1
7	387	3.030	235.7	87	8		30	12	68	2
8	388	3.486	238.9	88	18	3	30	12	48	0
9	389	3.931	240.5	89	6	3	30	12	48	0
10	390	4.535	238.2	90	14	3	30	12	48	0
11	391	4.913	243.1	91	6		30	12	48	17
12	392	5.632	243.0	92	7	3	30	12	48	0
13	393	6.341	238.4	93	-2	3	30	12	48	0
14	394	6.816	242.4	94	14	3	30	12	48	0
15	395	7.390	239.1	95	20	3	30	12	48	0
16	396	7.872	239.8	96	0		30	12	48	17
17	397	8.415	240.6	97	5	3	30	12	48	0
18	398	9.105	239.8	98	24	1	30	12	48	0
19	399	9.479	242.4	99	9	3	30	12	48	0
20	400	9.935	242.9	100	7	3	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 13 SHOT POINT 1 TEAM 6

SHOT TIME: 209: 7:15: 0.009

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	401	0.585	69.9	101	15	3	30	12	88	0
2	402	1.113	53.8	102	7	3	30	12	88	0
3	403	1.585	56.5	103	4	3	30	12	88	0
4	404	2.074	55.1	104	2	3	30	12	68	0
5	405	0.563	149.0	105	22	3	30	12	88	0
6	406	1.136	137.8	106	-9	3	30	12	88	0
7	407	1.558	130.4	107	-42		30	12	88	2
8	408	2.105	127.3	108	11		30	12	68	1
9	409	2.550	125.4	109	2	3	30	12	68	0
10	410	3.059	123.7	110	19	3	30	12	68	0
11	411	3.399	123.8	111	--		30	12	48	17
12	412	3.770	121.8	112	6	3	30	12	48	0
13	413	4.132	122.6	113	0	3	30	12	48	0
14	414	5.092	119.5	114	3	3	30	12	48	0
15	415	5.531	121.5	115	5	3	30	12	48	0
16	416	6.172	122.8	116	19	3	30	12	48	0
17	417	6.829	119.2	117	25	3	30	12	48	0
18	418	7.856	117.2	118	18	3	30	12	48	0
19	419	8.506	116.7	119	2		30	12	48	17
20	420	0.025	221.5	120	1	3	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 14 SHOT POINT 9 TEAM 1

SHOT TIME: 212: 7: 0: 0.014

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	501	14.686	172.4	1	15	2	30	12	88	0
2	502	7.316	168.7	2	4	1	30	12	48	0
3	503	14.364	172.3	3	10	2	30	12	88	0
4	504	13.795	170.9	4	-18	2	30	12	88	0
5	505	13.147	170.2	5	45	2	30	12	68	0
6	506	12.598	170.9	6	7	2	30	12	68	0
7	507	12.149	169.7	7	-9	2	30	18	48	0
8	508	11.304	170.2	8	9	2	30	12	48	0
9	509	10.961	171.0	9	33	2	30	12	48	0
10	510	10.392	172.3	10	19	2	30	12	48	0
11	511	9.844	171.2	11	29	2	30	12	48	0
12	512	9.439	168.9	12	8	2	30	12	48	0
13	513	8.773	168.6	13	-4	1	30	12	48	0
14	514	8.335	172.0	14	20	2	48	12	30	0
15	515	7.926	170.7	15	9	1	30	12	48	0
16	301	32.607	174.7	16	31	2	30	12	48	0
17	302	31.794	174.4	17	36	2	30	12	68	0
18	303	30.872	174.0	18	2	2	30	12	68	0
19	304	30.045	173.1	19	23	2	30	12	68	0
20	305	29.287	172.1	20	13	2	30	12	68	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 14 SHOT POINT 9 TEAM 2

SHOT TIME: 212: 7: 0: 0.014

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	405	26.285	186.3	21	0	2	30	12	48	0
2	406	26.596	185.2	22	13	2	30	12	48	0
3	407	26.729	184.2	23	35	2	30	12	88	0
4	408	26.961	183.2	24	-10		30	12	48	2
5	409	27.145	182.3	25	19	1	30	12	48	0
6	410	27.351	181.3	26	5		30	12	68	17
7	411	27.538	180.7	27	35		30	12	68	1
8	412	27.629	179.9	28	20	2	30	12	68	0
9	413	27.905	179.3	29	13	2	30	12	68	0
10	414	28.178	177.4	30	7	2	30	12	88	0
11	415	28.581	176.9	31	10		30	12	88	17
12	417	29.110	174.5	32	-7	2	30	12	88	0
13	418	29.480	172.6	33	49	2	30	12	68	0
14	419	29.798	171.5	34	10	2	30	12	68	0
15	535	30.355	169.5	35	35	2	30	12	48	0
16	536	30.411	168.4	36	-3	2	30	12	48	0
17	307	29.284	167.9	37	36	2	30	12	48	0
18	309	28.144	165.0	38	4	2	30	12	48	0
19	310	27.572	163.6	39	4	2	30	12	48	0
20	312	26.359	160.3	40	6	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 14 SHOT POINT 9 TEAM 3

SHOT TIME: 212: 7: 0: 0.014

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	541	20.710	195.3	41	6	2	30	12	48	0
2	542	20.313	194.1	42	4	2	30	12	48	0
3	543	19.666	193.5	43	9	2	30	12	48	0
4	544	19.443	191.7	44	0	2	30	12	48	0
5	545	18.987	190.6	45	2		30	12	48	21
6	546	18.769	188.6	46	-26	2	30	12	48	0
7	547	18.307	188.6	47	26	2	30	12	48	0
8	548	18.143	186.7	48	-7		30	12	48	1
9	549	17.965	184.9	49	3	2	30	12	48	0
10	550	17.775	182.7	50	-3	2	30	12	48	0
11	551	17.445	181.1	51	15		30	12	48	21
12	552	17.191	179.6	52	5	2	30	12	68	0
13	553	17.054	178.3	53	2	2	30	12	68	0
14	554	16.459	176.9	54	-7	2	30	12	68	0
15	555	16.311	175.2	55	3	2	30	12	88	0
16	556	15.833	172.6	56	3	2	30	12	88	0
17	557	17.672	173.3	57	100		30	12	68	17
18	558	17.218	173.1	58	7		30	12	88	1
19	559	16.643	172.6	59	0	2	30	12	88	0
20	560	16.257	172.3	60	-3	2	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 14 SHOT POINT 9 TEAM 4

SHOT TIME: 212: 7: 0: 0.014

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	561	30.730	213.0	61	11		30	12	48	1
2	562	29.716	211.2	62	7	2	30	12	88	0
3	563	29.604	209.6	63	8	2	30	12	88	0
4	564	29.356	208.2	64	15	2	30	12	88	0
5	565	28.817	207.1	65	4	2	30	12	48	0
6	566	27.986	207.3	66	-6	2	30	12	68	0
7	567	27.652	207.1	67	-2	2	30	12	68	0
8	568	26.709	205.9	68	-5	2	30	12	48	0
9	569	26.077	205.7	69	8	2	30	12	48	0
10	570	25.564	205.5	70	23	2	30	12	48	0
11	571	24.912	204.8	71	9	2	30	12	48	0
12	572	24.646	203.6	72	14	2	30	12	48	0
13	573	24.110	202.9	73	-9		30	12	48	2
14	574	21.036	196.3	74	0	2	30	12	48	0
15	575	23.661	201.5	75	14	2	30	12	48	0
16	576	23.171	201.3	76	-7	2	30	12	48	0
17	577	22.634	200.8	77	4	2	30	12	48	0
18	578	22.314	199.9	78	1	2	30	12	48	0
19	579	21.772	199.4	79	20	2	30	12	48	0
20	580	21.487	197.6	80	11		30	12	48	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 14 SHOT POINT 9 TEAM 5

SHOT TIME: 212: 7: 0: 0.014

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	581	9.734	33.1	81	1	1	30	12	48	0
2	582	8.478	33.3	82	-9	1	30	12	48	0
3	583	6.327	39.6	83	15	1	30	12	48	0
4	584	4.844	50.8	84	14	1	30	12	48	0
5	585	3.971	61.9	85	-32	1	30	12	48	0
6	586	1.996	65.9	86	2		30	12	68	17
7	587	0.007	270.0	87	10		30	12	88	6
8	588	0.225	129.7	88	21	3	30	12	88	0
9	589	0.899	151.8	89	9	1	30	12	88	0
10	590	1.359	152.4	90	14	1	30	12	88	0
11	591	1.974	152.9	91	6	3	30	12	68	0
12	592	2.478	153.9	92	7	1	30	12	68	0
13	593	3.080	155.4	93	-9	1	30	12	68	0
14	594	3.639	157.1	94	16	1	30	12	48	0
15	595	4.238	158.4	95	31	3	30	12	48	0
16	596	4.703	162.0	96	-5	3	30	12	48	0
17	597	5.130	165.8	97	7	1	30	12	48	0
18	598	5.630	165.6	98	29	1	30	12	48	0
19	599	6.084	166.9	99	10	1	30	12	48	0
20	600	6.730	168.6	100	8	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 14 SHOT POINT 9 TEAM 6

SHOT TIME: 212: 7: 0: 0.014

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	416	29.060	176.0	101	9	2	30	12	88	0
2	602	28.565	175.9	102	3		30	12	88	2
3	603	28.112	176.1	103	2		30	12	68	17
4	604	27.473	175.5	104	2	2	30	12	68	0
5	605	26.605	174.1	105	11	2	30	12	68	0
6	606	26.083	173.9	106	-5	2	30	12	48	0
7	607	25.565	173.9	107	-27	2	30	12	48	0
8	608	24.982	174.0	108	5		30	12	48	2
9	609	24.414	174.0	109	1	2	30	12	48	0
10	610	23.880	173.9	110	11	2	30	12	48	0
11	611	23.386	174.2	111	2	2	30	12	48	0
12	612	22.883	174.4	112	3	2	30	12	48	0
13	613	22.422	174.5	113	-3	2	30	12	48	0
14	614	21.863	175.0	114	0	2	30	12	48	0
15	615	21.225	174.9	115	3	2	30	12	48	0
16	616	20.783	175.2	116	10	2	30	12	48	0
17	617	20.153	174.9	117	14	2	30	12	48	0
18	618	19.624	174.5	118	10	2	30	12	48	0
19	619	19.125	174.2	119	2	2	30	12	68	0
20	620	18.527	173.7	120	1	2	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 15 SHOT POINT 16 TEAM 1

SHOT TIME: 212: 7:15: 0.018

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	501	1.146	357.6	1	15	3	30	12	88	0
2	502	8.547	356.3	2	4	3	30	12	48	0
3	503	1.470	357.7	3	10	3	30	12	88	0
4	504	2.089	5.3	4	-18	3	30	12	88	0
5	505	2.759	5.3	5	45	3	30	12	68	0
6	506	3.261	359.9	6	7		30	12	68	21
7	507	3.753	2.8	7	-9	3	30	18	48	0
8	508	4.565	359.3	8	9		30	12	48	17
9	509	4.884	356.8	9	33	3	30	12	48	0
10	510	5.437	353.7	10	19	3	30	12	48	0
11	511	5.993	355.3	11	29	3	30	12	48	0
12	512	6.444	358.5	12	8	3	30	12	48	0
13	513	7.106	357.9	13	-4	3	30	12	48	0
14	514	7.495	353.7	14	20	3	48	12	30	0
15	515	7.913	354.9	15	10	3	30	12	48	0
16	301	16.796	176.5	16	31	3	30	12	48	0
17	302	15.978	175.9	17	36		30	12	68	2
18	303	15.051	175.3	18	2	1	30	12	68	0
19	304	14.218	173.5	19	23	1	30	12	68	0
20	305	13.461	171.4	20	13	1	30	12	68	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 15 SHOT POINT 16 TEAM 2

SHOT TIME: 212: 7:15: 0.018

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	405	11.507	205.0	21	0	3	30	12	48	
2	406	11.647	202.2	22	13	3	30	12	48	0
3	407	11.652	199.9	23	36	1	30	12	88	
4	408	11.746	197.3	24	-10	3	30	12	48	0
5	409	11.830	195.1	25	19	3	30	12	48	0
6	410	11.933	192.7	26	5		30	12	68	17
7	411	12.062	191.2	27	35		30	12	68	1
8	412	12.087	189.3	28	20	1	30	12	68	0
9	413	12.309	187.6	29	13	1	30	12	68	0
10	414	12.469	183.4	30	7	1	30	12	88	0
11	415	12.845	182.0	31	10		30	12	88	17
12	417	13.297	176.6	32	-8	1	30	12	88	0
13	418	13.653	172.3	33	49	1	30	12	68	0
14	419	13.979	170.0	34	10	1	30	12	68	0
15	535	14.580	166.0	35	35	3	30	12	48	0
16	536	14.679	163.7	36	-3	3	30	12	48	0
17	307	13.580	162.2	37	36	3	30	12	48	0
18	309	12.647	155.2	38	4	1	30	12	48	0
19	310	12.212	151.7	39	4	3	30	12	48	0
20	312	11.429	142.9	40	6	3	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 15 SHOT POINT 16 TEAM 3

SHOT TIME: 212: 7:15: 0.018

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	541	8.612	240.3	41	6	3	30	12	48	0
2	542	8.009	240.0	42	3	3	30	12	48	0
3	543	7.425	242.6	43	-9	3	30	12	48	0
4	544	6.815	240.7	44	0	3	30	12	48	0
5	545	6.225	241.6	45	2		30	12	48	21
6	546	5.586	239.3	46	-26	3	30	12	48	0
7	547	5.303	243.1	47	26	3	30	12	48	0
8	548	4.730	240.7	48	-7		30	12	48	1
9	549	4.166	238.2	49	3	3	30	12	48	0
10	550	3.508	234.2	50	-3	3	30	12	48	0
11	551	2.897	233.1	51	15		30	12	48	17
12	552	2.392	231.5	52	5	3	30	12	68	0
13	553	1.997	227.7	53	2	3	30	12	68	0
14	554	1.315	236.2	54	-7	3	30	12	88	0
15	555	0.833	228.5	55	3	3	30	12	88	0
16	556	0.036	90.0	56	3	3	30	12	88	0/17
17	557	1.850	177.4	57	100		30	12	68	17
18	558	1.394	177.0	58	7		30	12	88	1
19	559	0.816	170.2	59	0	3	30	12	88	0
20	560	0.451	154.7	60	-3	3	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 15 SHOT POINT 16 TEAM 4

SHOT TIME: 212: 7:15: 0.018

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	561	21.273	241.7	61	11		30	12	48	1
2	562	19.917	240.8	62	7	1	30	12	88	0
3	563	19.422	238.9	63	8	1	30	12	88	0
4	564	18.863	237.4	64	15	1	30	12	88	0
5	565	18.104	236.6	65	4		30	12	48	2
6	566	17.444	238.3	66	-6	1	30	12	68	0
7	567	17.108	238.6	67	-2	1	30	12	68	0
8	568	15.996	238.6	68	-5	1	30	12	48	0
9	569	15.431	239.7	69	8	3	30	12	48	0
10	570	14.950	240.5	70	23	3	30	12	48	0
11	571	14.235	240.9	71	9	3	30	12	48	0
12	572	13.724	239.9	72	14	3	30	12	48	0
13	573	13.112	240.2	73	-9		30	12	48	2
14	574	9.077	240.3	74	0	3	30	12	48	0
15	575	12.393	239.4	75	14	3	30	12	48	0
16	576	11.969	240.6	76	-7	3	30	12	48	0
17	577	11.434	241.5	77	4	3	30	12	48	0
18	578	10.943	241.1	78	1	3	30	12	48	0
19	579	10.431	242.4	79	20	3	30	12	48	0
20	580	9.744	240.6	80	11		30	12	48	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 15 SHOT POINT 16 TEAM 5

SHOT TIME: 212: 7:15: 0.018

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	581	24.087	8.0	81	1	3	30	12	48	0
2	582	22.943	6.7	82	-9	1	30	12	48	0
3	583	20.680	5.7	83	15	3	30	12	48	0
4	584	18.845	5.4	84	14	3	30	12	48	0
5	585	17.639	4.9	85	-32	3	30	12	48	0
6	586	16.519	359.4	86	2	1	30	12	68	0
7	587	15.829	352.8	87	10		30	12	88	17
8	588	15.664	353.3	88	21	1	30	12	88	0
9	589	14.992	354.0	89	9	1	30	12	88	0
10	590	14.561	354.6	90	14	1	30	12	88	0
11	591	13.988	355.5	91	6	1	30	12	68	0
12	592	13.507	356.2	92	8	3	30	12	68	0
13	593	12.921	356.9	93	-9	3	30	12	68	0
14	594	12.363	357.3	94	16	3	30	12	48	0
15	595	11.769	357.9	95	31	3	30	12	48	0
16	596	11.242	357.3	96	-5	3	30	12	48	0
17	597	10.754	356.1	97	7	3	30	12	48	0
18	598	10.266	356.7	98	29	3	30	12	48	0
19	599	9.796	356.4	99	11	3	30	12	48	0
20	600	9.129	355.9	100	8	3	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 15 SHOT POINT 16 TEAM 6

SHOT TIME: 212: 7:15: 0.018

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	416	13.288	179.9	101	9	1	30	12	88	0
2	602	12.789	179.7	102	3	1	30	12	88	0
3	603	12.345	180.4	103	2		30	12	68	2
4	604	11.686	179.1	104	2	1	30	12	68	0
5	605	10.788	176.0	105	11	3	30	12	68	0
6	606	10.263	175.6	106	-5	3	30	12	48	0
7	607	9.745	175.7	107	-27	3	30	12	48	0
8	608	9.163	176.0	108	5		30	12	48	2
9	609	8.596	176.2	109	2	3	30	12	48	0
10	610	8.062	176.2	110	11	3	30	12	48	0
11	611	7.573	177.2	111	2	3	30	12	48	0
12	612	7.076	178.1	112	3	3	30	12	48	0
13	613	6.618	178.7	113	-3	3	30	12	48	0
14	614	6.077	180.7	114	0	3	30	12	48	0
15	615	5.442	181.3	115	3		30	12	48	2
16	616	5.016	183.0	116	10	3	30	12	48	0
17	617	4.378	182.8	117	14	3	30	12	48	0
18	618	3.834	181.8	118	10	3	30	12	48	0
19	619	3.324	180.8	119	2		30	12	68	17
20	620	2.712	179.0	120	1	3	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 16 SHOT POINT 15 TEAM 1

SHOT TIME: 212: 7:30: 0.004

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	501	14.431	359.7	1	15	1	30	12	88	0
2	502	21.822	358.5	2	4	2	30	12	48	0
3	503	14.755	359.7	3	10	1	30	12	88	0
4	504	15.367	0.6	4	-18	1	30	12	88	0
5	505	16.035	0.8	5	46	1	30	12	68	12
6	506	16.547	359.9	6	7	2	30	12	68	0
7	507	17.035	0.5	7	-9	2	30	18	48	0
8	508	17.850	359.7	8	9	1	30	12	48	0
9	509	18.164	359.1	9	34	2	30	12	48	0
10	510	18.700	358.1	10	20	2	30	12	48	0
11	511	19.266	358.5	11	29	2	30	12	48	0
12	512	19.728	359.5	12	8	2	30	12	48	0
13	513	20.389	359.2	13	-4	2	30	12	48	0
14	514	20.752	357.7	14	21	2	48	12	30	0
15	515	21.179	358.0	15	10	2	30	12	48	0
16	301	3.619	164.0	16	31	3	30	12	48	0
17	302	2.877	157.2	17	36	1	30	12	68	0
18	303	2.094	145.0	18	2	1	30	12	68	0
19	304	1.803	117.8	19	23		30	12	68	17
20	305	1.992	90.7	20	13	3	30	12	68	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 16 SHOT POINT 15 TEAM 2

SHOT TIME: 212: 7:30: 0.004

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	405	5.671	300.3	21	0	3	30	12	48	0
2	406	5.082	299.5	22	13	3	30	12	48	0
3	407	4.631	300.2	23	36	1	30	12	88	0
4	408	4.075	300.5	24	-10	3	30	12	48	0
5	409	3.625	301.0	25	19	3	30	12	48	0
6	410	3.112	301.9	26	5		30	12	68	2
7	411	2.773	301.6	27	35		30	12	68	2
8	412	2.402	304.4	28	20	3	30	12	68	0
9	413	1.978	303.3	29	13	3	30	12	68	0
10	414	1.127	318.0	30	7	1	30	12	88	0
11	415	0.652	313.5	31	10		30	12	88	2
12	417	0.775	89.1	32	-8	3	30	12	88	0
13	418	1.819	97.7	33	49		30	12	68	6
14	419	2.459	101.2	34	10	3	30	12	68	0
15	535	3.604	103.9	35	35	3	30	12	48	6
16	536	4.177	101.1	36	-3		30	12	48	6
17	307	4.138	85.1	37	37	3	30	12	48	0
18	309	5.586	71.1	38	4	3	30	12	48	0
19	310	6.311	66.3	39	4	3	30	12	48	0
20	312	8.041	58.8	40	6	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 16 SHOT POINT 15 TEAM 3

SHOT TIME: 212: 7:30: 0.004

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	541	11.733	320.2	41	6	1	30	12	48	0
2	542	11.608	323.1	42	4	1	30	12	48	0
3	543	11.880	326.1	43	9	1	30	12	48	0
4	544	11.604	329.0	44	0	1	30	12	48	0
5	545	11.696	331.9	45	2		30	12	48	6
6	546	11.493	335.2	46	-26	1	30	12	48	0
7	547	11.879	336.4	47	26	1	30	12	48	0
8	548	11.729	339.3	48	-7		30	12	48	1
9	549	11.649	342.2	49	3	1	30	12	48	0
10	550	11.595	345.7	50	-3	1	30	12	48	0
11	551	11.781	348.5	51	15		30	12	48	2
12	552	11.949	350.9	52	5	1	30	12	68	0
13	553	12.036	352.8	53	2	1	30	12	68	0
14	554	12.604	354.9	54	-7	1	30	12	88	0
15	555	12.750	357.1	55	3	1	30	12	88	0
16	556	13.286	0.1	56	3	1	30	12	88	0
17	557	11.438	0.3	57	100	1	30	12	88	0
18	558	11.894	0.2	58	7		30	12	88	1
19	559	12.482	0.5	59	0	1	30	12	68	0
20	560	12.879	0.8	60	-3	1	30	12	68	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 16 SHOT POINT 15 TEAM 4

SHOT TIME: 212: 7:30: 0.004

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	561	19.044	279.7	61	11		30	12	48	1
2	562	17.775	281.5	62	7	1	30	12	88	0
3	563	16.973	281.0	63	8	1	30	12	88	0
4	564	16.231	281.1	64	15	1	30	12	88	0
5	565	15.516	282.4	65	4		30	12	48	0
6	566	15.437	285.5	66	-6	1	30	12	68	0
7	567	15.276	286.6	67	-2	1	30	12	68	0
8	568	14.556	289.9	68	-5	1	30	12	48	0
9	569	14.437	292.4	69	8	1	30	12	48	0
10	570	14.317	294.4	70	23	1	30	12	48	0
11	571	14.006	297.0	71	9	1	30	12	48	0
12	572	13.520	298.3	72	14	1	30	12	48	0/17
13	573	13.274	300.7	73	-9		30	12	48	2
14	574	11.831	318.0	74	0	3	30	12	48	0
15	575	12.764	303.1	75	14	1	30	12	48	0/17
16	576	12.808	305.3	76	-7	1	30	12	48	0
17	577	12.766	307.9	77	4	3	30	12	48	0
18	578	12.507	309.8	78	1	1	30	12	48	0
19	579	12.552	312.4	79	20	1	30	12	48	0
20	580	12.038	315.0	80	11		30	12	48	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 16 SHOT POINT 15 TEAM 5

SHOT TIME: 212: 7:30: 0.004

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAFE GRADE
1	581	37.288	5.1	81	1	2	30	12	48	0
2	582	36.170	4.2	82	-9	2	30	12	48	0
3	583	33.925	3.4	83	15	2	30	12	48	0
4	584	32.096	3.1	84	14	2	30	12	48	0
5	585	30.896	2.8	85	-33	2	30	12	48	0
6	586	29.805	359.6	86	2	2	30	12	68	0
7	587	29.058	356.0	87	10		30	12	88	17
8	588	28.903	356.3	88	21	2	30	12	88	0
9	589	28.241	356.8	89	9	2	30	12	88	0
10	590	27.818	357.1	90	14	1	30	12	88	0
11	591	27.254	357.7	91	6	2	30	12	68	0
12	592	26.779	356.0	92	8	2	30	12	68	0
13	593	26.197	356.4	93	-9	2	30	12	68	0
14	594	25.642	358.7	94	16	2	30	12	48	0
15	595	25.051	359.0	95	31	2	30	12	48	0
16	596	24.521	358.7	96	-5	2	30	12	48	0
17	597	24.027	358.2	97	7	2	30	12	48	0
18	598	23.543	358.5	98	29	2	30	12	48	0
19	599	23.071	358.4	99	11	2	30	12	48	0
20	600	22.401	358.3	100	8	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 16 SHOT POINT 15 TEAM 6

SHOT TIME: 212: 7:30: 0.004

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAFE GRADE
1	416	0.002	180.0	101	9	3	30	12	88	0
2	602	0.498	4.2	102	4		30	12	88	3
3	603	0.947	353.5	103	2		30	12	68	17
4	604	1.608	5.6	104	2	1	30	12	68	1
5	605	2.629	16.2	105	12	3	30	12	68	0
6	606	3.145	13.9	106	-5	3	30	12	48	0
7	607	3.638	11.2	107	-28	3	30	12	48	0
8	608	4.190	8.4	108	5		30	12	48	2
9	609	4.741	6.7	109	2	3	30	12	48	0
10	610	5.266	5.6	110	11	3	30	12	48	0
11	611	5.732	3.5	111	2	3	30	12	48	0
12	612	6.217	2.0	112	3	3	30	12	48	0
13	613	6.671	1.1	113	-4	3	30	12	48	0
14	614	7.210	359.2	114	0		30	12	48	17
15	615	7.847	359.0	115	3		30	12	48	6
16	616	8.282	358.0	116	11	1	30	12	48	0
17	617	8.917	358.5	117	15	1	30	12	48	0
18	618	9.454	359.1	118	10	3	30	12	48	0
19	619	9.962	359.6	119	2		30	12	68	17
20	620	10.574	0.1	120	1	1	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 17 SHOT POINT 14 TEAM 1

SHOT TIME: 215: 7: 0: 0.788

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	562	44.817	271.5	1	-16	2	30	12	88	0
2	563	44.055	271.1	2	6		30	12	88	2
3	564	43.321	271.0	3	51		30	12	88	1
4	565	42.552	271.3	4	-19	2	30	12	68	12
5	705	42.232	271.6	5	9		30	12	68	1
6	706	41.398	271.9	6	6		30	12	48	2
7	707	40.935	271.5	7	-15	2	30	12	48	0
8	708	40.213	271.4	8	7		30	12	48	17
9	709	39.512	271.0	9	60	2	30	12	48	0
10	710	39.040	271.6	10	12		30	12	48	1
11	711	38.229	271.5	11	14	2	30	12	48	0
12	712	37.416	272.1	12	7	2	30	12	48	0
13	713	36.780	271.7	13	-6	2	30	12	48	0
14	714	36.250	271.6	14	22	2	30	12	48	0
15	715	35.658	271.7	15	1		30	12	68	2
16	716	35.001	271.9	16	38	2	30	12	68	0
17	717	34.304	271.6	17	16	2	30	12	88	0
18	718	33.624	271.7	18	1	1	30	12	88	0
19	719	33.004	271.6	19	31	1	30	12	88	0
20	561	46.166	271.0	20	19	2	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 17 SHOT POINT 14 TEAM 2

SHOT TIME: 215: 7: 0: 0.788

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	721	19.717	267.7	21	0	2	30	12	88	0
2	722	19.046	267.6	22	11	1	30	12	88	0
3	723	18.422	267.5	23	33	1	30	12	68	0
4	724	17.786	267.4	24	-11	1	30	12	68	0
5	725	17.061	267.4	25	21	2	30	12	68	0
6	726	15.760	269.1	26	3	1	30	12	88	0
7	727	15.109	267.9	27	5	1	30	12	88	0
8	728	14.429	268.9	28	14	1	30	12	88	0
9	729	13.820	269.9	29	11	1	30	12	88	0
10	730	13.197	269.6	30	5	1	30	12	68	0
11	731	12.478	268.9	31	6	1	30	12	68	0
12	732	11.808	268.6	32	12	1	30	12	48	0
13	733	11.180	267.4	33	51	1	30	12	48	0
14	734	10.470	267.6	34	7	1	30	12	48	0
15	735	9.766	266.5	35	-36	1	30	12	48	0
16	736	9.154	265.3	36	-4	1	30	12	48	0
17	737	8.521	264.9	37	34	1	30	12	48	0
18	738	7.874	264.7	38	3	1	30	12	48	0
19	739	7.209	266.1	39	2	1	30	12	48	0
20	740	6.534	268.2	40	4	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 17 SHOT POINT 14 TEAM 3

SHOT TIME: 215: 7: 0: 0.788

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	566	42.298	272.4	41	12	2	30	12	68	0
2	567	42.069	272.7	42	7	2	30	12	68	0
3	568	41.153	273.6	43	-22	2	30	12	48	0
4	569	40.853	274.4	44	-10	2	30	12	48	0
5	570	40.575	275.0	45	0	2	30	12	48	0
6	571	40.055	275.7	46	-58	2	30	12	48	0
7	572	39.494	275.8	47	41	2	30	12	48	0
8				48	--		30	12	48	20
9	575	38.350	276.9	49	3	2	30	12	48	0
10	576	38.165	277.6	50	10	2	30	12	48	0
11	577	37.855	278.3	51	-2	2	30	12	48	0
12	578	37.417	278.6	52	7	2	30	12	48	0
13	579	37.155	279.4	53	0	2	30	12	48	0
14	580	36.417	279.7	54	-18	2	30	12	48	0
15	574	35.872	280.3	55	3		30	12	48	3
16	541	35.511	280.8	56	4	2	30	12	48	0
17	542	35.032	281.4	57	0		30	12	48	2
18	543	34.810	282.4	58	2	2	30	12	48	0
19	544	34.195	282.8	59	-2		30	12	48	17
20	573	39.044	276.5	60	-9	2	30	12	48	12

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 17 SHOT POINT 14 TEAM 4

SHOT TIME: 215: 7: 0: 0.788

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	420	32.605	271.7	61	9	1	30	12	88	0
2	762	31.931	271.7	62	8	2	30	12	88	0
3	763	31.274	271.9	63	6	2	30	12	88	0
4	764	30.657	271.6	64	13	2	30	12	68	0
5	765	29.860	271.2	65	3	2	30	12	68	0
6	766	29.275	271.4	66	-6	2	30	12	48	0
7	767	28.721	271.3	67	-9	2	30	12	48	0
8	768	28.000	271.7	68	-9	2	30	12	48	0
9	769	27.464	270.9	69	6	2	30	12	48	0
10	605	26.658	270.3	70	19	2	30	12	48	0
11	771	26.145	269.3	71	2	2	30	12	48	0
12	772	25.566	269.7	72	12	2	30	12	48	0
13	773	24.542	269.6	73	-10	1	30	12	68	0
14	774	24.242	269.4	74	-2	2	30	12	68	0
15	775	23.410	268.5	75	13	2	30	12	68	0
16	776	22.899	268.1	76	-5	1	30	12	88	0
17	777	22.397	267.9	77	1	1	30	12	88	0
18	778	21.286	267.5	78	0	2	30	12	88	0
19	779	21.786	267.1	79	19	2	30	12	88	0
20	780	20.860	267.8	80	11		30	12	88	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 17 SHOT POINT 14 TEAM 5

SHOT TIME: 215: 7: 0: 0.788

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	781	5.698	270.0	81	2	1	30	12	48	0/17
2	782	1.098	265.1	82	-10	1	30	12	88	0
3	783	4.394	277.8	83	13	1	30	12	48	0
4	784	3.383	285.5	84	13	3	30	12	48	0
5	785	1.906	270.0	85	-37	3	30	12	68	0
6	786	0.000	180.0	86	1	3	30	12	88	0/17
7	787	0.871	69.0	87	8		30	12	88	17
8	788	3.066	69.7	88	22		30	12	68	2
9	789	4.273	59.7	89	9		30	12	48	3
10	790	5.680	67.0	90	11	1	30	12	48	0
11	791	7.537	75.4	91	5	1	30	12	48	0
12	792	8.682	76.7	92	6	3	30	12	48	0
13	793	9.928	82.2	93	-20	1	30	12	48	0
14	794	10.567	86.1	94	14	1	30	12	48	0
15	795	12.732	86.6	95	26	1	30	12	48	0
16	796	13.618	90.9	96	-15		30	12	48	3
17	797	15.274	89.1	97	7	1	30	12	48	0
18	798	17.401	89.0	98	26	2	30	12	48	0
19	799	18.213	91.0	99	2	2	30	12	48	0
20	800	18.680	90.6	100	7	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 17 SHOT POINT 14 TEAM 6

SHOT TIME: 215: 7: 0: 0.788

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	801	20.316	267.7	101	9	2	30	12	88	0
2	545	33.823	283.6	102	3	1	30	12	48	0
3	546	33.194	284.0	103	3		30	12	48	2
4	547	33.237	284.8	104	1		30	12	48	2
5	548	32.674	285.2	105	11	2	30	12	48	0
6	549	32.144	285.7	106	-6	2	30	12	48	0
7	550	31.514	286.3	107	-32	2	30	12	48	0
8	551	31.097	287.1	108	6		30	12	48	2
9	552	30.749	287.8	109	2	2	30	12	48	0
10	553	30.416	288.3	110	11	1	30	12	48	0
11	554	30.250	289.6	111	0	1	30	12	48	0
12	555	29.871	290.3	112	4	2	30	12	48	0
13	556	29.451	291.7	113	-5		30	12	48	17
14	814	28.500	292.7	114	0		30	12	48	2
15	326	27.901	292.0	115	1	2	30	12	48	0
16	325	26.358	293.2	116	--		30	12	48	2
17	817	27.041	292.7	117	15	2	30	12	48	0
18	324	24.627	294.9	118	11	1	30	12	48	0
19	819	23.073	294.6	119	2		30	12	48	17
20	323	22.141	293.5	120	1	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 18 SHOT POINT 12 TEAM 1

SHOT TIME: 215: 7:15: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	562	23.203	275.5	1	-16	1	30	12	88	0
2	563	22.422	274.9	2	6	1	30	12	88	0
3	564	21.682	274.8	3	52		30	12	88	1
4	565	20.930	275.5	4	-19	1	30	12	68	0
5	705	20.628	276.1	5	10		30	12	68	1
6	706	19.816	277.0	6	6		30	12	48	2
7	707	19.333	276.4	7	-15	1	30	12	48	0
8	708	18.607	276.3	8	7		30	12	48	17
9	709	17.887	275.7	9	60		30	12	48	6
10	710	17.453	277.1	10	13	1	30	12	48	0
11	711	16.639	277.2	11	14	1	30	12	48	0
12	712	15.869	278.7	12	7	3	30	12	48	0
13	713	15.210	278.2	13	-6	1	30	12	48	0
14	714	14.674	278.1	14	22		30	12	48	17
15	715	14.094	278.6	15	1		30	12	68	1
16	716	13.455	279.4	16	38	1	30	12	68	0
17	717	12.742	279.0	17	16	1	30	12	68	0
18	718	12.074	279.7	18	1	1	30	12	68	0
19	719	11.459	280.1	19	32	1	30	12	68	0
20	561	24.524	274.4	20	19	1	30	12	68	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 18 SHOT POINT 12 TEAM 2

SHOT TIME: 215: 7:15: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	721	2.026	82.8	21	0	3	30	12	88	0
2	722	2.694	84.6	22	11	1	30	12	88	0
3	723	3.316	85.6	23	33	3	30	12	68	0
4	724	3.951	86.2	24	-12	3	30	12	68	0
5	725	4.676	86.6	25	21	3	30	12	68	0
6	726	6.006	82.3	26	3	1	30	12	88	0
7	727	6.631	85.7	27	5	1	30	12	88	0
8	728	7.327	83.8	28	14	1	30	12	88	0
9	729	7.959	82.5	29	11	1	30	12	88	0
10	730	8.569	83.5	30	5	1	30	12	68	0
11	731	9.270	84.9	31	8	1	30	12	68	0
12	732	9.936	85.6	32	13	1	30	12	48	0
13	733	10.557	87.0	33	52	3	30	12	48	0
14	734	11.267	86.8	34	7	1	30	12	48	0
15	735	11.973	87.8	35	-36	3	30	12	48	0
16	736	12.592	88.6	36	-4	1	30	12	48	0
17	737	13.227	88.7	37	35	1	30	12	48	0
18	738	13.876	88.7	38	3	1	30	12	48	0
19	739	14.530	87.8	39	2	1	30	12	48	0
20	740	15.204	86.8	40	4	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 18 SHOT POINT 12 TEAM 3

SHOT TIME: 215: 7:15: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	566	20.746	277.7	41	12	1	30	12	68	0
2	567	20.544	278.5	42	7	1	30	12	68	0
3	568	19.704	280.6	43	-23	1	30	12	48	0
4	569	19.482	282.4	44	-10	1	30	12	48	0
5	570	19.272	283.8	45	0	1	30	12	48	0
6	571	18.841	285.5	46	-59	1	30	12	48	0
7	572	18.305	286.1	47	41	1	30	12	48	0
8				48	--		30	12	48	20
9	575	17.318	289.0	49	3	1	30	12	48	0
10	576	17.238	290.6	50	10	1	30	12	48	0
11	577	17.050	292.4	51	-2	1	30	12	48	0
12	578	16.685	293.6	52	7	1	30	12	48	0
13	579	16.568	295.5	53	0	3	30	12	48	0
14	580	15.910	296.8	54	-18	1	30	12	48	0
15	574	15.510	298.8	55	4	1	30	12	48	0
16	541	15.265	300.3	56	4	1	30	12	48	0
17	542	14.942	302.2	57	0		30	12	48	17
18	543	14.972	304.8	58	2	1	30	12	48	0
19	544	14.494	306.5	59	-2		30	12	48	17
20	573	17.942	287.7	60	-9	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 18 SHOT POINT 12 TEAM 4

SHOT TIME: 215: 7:15: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	420	11.066	280.4	61	9	1	30	12	88	1
2	762	10.403	281.0	62	8	1	30	12	88	0
3	763	9.775	282.3	63	6	1	30	12	88	0
4	764	9.139	282.1	64	13	1	30	12	68	0
5	765	8.317	281.7	65	3	1	30	12	68	0
6	766	7.761	283.1	66	-6		30	12	48	17
7	767	7.207	283.6	67	-10	3	30	12	48	0
8	768	6.554	286.6	68	-9	3	30	12	48	0
9	769	5.939	284.4	69	6	3	30	12	48	0
10	605	5.092	283.6	70	19	3	30	12	48	0
11	771	4.491	279.2	71	2	3	30	12	48	0/17
12	772	3.966	283.5	72	12	3	30	12	48	0
13	773	2.964	287.2	73	-10	3	30	12	68	0
14	774	2.656	287.6	74	-2	3	30	12	68	0
15	775	1.749	284.7	75	13	3	30	12	68	0
16	776	1.214	284.3	76	-5	3	30	12	88	0
17	777	0.713	289.7	77	1	3	30	12	88	0
18	778	0.467	72.1	78	0	3	30	12	88	0
19	779	0.060	233.0	79	19	3	30	12	88	0
20	780	0.883	73.4	80	11		30	12	88	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 16 SHOT POINT 12 TEAM 5

SHOT TIME: 215: 7:15: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	781	16.048	86.2	81	2	1	30	12	48	0
2	782	20.640	87.3	82	-10		30	12	88	1
3	783	17.434	84.6	83	14	1	30	12	48	0
4	784	18.554	83.9	84	13	1	30	12	48	0
5	785	19.833	86.9	85	-37	1	30	12	68	0
6	786	21.737	87.2	86	1	1	30	12	88	0
7	787	22.565	86.5	87	8		30	12	88	17
8	788	24.677	85.1	88	22	1	30	12	68	0
9	789	25.600	82.8	89	9		30	12	48	2
10	790	27.136	83.1	90	11	1	30	12	48	0
11	791	29.152	84.2	91	5	1	30	12	48	0
12	792	30.312	84.2	92	6	1	30	12	48	0
13	793	31.637	85.6	93	-20	1	30	12	48	0
14	794	32.302	86.8	94	15	1	30	12	48	0
15	795	34.468	87.0	95	26	1	30	12	48	0
16	796	35.339	88.6	96	-15	1	30	12	48	0
17	797	37.007	88.0	97	8		30	12	48	2
18	798	39.133	88.0	98	27	2	30	12	48	0
19	799	39.930	88.9	99	3	2	30	12	48	0
20	800	40.401	88.8	100	7	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 16 SHOT POINT 12 TEAM 6

SHOT TIME: 215: 7:15: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	801	1.433	79.9	101	9	3	30	12	88	0
2	545	14.350	308.8	102	3	1	30	12	48	0
3	546	13.902	310.9	103	3		30	12	48	2
4	547	14.151	312.5	104	1	1	30	12	48	0
5	548	13.770	314.5	105	11	1	30	12	48	0
6	549	13.447	316.6	106	-6	3	30	12	48	0
7	550	13.086	319.2	107	-32	3	30	12	48	0
8	551	12.992	321.9	108	6		30	12	48	2
9	552	12.925	324.1	109	2	1	30	12	48	0
10	553	12.816	325.9	110	12	3	30	12	48	0
11	554	13.124	328.8	111	0	3	30	12	48	0
12	555	13.045	331.0	112	4	3	30	12	48	0
13	556	13.234	334.7	113	-5	1	30	12	48	0
14	814	12.685	339.0	114	0		30	12	48	2
15	326	12.239	340.1	115	1		30	12	48	17
16	325	11.721	347.5	116	--		30	12	48	2
17	817	11.944	344.2	117	15	1	30	12	48	0
18	324	11.439	356.8	118	11	3	30	12	48	0
19	819	10.677	3.8	119	2	3	30	12	48	0
20	323	9.996	8.0	120	1	3	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 19 SHOT POINT 11 TEAM 1

SHOT TIME: 215: 8: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	562	0.000	180.0	1	-16	1	30	12	88	0
2	563	0.817	112.4	2	7	1	30	12	88	0
3	564	1.549	106.2	3	53		30	12	88	1
4	565	2.272	95.8	4	-20	1	30	12	68	0
5	705	2.585	90.5	5	10		30	12	68	1
6	706	3.429	87.2	6	6		30	12	48	2
7	707	3.882	91.2	7	-15	3	30	12	48	0
8	708	4.605	92.2	8	7		30	12	48	2
9	709	5.317	94.9	9	62	1	30	12	48	0
10	710	5.778	90.6	10	13	3	30	12	48	0
11	711	6.588	91.4	11	15	1	30	12	48	0
12	712	7.411	88.6	12	7	3	30	12	48	0
13	713	8.038	90.5	13	-7	1	30	12	48	0
14	714	8.568	91.1	14	22	1	30	12	48	0
15	715	9.160	90.8	15	1		30	12	68	1
16	716	9.819	90.2	16	39	1	30	12	68	0
17	717	10.513	91.2	17	16	1	30	12	88	0
18	718	11.194	91.0	18	1	1	30	12	88	0
19	719	11.813	91.1	19	32	1	30	12	88	0
20	561	1.400	255.6	20	19	2	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 19 SHOT POINT 11 TEAM 2

SHOT TIME: 215: 8: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	721	25.183	94.5	21	0	2	30	12	88	0
2	722	25.853	94.4	22	12	2	30	12	88	0
3	723	26.475	94.3	23	34	1	30	12	68	0
4	724	27.108	94.2	24	-12	1	30	12	68	0
5	725	27.831	94.0	25	22	2	30	12	68	0
6	726	29.081	92.8	26	3	2	30	12	88	0
7	727	29.757	93.4	27	5	2	30	12	88	0
8	728	30.411	92.7	28	15	2	30	12	88	0
9	729	31.006	92.2	29	11	2	30	12	88	0
10	730	31.631	92.3	30	5	2	30	12	68	0
11	731	32.358	92.5	31	9	1	30	12	68	0
12	732	33.032	92.5	32	13		30	12	48	3
13	733	33.677	92.9	33	53	2	30	12	48	0
14	734	34.380	92.7	34	7	2	30	12	48	0
15	735	35.102	92.9	35	-37	1	30	12	48	0
16	736	35.732	93.1	36	-5	2	30	12	48	0
17	737	36.368	93.0	37	35	2	30	12	48	0
18	738	37.014	93.0	38	3	2	30	12	48	0
19	739	37.649	92.5	39	2	2	30	12	48	0
20	740	38.297	92.1	40	5	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 19 SHOT POINT 11 TEAM 3

SHOT TIME: 215: 8: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	566	2.599	77.5	41	12	1	30	12	68	0
2	567	2.894	73.6	42	7	1	30	12	68	0
3	568	3.979	69.4	43	-23	3	30	12	48	0
4	569	4.499	64.5	44	-10	3	30	12	48	0
5	570	4.968	61.7	45	0	3	30	12	48	0
6	571	5.682	60.3	46	-60	1	30	12	48	0
7	572	6.198	62.6	47	42	3	30	12	48	0
8				48	--		30	12	48	1
9	575	7.534	63.1	49	3	1	30	12	48	0
10	576	7.949	61.1	50	11	1	30	12	48	0
11	577	8.486	59.7	51	0	1	30	12	48	0
12	578	8.975	60.3	52	7	1	30	12	48	0
13	579	9.496	58.9	53	0	1	30	12	48	0
14	580	10.174	60.9	54	-18	1	30	12	48	0
15	574	10.841	61.1	55	4	1	30	12	48	0
16	541	11.306	61.1	56	4	1	30	12	48	0
17	542	11.909	61.2	57	0		30	12	48	17
18	543	12.498	59.7	58	2	1	30	12	48	0
19	544	13.103	60.8	59	-2		30	12	48	17
20	573	6.807	61.8	60	-9	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 19 SHOT POINT 11 TEAM 4

SHOT TIME: 215: 8: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	420	12.212	91.1	61	9	2	30	12	88	0
2	762	12.886	91.1	62	8	1	30	12	88	0
3	763	13.545	90.6	63	6	1	30	12	88	0
4	764	14.160	91.3	64	13	1	30	12	68	0
5	765	14.958	92.1	65	3	1	30	12	68	0
6	766	15.543	91.7	66	-7	1	30	12	48	0
7	767	16.097	91.9	67	-10	2	30	12	48	0
8	768	16.817	91.2	68	-10	1	30	12	48	0
9	769	17.358	92.5	69	6	1	30	12	48	0
10	605	18.175	93.3	70	19	1	30	12	48	0
11	771	18.723	94.6	71	2		30	12	48	17
12	772	19.262	93.9	72	12	2	30	12	48	0
13	773	20.308	93.8	73	-10	1	30	12	68	0
14	774	20.613	94.0	74	-3	2	30	12	68	0
15	775	21.478	94.8	75	13	1	30	12	68	0
16	776	22.004	95.0	76	-6	1	30	12	88	0
17	777	22.512	95.1	77	1	1	30	12	88	0
18	778	23.632	95.1	78	0	2	30	12	88	0
19	779	23.159	95.6	79	19	2	30	12	88	0
20	780	24.023	94.7	80	11		30	12	88	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 19 SHOT POINT 11 TEAM 5

SHOT TIME: 215: 8: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	781	39.122	91.7	81	2	2	30	12	48	0
2	782	43.727	91.7	82	-11		30	12	88	1
3	783	40.451	90.8	83	14	2	30	12	48	0
4	784	41.541	90.4	84	13	2	30	12	48	0
5	785	42.912	91.6	85	-38	2	30	12	68	0
6	786	44.817	91.5	86	1	2	30	12	88	0
7	787	45.622	91.1	87	8		30	12	88	17
8	788	47.674	90.1	88	23	2	30	12	68	0
9	789	48.494	88.8	89	9		30	12	48	2
10	790	50.035	88.8	90	11	2	30	12	48	0
11	791	52.093	89.2	91	5	2	30	12	48	0
12	792	53.251	89.1	92	6	2	30	12	48	0
13	793	54.634	89.8	93	-20	2	30	12	48	0
14	794	55.344	90.5	94	15	2	30	12	48	0
15	795	57.510	90.4	95	27	2	30	12	48	0
16	796	58.435	91.4	96	-16	2	30	12	48	0
17	797	60.079	90.9	97	8	2	30	12	48	0
18	798	62.203	90.8	98	27	2	30	12	48	0
19	799	63.029	91.4	99	3	2	30	12	48	0
20	800	63.494	91.2	100	7	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 19 SHOT POINT 11 TEAM 6

SHOT TIME: 215: 8: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	801	24.585	94.6	101	9	2	30	12	48	0
2	545	13.693	60.4	102	3	1	30	12	88	0
3	546	14.334	61.3	103	4	1	30	12	48	0
4	547	14.620	59.9	104	1	1	30	12	48	0
5	548	15.187	60.8	105	12	1	30	12	48	0
6	549	15.756	61.4	106	-6	1	30	12	48	0
7	550	16.438	62.2	107	-34	1	30	12	48	0
8	551	17.050	62.1	108	7		30	12	48	6
9	552	17.561	62.0	109	2	1	30	12	48	0
10	553	17.978	62.2	110	12	1	30	12	48	0
11	554	18.607	61.1	111	0	1	30	12	48	0
12	555	19.104	61.3	112	4	1	30	12	48	0
13	556	19.949	60.8	113	-5	1	30	12	48	0
14	814	20.911	62.1	114	0	1	30	12	48	0
15	326	21.056	63.9	115	1		30	12	48	2
16	325	22.521	65.9	116	--		30	12	48	2
17	817	21.885	65.0	117	16	1	30	12	48	0
18	324	24.244	67.7	118	12	3	30	12	48	0
19	819	25.240	70.5	119	2	2	30	12	48	0
20	323	25.652	72.6	120	1	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 20 SHOT POINT 13 TEAM 1

SHOT TIME: 215: 9: 0: 0.013

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	562	29.723	273.4	1	-17	1	30	12	88	0
2	563	28.952	272.9	2	7	1	30	12	88	0
3	564	28.215	272.8	3	55		30	12	88	1
4	565	27.453	273.3	4	-20	1	30	12	68	0
5	705	27.141	273.7	5	10		30	12	68	1
6	706	26.317	274.3	6	6	1	30	12	48	0
7	707	25.844	273.8	7	-16	1	30	12	48	0
8	708	25.120	273.7	8	7		30	12	48	2
9	709	24.409	273.1	9	64	1	30	12	48	0
10	710	23.954	274.1	10	13	1	30	12	48	0
11	711	23.141	274.0	11	15	1	30	12	48	0
12	712	22.346	275.1	12	7	3	30	12	48	0
13	713	21.699	274.5	13	-7	3	30	12	48	0
14	714	21.165	274.4	14	23	3	30	12	48	0
15	715	20.577	274.6	15	1		30	12	68	1
16	716	19.927	275.0	16	40	1	30	12	68	0
17	717	19.222	274.7	17	17	1	30	12	88	0
18	718	18.545	274.9	18	1	1	30	12	88	0
19	719	17.926	275.0	19	33	1	30	12	88	0
20	561	31.060	272.7	20	20	1	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 20 SHOT POINT 13 TEAM 2

SHOT TIME: 215: 9: 0: 0.013

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	721	4.570	267.6	21	0	1	30	12	88	0
2	722	3.898	267.2	22	12	3	30	12	88	0
3	723	3.275	266.6	23	35	3	30	12	68	0
4	724	2.640	266.1	24	-12	3	30	12	68	0
5	725	1.915	265.0	25	22		30	12	68	2
6	726	0.720	300.0	26	3	3	30	12	88	0
7	727	0.060	37.2	27	5	3	30	12	88	0/17
8	728	0.789	63.8	28	15	3	30	12	88	0
9	729	1.445	65.5	29	11	3	30	12	88	0
10	730	2.009	74.8	30	5	3	30	12	68	0
11	731	2.684	82.0	31	9	3	30	12	68	0
12	732	3.346	84.4	32	13	3	30	12	48	0
13	733	3.968	88.4	33	55	3	30	12	48	0
14	734	4.677	87.8	34	8	3	30	12	48	0
15	735	5.388	89.9	35	-38	3	30	12	48	0
16	736	6.013	91.3	36	-5	3	30	12	48	0
17	737	6.649	91.2	37	37	3	30	12	48	0
18	738	7.297	90.9	38	3	3	30	12	48	0
19	739	7.944	89.1	39	2	3	30	12	48	0
20	740	8.563	87.3	40	5	3	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 20 SHOT POINT 13 TEAM 3

SHOT TIME: 215: 9: 0: 0.013

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	566	27.233	275.0	41	13	1	30	12	68	0
2	567	27.017	275.5	42	7	1	30	12	68	0
3	568	26.136	277.0	43	-24	1	30	12	48	0
4	569	25.874	278.3	44	-11	1	30	12	48	0
5	570	25.629	279.3	45	0	1	30	12	48	0
6	571	25.151	280.5	46	-62	1	30	12	48	0
7	572	24.600	280.9	47	44	1	30	12	48	0
8				48	--		30	12	48	1
9	575	23.528	282.8	49	4	1	30	12	48	0
10	576	23.393	283.9	50	11	1	30	12	48	0
11	577	23.141	285.2	51	1	1	30	12	48	0
12	578	22.735	285.9	52	8	1	30	12	48	0
13	579	22.542	287.3	53	0		30	12	48	6
14	580	21.836	288.0	54	-19	1	30	12	48	0
15	574	21.355	289.2	55	4	1	30	12	48	0
16	541	21.046	290.1	56	4	1	30	12	48	0
17	542	20.635	291.4	57	0		30	12	48	17
18	543	20.533	293.2	58	3	1	30	12	48	0
19	544	19.973	294.2	59	-2	1	30	12	48	0
20	573	24.190	281.9	60	-9	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 20 SHOT POINT 13 TEAM 4

SHOT TIME: 215: 9: 0: 0.013

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	420	17.528	275.1	61	10	1	30	12	88	0
2	762	16.856	275.3	62	9		30	12	88	0
3	763	16.208	275.8	63	7	1	30	12	88	0
4	764	15.581	275.4	64	14	1	30	12	68	0
5	765	14.773	274.8	65	3	1	30	12	68	0
6	766	14.194	275.3	66	-7	3	30	12	48	0
7	767	13.638	275.2	67	-10	1	30	12	48	0
8	768	12.935	276.3	68	-10	1	30	12	48	0
9	769	12.371	274.8	69	6	1	30	12	48	0
10	605	11.549	273.8	70	20	1	30	12	48	0
11	771	11.012	271.4	71	2	1	30	12	48	0
12	772	10.443	272.6	72	13	1	30	12	48	0
13	773	9.417	272.6	73	-11	1	30	12	68	0
14	774	9.114	272.3	74	-3	1	30	12	68	0
15	775	8.267	270.0	75	14	3	30	12	68	0
16	776	7.753	268.9	76	-6	1	30	12	88	0
17	777	7.250	268.4	77	1	1	30	12	88	0
18	778	6.139	267.2	78	0	1	30	12	88	0
19	779	6.641	265.9	79	20	1	30	12	88	0
20	780	5.733	268.1	80	12		30	12	88	6

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 20 SHOT POINT 13 TEAM 5

SHOT TIME: 215: 9: 0: 0.013

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	781	9.457	86.3	81	2	3	30	12	48	0
2	782	14.051	87.9	82	-11		30	12	88	1
3	783	10.848	83.6	83	14	3	30	12	48	0
4	784	11.971	82.7	84	14		30	12	48	3
5	785	13.243	87.3	85	-39	1	30	12	68	0
6	786	15.147	87.7	86	1	1	30	12	88	0
7	787	15.974	86.7	87	8		30	12	88	17
8	788	18.067	84.7	88	24	1	30	12	68	0
9	789	19.024	81.6	89	10		30	12	48	2
10	790	20.558	82.1	90	12	1	30	12	48	0
11	791	22.567	83.6	91	5	1	30	12	48	0
12	792	23.726	83.7	92	7	3	30	12	48	0
13	793	25.047	85.5	93	-21	1	30	12	48	0
14	794	25.712	87.0	94	15	1	30	12	48	0
15	795	27.878	87.2	95	28	1	30	12	48	0
16	796	28.755	89.2	96	-16	1	30	12	48	0
17	797	30.419	88.4	97	8	2	30	12	48	0
18	798	32.546	88.4	98	28	2	30	12	48	0
19	799	33.348	89.5	99	3	2	30	12	48	0
20	800	33.817	89.3	100	7	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 20 SHOT POINT 13 TEAM 6

SHOT TIME: 215: 9: 0: 0.013

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	801	5.169	267.9	101	10	1	30	12	88	0
2	545	19.704	295.7	102	4	1	30	12	48	0
3	546	19.148	296.9	103	4	1	30	12	48	0
4	547	19.295	298.2	104	1	1	30	12	48	0
5	548	18.805	299.3	105	13	1	30	12	48	0
6	549	18.358	300.5	106	-7	1	30	12	48	0
7	550	17.838	302.0	107	-36	1	30	12	48	0
8	551	17.564	303.8	108	7		30	12	48	6
9	552	17.341	305.3	109	2	3	30	12	48	0
10	553	17.104	306.5	110	13	3	30	12	48	0
11	554	17.173	308.9	111	0	3	30	12	48	0
12	555	16.927	310.4	112	4	3	30	12	48	0
13	556	16.802	313.3	113	-5	3	30	12	48	0
14	814	16.101	316.0	114	0	1	30	12	48	0
15	326	15.422	315.8	115	1		30	12	48	6
16	325	14.277	320.4	116	--		30	12	48	1
17	817	14.783	318.4	117	17	1	30	12	48	6
18	324	13.136	326.7	118	13	1	30	12	48	0
19	819	11.770	330.2	119	2	1	30	12	48	0
20	323	10.750	331.3	120	1	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 21 SHOT POINT 1 TEAM 1

SHOT TIME: 215: 9:30: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	562	12.228	271.0	1	-17	1	30	12	88	0
2	563	11.472	269.5	2	7	1	30	12	88	0
3	564	10.741	268.8	3	55		30	12	88	1
4	565	9.966	269.9	4	-21	1	30	12	68	0
5	705	9.643	271.1	5	10		30	12	68	1
6	706	8.810	272.5	6	7	1	30	12	48	0
7	707	8.346	270.9	7	-16	3	30	12	48	0
8	708	7.626	270.3	8	7		30	12	48	2
9	709	6.933	268.0	9	65	3	30	12	48	0
10	710	6.451	271.4	10	14	3	30	12	48	0
11	711	5.641	270.6	11	16	3	30	12	48	0
12	712	4.833	274.7	12	7	3	30	12	48	0
13	713	4.191	271.9	13	-7	3	30	12	48	0
14	714	3.661	270.7	14	23	3	30	12	48	0
15	715	3.069	271.7	15	1		30	12	68	1
16	716	2.414	274.2	16	41	3	30	12	68	0
17	717	1.716	269.5	17	17	3	30	12	88	0
18	718	1.035	270.5	18	1	3	30	12	88	0
19	719	0.416	268.0	19	34	3	30	12	88	0
20	561	13.563	269.4	20	20	1	30	12	88	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 21 SHOT POINT 1 TEAM 2

SHOT TIME: 215: 9:30: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	721	12.998	97.8	21	0	1	30	12	88	0
2	722	13.664	97.4	22	12	1	30	12	88	0
3	723	14.283	97.1	23	35	1	30	12	68	0
4	724	14.912	96.8	24	-12	1	30	12	68	0
5	725	15.632	96.4	25	23		30	12	68	2
6	726	16.862	94.1	26	3	1	30	12	88	0
7	727	17.545	95.0	27	5	1	30	12	88	0
8	728	18.191	93.9	28	15	1	30	12	88	0
9	729	18.781	93.0	29	12	1	30	12	88	0
10	730	19.402	93.1	30	5	1	30	12	68	0
11	731	20.136	93.4	31	9	1	30	12	68	0
12	732	20.810	93.4	32	14	1	30	12	48	0
13	733	21.458	93.9	33	56	1	30	12	48	0
14	734	22.159	93.6	34	8	1	30	12	48	0
15	735	22.883	93.9	35	-39	1	30	12	48	0
16	736	23.515	94.2	36	-5	1	30	12	48	0
17	737	24.151	94.1	37	37	1	30	12	48	0
18	738	24.795	93.9	38	3	1	30	12	48	0
19	739	25.426	93.3	39	2	1	30	12	48	0
20	740	26.071	92.6	40	5	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 21 SHOT POINT 1 TEAM 3

SHOT TIME: 215: 9:30: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	566	9.720	274.6	41	13	1	30	12	68	0
2	567	9.505	276.2	42	7	1	30	12	68	0
3	568	8.651	280.7	43	-24	1	30	12	48	0
4	569	8.442	284.8	44	-11	1	30	12	48	0
5	570	8.261	288.1	45	0	1	30	12	48	0
6	571	7.890	292.6	46	-63	1	30	12	48	0
7	572	7.384	294.5	47	45	1	30	12	48	0
8				48	--		30	12	48	2
9	575	6.594	303.4	49	4	3	30	12	48	0
10	576	6.649	307.6	50	11		30	12	48	2
11	577	6.642	312.5	51	1	3	30	12	48	0
12	578	6.426	316.5	52	8	3	30	12	48	0
13	579	6.548	321.4	53	0	3	30	12	48	0
14	580	6.145	327.1	54	-19	3	30	12	48	0
15	574	6.096	333.4	55	4	3	30	12	48	0
16	541	6.130	337.7	56	4	3	30	12	48	0
17	542	6.203	343.3	57	0		30	12	48	1
18	543	6.679	347.6	58	3	3	30	12	48	0
19	544	6.654	353.2	59	-2		30	12	48	17
20	573	7.094	298.9	60	-10	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 21 SHOT POINT 1 TEAM 4

SHOT TIME: 215: 9:30: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	420	0.025	221.5	61	10	3	30	12	88	0/17
2	762	0.658	92.3	62	9	3	30	12	88	0
3	763	1.319	87.0	63	7	3	30	12	88	0
4	764	1.933	93.3	64	14	3	30	12	68	0
5	765	2.742	97.1	65	3	3	30	12	68	0
6	766	3.319	94.4	66	-7	3	30	12	48	0
7	767	3.875	94.8	67	-10	3	30	12	48	0
8	768	4.589	91.8	68	-10	3	30	12	48	0
9	769	5.143	96.1	69	6	3	30	12	48	0
10	605	5.975	97.9	70	20	3	30	12	48	0
11	771	6.564	101.4	71	2	3	30	12	48	0/17
12	772	7.095	98.9	72	13	3	30	12	48	0
13	773	8.116	98.1	73	-11	3	30	12	68	0
14	774	8.424	98.3	74	-3	3	30	12	68	0
15	775	9.310	99.7	75	14	1	30	12	68	0
16	776	9.843	100.1	76	-6	1	30	12	88	0
17	777	10.350	99.9	77	1	1	30	12	88	0
18	778	11.466	99.4	78	0	1	30	12	88	0
19	779	11.013	100.8	79	20		30	12	88	2
20	780	11.813	98.6	80	12		30	12	88	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 21 SHOT POINT 1 TEAM 5

SHOT TIME: 215: 9:30: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	781	26.894	92.0	81	2	1	30	12	48	0
2	782	31.499	91.9	82	-11		30	12	88	1
3	783	28.223	90.7	83	15	1	30	12	48	0
4	784	29.314	90.1	84	14	1	30	12	48	0
5	785	30.684	91.8	85	-40	1	30	12	68	0
6	786	32.589	91.7	86	1	1	30	12	88	0
7	787	33.393	91.1	87	9		30	12	88	17
8	788	35.448	89.8	88	24	1	30	12	68	0
9	789	36.279	88.1	89	10		30	12	48	2
10	790	37.820	88.1	90	12	1	30	12	48	0
11	791	39.874	88.6	91	5	1	30	12	48	0
12	792	41.032	88.5	92	7	1	30	12	48	0
13	793	42.410	89.5	93	-21	1	30	12	48	0
14	794	43.116	90.3	94	16	1	30	12	48	0
15	795	45.283	90.3	95	28	1	30	12	48	0
16	796	46.206	91.5	96	-16	1	30	12	48	0
17	797	47.851	90.9	97	8	1	30	12	48	0
18	798	49.975	90.7	98	29	2	30	12	48	0
19	799	50.801	91.4	99	3	2	30	12	48	0
20	800	51.266	91.3	100	7	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 21 SHOT POINT 1 TEAM 6

SHOT TIME: 215: 9:30: 0.015

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	801	12.403	98.2	101	10	1	30	12	88	0
2	545	6.986	357.4	102	4	3	30	12	48	0/17
3	546	7.096	2.9	103	4	3	30	12	48	0
4	547	7.555	3.3	104	1	3	30	12	48	0
5	548	7.697	7.7	105	13	3	30	12	48	0
6	549	7.914	11.8	106	-7	3	30	12	48	0
7	550	8.223	16.3	107	-37	3	30	12	48	0
8	551	8.682	19.1	108	7		30	12	48	2
9	552	9.071	21.2	109	2	3	30	12	48	0
10	553	9.354	23.2	110	13	3	30	12	48	0
11	554	10.069	23.8	111	0	3	30	12	48	0
12	555	10.429	25.8	112	5	3	30	12	48	0/17
13	556	11.219	27.6	113	-5	3	30	12	48	0
14	814	11.807	32.0	114	0	1	30	12	48	0
15	326	11.606	35.2	115	1		30	12	48	2
16	325	12.581	41.5	116	--		30	12	48	1
17	817	12.152	38.8	117	17	1	30	12	48	0
18	324	13.884	47.4	118	13	1	30	12	48	0
19	819	14.440	53.3	119	2	1	30	12	48	0
20	323	14.563	57.3	120	1	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 22 SHOT POINT 20 TEAM 1

SHOT TIME: 230: 6:45: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	587	108.192	184.1	1	29	2	30	12	48	0
2	586	107.262	183.2	2	24	2	30	12	48	0
3	585	106.127	182.3	3	21	2	30	12	48	0
4	584	104.928	182.2	4	-8	2	30	12	48	0
5	583	103.099	182.1	5	21	2	30	12	48	0
6	582	100.868	181.7	6	15	2	30	12	48	0
7	581	99.780	181.4	7	6	2	30	12	48	0
8	589	108.954	183.8	8	32	2	30	12	48	0
9	591	109.888	183.6	9	80	2	30	12	48	0
10	593	110.909	183.3	10	43	2	30	12	48	0
11	595	112.035	183.2	11	24	2	30	12	48	2
12	597	113.063	183.3	12	19	2	30	12	48	0
13	599	114.029	183.2	13	18	2	30	12	48	0
14	502	115.274	183.1	14	36	2	30	12	48	0
15	514	116.370	183.2	15	15	2	30	12	48	0
16	512	117.343	182.9	16	48	2	30	12	48	0
17	510	118.403	183.1	17	28	2	30	12	48	0
18	508	119.216	182.8	18	-5	2	30	12	48	0
19	506	120.517	182.7	19	1	2	30	12	48	0
20	507	120.022	182.7	20	32	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 22 SHOT POINT 20 TEAM 2

SHOT TIME: 230: 6:45: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	418	137.260	181.6	21	-5	2	30	12	48	0
2	419	137.480	181.4	22	7	2	30	12	48	0
3	923	137.029	181.8	23	20	2	30	12	48	0
4	924	137.057	182.3	24	-5	2	30	12	48	0
5	925	137.105	182.5	25	15	2	30	12	48	0
6	926	137.121	182.8	26	2	2	30	12	48	0
7	927	137.162	183.0	27	4	2	30	12	48	0
8	928	137.060	183.3	28	7	2	30	12	48	0
9	929	136.957	183.5	29	6	2	30	12	48	0
10	930	136.330	183.7	30	4	2	30	12	48	0
11	931	135.788	184.0	31	4		30	12	48	2
12	932	135.863	184.2	32	10	2	30	12	48	0
13	933	135.701	184.4	33	32	2	30	12	68	0
14	934	135.731	184.7	34	6	2	30	12	68	0
15	935	135.735	184.9	35	-17	2	30	12	68	0
16	936	128.363	186.0	36	0	3	30	12	48	0
17	937	127.313	186.3	37	14	2	30	12	48	0
18	938	126.553	186.5	38	1	2	30	12	48	0
19	939	125.509	186.9	39	0		30	12	48	2
20	940	124.478	187.2	40	3	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 22 SHOT POINT 20 TEAM 3

SHOT TIME: 230: 6:45: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	776	135.337	180.5	41	4	2	30	12	48	0
2	777	135.394	180.3	42	4	2	30	12	48	0
3	780	135.361	179.7	43	-8	2	30	12	48	0
4	801	135.386	179.4	44	0	2	30	12	48	0
5	721	135.393	179.2	45	0	2	30	12	48	0
6	723	135.417	178.6	46	-25	2	30	12	48	0
7	725	135.432	178.1	47	8	2	30	12	48	0
8	726	134.952	177.5	48	3	2	30	12	48	0
9	727	135.294	177.2	49	4	2	30	12	48	0
10	728	135.027	177.0	50	-2	2	30	12	48	0
11	729	134.808	176.7	51	19	2	30	12	48	0
12	730	134.917	176.4	52	11	2	30	12	48	0
13	731	135.118	176.1	53	2	2	30	12	48	0
14	733	135.475	175.6	54	-7	2	30	12	48	0
15	735	135.686	175.0	55	9	2	30	12	48	0
16	737	135.955	174.5	56	6	2	30	12	48	0
17	739	135.821	173.9	57	3	2	30	12	48	2
18	781	135.494	173.3	58	7	2	30	12	48	0
19	783	135.065	172.7	59	0	2	30	12	48	0
20	785	135.981	171.7	60	-4	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 22 SHOT POINT 20 TEAM 4

SHOT TIME: 230: 6:45: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	561	135.927	190.3	61	6	2	30	12	48	0
2	562	135.351	189.8	62	2	2	30	12	48	0
3	564	135.537	189.1	63	4	2	30	12	48	2
4	705	134.965	188.7	64	9	2	30	12	48	0
5	707	134.837	188.2	65	6	2	30	12	48	0
6	709	135.011	187.6	66	-2	2	30	12	48	0
7	711	134.556	187.0	67	4	2	30	12	48	0
8	712	134.125	186.7	68	-2	2	30	12	48	0
9	714	134.343	186.2	69	4	2	30	12	48	0
10	715	134.234	186.0	70	15	2	30	12	48	0
11	716	134.084	185.7	71	6		30	12	48	17
12	717	134.210	185.4	72	9	2	30	12	48	0
13	718	134.125	185.1	73	-7		30	12	48	1
14	420	134.068	184.7	74	-5	1	30	12	48	0
15	762	134.023	184.4	75	8	2	30	12	48	0
16	763	133.879	184.1	76	0	2	30	12	48	0
17	764	134.017	183.8	77	4	2	30	12	48	0
18	765	134.195	183.5	78	-3	2	30	12	48	0
19	766	134.078	183.2	79	19	2	30	12	48	0
20	767	134.120	183.0	80	6	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 22 SHOT POINT 20 TEAM 5

SHOT TIME: 230: 6:45: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAFE GRADE
1	981	123.649	187.6	81	0		30	12	48	17
2	982	122.576	188.2	82	-5	2	30	12	48	0
3	983	122.111	188.6	83	11	2	30	12	48	0
4	768	133.904	182.7	84	10	2	30	12	48	0
5	769	134.277	182.5	85	-6	2	30	12	48	0
6	605	134.522	182.1	86	1		30	12	48	2
7	771	134.984	181.9	87	7		30	12	48	17/29
8	772	134.762	181.7	88	11		30	12	48	1
9	773	134.785	181.2	89	6	2	30	12	48	0
10	774	134.851	181.1	90	9	2	30	12	48	0
11	775	135.198	180.7	91	3	2	30	12	48	0
12	992	139.340	180.2	92	3		30	12	48	1
13	993	140.963	179.6	93	1		30	12	48	2
14	994	144.465	180.0	94	11	2	30	12	48	0
15	995	143.832	178.0	95	12	2	30	12	48	0
16	996	146.660	176.8	96	4	2	30	12	48	0
17	997	148.447	177.1	97	0		30	12	48	2
18	998	151.419	177.3	98	16	1	30	12	48	0
19	999	154.045	177.7	99	8	2	30	12	48	0
20	1000	157.052	178.3	100	5	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 22 SHOT POINT 20 TEAM 6

SHOT TIME: 230: 6:45: 0.012

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAFE GRADE
1	301	140.524	181.9	101	15	2	30	12	48	0
2	302	139.691	181.9	102	7		30	12	48	17
3	303	138.752	181.9	103	1		30	12	48	2
4	304	137.862	181.7	104	3		30	12	48	2
5	305	137.034	181.6	105	20		30	12	48	2
6	416	137.080	182.4	106	-6	2	30	12	48	2
7	602	136.578	182.4	107	-39	2	30	12	48	0
8	604	135.469	182.4	108	11	2	30	12	48	0
9	606	133.992	182.1	109	1		30	12	48	17
10	608	132.904	182.2	110	16	2	30	12	48	0
11	610	131.810	182.3	111	13	2	30	12	48	0
12	612	130.849	182.4	112	10	2	30	12	48	0
13	614	129.866	182.6	113	-6		30	12	48	1
14	616	128.806	182.7	114	2	2	30	12	48	0
15	618	127.622	182.6	115	11	2	30	12	48	0
16	620	126.493	182.6	116	18	2	30	12	48	0
17	557	125.626	182.6	117	27	2	30	12	48	0
18	558	125.171	182.6	118	13	2	30	12	48	0
19	503	122.314	182.7	119	2		30	12	48	2
20	505	121.020	182.6	120	1	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 23 SHOT POINT 17 TEAM 1

SHOT TIME: 230: 7: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	587	27.532	8.0	1	29		30	12	48	2
2	586	28.645	11.4	2	24		30	12	48	2
3	585	30.046	14.1	3	20		30	12	48	2
4	584	31.260	14.0	4	-8		30	12	48	2
5	583	33.090	13.7	5	21		30	12	48	2
6	582	35.383	13.9	6	14		30	12	48	2
7	581	36.581	14.5	7	6		30	12	48	2
8	589	26.813	9.1	8	32		30	12	48	2
9	591	25.943	10.5	9	80		30	12	48	2
10	593	24.993	11.8	10	43		30	12	48	2
11	595	23.939	13.0	11	24		30	12	48	2
12	597	22.866	12.8	12	19		30	12	48	2
13	599	21.966	13.7	13	18		30	12	48	2
14	502	20.771	14.7	14	36		30	12	48	2
15	514	19.657	14.7	15	15		30	12	48	2
16	512	18.871	17.4	16	48		30	12	48	2
17	510	17.752	17.1	17	28		30	12	48	2
18	508	17.125	19.6	18	-5		30	12	48	2
19	506	15.924	21.4	19	1		30	12	48	2
20	507	16.445	21.4	20	32		30	12	48	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 23 SHOT POINT 17 TEAM 2

SHOT TIME: 230: 7: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	418	7.894	104.4	21	-5	2	30	12	48	0
2	419	8.543	104.9	22	7	2	30	12	48	0
3	923	7.379	103.5	23	20	1	30	12	48	0
4	924	6.288	105.8	24	-5	1	30	12	48	0
5	925	5.751	107.5	25	15	1	30	12	48	0
6	926	5.155	109.5	26	2	1	30	12	48	0
7	927	4.626	112.0	27	4	1	30	12	48	0
8	928	4.054	113.3	28	7		30	12	48	3
9	929	3.473	114.9	29	6	1	30	12	48	0
10	930	2.930	106.2	30	4	1	30	12	48	0
11	931	2.129	96.2	31	4		30	12	48	2
12	932	1.576	99.7	32	10	1	30	12	48	0
13	933	1.003	93.4	33	33	1	30	12	68	0
14	934	0.471	95.9	34	6	1	30	12	68	0
15	935	0.027	243.1	35	-18	3	30	12	68	0
16	936	7.825	345.2	36	0		30	12	48	2
17	937	8.987	344.5	37	14		30	12	48	2
18	938	9.905	343.1	38	2		30	12	48	2
19	939	11.188	341.4	39	0		30	12	48	2
20	940	12.438	340.2	40	3		30	12	48	2

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 23 SHOT POINT 17 TEAM 3

SHOT TIME: 230: 7: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	776	10.349	90.5	41	4	2	30	12	48	0
2	777	10.854	90.8	42	4		30	12	48	2
3	780	12.371	90.7	43	-8	2	30	12	48	0
4	801	12.935	90.6	44	0		30	12	48	2
5	721	13.535	90.6	45	0	2	30	12	48	0
6	723	14.831	90.6	46	-25	2	30	12	48	0
7	725	16.193	90.4	47	8		30	12	48	2
8	726	17.481	88.7	48	3		30	12	48	2
9	727	18.136	89.7	49	4	2	30	12	48	0
10	728	18.812	88.8	50	-2	2	30	12	48	0
11	729	19.424	88.1	51	19	2	30	12	48	0
12	730	20.045	88.4	52	11	2	30	12	48	0
13	731	20.762	88.8	53	2	2	30	12	48	0
14	733	22.066	89.6	54	-7	2	30	12	48	0
15	735	23.488	89.9	55	9	2	30	12	48	0
16	737	24.748	90.2	56	6	2	30	12	48	0
17	739	26.044	89.6	57	3		30	12	48	12
18	781	27.544	88.6	58	7	2	30	12	48	0
19	783	28.906	87.5	59	0	2	30	12	48	0
20	785	31.250	88.8	60	-4	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 23 SHOT POINT 17 TEAM 4

SHOT TIME: 230: 7: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	561	13.014	276.6	61	6	2	30	12	48	0
2	562	11.717	279.0	62	2	2	30	12	48	0
3	564	10.181	277.9	63	4	2	30	12	48	
4	705	9.167	281.4	64	9	2	30	12	48	0
5	707	7.887	282.8	65	6	2	30	12	48	0/17
6	709	6.425	282.4	66	-3	2	30	12	48	0
7	711	5.261	288.6	67	4		30	12	48	2
8	712	4.624	295.8	68	-2	1	30	12	48	0
9	714	3.437	299.0	69	4	1	30	12	48	0
10	715	2.960	305.4	70	15	1	30	12	48	0
11	716	2.512	315.8	71	6		30	12	48	2
12	717	1.926	326.6	72	9	3	30	12	48	0
13	718	1.675	346.9	73	-7	3	30	12	48	0
14	420	1.726	21.7	74	-5	3	30	12	48	0
15	762	2.066	39.4	75	8	3	30	12	48	0
16	763	2.599	49.4	76	0	3	30	12	48	0
17	764	2.995	59.7	77	4	3	30	12	48	0
18	765	3.613	69.2	78	-3	1	30	12	48	0
19	766	4.195	71.0	79	19	1	30	12	48	0
20	767	4.688	74.0	80	7	1	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 23 SHOT POINT 17 TEAM 5

SHOT TIME: 230: 7: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	981	13.535	339.0	81	-2		30	12	48	2
2	982	15.155	336.4	82	-5		30	12	48	2
3	983	16.024	334.6	83	12		30	12	48	2
4	768	5.446	74.3	84	10	1	30	12	48	0
5	769	5.871	79.4	85	-6	1	30	12	48	0
6	605	6.624	83.0	86	1		30	12	48	2
7	771	7.098	87.4	87	7		30	12	48	2
8	772	7.685	86.1	88	12		30	12	48	16
9	773	8.705	86.8	89	6	2	30	12	48	0
10	774	9.002	87.4	90	9	2	30	12	48	0
11	775	9.832	89.7	91	3	2	30	12	48	0
12	992	11.849	110.2	92	3		30	12	48	1
13	993	13.927	114.2	93	1	2	30	12	48	0
14	994	14.821	128.4	94	11	2	30	12	48	0
15	995	18.715	117.0	95	12	2	30	12	48	0
16	996	22.724	119.5	96	4	2	30	12	48	0
17	997	23.253	124.0	97	0		30	12	48	2
18	998	24.601	130.5	98	16	1	30	12	48	0
19	999	25.859	136.2	99	8	2	30	12	48	0
20	1000	27.089	143.3	100	5	2	30	12	48	0

FIELD DATA TABLE

MAMMOTH LAKES, CALIFORNIA

SHOT NUMBER 23 SHOT POINT 17 TEAM 6

SHOT TIME: 230: 7: 0: 0.011

	LOC	DIST(KM)	AZIM	UNIT	CHRON	CHAN	C1	C2	C3	TAPE GRADE
1	301	8.593	127.2	101	15		30	12	48	0
2	302	8.219	122.1	102	7		30	12	48	2
3	303	7.837	116.0	103	1		30	12	48	2
4	304	7.867	109.0	104	3		30	12	48	2
5	305	8.027	102.6	105	21		30	12	48	0
6	416	6.092	106.4	106	-6	1	30	12	48	0
7	602	6.005	101.8	107	-39		30	12	48	2
8	604	6.000	91.1	108	11		30	12	48	2
9	606	6.732	78.6	109	1		30	12	48	2
10	608	6.894	69.4	110	16		30	12	48	2
11	610	7.261	61.0	111	13		30	12	48	2
12	612	7.542	53.4	112	11		30	12	48	2
13	614	7.946	46.3	113	-6		30	12	48	1
14	616	8.592	40.3	114	2		30	12	48	2
15	618	9.604	36.4	115	11		30	12	48	2
16	620	10.619	33.5	116	18		30	12	48	2
17	557	11.368	31.3	117	27		30	12	48	2
18	558	11.754	30.1	118	13		30	12	48	2
19	503	14.248	23.8	119	2		30	12	48	17
20	505	15.546	23.0	120	1		30	12	48	2

APPENDIX B

Appendix B is a listing of the first arrival times picked from the record sections. Included are: recorder site location, distance from the shot (km), travel-time picks in reduced ($T-X/6$) time (sec), and azimuth of the recorder from the shotpoint (in degrees clockwise from north).

FIRST ARRIVAL TIMES

SHOT POINT 18 AA				SHOT POINT 1 AA			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
323	-1.413	0.669	220.2	323	14.573	1.264	57.3
332	-0.950	0.485	217.3	332	15.031	1.295	56.9
333	-0.367	0.136	218.4	333	15.579	1.223	56.2
334	-0.049	0.003	193.4	334	15.893	1.213	55.9
335	0.315	0.167	40.4	335	16.233	1.192	55.5
337	1.588	0.608	42.9	337	17.480	1.018	54.6
338	2.369	0.628	43.2	338	18.248	1.018	54.2
339	3.432	0.505	38.9	339	19.238	0.926	52.8
340	3.896	0.505	39.3	340	19.695	0.874	52.6
343	19.702	1.018	39.1	343	35.255	0.967	46.6
344	19.062	1.141	38.5	344	34.593	1.110	46.3
345	18.315	1.161	39.0	346	33.504	1.110	47.0
346	17.930	1.151	39.2	347	32.786	1.090	47.0
347	17.223	1.131	38.8	349	31.815	1.079	47.2
349	16.238	1.131	38.9	350	31.278	1.079	47.3
350	15.699	1.069	38.8	352	30.201	1.028	47.4
352	14.630	1.028	38.3	354	28.868	1.069	48.1
354	13.258	1.069	38.8	355	28.313	1.079	48.0
356	12.300	1.018	37.2	356	27.863	1.079	47.7
357	11.599	1.008	37.2	357	27.175	1.090	48.0
358	11.173	1.008	37.3	358	26.759	1.110	48.2
359	10.661	1.008	38.6	359	26.302	1.110	48.9
360	10.176	0.967	38.6	360	25.825	1.100	49.1
364	-11.699	1.161	236.9	362	3.110	0.505	54.0
366	-10.536	1.161	237.4	364	4.238	0.608	52.7
367	-9.855	1.264	236.1	366	5.405	0.659	52.7
368	-9.299	1.264	236.8	367	6.074	0.751	55.3
369	-8.851	1.264	235.7	368	6.633	0.792	54.3
370	-8.335	1.264	234.5	369	7.078	0.772	55.8
372	-7.196	1.315	235.8	370	7.599	0.751	57.2
374	-6.145	1.315	234.6	372	8.733	0.844	55.8
375	-5.581	1.315	232.1	375	10.365	0.967	57.7
377	-4.484	1.172	231.4	376	10.824	1.141	56.3
378	-3.948	1.110	232.6	377	11.463	1.141	57.5
379	-3.331	1.018	229.8	378	11.990	1.203	56.8
381	9.464	0.967	38.7	379	12.621	1.213	57.3
382	-16.429	1.264	235.8	381	25.127	1.110	49.4
383	-16.835	1.295	235.9	382	-0.500	0.126	236.2
384	-17.158	1.305	236.1	383	-0.907	0.218	238.8
385	-18.179	1.305	236.4	384	-1.232	0.279	239.7
388	-19.410	1.346	236.3	385	-2.258	0.423	241.0
389	-19.849	1.428	236.7	388	-3.486	0.567	238.9
390	-20.461	1.315	236.3	389	-3.931	0.577	240.5
392	-21.528	1.254	237.7	390	-4.535	0.731	238.2
393	-22.265	1.172	236.5	392	-5.632	0.659	243.0
394	-22.713	1.162	237.8	393	-6.341	0.597	238.4
395	-23.310	1.151	236.8	394	-6.816	0.608	242.4
397	-24.324	1.182	237.4	395	-7.390	0.485	239.1
398	-25.019	1.151	237.2	397	-8.415	0.464	240.6
399	-25.368	1.182	238.2	398	-9.105	0.515	239.8
400	-25.816	1.192	238.5	399	-9.479	0.556	242.4
401	-15.362	1.223	235.2	400	-9.935	0.556	242.9
402	-14.817	1.233	235.9	401	0.585	0.146	69.9
403	-14.344	1.223	235.7	402	1.113	0.238	53.8
404	-13.856	1.223	235.9	403	1.585	0.331	56.5
420	-15.954	1.223	235.8	404	2.074	0.433	55.1
				420	-0.025	0.033	221.5

FIRST ARRIVAL TIMES

SHOT POINT 18 AB				SHOT POINT 1 AC			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
324	-2.986	0.977	278.6	301	9.208	0.587	137.8
325	-4.859	1.295	275.5	302	8.698	0.618	133.6
328	-9.870	1.469	276.6	303	8.147	0.751	128.4
329	-12.473	1.213	278.1	304	7.968	0.864	121.7
330	-14.147	1.182	277.4	305	7.929	0.987	115.1
334	-0.049	0.003	193.4	306	9.507	0.936	113.5
				307	9.777	0.987	107.8
				308	9.996	0.956	102.7
				309	10.583	0.915	98.4
				310	10.993	0.997	94.2
				311	11.473	1.049	90.3
				313	12.514	1.131	82.1
				315	13.492	1.244	75.6
				316	14.181	1.213	72.5
				317	14.899	1.326	69.5
				318	14.710	1.223	65.9
				319	14.700	1.264	62.7
				320	15.635	1.233	59.6
				321	17.635	1.274	89.0
				322	16.435	1.264	80.4
				334	15.893	1.213	55.9
SHOT POINT 1 AB				SHOT POINT 9 AC			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
324	13.884	0.997	47.4	301	32.607	0.844	174.7
325	12.581	1.038	41.5	302	31.794	1.079	174.4
328	10.631	1.161	18.4	303	30.872	1.079	174.0
329	10.742	0.895	4.3	304	30.045	1.008	173.1
330	10.818	0.885	355.4	307	29.284	0.936	167.9
334	15.893	1.233	55.9	309	28.144	0.936	165.0
				310	27.572	1.008	163.6
				312	26.359	1.049	160.3
				419	29.798	0.792	171.5
				535	30.355	1.079	169.5
				536	30.411	0.956	168.4
SHOT POINT 18 AC							
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH				
301	17.263	1.120	203.9				
302	16.459	1.151	204.7				
304	14.615	1.274	206.0				
305	13.708	1.351	206.0				
306	13.503	1.367	199.3				
307	12.560	1.367	197.9				
308	11.671	1.326	197.1				
309	10.840	1.285	194.5				
310	10.013	1.285	192.8				
311	9.169	1.274	190.7				
313	7.282	1.254	186.2				
315	5.597	1.213	181.1				
316	4.697	1.254	175.8				
317	3.817	1.079	168.2				
320	1.089	0.495	163.4				
322	6.906	1.223	154.0				
334	0.049	0.003	193.4				

FIRST ARRIVAL TIMES

SHOT POINT 16 AC

LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
301	16.796	0.967	176.5
303	15.051	1.069	175.3
304	14.218	1.161	173.5
307	13.580	1.223	162.2
309	12.647	1.151	155.2
310	12.212	1.233	151.7
312	11.429	1.233	142.9
419	13.979	1.182	170.0
535	14.580	1.141	166.0
536	14.679	1.295	163.7

SHOT POINT 1 BD

LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
306	9.507	0.956	113.5
307	9.777	0.987	107.8
308	9.996	0.967	102.7
309	10.583	0.915	98.4
310	10.993	0.977	94.2
311	11.473	1.049	90.3
405	0.563	0.115	149.0
406	1.136	0.156	137.8
409	2.550	0.310	125.4
410	3.059	0.413	123.7
412	3.770	0.454	121.8
413	4.192	0.474	122.6
414	5.092	0.628	119.5
415	5.531	0.669	121.5
416	6.172	0.772	122.8
417	6.829	0.987	119.2
418	7.856	0.967	117.2
420	0.025	0.033	221.5

SHOT POINT 15 AC

LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
301	3.619	0.474	164.0
302	2.877	0.454	157.2
303	2.094	0.546	145.0
307	4.138	0.977	85.1
309	5.586	0.997	71.1
310	6.311	1.100	66.3
312	8.041	1.161	58.8
419	2.459	0.823	101.2
535	3.604	0.803	103.9
536	4.177	0.874	101.1

SHOT POINT 18 BD

LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
306	13.503	1.357	199.3
307	12.560	1.377	197.9
308	11.671	1.315	197.1
309	10.840	1.274	194.5
310	10.013	1.295	192.8
311	9.169	1.264	190.7
405	15.971	1.192	233.8
406	15.813	1.192	231.7
407	15.590	1.192	230.3
409	15.233	1.172	226.8
410	15.053	1.172	224.9
412	14.803	1.192	222.3
413	14.791	1.172	220.7
414	14.417	1.233	217.3
418	13.990	1.336	206.3
419	13.946	1.336	203.6
420	15.954	1.213	235.8

FIRST ARRIVAL TIMES

SHOT POINT 9BD				SHOT POINT 15 BD			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
307	29.284	0.761	167.9	305	-1.992	0.782	90.7
309	28.144	0.885	165.0	307	-4.138	0.813	85.1
310	27.572	0.731	163.6	309	-5.586	0.997	71.1
312	26.359	0.741	160.3	310	-6.311	1.090	66.3
405	26.285	0.956	186.3	312	-8.041	1.161	58.8
406	26.596	0.936	185.2	405	5.671	0.731	300.3
407	26.729	1.069	184.2	406	5.082	0.731	299.5
409	27.145	0.803	182.3	407	4.631	0.567	300.2
412	27.629	0.936	179.9	408	4.075	0.536	300.5
413	27.905	0.956	179.3	409	3.625	0.433	301.0
414	28.178	0.977	177.4	412	2.402	0.403	304.4
416	29.060	1.038	176.0	413	1.978	0.392	303.3
417	29.110	1.038	174.5	414	1.127	0.177	318.0
418	29.480	0.936	172.6	416	0.002	0.064	180.0
419	29.798	1.069	171.5	417	-0.775	0.403	89.1
535	30.355	1.059	169.5	419	-2.459	0.813	101.2
536	30.411	0.936	168.4	535	-3.604	0.803	103.9

SHOT POINT 16 BD			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
305	13.461	1.203	171.4
307	13.580	1.223	162.2
309	12.647	1.131	155.2
310	12.212	1.213	151.7
312	11.429	1.203	142.9
405	11.506	1.080	205.0
406	11.647	1.059	202.2
407	11.652	1.049	199.9
408	11.746	1.049	197.3
409	11.830	1.028	195.1
412	12.087	1.049	189.3
413	12.309	1.038	187.6
414	12.469	1.090	183.4
416	13.288	1.161	179.9
417	13.297	1.285	176.6
418	13.653	1.213	172.3
419	13.979	1.172	170.0
535	14.580	1.120	166.0
536	14.679	1.305	163.7

FIRST ARRIVAL TIMES

SHOT POINT 9 BB				SHOT POINT 16 BB			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
301	-32.607	0.729	174.7	301	-16.796	0.973	176.5
302	-31.794	0.843	174.4	303	-15.051	1.077	175.3
303	-30.872	0.814	174.0	304	-14.218	1.131	173.5
417	-29.110	0.828	174.5	417	-13.297	1.276	176.6
418	-29.480	0.828	172.6	418	-13.653	1.184	172.3
501	-14.686	0.635	172.4	501	1.146	0.405	357.6
502	-7.316	0.307	168.7	502	8.547	0.613	356.3
503	-14.364	0.569	172.3	503	1.470	0.578	357.7
504	-13.795	0.556	170.9	504	2.089	0.490	5.3
505	-13.147	0.512	170.2	505	2.759	0.433	5.3
506	-12.598	0.490	170.9	507	3.753	0.461	2.8
507	-12.149	0.512	169.7	509	4.884	0.597	356.8
508	-11.304	0.585	170.2	510	5.437	0.553	353.7
509	-10.961	0.588	171.0	511	5.993	0.553	355.3
510	-10.392	0.578	172.3	512	6.444	0.562	358.5
511	-9.844	0.424	171.2	513	7.106	0.569	357.9
512	-9.439	0.364	168.9	514	7.495	0.638	353.7
513	-8.773	0.383	168.6	515	7.913	0.626	354.9
514	-8.335	0.364	172.0	556	-0.036	0.023	90.0
515	-7.926	0.316	170.7	559	-0.816	0.569	170.2
556	-15.833	0.720	172.6	560	-0.451	0.364	154.7
559	-16.643	0.932	172.6	581	24.087	0.897	8.0
560	-16.257	0.859	172.3	582	22.943	0.884	6.7
581	9.734	0.629	33.1	583	20.680	0.973	5.7
582	8.478	0.490	33.3	584	18.845	0.840	5.4
583	6.327	0.553	39.6	585	17.639	0.815	4.9
584	4.844	0.351	50.8	586	16.519	0.752	359.4
585	3.971	0.282	61.9	588	15.664	0.708	353.3
588	-0.225	0.121	129.7	589	14.992	0.711	354.0
589	-0.899	0.100	151.8	590	14.561	0.711	354.6
590	-1.359	0.225	152.4	591	13.988	0.717	355.5
591	-1.974	0.234	152.9	592	13.507	0.711	356.2
592	-2.478	0.228	153.9	593	12.921	0.733	356.9
593	-3.080	0.234	155.4	594	12.363	0.768	357.3
594	-3.639	0.291	157.1	595	11.769	0.777	357.9
595	-4.238	0.310	158.4	596	11.242	0.749	357.3
596	-4.703	0.326	162.0	597	10.754	0.701	356.1
597	-5.130	0.307	165.8	598	10.266	0.670	356.7
598	-5.630	0.297	165.6	599	9.796	0.645	356.4
599	-6.084	0.307	166.9	600	9.129	0.654	355.9
600	-6.730	0.266	168.6	602	-12.789	1.210	179.7
604	-27.473	0.838	175.5	604	-11.686	1.143	179.1
605	-26.605	0.800	174.1	605	-10.788	1.023	176.0
606	-26.083	0.805	173.9	606	-10.263	1.045	175.6
607	-25.565	0.800	173.9	607	-9.745	1.045	175.7
609	-24.414	0.733	174.0	609	-8.596	0.998	176.2
610	-23.880	0.727	173.9	610	-8.062	0.982	176.2
611	-23.386	0.774	174.2	611	-7.573	1.007	177.2
612	-22.883	0.768	174.4	612	-7.076	1.036	178.1
613	-22.422	0.777	174.5	613	-6.618	1.055	178.7
614	-21.863	0.840	175.0	614	-6.077	1.036	180.7
615	-21.225	0.865	174.9	615	-5.442	1.004	181.3
616	-20.783	0.865	175.2	616	-5.016	0.966	183.0
617	-20.153	0.872	174.9	617	-4.378	0.957	182.8
618	-19.624	1.064	174.5	618	-3.834	0.947	181.8
619	-19.125	1.131	174.2	619	-3.324	0.957	180.8
620	-18.527	0.973	173.7	620	-2.712	0.947	179.0

FIRST ARRIVAL TIMES

SHOT POINT 15 BB				SHOT POINT 11 BC			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
301	-3.619	0.465	164.0	323	25.652	1.208	72.6
302	-2.877	0.461	157.2	324	24.244	1.167	67.7
303	-2.094	0.528	145.0	541	11.306	0.756	61.1
416	-0.002	0.061	180.0	543	12.498	0.849	59.7
417	-0.775	0.200	89.1	545	13.693	0.849	60.4
501	14.431	1.048	359.7	546	14.334	0.951	61.3
502	21.822	0.947	358.5	547	14.620	0.961	59.9
503	14.755	0.982	359.7	548	15.187	1.033	60.8
504	15.367	0.941	0.6	549	15.756	1.044	61.4
505	16.035	0.872	0.8	550	16.438	1.033	62.2
506	16.547	0.881	359.9	552	17.561	1.033	62.0
507	17.035	0.872	0.5	553	17.978	1.126	62.2
508	17.850	0.973	359.7	554	18.607	1.085	61.1
509	18.164	0.963	359.1	555	19.104	1.033	61.3
510	18.700	0.925	358.1	556	19.949	1.013	60.8
511	19.266	0.916	358.5	561	-1.400	0.095	255.6
512	19.728	0.906	359.5	562	0.0000	0.044	180.0
513	20.389	0.913	359.2	563	0.817	0.038	112.4
514	20.752	0.979	357.7	565	2.272	0.269	95.8
515	21.179	0.963	358.0	566	2.599	0.269	77.5
556	13.286	1.241	0.1	567	2.894	0.372	73.6
557	11.438	0.905	0.3	568	3.979	0.464	69.4
559	12.482	1.184	0.5	569	4.499	0.546	64.5
560	12.879	1.250	0.8	570	4.968	0.577	61.7
581	37.288	1.030	5.1	571	5.682	0.603	60.3
582	36.170	1.023	4.2	572	6.198	0.603	62.6
583	33.925	1.112	3.4	573	6.807	0.592	61.8
584	32.096	0.957	3.1	575	7.534	0.664	63.1
585	30.896	0.957	2.8	576	7.949	0.664	61.1
586	29.805	0.957	359.6	577	8.486	0.685	59.7
588	28.903	0.957	356.3	578	8.975	0.705	60.3
589	28.241	0.957	356.8	579	9.496	0.736	58.9
590	27.818	0.957	357.1	580	10.174	0.685	60.9
591	27.254	0.938	357.7	814	20.911	1.044	62.1
592	26.779	0.938	358.0	817	21.885	1.126	65.0
593	26.197	0.998	358.4	819	25.240	1.0436	70.5
594	25.642	1.020	358.7				
595	25.051	1.023	359.0				
596	24.521	1.039	358.7				
597	24.027	0.995	358.2				
598	23.543	0.982	358.5				
599	23.071	0.982	358.4				
600	22.401	0.982	358.3				
604	1.608	0.588	5.6				
605	2.629	0.859	16.2				
606	3.145	0.850	13.9				
607	3.638	0.941	11.2				
609	4.741	0.824	6.7				
610	5.266	0.834	5.6				
611	5.732	0.891	3.5				
612	6.217	0.881	2.0				
613	6.671	0.884	1.1				
616	8.282	0.875	358.0				
617	8.917	0.925	358.5				
618	9.454	1.004	359.1				
620	10.574	1.030	0.1				

FIRST ARRIVAL TIMES

SHOT POINT 16 BC				SHOT POINT 9 BC			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
541	-8.612	1.326	240.3	541	-20.710	1.018	195.3
542	-8.009	1.326	240.0	542	-20.313	1.018	194.1
543	-7.425	1.315	242.6	543	-19.666	0.997	193.5
544	-6.815	1.151	240.7	544	-19.443	1.028	191.7
546	-5.586	1.203	239.3	546	-18.769	0.936	188.6
547	-5.303	1.192	243.1	547	-18.307	0.905	188.6
549	-4.166	1.038	238.2	549	-17.965	0.895	184.9
550	-3.508	1.079	234.2	550	-17.775	1.008	182.7
552	-2.392	0.803	231.5	552	-17.191	0.915	179.6
553	-1.997	0.526	227.7	553	-17.054	0.926	178.3
554	-1.315	0.444	236.2	554	-16.459	0.936	176.9
555	-0.833	0.310	228.5	555	-16.311	0.782	175.2
556	0.036	0.023	90.0	556	-15.833	0.741	172.6
562	-19.917	1.028	240.8	562	-29.716	0.844	211.2
563	-19.422	1.028	238.9	563	-29.604	0.844	209.6
564	-18.863	1.069	237.4	564	-29.356	0.844	208.2
566	-17.444	1.172	238.3	565	-28.817	0.751	207.1
567	-17.108	1.172	238.6	566	-27.986	0.885	207.3
568	-15.996	1.223	238.6	567	-27.652	0.885	207.1
569	-15.431	1.223	239.7	568	-26.709	0.956	205.9
570	-14.950	1.254	240.5	569	-26.077	0.946	205.7
571	-14.235	1.254	240.9	570	-25.564	0.987	205.5
572	-13.724	1.223	239.9	571	-24.912	0.987	204.8
574	-9.077	1.305	240.3	572	-24.646	1.049	203.6
575	-12.393	1.305	239.4	574	-21.036	1.018	196.3
576	-11.969	1.346	240.6	575	-23.661	1.008	201.5
577	-11.434	1.326	241.5	576	-23.171	1.090	201.3
578	-10.943	1.315	241.1	577	-22.634	1.120	200.8
579	-10.431	1.295	242.4	578	-22.314	1.100	199.9
				579	-21.772	1.018	199.4

FIRST ARRIVAL TIMES

SHOT POINT 15 BC				SHOT POINT 12 BC			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
541	11.733	1.131	320.2	323	9.996	1.392	8.0
542	11.608	1.100	323.1	324	11.439	1.361	356.8
543	11.880	1.090	326.14	541	15.265	1.197	300.3
544	11.604	1.018	329.0	543	14.972	1.197	304.8
546	11.493	1.079	335.2	545	14.350	1.095	308.8
547	11.879	1.100	336.4	547	14.151	1.228	312.5
550	11.595	1.141	345.7	548	13.770	1.218	314.5
552	11.949	1.141	350.9	549	13.447	1.218	316.6
553	12.036	1.244	352.8	550	13.086	1.208	319.2
554	12.604	1.182	354.9	552	12.925	1.208	324.1
555	12.750	1.182	357.1	553	12.816	1.310	325.9
556	13.286	1.213	0.1	554	13.124	1.238	328.8
562	17.775	0.782	281.5	555	13.045	1.259	331.0
563	16.973	0.844	281.0	556	13.234	1.228	334.7
564	16.231	0.987	281.1	561	24.524	0.900	274.4
566	15.437	0.946	285.5	562	23.203	1.003	275.5
567	15.276	0.967	286.6	563	22.422	0.982	274.9
568	14.556	0.946	289.9	565	20.930	1.225	275.5
569	14.437	0.967	292.4	566	20.746	1.115	277.7
570	14.317	1.008	294.4	567	20.544	1.115	278.5
571	14.006	1.018	297.0	568	19.704	1.136	280.6
572	13.520	0.997	298.3	569	19.482	1.136	282.4
574	11.831	1.110	318.0	570	19.272	1.177	283.8
575	12.764	0.977	303.1	571	18.841	1.156	285.5
576	12.808	1.100	305.3	572	18.305	1.115	286.1
577	12.766	1.079	307.8	573	17.942	1.105	287.7
578	12.507	1.079	309.8	574	15.510	1.136	298.8
579	12.552	1.079	312.4	575	17.318	1.187	289.0
				576	27.238	1.197	290.6
				577	17.050	1.197	292.4
				578	16.685	1.187	293.6
				579	16.568	1.187	295.5
				580	15.910	1.146	296.8
				817	11.944	1.249	344.2
				819	10.677	1.474	3.8

SHOT POINT 14 BC			
LOCATION	DISTANCE .	REDUCED TIME	AZIMUTH
323	22.141	0.849	293.5
324	24.627	0.849	294.9
543	34.810	0.941	282.4
545	33.823	0.869	283.6
548	32.674	0.869	285.2
549	32.144	0.972	285.7
550	31.514	0.849	286.3
552	30.749	0.972	287.8
553	30.416	1.003	288.3
554	30.250	0.931	289.6
555	29.871	0.920	290.3
562	44.817	0.859	271.5
570	40.575	1.105	275.0
571	40.055	1.115	275.7
817	27.041	1.044	292.7

FIRST ARRIVAL TIMES

SHOT POINT 13 BC				SHOT POINT 1 BC			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
323	10.750	1.177	331.3	323	14.563	1.300	57.3
324	13.136	1.269	326.7	324	13.884	1.095	47.4
541	21.046	1.218	290.1	541	6.130	0.818	337.7
543	20.533	1.238	293.2	543	6.679	0.859	347.6
545	19.704	1.156	295.7	545	6.986	0.838	357.4
546	19.148	1.279	296.9	546	7.096	0.972	2.9
547	19.295	1.290	298.2	547	7.555	0.972	3.3
548	18.805	1.290	299.3	548	7.697	0.992	7.7
549	18.358	1.269	300.5	549	7.914	1.033	11.8
550	17.838	1.279	302.0	550	8.223	1.023	16.3
553	17.104	1.300	306.5	552	9.071	1.033	21.2
554	17.173	1.290	308.9	553	9.354	1.136	23.2
555	16.927	1.249	310.4	554	10.069	1.095	23.8
556	16.802	1.290	313.3	555	10.429	1.218	25.8
561	31.060	0.849	272.7	556	11.219	1.105	27.6
562	29.723	0.961	273.4	561	13.583	0.500	269.4
563	28.952	0.961	272.9	562	12.228	0.592	271.0
565	27.453	1.095	273.3	563	11.472	0.561	269.5
566	27.233	1.085	275.0	565	9.966	0.726	269.9
567	27.017	1.095	275.5	566	9.720	0.695	274.6
568	26.136	1.115	277.0	567	9.505	0.695	276.2
569	25.874	1.126	278.3	568	8.651	0.695	280.7
570	25.629	1.197	279.3	569	8.442	0.705	284.8
571	25.151	1.156	280.5	570	8.261	0.736	288.1
572	24.600	1.105	280.9	571	7.890	0.715	292.6
573	24.190	1.095	281.9	572	7.384	0.674	294.5
574	21.355	1.187	289.2	573	7.111	0.654	298.9
575	23.528	1.167	282.8	574	6.096	0.746	333.4
576	23.393	1.167	283.9	575	6.594	0.767	303.4
577	23.141	1.187	285.2	577	6.642	0.797	312.5
578	22.735	1.187	285.9	578	6.426	0.787	316.5
580	21.836	1.146	288.0	579	6.548	0.797	321.4
814	16.101	1.392	316.0	580	6.145	0.736	327.1
819	11.770	1.228	330.2	814	11.807	1.126	32.0
				817	12.152	1.126	38.8
				819	14.440	1.269	53.3

FIRST ARRIVAL TIMES

SHOT POINT 11 CC				SHOT POINT 1 CC			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
420	12.212	0.588	91.1	420	0.025	0.038	221.5
561	-1.400	0.091	255.6	561	-13.583	0.500	269.4
562	0.000	0.044	180.0	562	-12.228	0.592	271.0
563	0.817	0.077	112.4	563	-11.472	0.572	269.5
565	2.272	0.266	95.8	565	-9.966	0.726	269.9
605	18.175	0.818	93.3	605	-5.975	0.736	97.9
707	3.882	0.498	91.2	706	-8.810	0.685	272.5
709	5.317	0.598	94.9	707	-8.346	0.726	270.9
710	5.778	0.588	90.6	709	-6.933	0.705	268.0
711	6.588	0.569	91.4	710	-6.451	0.685	271.4
712	7.411	0.598	88.6	711	-5.641	0.654	270.6
713	8.038	0.588	90.5	712	-4.833	0.715	274.7
714	8.568	0.631	91.1	713	-4.191	0.664	271.9
716	9.819	0.588	90.2	714	-3.661	0.561	270.7
717	10.513	0.612	91.2	716	-2.414	0.428	274.2
718	11.194	0.598	91.0	717	-1.716	0.356	269.5
719	11.813	0.583	91.1	718	-1.035	0.244	270.5
721	25.183	0.953	94.5	719	-0.416	0.131	268.0
722	25.853	1.033	94.4	721	12.998	1.013	97.8
723	26.475	1.064	94.3	722	13.664	1.126	97.4
724	27.108	1.033	94.2	723	14.283	1.136	97.1
725	27.831	0.943	94.0	724	14.912	1.095	96.8
726	29.081	0.972	92.8	726	16.862	1.105	94.1
727	29.757	0.976	93.4	727	17.545	1.033	95.0
728	30.411	0.943	92.7	728	18.191	1.033	93.9
729	31.006	0.953	92.2	729	18.781	1.033	93.0
730	31.631	0.976	92.3	730	19.408	1.033	93.1
731	32.358	0.900	92.5	731	20.136	0.961	93.4
733	33.677	0.808	92.9	732	20.810	0.900	93.4
734	34.380	0.877	92.7	733	21.458	0.900	93.9
735	35.102	0.877	92.9	734	22.159	0.900	93.6
736	35.732	0.867	93.1	735	22.883	0.951	93.9
737	36.368	0.838	93.0	736	23.515	0.951	94.2
738	37.014	0.818	93.0	737	24.151	0.941	94.1
739	37.649	0.815	92.5	738	24.795	0.910	93.9
740	38.297	0.808	92.1	739	25.426	0.869	93.3
762	12.886	0.621	91.1	740	26.071	0.879	92.6
763	13.545	0.721	90.6	762	0.658	0.131	92.3
764	14.160	0.759	91.3	763	1.319	0.172	87.0
765	14.958	0.730	92.1	764	1.933	0.305	93.3
766	15.543	0.721	91.7	765	2.742	0.479	97.1
767	16.097	0.744	91.9	766	3.319	0.500	94.4
768	16.817	0.744	91.2	767	3.875	0.531	94.8
769	17.358	0.754	92.5	768	4.589	0.613	91.8
772	19.282	0.830	93.9	769	5.143	0.664	96.1
773	20.308	0.853	93.8	771	6.564	0.849	101.4
774	20.613	0.844	94.0	772	7.095	0.818	98.9
775	21.478	0.849	94.8	773	8.116	0.869	98.1
776	22.004	0.938	95.0	774	8.424	0.869	98.3
777	22.512	0.957	95.1	775	9.310	0.869	99.7
778	23.632	1.000	95.1	776	9.843	0.931	100.1
779	23.159	0.900	95.6	777	10.350	0.951	99.9
781	39.122	0.792	91.7	778	11.466	1.064	99.4
783	40.451	0.735	90.8	781	26.894	0.879	92.0
784	41.541	0.633	90.4	783	28.223	0.828	90.7
785	42.912	0.705	91.6	784	29.314	0.818	90.1
786	44.817	0.730	91.6	785	30.684	0.777	91.8
788	47.674	0.900	90.1	786	32.589	0.797	91.7
790	50.035	0.828	88.8	788	35.448	0.890	89.8
791	52.093	0.815	89.2	790	37.820	0.910	88.1
801	24.585	1.023	94.6	791	39.874	0.910	88.6
				792	41.032	1.044	88.5
				793	42.410	1.1359	89.5
				794	43.116	1.167	90.3
				795	45.283	1.238	90.3
				796	46.206	1.310	91.5
				797	47.851	1.136	90.9
				797	47.851	1.326	90.9
				798	49.975	1.095	90.7
				799	50.801	1.115	91.4
				800	51.266	1.085	91.3
				801	52.403	1.054	98.2

FIRST ARRIVAL TIMES

SHOT POINT 12 CC				SHOT POINT 13 CC			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH	LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
420	-11.066	1.013	280.4	420	-17.528	1.035	275.1
561	-24.524	0.890	274.4	561	-31.060	0.870	272.7
562	-23.203	0.992	275.5	562	-29.723	0.996	273.4
563	-22.422	0.982	274.9	563	-28.952	0.972	272.9
565	-20.930	1.115	275.5	565	-27.453	1.099	273.3
605	-5.092	0.8897	283.6	605	-11.549	0.980	273.8
707	-19.333	1.167	276.4	706	-26.317	1.114	274.3
710	-17.453	1.177	277.1	707	-25.844	1.138	273.8
711	-16.639	1.136	277.2	709	-24.409	1.122	273.1
712	-15.869	1.239	278.7	710	-23.954	1.138	274.1
713	-15.210	1.177	278.2	711	-23.141	1.154	274.0
716	-13.455	1.105	279.4	712	-22.346	1.185	275.1
717	-12.742	1.115	279.0	713	-21.699	1.177	274.5
718	-12.074	1.105	279.7	714	-21.165	1.122	274.4
719	-11.459	1.033	280.1	716	-19.927	1.083	275.0
721	2.026	0.726	82.8	717	-19.222	1.122	274.7
722	2.694	0.756	84.6	718	-18.545	1.114	274.9
723	3.316	1.044	85.6	719	-17.926	1.059	275.0
724	3.951	1.023	86.2	721	-4.570	0.744	267.6
725	4.676	1.023	86.6	722	-3.898	0.854	267.2
726	6.006	1.044	82.3	723	-3.275	0.751	266.6
727	6.631	0.982	85.7	724	-2.640	0.688	266.1
728	7.327	1.013	83.8	726	-0.720	0.278	300.0
729	7.959	1.033	82.5	727	0.060	0.026	37.2
730	8.569	1.033	83.5	728	0.789	0.318	63.8
731	9.270	0.972	84.9	729	1.445	0.460	65.5
732	9.936	0.941	85.6	730	2.009	0.483	74.8
733	10.557	0.951	87.0	731	2.684	0.467	82.0
734	11.267	0.951	86.8	732	3.346	0.444	84.4
735	11.973	0.992	87.8	733	3.968	0.460	88.4
736	12.592	1.013	88.6	734	4.677	0.507	87.8
737	13.227	1.013	88.7	735	5.388	0.562	89.9
738	13.876	0.982	88.7	736	6.013	0.586	91.3
739	14.530	0.941	87.8	737	6.649	0.602	91.2
740	15.204	0.951	86.8	738	7.297	0.570	90.9
762	-10.403	0.961	281.0	739	7.944	0.538	89.1
763	-9.775	1.023	282.3	740	8.613	0.570	87.3
764	-9.139	0.972	282.1	762	-16.856	1.012	275.3
765	-8.317	0.961	281.7	763	-16.208	1.059	275.8
767	-7.207	0.941	283.6	764	-15.581	1.035	275.4
768	-6.554	0.879	286.6	765	-14.773	0.980	274.8
769	-5.939	0.900	284.4	766	-14.194	1.020	275.3
771	-4.491	0.900	279.2	767	-13.638	0.997	275.2
772	-3.966	0.828	283.5	768	-12.935	0.933	276.3
773	-2.964	0.746	287.2	769	-12.371	0.957	274.8
774	-2.656	0.726	287.6	771	-11.012	1.051	271.4
775	-1.749	0.674	284.7	772	-10.443	1.012	272.6
776	-1.214	0.326	284.3	773	-9.417	0.996	272.6
777	-0.713	0.244	289.7	774	-9.114	1.012	272.3
778	-0.467	0.203	72.1	775	-8.267	1.075	270.0
779	0.060	0.018	233.0	776	-7.753	0.980	268.9
781	16.048	0.951	86.2	777	-7.250	0.980	268.4
783	17.434	0.920	84.6	778	-6.139	0.933	267.2
784	18.554	0.900	83.9	779	-6.641	0.972	265.9
785	19.833	0.869	86.9	781	9.457	0.570	86.3
786	21.737	1.033	87.2	783	10.848	0.562	83.6
788	24.677	0.992	85.1	785	13.243	0.523	87.3
790	27.136	1.003	83.1	786	15.147	0.562	87.7
791	29.152	1.033	84.2	788	18.087	0.673	84.7
792	30.312	1.146	84.2	790	20.558	0.665	82.1
793	31.637	1.238	85.6	791	22.567	0.704	83.6
794	32.302	1.269	86.8	792	23.726	0.846	83.7
795	34.468	1.274	87.0	793	25.047	0.949	85.5
796	35.339	1.346	88.6	794	25.712	0.972	87.0
798	39.133	1.295	88.0	795	27.878	1.083	87.2
799	39.930	1.269	88.9	796	28.755	1.120	89.2
800	40.401	1.228	88.8	797	30.419	1.162	88.4
801	1.433	0.449	79.9	798	32.546	1.020	88.4
				799	33.348	0.996	89.5
				800	33.817	0.980	89.3
				801	-5.169	0.767	267.9

FIRST ARRIVAL TIMES

SHOT POINT 14 CC			
LOCATION	DISTANCE	REDUCED TIME	AZIMUTH
561	-46.166	0.796	271.0
562	-44.817	0.806	21.5
713	-36.780	0.720	271.7
714	-36.250	0.741	271.6
716	-35.001	0.806	271.9
717	-34.304	0.844	271.6
718	-33.624	0.874	271.7
721	-19.717	0.773	267.7
722	-19.046	0.768	267.6
723	-18.422	0.744	267.5
724	-17.786	0.707	267.4
725	-17.061	0.673	267.4
726	-15.760	0.621	269.1
727	-15.109	0.583	267.9
728	-14.429	0.546	268.9
729	-13.820	0.560	269.9
730	-13.197	0.508	269.6
731	-12.478	0.489	268.9
732	-11.808	0.404	268.6
733	-11.180	0.399	267.4
734	-10.470	0.385	267.6
735	-9.766	0.399	266.5
736	-9.154	0.389	265.3
737	-8.521	0.375	264.9
738	-7.874	0.351	264.7
739	-7.209	0.342	266.1
740	-6.534	0.304	268.2
762	-31.931	0.849	271.7
763	-31.274	0.854	271.9
764	-30.657	0.759	271.6
765	-29.860	0.759	271.2
766	-29.275	0.759	271.4
767	-28.721	0.735	271.3
768	-28.000	0.735	271.7
769	-27.464	0.762	270.9
772	-25.566	0.759	269.7
773	-24.542	0.806	269.6
774	-24.242	0.834	269.4
775	-23.410	0.896	268.5
776	-22.899	0.943	268.1
777	-22.397	0.919	267.9
778	-21.286	0.877	267.5
779	-21.786	0.882	267.1
781	-5.698	0.244	270.0
782	-1.097	0.105	265.1
783	-4.394	0.190	277.8
784	-3.383	0.176	285.5
785	-1.906	0.143	270.0
786	0.000	0.015	180.0
790	5.680	0.314	67.0
791	7.537	0.375	75.4
793	9.928	0.645	82.2
794	10.567	0.735	86.1
795	12.732	0.853	86.6
797	15.274	1.028	89.1
798	17.401	0.896	89.0
799	18.213	0.868	91.0
800	18.680	0.830	90.6
801	-20.316	0.796	267.7