U. S. GEOLOGICAL SURVEY

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SEISMIC REFRACTION RECORDS FROM A SURVEY

IN THE GULF OF ALASKA

by

Kenneth Core, Robert Mattick,
and Kenneth Bayer

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ALASKAN GEOLOGY BRANCH
TECHNICAL DATA FILE

SEISMIC REFRACTION RECORDS FROM A

SURVEY IN THE GULF OF ALASKA

by

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Kenneth Bayer

In September, 1974, the U.S. Geological Survey conducted a seismic refraction survey between Icy Bay and Kayak Island in the Gulf of Alaska to measure the seismic velocity and thickness of the sedimentary section. The purpose of this report is to make the original field records publicly available. Five lines totaling approximately 500 kilometres (including reversal) were shot. Approximate locations of the five lines (labeled A, C, D, E, and H) are plotted on figure 1. There was a total of 238 dynamite and 45 airgun shots as shown in table 1 which lists individual charge size, fuse length, firing time, shot depth, water depth, gain settings, filter settings, and sonobuoy location for each of the shot points.

Ship's navigation was accomplished by navigation satellite and Loran A. Aquatronics SLF73 sonobuoys were used to detect arrivals and an Aquatronics STR70 Receiver System was used to receive and record the signals from the sonobuoys. A simple block diagram (fig. 2) illustrates the configuration of the transmission and recording systems. Figure 3 illustrates the general shooting configuration. Figure 4 is a sample galvocamera paper record made while testing a tethered Aquatronics SLF sonobuoy in Hood Canal north of the Bangor, Washington, munitions depot.

Microfilm copies of the 283 refraction records (approximately 450 metres of original record section) can be obtained by contacting:

Paul Grim
Code D621
NGSDC/EDS/NOAA
Boulder, Co. 80302
Phone: 303-499-1000 Ext. 6521

Figure 1--Approximate locations of USGS seismic refraction lines shot in the Gulf of Alaska in September, 1974.

Table 1.--Explosive charge and sonobuoy data for each shot point

Date 9-19-74	Line A	Ship T. Thompson	Cruise I.D. TT-094	Area Gulf of Ala.	Lat. 59°18.2' N	Long. 142° 25.7'W																	
Sonobuoy 1		Water Depth (m) 1185		Hydrophone Depth (m) 72		H. F. Filter 20-62.5 HZ		L. F. Filter 5-20 HZ		Course 120°-130°		Speed (knots) 10											
Sonobuoy 2		Water Depth (m)		Hydrophone Depth (m)		H. F. Filter HZ		L. F. Filter HZ															
Shot No.	Charge				Water depth of shot (m)	Sonobuoy 1				Sonobuoy 2				Sonobuoy 1				Sonobuoy 2				Remarks	
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)		Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6	Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10	W.B. Atten. (db) ch. 11	Rec. Gain (db)	H.F. Atten. (db) ch. 12	L.F. Atten. (db) ch. 13	W.B. Atten. (db) ch. 14		
104	1	24	59	29	1167	12	70	70	60					12	60	60	50						
105	1	24	59	29	1149	"	"	"	"					"	"	"	"					No paper record	
106	1	24	58	28	1115	"	"	"	"					"	"	"	"						
107	1	24	58	28	1060	"	"	"	"					"	"	"	"						
108	1	24	58	28	1015	"	"	"	"					"	"	"	"						
109	1	24	58	28	975	"	"	"	"					"	"	"	"					No paper record	
110	1	24	58	28	935	"	"	"	"					"	"	"	"						
111	1	24	59	29	890	"	"	"	"					"	"	"	"						
112	1	24	58	28	815	"	"	"	"					"	"	"	"						
113	5	32	Misfire		820	"	"	"	"					"	"	"	"						
114	5	32	81	49	792	"	"	"	"					"	"	"	"						
115	10	32	81	62	768	"	"	"	"					"	"	"	"					Lost	
116	10	32	81	62	746	"	"	"	"					"	"	"	"						
117	30	32	80	61	779	"	"	"	"					"	"	"	"						
118	30	32	83	63	790	"	"	"	"					"	"	"	"						
119	30	32	81	62	840	"	"	"	"					"	"	"	"						
120	60	48	128	62	918	"	"	"	"					"	"	"	"						
121	60	48	125	61	995	"	"	"	"					"	"	"	"						
122	120	108	184	90	955	"	"	"	"					"	"	"	"					End of line	
123	240	108	180	88	935	"	"	"	"					"	"	"	"					Begin turn to	
124	240	108	187	91	840	"	"	"	"					"	"	"	"					reverse.	

Date	Line	Ship	Cruise I.D.	Area	Lat.	Long.															
9-19-74	A (Rev.)	T. Thompson	TT-094	Gulf of Ala.	59°06.5' N	141°48.5' W															
Sonobuoy 1	Water Depth (m)		Hydrophone Depth (m)		Course		Speed (knots)														
	890		72		298°		10														
Sonobuoy 2	Water Depth (m)		Hydrophone Depth (m)		L. F. Filter		L. F. Filter														
					HZ		HZ														
Shot No.	Charge				Sonobuoy 1			Sonobuoy 2			Remarks										
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)	Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4		L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6								
125	1	24	58	28	920	12	70	70	60												
126	1	24	58	28	990	"	"	"	"												
127	1	24	58	28	1015	"	"	"	"												
128	1	24	57	28	1040	"	"	"	"												
129	1	24	59	29	1070	"	"	"	"												
130	1	24	56	27	1140	"	"	"	"												
131	1	24	58	28	1150	"	"	"	"												
132	1	48	126	71	1133	"	"	"	"												
133	5	48	120	73	1143	"	"	"	"												
134	10	48	118	90	1180	"	"	"	"												
135	30	48	123	94	1217	"	"	"	"												
136	30	48	120	91	1143	"	"	"	"												
137	60	48	135	66	1085	"	"	"	"												Missed timebreak.
138	60	48	87	42	1045	"	"	"	"												Early. NO. Paper Record
139	60	108	225	110	1042	"	"	"	"												Late. NO Paper Record
140	120	108	195	95	1028	"	"	"	"												
141	120	108	186	91	1022	"	"	"	"												
142	120	108	184	90	1078	"	"	"	"												
43	240	108	187	91	1170	"	"	"	"												
44	240	108	181	88	1324	"	"	"	"												
45	240	108	178	87	1520	"	"	"	"												

Tab: 1.--Explosive charge and sonobuoy data for each ot point - continued.

[illegible]

Ta 1.-- Explosive charge and sonobuoy data for ea shot point - con tinued.

Date	Line	Ship	Cruise I.D.	Area	Lat.	Long.																	
19-17	C	Y. Thompson	TT-094	Gulf of Ala.	59° 41' 3" N	142° 01.8' W																	
Sonobuoy 1	Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		L. F. Filter		Course		Speed (knots)												
	130		72		S-62.5 HZ		5-20 HZ		091°		6												
Sonobuoy 2	Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		L. F. Filter																
					HZ		HZ																
Shot No.	Charge				Water depth at shot (m)	Sonobuoy 1				Sonobuoy 2				Sonobuoy 1				Sonobuoy 2				Remarks	
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)		Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6	Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10	W.B. Atten. (db) ch. 11	Rec. Gain (db)	H.F. Atten. (db) ch. 12	L.F. Atten. (db) ch. 13	W.B. Atten. (db) ch. 14		
AIRGUN, 9 records recorded with 300 cubic inch airgun, records not numbered																							
1	1	24		29	104	12	70	70	40					12	60	60	50						
2	1	24		29	104	"	"	"	"					"	"	"	"						
3	5	24	60	37	100	"	"	"	"					"	"	"	"						
4	10	24	58	44	101	"	"	"	"					"	"	"	"						
5	10	24	59	45	94	"	"	"	"					"	"	"	"						
6	20	24	57	43	97	"	"	"	"					"	"	"	"						
Sonobuoy not working, returned to origin and deployed another																							
7	1	24	57	28	157	12	70	70	60					"	"	"	"						
8	1	24	57	28	153	"	"	"	"					"	"	"	"						
9	1	24	57	28	149	"	"	"	"					"	"	"	"						
10	1	24	57	28	146	12	70	70	50					12	60	60	40						
11	1	24	57	28	140	"	"	"	"					"	"	"	"						
12	1	24	58	28	137	"	"	"	"					"	"	"	"						
13	2	24	59	29	130	"	"	"	"					"	"	"	"						
14	2	24	59	28	124	"	"	"	"					"	"	"	"						
15	2	24	58	28	120	"	"	"	"					"	"	"	"						
Sonobuoy not working, returned to origin and deployed another																							

Tab 1.--Explosive charge and sonobuoy data for each shot point - continued.

Date 9-17-74	Line C (Rerun)	Ship T. Thompson	Cruise I.D. TT-094	Area Gulf of Ala.	Lat. 59°41.3' N	Long. 143°01.8' W																		
Sonobuoy 1		Water Depth (m) 130		Hydrophone Depth (m) 72		H. F. Filter 5-62 HZ		L. F. Filter 5-20 HZ		Course 091°		Speed (knots) 10												
Sonobuoy 2		Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		L. F. Filter																
Shot No.	Charge				Water depth of shot (m)	Sonobuoy 1				Sonobuoy 2				Sonobuoy 1				Sonobuoy 2				Remarks		
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)		Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6	Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10	W.B. Atten. (db) ch. 11	Rec. Gain (db)	H.F. Atten. (db) ch. 12	L.F. Atten. (db) ch. 13	W.B. Atten. (db) ch. 14			
16	1	24	58	28	150	12	70	70	60					12	60	60	50							
17	1	24	57	28	145	"	"	"	"					"	"	"	"							
18	1	24	60	29	139	"	"	"	"					"	"	"	"							
19	2	24	60	29	134	"	"	"	"					"	"	"	"							
20	2	24	61	30	122	"	"	"	"					"	"	"	"							
21	5	24	61	37	108	"	"	"	"					"	"	"	"							
22	5	24	60	37	99	"	"	"	"					"	"	"	"							
23	20	24	57	43	88	"	"	"	"					"	"	"	"							
24	30	24	60	46	83	"	"	"	"					"	"	"	"							
25	60	24	58	28	76	"	"	"	"					"	"	"	"							
26	60	24	62	30	69	"	"	"	"					"	"	"	"							
27	60	24	62	30	63	"	"	"	"					"	"	"	"							
28	180	48	129	63	57	12	60	60	50					12	50	50	40							
29	240	48	120	58	52	12	60	60	50					12	40	40	40							
30	240	48	132	64	51	12	60	60	50					12	50	40	40							
31	240	48	128	62	51	12	60	60	50					12	50	40	40					End of line reverse course		

Date	Lat.	Ship	Cruise I.D.	Area	Lat.	Long.									
9-17	C (noverse)	T. Thompson	TY-094	Gulf of Ala.	59°4 1' N	141°14.0' W									
Sonobuoy 1		Water Depth (m)		Hydrophone Depth (m)	H. F. Filter	Speed (knots)									
		51		18	5-62.5HZ	10*									
Sonobuoy 2		Water Depth (m)		Hydrophone Depth (m)	L. F. Filter										
					L. F. Filter										
Shot No.	Charge			Water depth at shot (m)	Sonobuoy 1			Sonobuoy 2			Remarks				
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)		Rec. Coin (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Coin (db)	H.F. Atten. (db) ch. 4		L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6		
32	1	24	60	29	57	12	70	70	60						
33	1	24	59	29	57	"	"	"	"						
34	1	24	57	28	57	"	"	"	"						
35	1	24	58	28	61	"	"	"	"						
36	5	24	60	37	65	"	"	"	"						
37	5	24	59	36	67	"	"	"	"						
38	20	24	58	44	68	"	"	"	"						
39	20	24	58	44	71	"	"	"	"						
40	30	24	59	45	74	"	"	"	"						
41	60	24	60	29	79	"	"	"	"						
42	60	24	62	30	83	"	"	"	"						
43	120	48	118	58	92	"	"	"	"						
44	240	48	120	59	103	12	60	60	60	12	50	50	50		
45	240	48	118	58	111	"	"	"	"	"	"	"	"		
46	240	48	124	60	120	"	"	"	"	"	"	"	"		
47	240	48	120	59	139	"	"	"	"	"	"	"	"		
48	240	48	119	58	166	"	"	"	"	"	"	"	"	End of line	

Table 1.--Explosive charge and sonobuoy data for each shot point - continued.

Date	Line	Ship	Cruise I.D.	Area	Lat.	Long.																	
9-18-74	D	T. Thompson	TT-094	Gulf of Ala.	59°21.1' N	141°32.2' W																	
Sonobuoy 1		Water Depth (m)	Hydrophone Depth (m)	H. F. Filter	L. F. Filter	Course	Speed (knots)																
		183	72	20-62.5 HZ	5-20 HZ	310°	10																
Sonobuoy 2		Water Depth (m)	Hydrophone Depth (m)	H. F. Filter	L. F. Filter	Course change to 306° at shot no. 60																	
Shot No.	Charge			Water depth at shot (m)	Sonobuoy 1			Sonobuoy 2			Sonobuoy 2			Remarks									
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)		Shot Depth (m)	Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6		Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10	W.B. Atten. (db) ch. 11	Rec. Gain (db)	H.F. Atten. (db) ch. 12	L.F. Atten. (db) ch. 13	W.B. Atten. (db) ch. 14	
49	1	24	59	29	175	12	70	70	60					12	60	60	50						
50	1	24	57	28	175	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
51	1	24	58	28	174	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
52	1	24	60	29	172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
53	2	24	57	28	172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
54	2	24	57	28	172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	No paper record
55	2	24	57	28	172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
56	5	24	58	35	171	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
57	5	24	57	35	170	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
58	10	24	57	43	170	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
59	10	24	59	45	166	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
	Very weak signal.			Return to origin & deploy another buoy																			
60	1	24	58	28	173	12	70	70	60					12	70	70	60						
61	1	24	58	28	173	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
62	2	24	58	28	172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
63	2	24	59	29	168	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
64	2	24	60	29	168	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
65	2	24	60	29	168	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
66	2	24	57	28	167	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	

T. e 1.--Explosive charge and sonobuoy data for ea shot point - continued.

Date 9-18-74	Line D	Ship T. Thompson	Cruise I.D. TT-094	Area Gulf of Ala.	Lat. 59°21.1' N	Long. 141°32.2' W																		
Sonobuoy 1		Water Depth (m) 183		Hydrophone Depth (m) 72		H. F. Filter 20-62.5 KZ		L. F. Filter 5-20 HZ		Course 310°		Speed (knots) 10												
Sonobuoy 2		Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		L. F. Filter																
Shot No.	Charge				Water depth of shot (m)	Sonobuoy 1				Sonobuoy 2				Sonobuoy 1				Sonobuoy 2				Remarks		
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)		Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6	Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10	W.B. Atten. (db) ch. 11	Rec. Gain (db)	H.F. Atten. (db) ch. 12	L.F. Atten. (db) ch. 13	W.B. Atten. (db) ch. 14			
67	5	24	59	36	166	12	70	70	60					12	60	60	50							
68	5	24	57	35	167	"	"	"	"					"	"	"	"							
69	10	24	55	42	167	"	"	"	"					"	"	"	"					No paper record		
70	10	24	57	43	165	"	"	"	"					"	"	"	"							
71	10	32	78	59	164	"	"	"	"					"	"	"	"							
72	30	32	80	61	165	"	"	"	"					"	"	"	"							
73	60	32	86	42	166	"	"	"	"					"	"	"	"							
74	60	32	86	42	166	"	"	"	"					"	"	"	"							
75	120	72	184	90	167	"	"	"	"					"	"	"	"							
76	240	72	184	90	170	"	"	"	"					"	"	"	"							
77	240	72	181	88	175	"	"	"	"					"	"	"	"							
78	240	72	190	93	197	12	60	60	60					12	50	50	50							
79	240	72	187	91	204	"	"	"	"					"	"	"	"							
80	240	72	182	89	207	"	"	"	"					"	"	"	"							
81	240	72	170	83	173	"	"	"	"					"	"	"	"					End of line begin turn to reverse line.		

Tabl 1.--Explosive charge and sonobuoy data for each st point - continued.

09-18-74	Line D (Reversed)	Ship T. Thompson	Cruise I.D. TT-094	Area Gulf of Ala.	Lat. 59° 40.5'N	Long. 142°16.0'W																				
Sonobuoy 1		Water Depth (m) 198		Hydrophone Depth (m) 72		H. F. Filter 20-62.5 HZ		L. F. Filter 5-20 HZ		Course 130°		Speed (knots) 10														
Sonobuoy 2		Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		L. F. Filter																		
Shot No.	Charge				Water depth of shot (m)	Sonobuoy 1				Sonobuoy 2				Sonobuoy 1				Sonobuoy 2				Remarks				
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)		Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6	Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10	W.B. Atten. (db) ch. 11	Rec. Gain (db)	H.F. Atten. (db) ch. 12	L.F. Atten. (db) ch. 13	W.B. Atten. (db) ch. 14					
82	1	24	57	28	204	12	70	70	60					12	60	60	50									
83	1	24	58	28	204	"	"	"	"					"	"	"	"									
84	1	24	59	29	204	"	"	"	"					"	"	"	"									
85	1	24	59	29	203	"	"	"	"					"	"	"	"									
86	2	24	58	28	200	"	"	"	"					"	"	"	"									
87	2	24	61	30	197	"	"	"	"					"	"	"	"									
88	2	24	59	29	196	"	"	"	"					"	"	"	"									
89	2	24	60	29	178	"	"	"	"					"	"	"	"									
90	2	24	59	29	174	"	"	"	"					"	"	"	"									
91	5	24	58	35	172	"	"	"	"					"	"	"	"									
92	5	24	58	35	171	"	"	"	"					"	"	"	"									
93	5	24	59	36	170	"	"	"	"					"	"	"	"									
94	10	24	59	45	170	"	"	"	"					"	"	"	"									
95	30	24	62	47	168	"	"	"	"					"	"	"	"									
96	60	24	62	30	170	"	"	"	"					"	"	"	"									
97	60	24	64	31	170	"	"	"	"					"	"	"	"									
98	120	72	178	87	170	"	"	"	"					"	"	"	"									
99	120	72	175	85	175	"	"	"	"					"	"	"	"									
100	120	72	180	88	175	"	"	"	"					"	"	"	"									
101	240	72	181	88	177	"	"	"	"					"	"	"	"									
102	240	72	180	88	179	"	"	"	"					"	"	"	"									

Table 1.--Explosive charge and sonobuoy data for each shot point - continued.

Table 1. Explosive charge and sonobuoy data for each shot point.																						
0-23-74		Line E		Ship T. Thompson		Cruise I.D. TT-094		Area Gulf of Ala.		Lat. 59° 47.0' N		Long. 144° 16.5' W										
Sonobuoy 1		Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		L. F. Filter		Course		Speed (knots)										
		77		54		20-62.5 HZ		5-20 HZ		094°		6-9*										
Sonobuoy 2		Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		L. F. Filter		Sonobuoy #1 anchored; shoot away with airgun *Increased speed to 9 knots at shot no. 160												
Shot No.	Charge				Water depth of shot (m)	Sonobuoy 1				Sonobuoy 2				Sonobuoy 1				Sonobuoy 2				Remarks
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)		Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6	Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10	W.B. Atten. (db) ch. 11	Rec. Gain (db)	H.F. Atten. (db) ch. 12	L.F. Atten. (db) ch. 13	W.B. Atten. (db) ch. 14	
Airgun	20	sec.	rep.	rate		12	70	70	60					12	60	60	50					18 records
148	5	60	119	77	85	12	70	70	40					"	"	"	"					
149	5	60	127	77	85	"	"	"	"					"	"	"	"					
150	5	60	127	77	90	"	"	"	"					"	"	"	"					
151	10	60	126	96	93	"	"	"	"					"	"	"	"					
152	20	60	120	91	97	"	"	"	"					"	"	"	"					
153	20	60	119	91	101	"	"	"	"					"	"	"	"					
154	20	60	124	94	105	"	"	"	"					"	"	"	"					
155	30	60	123	94	107	"	"	"	"					"	"	"	"					
156	30	60	125	95	111	"	"	"	"					"	"	"	"					
157	60	60	125	61	116	12	70	70	70					"	"	"	"					
158	60	60	130	63	123	"	"	"	"					"	"	"	"					
159	120	60	124	61	131	"	"	"	"					"	"	"	"					
160	240	108	187	91	148	12	60	60	50					12	50	50	50					
161	240	108	188	92	210	12	50	50	60					12	40	40	50					
162	240	108	205	100	295	"	"	"	"					"	"	"	"					
163	240	108	186	91	296	"	"	"	"					"	"	"	"					
164	240	108	186	91	298	"	"	"	"					"	"	"	"					
165	240	108	188	92	306	"	"	"	"					"	"	"	"					End of line.

Table 1.-Explosive charge and sonobuoy data for each shot point - continued.

Line No.	Line	Ship	Cruise I.D.	Area	Lat.	Long.								
1-22-74	E (REVERSED)	Y. Thompson	TY-094	Gulf of Ala.	59°44.3' N	143°14.0' W								
Sonobuoy 1	Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		Course		Speed (knots)					
	220		72		20-62.5 HZ		5-20 HZ		276° 10					
Sonobuoy 2	Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		L. F. Filter		Freefloating buoy					
Shot No.	Charge				Water depth at shot (m)	Sonobuoy 1			Sonobuoy 2			Remarks		
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)		Rec. Gain (db)	H.F. Atten. (db)	L.F. Atten. (db)	W.B. Atten. (db)	Rec. Gain (db)	H.F. Atten. (db)		L.F. Atten. (db)	W.B. Atten. (db)
166	1	24	59	28	309	12	70	70	60	12	60	60	50	
167	1	60	124	61	306	"	"	"	"	"	"	"	"	
168	1	24	59	28	304	"	"	"	"	"	"	"	"	Interference from another seismic ship wiping out signal
169	5	60	125	76	302	"	"	"	"	"	"	"	"	
170	10	60	120	91	302	"	"	"	"	"	"	"	"	
171	10	60	122	93	301	"	"	"	"	"	"	"	"	
172	10	60	121	92	290	"	"	"	"	"	"	"	"	
173	120	60	115	88	265	"	"	"	"	"	"	"	"	Late on paper record
174	120	60	123	94	240	"	"	"	"	"	"	"	"	
175	30	60	Dud		190	"	"	"	"	"	"	"	"	
176	30	60	127	97	157	"	"	"	"	"	"	"	"	
177	60	60	130	63	146	"	"	"	"	"	"	"	"	Paper ran out
178	60	60	Dud		142	"	"	"	"	"	"	"	"	
179	60	60	132	64	138	"	"	"	"	"	"	"	"	
180	120	60	123	60	130	"	"	"	"	"	"	"	"	Override
181	120	108	128	62	122	"	"	"	"	"	"	"	"	Override
182	120	108	129	63	118	"	"	"	"	"	"	"	"	Override
183	120	108	125	61	114	"	"	"	"	"	"	"	"	Missed W. B.

Return to origin and deploy another sonobuoy.

Table 1.--Explosive charge and sonobuoy data for each shot point - continued.

Date	Line	ReRun	Ship	Cruise I.D.	Area	Lat.	Long.											
9-25-74	E (Reversed)		T. Thompson	TT-094	Gulf of Ala.	59°44.5' N	143°10.5' W											
Sonobuoy 1	Water Depth (m)		Hydrophone Depth (m)		H. F. Filter		Course		Speed (knots)									
	220		72		20-62.5 HZ		276°		10									
Sonobuoy 2	Water Depth (m)		Hydrophone Depth (m)		H. F. Filter													
					L. F. Filter													
Shot No.	Charge			Water depth at shot (m)	Sonobuoy 1			Sonobuoy 2			Sonobuoy 1			Sonobuoy 2			Remarks	
	Wt. (lbs)	Fuse Length (ft)	Firing Time (sec)		Shot Depth (m)	Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6	Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10		W.B. Atten. (db) ch. 11
219	1	24	58	28	237	12	70	70	60					12	60	60	50	
220	1	24	57	28	273	"	"	"	"					"	"	"	"	
221	1	24	57	28	285	"	"	"	"					"	"	"	"	
222	2	24	61	30	300	"	"	"	"					"	"	"	"	
223	2	24	60	29	309	"	"	"	"					"	"	"	"	
224	2	24	58	28	309	"	"	"	"					"	"	"	"	
225	5	24	57	35	304	"	"	"	"					"	"	"	"	
226	10	24	59	45	303	"	"	"	"					"	"	"	"	
227	10	24	58	44	296	"	"	"	"					"	"	"	"	
228	20	24	58	44	296	"	"	"	"					"	"	"	"	
229	50	24	59	45	294	"	"	"	"					"	"	"	"	
230	120	60	118	58	223	"	"	"	"					"	"	"	"	
231	240	60	118	58	154	"	"	"	"					"	"	"	"	
232	240	90	183	89	136	"	"	"	"					12	70	70	60	
233	240	90	192	94	125	"	"	"	"					"	"	"	"	
234	240	90	193	94	115	"	"	"	"					"	"	"	"	
235	240	90	180	88	110	"	"	"	"					"	"	"	"	
236	240	90	Dud		104	"	"	"	"					"	"	"	"	
237	240	90	165	81	101	"	"	"	"					"	"	"	"	Missed time break
238	240	90	175	85	97	"	"	"	"					"	"	"	"	End Line

Table 1.--Explosive charge and sonobuoy data for each shot point - continued.

9-24-74	Line H	Ship T. Thompson	Cruise I.D. TT-094	Area Gulf of Ala.	Lat. 59°43.1' N	Long. 144°24.5' W																
Sonobuoy 1	Water Depth (m) 122.5		Hydrophone Depth (m) 72		H. F. Filter 20-62.5 HZ	L. F. Filter 5-20 HZ	Course 105°		Speed (knots) 6-10													
Sonobuoy 2	Water Depth (m)		Hydrophone Depth (m)		H. F. Filter	L. F. Filter	Anchored buoy															
Shot No.	Charge				Water depth at shot (m)	Sonobuoy 1				Sonobuoy 2				Sonobuoy 1				Sonobuoy 2				Remarks
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)		Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6	Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10	W.B. Atten. (db) ch. 11	Rec. Gain (db)	H.F. Atten. (db) ch. 12	L.F. Atten. (db) ch. 13	W.B. Atten. (db) ch. 14	
Air gun	30 cu."	@3min.	int.			12	70	70	60					12	60	60	50					12 records
184	5	24	60	37	113	"	"	"	"					"	"	"	"					
Air gun						"	"	"	"					"	"	"	"					2 records
185	5	24	64	39	113	"	"	"	"					"	"	"	"					
Airgun						"	"	"	"					"	"	"	"					2 records
186	5	24	59	36	114	"	"	"	"					"	"	"	"					
Airgun						"	"	"	"					"	"	"	"					2 records
187	5	24	61	37	115	"	"	"	"					"	"	"	"					
188	5	24	66	40	119	"	"	"	"					"	"	"	"					
189	20	60	120	91	122	"	"	"	"					"	"	"	"					
190	30	60	124	94	125	"	"	"	"					"	"	"	"					
191	30	60	122	93	121	"	"	"	"					"	"	"	"					
192	30	60	119	91	120	24	70	70	60					24	60	60	50					
193	60	60	118	58	120	12	70	70	60					12	60	60	50					
194	120	90	197	96	117	"	"	"	"					"	"	"	"					
195	120	90	193	94	114	12	60	60	50					12	50	50	50					
196	240	90	189	92	113	"	"	"	"					"	"	"	"					
197	240	90	187	91	119	12	50	50	50					12	40	40	50					
198	240	90	198	97	141	"	"	"	"					12	50	50	50					End of line

Table 1.--Explosive charge and sonobuoy data for each shot point - continued.

Date 9-24-74	Line H (reversed)	Ship T. Thompson	Cruise I.D. TT-094	Area Gulf of Ala.	Lat. 59°37.0' N	Long. 143°39.5' W																
Sonobuoy 1	Water Depth (m) 130	Hydrophone Depth (m) 72	H. F. Filter 20-62.5 HZ	L. F. Filter 5-20 HZ	Course 275°	Speed (knots) 10																
Sonobuoy 2	Water Depth (m)	Hydrophone Depth (m)	H. F. Filter	L. F. Filter	Free floating buoys (2)																	
Shot No.	Charge				Water depth of shot (m)	Sonobuoy 1				Sonobuoy 2				Sonobuoy 1				Sonobuoy 2				Remarks
	Wt. (lbs)	Fuse Length (in)	Firing Time (sec)	Shot Depth (m)		Rec. Gain (db)	H.F. Atten. (db) ch. 1	L.F. Atten. (db) ch. 2	W.B. Atten. (db) ch. 3	Rec. Gain (db)	H.F. Atten. (db) ch. 4	L.F. Atten. (db) ch. 5	W.B. Atten. (db) ch. 6	Rec. Gain (db)	H.F. Atten. (db) ch. 9	L.F. Atten. (db) ch. 10	W.B. Atten. (db) ch. 11	Rec. Gain (db)	H.F. Atten. (db) ch. 12	L.F. Atten. (db) ch. 13	W.B. Atten. (db) ch. 14	
199	1	24	59	29	140	12	70	70	60					12	60	60	50					
200	1	24	59	29	142	"	"	"	"					"	"	"	"					
201	1	24	60	30	151	"	"	"	"					"	"	"	"					
202	1	24	58	28	157	"	"	"	"					"	"	"	"					
203	5	24	62	38	166	"	"	"	"					"	"	"	"					
204	5	24	58	35	170	"	"	"	"					"	"	"	"					
205	5	24	58	35	168	"	"	"	"					"	"	"	"					
206	5	24	60	37	173	"	"	"	"					"	"	"	"					
207	10	24	61	46	176	"	"	"	"					"	"	"	"					
208	10	24	58	44	165	"	"	"	"					"	"	"	"					
209	10	24	60	46	237	"	"	"	"					"	"	"	"					
210	20	24	60	46	370	"	"	"	"					"	"	"	"					
211	30	60	125	95	250	"	"	"	"					"	"	"	"					
212	60	60	138	67	208	"	"	"	"					"	"	"	"					
213	120	60	120	59	189																	
214	240	90	186	91	165	"	"	"	"					"	"	"	"					
215	240	90	175	85	148	"	"	"	"					"	"	"	"					Missed time break
216	240	90	183	89	143	"	"	"	"					"	"	"	"					
217	240	90	188	92	140	"	"	"	"					"	"	"	"					
218	240	90	188	92	136	"	"	"	"					"	"	"	"					

- Figure 2--Simple block diagram showing the configuration of seismic refraction transmission and recording system.

Figure 3—Simple diagram showing general shooting configuration.

Figure 4--Sample galvoscanner paper record.